



Virtual Internationalization in Higher Education

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Elisa Bruhn

Innovative Hochschule: digital – international – transformativ

Series Editors

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Series Description

The series ***Innovative Hochschule: digital – international – transformativ*** (Innovative University: digital – international – transformative) offers a platform for academic exchange in the field of higher education development. It addresses actors from higher education research, management and administration, as well as teaching staff. The series is characterized by three keywords:

- *Digital*: Contributions address digitalization processes in higher education curricula, academic cooperation, and administrative practice, as well as their implications for the respective stakeholders.
- *International*: Various perspectives on the dimensions of comprehensive internationalization of higher education institutions are discussed, with particular emphasis on innovative approaches.
- *Transformative*: Further transformations that higher education institutions undergo based on shifts in their self-conception, or in reaction to changes in their societal and political environment, are presented.

This series covers academic contributions, works that connect theory and practice, and theses. Publications can be of either empirical or theoretical-conceptual nature, and they can be composed in either German or English.

Elisa Bruhn

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No hay camino.
Se hace camino al andar.

ANTONIO MACHADO

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List of abbreviations

ACE	American Council on Education
CAQDAS	Computer-assisted qualitative data analysis software
CATA	Computer-aided text analysis
CI	Comprehensive Internationalization
CIGE	Center for Internationalization and Global Engagement
COIL	Collaborative Online International Learning
DAAD	Deutscher Akademischer Austauschdienst (German Academic Exchange Service)
EU	European Union
EUA	European University Association
HEI	Higher education institution
IaH	Internationalization at home
IAU	International Association of Universities
ICT	Information and communications technology
IO	International Office
IoC	Internationalization of the curriculum
KWIC	Key word in context
LMS	Learning management system(s)
MOOC	Massive open online course
ODE	Online and distance education
OECD	Organisation for Economic Co-operation and Development
OEP	Open educational practices
OER	Open educational resources
SPOC	Small private online course
TNE	Transnational education
UNESCO	United Nations Educational, Scientific, and Cultural Organization
VI	Virtual Internationalization

Note. Abbreviations that refer to organizations hosting conferences in the sample are on display in *Table A 2* in the appendix.

Reihenvorwort

Hochschulen weltweit befinden sich in dynamischen Entwicklungsprozessen, die Lehre, Forschung und Administration gleichermaßen umfassen. Sie müssen vielfältigen Herausforderungen und einem sich wandelnden politischen, sektoralen und gesamtgesellschaftlichen Umfeld Rechnung tragen. Forschung und Praxis gehen dabei Hand in Hand und bereichern und ergänzen sich wechselseitig. In diesem komplexen Gefüge strebt die Reihe *Innovative Hochschule: digital – international – transformativ* einen interdisziplinären Austausch, sowie die Dissemination innovativer Forschung und Praxis an.

Beiträge in dieser Reihe bewegen sich auf dem gesamten Spektrum der Transformation von Hochschulen und adressieren diese auf der Systemebene, der Ebene der Institution oder der des Individuums. Vielfach ist hierbei die Digitalisierung in Lehre, Forschung oder Administration ein zentraler Aspekt – sei es in der Veränderung von Lehr- und Lernsettings oder von Formen des akademischen Austauschs und organisatorischen Arbeitsweisen. Auch die internationale Dimension von Hochschulen ist ein wesentlicher Schwerpunkt in den präsentierten Themen dieser Reihe, wobei die gesamte Bandbreite aktueller Perspektiven auf Internationalisierung Eingang findet – inklusive beispielsweise der Internationalisierung zu Hause, Dekolonialisierung von Hochschulen, oder dem Nutzen virtueller Möglichkeiten für die Internationalisierung. Über diese Kernthemen hinaus lädt die Reihe dazu ein, die innovative Hochschule auch anhand weiterer Perspektiven und Schwerpunktsetzungen zu betrachten, über welche Transformationsprozesse angestoßen und realisiert werden.

Die Reihe richtet sich an Akteur*innen aus Hochschulforschung, Hochschulmanagement und -administration, sowie an Lehrende. Sie lädt ein zu einer kritischen Auseinandersetzung – sowohl mit dem Selbstverständnis von Hochschulen, als auch mit den Möglichkeiten und Herausforderungen, denen Hochschulen heute gegenüberstehen. Als Herausgeberinnen der Reihe streben wir an, gemeinsam mit den veröffentlichenden Autor*innen neue und interessante Perspektiven auf die sich wandelnde Hochschullandschaft abzubilden und hierüber innovative Forschung und Praxis zu verbinden.

Series Preface

Across the world, higher education institutions find themselves in a dynamic process of change, which encompasses teaching, research and administration. They have to stay abreast of diverse challenges and a changing political, sectoral, and societal environment. In this context, research and practice go hand in hand; enriching and complementing each other. Within this complex framework, the series *Innovative Hochschule: digital – international – transformativ* strives for interdisciplinary exchange as well as the dissemination of innovative research and practice.

Contributions in this series range through the complete spectrum of the transformation of higher education institutions and address this process on the system level, the institutional level, and on the individual level. In many cases, the digitalization of teaching, research or administration is a central aspect – whether in the change of teaching and learning settings or in forms of academic exchange and organizational processes. The international dimension of universities also forms a substantial focal point in the themes presented in this series, incorporating the entire bandwidth of current perspectives on internationalization – including, e.g., internationalization at home, the decolonization of universities or the benefits of virtual possibilities for internationalization. Further to these central themes, this series invites contributions that consider additional processes within the higher education landscape.

The series addresses actors from higher education research, management and administration, as well as teaching staff. It invites the reader to a critical analysis – not only of the self-perception of higher education institutions but also of the possibilities and challenges which they face today. Together with the publishing authors in this series, we, as publishers, strive to depict new and interesting perspectives of the ever-changing landscape of higher education and to link innovative research and practice.

Foreword

The definition that Elisa Bruhn provides for virtual internationalization in higher education reads as

Virtual Internationalization at the national, sector, and institutional levels is defined as the process of introducing an international, intercultural, or global dimension into the delivery, purpose or functions of higher education *with the help of information and communications technology (ICT)*. (Bruhn, 2020, based on Knight, 2003, p. 2, – modifications italicized.)

While this might look simple at first sight, the underlying concepts of digitalization, virtuality and internationalization that Bruhn disentangles and reassembles under this label are not. Not often have these concepts grown fuzzy over time, but also a theoretical discussion of their mutual involvement has been lacking until now. A thorough and attentive theoretical basis that unites different strands of discourse and substantiates research is provided in this contribution. It is one of the strong points of this work that it goes beyond the mere notion of virtual mobility and the level of teaching and learning – which are often the focal areas when talking about digital and virtual means in higher education internationalization – and draws on a number of dimensions and stakeholders across organizational entities of higher education institutions. Using the generally accepted definition by Jane Knight as well as the concept of *comprehensive internationalization*, the analysis presented in this volume integrates into the long-standing discussion of internationalization while taking the thinking further. Both internationalization and digitalization have permeated higher education over the past decades and become veritable buzzwords in more recent times, with comparably few scholars starting to research their nexus, potentials, or their pitfalls.

There could not have been better timing for the contribution that *Virtual Internationalization in Higher Education* makes to the scientific community, to campus administrators and everyone else who wants to delve into the complexities of the digital, the virtual, and the international in higher education. Against the backdrop of the Covid-19 crisis – that hardly any scholarly endeavor in the education field can be thought unaffected by from 2020 onwards – this volume has analyzed and anticipated both possibilities and potentials on a broad scale, long before they were considered in global practice and discussion due to these unprecedented circumstances.

Castells' (2010) argument that the virtual is real and that which Elisa Bruhn puts forward in her discussion of what virtual internationalization is, proves true in these times and is shown in the manifold situations in which internationalization is now pursued: online distance teaching for domestic and international students, academic conferences held online with global participation and substantial discussion on which digital and virtual elements will be kept for future academic practice and

mobilities. With a radical and unexpected swing to online practices in internationalization due to the necessity of the present moment, it can be assumed that once the situation is leveled out again, Elisa Bruhn's prediction: "The future of internationalization is hybrid" will have become reality – but by choice.

Virtual Internationalization in Higher Education thus provides important groundwork for higher education institutions that are embarking on the transformation from newly tried ad hoc responses and isolated virtual internationalization efforts to future-oriented strategic approaches. As the first volume published in the series *Innovative Hochschule: digital – international – transformativ*, it also sets the scene for other volumes to follow.

Svenja Bedenlier
Tanja Reiffenrath

Abstract

Digitalisierung und Internationalisierung sind zwei zentrale Trends, die Hochschulen heutzutage beschäftigen. Die Potenziale von digitalen Medien und von Informations- und Kommunikationstechnologie (IKT) für die Internationalisierung werden in diesem Zusammenhang bereits vielerorts genutzt – beispielsweise in curricularen Projekten interkulturellen Online-Austauschs („virtuelle Mobilität“), in Online-Studiengängen mit globalen Zielgruppen, oder als virtuelle Ergänzung des Lehrprogramms in transnationaler Bildung (TNB). Bislang fehlte jedoch eine ganzheitliche Betrachtung der verschiedenen IKT-basierten Mittel und Maßnahmen, die in diesem Zusammenhang eingesetzt werden. Auch war wenig bekannt, welche Ziele und Funktionen an Hochschulen konkret mit dem Einsatz von IKT in Kontexten mit internationalem Bezug verfolgt werden.

Hier setzt die vorliegende Arbeit an. In ihr wird der Begriff Virtuelle Internationalisierung (VI) vorgestellt und für alle Zusammenhänge, in denen IKT in einer internationalen Dimension in der Hochschulbildung verwendet wird, konzeptionalisiert. Diese umfassen neben Curricula (z. B. „virtuelle Mobilität“) auch internationale Kooperationen (z. B. für die TNB) sowie den Bereich des Fernstudiums (z. B. globale Online-Studiengänge). Die Rolle von Hochschulstrategien, Administration und Management sowie Lehrpersonal ist in diesem umfassenden Verständnis von VI ebenfalls enthalten. Basis für diese Konzeptionalisierung ist das Modell der „Comprehensive Internationalization“ (CI, deutsch etwa: umfassende Internationalisierung).

Bezug nehmend auf die Konzeption „realer Virtualität“ von Manuel Castells wird Virtualität in der vorliegenden Arbeit als inhärenter Aspekt der Realität verstanden: Erfahrungen im virtuellen Raum sind demnach ebenso real für die Person, die sie wahrnimmt, wie Erfahrungen im physischen Raum. Analog hierzu wird virtuelle Internationalisierung als immanenter Aspekt von Internationalisierung verstanden, nicht als additive Ergänzung.

Um den Begriff VI konzeptionalisieren zu können, musste eine solide und aussagekräftige Datenbasis gefunden werden, welche die Spannweite des Konzeptes umfassend beleuchtet. Eine Herausforderung war die Tatsache, dass das Phänomen der VI zum einen in verschiedenen organisatorischen Einheiten von Hochschulen zu finden ist und sich zum anderen in verschiedenen Stadien der Institutionalisierung befindet (von ad hoc zu strategisch).

Als geeignete Datenquelle wurden die fachlichen Beiträge zu internationalen Konferenzen aus relevanten Fachgebieten identifiziert. Hierbei wurden als Stichprobenrahmen Konferenzen aus dem Hochschul-Internationalisierungs- und aus dem Online- und Fernstudiums-Bereich ausgewählt. Darüber hinaus wurden einige generalistischere (oftmals strategische) Konferenzen aus Hochschulmanagement und -forschung, sowie Konferenzen aus ausgewählten Fachdisziplinen herangezogen.

Für die Stichprobe wurden aus den Tagungsbänden dieser Konferenzen diejenigen Beiträge (Titel und Abstracts) extrahiert, in denen eine Verbindung von IKT und einem internationalen Bezug nachweisbar war. Der Methodik der Inhaltsanalyse (Content Analysis) nach Krippendorff folgend, wurden zwei methodisch klar voneinander abgrenzbare Ansätze für die Analyse gewählt: computer-assistierte Inhaltsanalyse (computer-aided text analysis, CATA), sowie inhaltliches Coding, basierend auf einem durch die Forschungsfragen geleiteten Coding-Schema. In der Kombination beider Ansätze ließen sich vier Teilfragen zu verschiedenen Aspekten der VI beantworten: Was sind ihre 1) Konzepte und Themen, 2) Mittel und Maßnahmen, sowie 3) Ziele und Funktionen? Und wie kann 4) ein konzeptionelles Modell virtueller Internationalisierung für die Hochschulbildung aussehen?

Zunächst konnten diverse VI-relevante Konzepte und Themen in der Stichprobe nachgewiesen werden. Diese betrafen u. a. strategisches Handeln, das Lehr- sowie das administrative Personal, curriculare Aspekte, sowie das Themenfeld der „Openness“. Die Mittel und Maßnahmen, über die in der Stichprobe berichtet wurde, waren ebenfalls vielfältig, und unterschieden sich je nach Bereich der VI, in dem sie angewendet wurden. Darunter waren die sozialen Medien mit Hauptanwendungsfeld in der physischen Studierendenmobilität und virtuelle TNB-Angebote in Kollaborationen und Partnerschaften sowie in der Fernlehre. Im Bereich Curriculum ließ sich darüber hinaus eine Vielfalt an eingesetzten Online-Medien und e-Learning-Angeboten nachweisen, während IKT für Administration und Lehrpersonal hauptsächlich in der Personalentwicklung eingesetzt wurde. Die Ziele und Funktionen, die in der Analyse identifiziert wurden, flossen in das im Folgenden skizzierte Modell der VI ein, für das sich das Modell der CI als geeignete Basis herausstellte.

VI konnte für alle Bereiche des CI-Grundmodells nachgewiesen werden. Die Verbindung von IKT und einer internationalen Dimension wurde in der Stichprobe diskutiert für die Bereiche: Strategie/institutionelle Selbstverpflichtung; administrative Führung, Struktur und Personalbesetzung; Curriculum, Co-Curriculum und Lernerfolg; Lehrpersonal-Policies und -praktiken; physische Studierendenmobilität; sowie Kollaborationen und Partnerschaften.¹ Auf Grundlage der Untersuchungsergebnisse wurde das Modell der VI jedoch modifiziert und erweitert: Das (ausschließliche) Online- und/oder Fernstudium wurde in bisherigen Internationalisierungs-Modellen nicht als gesonderter Bereich angesehen, sondern einzelnen Kategorien als Sonderfall untergeordnet. Im Modell der CI ist Online- und Fernstudium unter dem Aspekt der virtuellen TNB im Bereich Kollaborationen und Partnerschaften zu finden. In Anbetracht dessen, dass Online- und Fernstudium nicht zwangsläufig Kollaborationen mit internationalen Partnern benötigt, um Studierende aus anderen Ländern anzuziehen – oder um heimische Online- und Fernstudiumsangebote zu internationalisieren – erschien dies jedoch zu kurz gegriffen, um VI in einem umfassenden Verständnis zu berücksichtigen. Aus diesem Grund bein-

¹ Terminologie im Original: articulated institutional commitment; administrative leadership, structure, and staffing; curriculum, co-curriculum, and learning outcomes; faculty policies and practices; physical student mobility, collaboration and partnerships.

haltet das Modell der VI eine zusätzliche Kategorie mit dem Namen Online- und Fernstudium (online and distance education).

Eine weitere Ergänzung des Modells betrifft die Unterscheidung zweier Dimensionen von VI. Die erste Dimension betrifft den engeren Zusammenhang zwischen IKT und Internationalisierung und beschreibt, wie IKT genutzt wird, *um zu internationalisieren*, oder um den Herausforderungen internationalisierter Kontexte zu begegnen. Die zweite Dimension stellt dar, wie IKT in Verbindung mit einer internationalen Komponente verwendet wird, um *allgemeinere Ziele* zu erreichen. Beide Dimensionen wurden nicht exklusiv konzipiert: IKT kann beispielsweise eingesetzt werden, um interkulturelle Kompetenzen bei Studierenden zu fördern – wobei allgemeinere Ziele wie eine spätere Arbeitsmarktfähigkeit bereits mitgedacht sein können. Während in der Praxis Ziele aus beiden Dimensionen miteinander verschwimmen, ging es in der vorliegenden Arbeit darum, sie analytisch zu trennen, um ihre verschiedenen Foki aufzuzeigen.

Die vorliegende Arbeit bietet Forscherinnen und Forschern eine Basis, um sich in einem umfassenden und analytischen Sinne mit dem Zusammenhang von Digitalisierung, IKT und Internationalisierung in Hochschulen zu beschäftigen. Für Praktikerinnen und Praktiker in Administration und Lehre bietet sie Ansatzpunkte, um die Vielzahl von Möglichkeiten, die IKT für internationales Handeln bietet, mit ihren eigenen Kontexten in Bezug zu setzen und diese für sich nutzbar zu machen.

1 Introduction

1.1 Background of the study

International studies rank internationalization and digitalization among the most important trends in higher education today. The European University Association (EUA) Trends 2018 report (Gaebel, Zhang, Bunescu, & Stoeber, 2018) identifies both digital learning² and internationalization as central to strategies in higher education institutions (HEIs) in Europe. The “Internationalisation of Higher Education” study, commissioned by the European Parliament, identifies digital learning among the ten key trends in national strategies for internationalization (de Wit, Egron-Polak, Howard, & Hunter, 2015, p. 27). In the USA, the American Council on Education (ACE) includes a discussion of digital technology in the “Mapping Internationalization on U.S. Campuses” report (Helms & Brajkovic, 2017, p. 18). The British Council (2017) also ranks both educational technology and internationalization among the ten areas in higher education in which to expect “transformative changes”.

Scholars and professionals in higher education agree that profound societal changes related to digitalization are transforming higher education, labeling them as the “digital turn” (Börner, Schaarschmidt, Meschzan, & Frin, 2016, p. 11; Hochschulforum Digitalisierung, 2017; Kergel & Heidkamp, 2018), “digital transformation” (Orr, Weller, & Farrow, 2018, p. 41; Shapiro, Ostergaard, & Roccaro, 2016, p. 14; Zawacki-Richter & Latchem, 2018, p. 147), or even, “digital revolution” (Bischof & von Stuckrad, 2013; de Wit, Egron-Polak, et al., 2015, p. 30; European Commission, 2018, p. 1; Tait, 2014, p. 5; Weller, 2011, p. 168).

Digitalization has permeated all of higher education (cf. e.g., Adams Becker et al., 2017; Bischof & von Stuckrad, 2013; Hochschulforum Digitalisierung, 2017; Kergel, Heidkamp, Telléus, Rachwal, & Nowakowski, 2018). It was therefore to be expected that it has also affected internationalization discourse and practices. The current digitalization wave has led to a new direction in the discourse, with terms such as “Bologna Digital” (Orr, van der Hijden, Rampelt, Röwert, & Suter, 2018) and “virtual Erasmus” (EADTU, 2010; European Youth Portal, 2018) impacting the scene, while the International Virtual Exchange Conference³ in the USA attracts hundreds of delegates each year (SUNY COIL Center, 2019).

While the discussion on how digitalization and internationalization are connected in higher education has reached a new high in recent years, it is not quite as new. As early as 1998, the International Association of Universities (IAU) regarded technological advances in communications as “powerful instruments which can

2 The terms “digital learning”, “digital technology” and “educational technology” all designate different aspects of digitalization, as will be further explored in Chapter 2.1.

3 formerly COIL conference

serve to further internationalization of higher education” (as cited in Thune & Welle-Strand, 2005, p. 597). The idea of “virtual mobility” in higher education was introduced by Wächter (1999) who, in 2002, predicted that a “virtual shift in education” would make learning independent of place and time, new educational opportunities abound, and choice “almost borderless” (Wächter, 2002, p. 7). And in 2005, Thune and Welle-Strand (2005) found that information and communications technology (ICT) was being used in transnational education (TNE) and to support other international activities: marketing and recruitment, the administration of student exchanges, and the introduction of international perspectives in home campus activities (pp. 604–606). Despite the potentially broad application of ICT in internationalization processes and activities, Gaebel, Kupriyanova, Morais, and Colucci (2014) found that “the advantages of e-learning for internationalisation have not yet been fully explored” (p. 47) in scholarly research. This evaluation mirrors that of Thune and Welle-Strand (2005) from a decade before that there is little information on the actual uses of technology for internationalization in general (p. 608).

While both digitalization and internationalization are recognized as key trends in higher education, research on the combination of the two is in fact dispersed and has been difficult to overlook to this date. For this reason, this research seeks to systematize the variety of approaches towards combining ICT and an international dimension in higher education – conceptualized as Virtual Internationalization (VI). The term is based on the concept of “real virtuality” by Manuel Castells (2010, p. xxxi) who interprets virtuality not as an (inferior) opponent to some kind of real (i.e., physical) reality, but as an intrinsic, fundamental dimension of it.

Rooted in these theoretical underpinnings, VI is conceived as an integral part of the broader internationalization concept. In the “increasingly hybridized everyday life” (Castells, 2010, p. xxix) of HEIs, ICT is so intertwined with other forms of international activities and processes, so embedded in institutional routines (Thune & Welle-Strand, 2005, p. 604) that few scholars have yet embarked on analyzing the interplay of ICT and an international dimension systematically.

1.2 Purpose of the study and research questions

Rumbley and Proctor (2019) proclaim that “the need for attention to new topics in relation to internationalization is acute, and broader exploration of the landscape around us requires sustained attention and support” (p. 8). In the realm of VI, previous research has only provided “a crude simplification” (Thune & Welle-Strand, 2005, p. 604) concerning the roles of ICT in international processes and activities. I follow Thune and Welle-Strand (2005) in their assessment that there is a need to analyze practices combining ICT and an international dimension at the institutional (meso) and program/course (micro) levels of higher education, and to question the “untested but popular assumptions as to the radical impact of technology” (p. 609) in this realm. This research attempts to close a longstanding gap in the literature (as

discussed in depth in Chapter 3) by providing a conceptualization of VI, thus contributing to the highly topical scholarly discourses of both digitalization and internationalization in higher education.

The purpose of this research is to identify the different ways in which higher education combines the virtual and the international, and to develop a comprehensive model of VI. The resulting research question is: *In what ways and for what purposes are ICT and an international dimension combined in higher education, and how can these uses be conceptualized and structured in a conceptual model?* This research question is subdivided into four partial questions to allow its operationalization:⁴

- Q1. What are the common **concepts and themes** in the discourse when ICT and an international dimension are combined?
- Q2. What are the common **means and practices** combining ICT and an international dimension?
- Q3. What **aims and functions** does the combination of ICT and an international dimension have?
- Q4. What can a **conceptual model** of VI for higher education look like?

Of these, Q1 positions the phenomenon of VI within its broader discourse: What are the frequent terms and concepts? What are the general themes, topics, and priorities surrounding it? As the term “discourse” indicates, Q1 also asks for the locus of VI within the broader higher education context and its discourses. The research focuses on two aspects: geography (i.e., where in the world VI phenomena are most discussed), and its disciplines/fields (i.e., in which research fields VI is most discussed). While Q1 does not directly inform the conceptual model of VI, it specifies its validity (see Chapter 4.9.1).

Q2 then explores the means and practices employed to address the *how* (“in what ways”) of VI: What technological tools and devices are used, and in what ways? The item consists of the two aspects of means and practices, the former referring to tools themselves (e.g., a social media platform, a learning management system (LMS), or a serious game), while the latter addresses applications of use (e.g., bringing domestic and international students together on social media virtual spaces, putting OER on an LMS, or integrating a serious game into the preparation for a study-abroad program).

Q3 focuses on the exploration of aims and functions and addresses the *why* (“to what ends”) of usages of ICT in international dimensions in higher education. The term “aim” commonly refers to abstract goals (“a desired outcome; an end aimed at; an objective; a goal; a purpose; an intention” (Aim, 2012)). For instance, in the case of this research, such aims may consist in capacity building or pedagogical innovation. The term “function”, on the other hand, generally designates more concrete goals or fixed roles (“an activity or mode of operation that is proper or natural to a person or thing; the purpose or intended role of a thing (Function, 2017)). For example, such a function could be the recruitment of international students.

4 Note that each of these questions is applied to the higher education context only.

Consideration of the interplay between practices and functions is necessary to develop a comprehensive understanding of VI: Knowledge of the means and practices is crucial to tell how ICT is used in VI. On the other hand, knowledge of the aims and functions is key to comprehending VI and its objectives.

Finally, Q4 addresses the development of the conceptual model of VI. A conceptual model, as defined by Rapley (2014), makes “good sense of all the ‘variance’ of the phenomenon” (p. 59), while integrating cases that appear deviant. The model of VI thus provides a comprehensive picture of the varied forms in which the virtual and the international are combined in higher education.

1.3 Composition of the study

I start by providing the theoretical underpinnings of this research (Chapter 2). This chapter both deepens the discussion on digitality vs. virtuality and provides further insight into the relationship between internationalization and digitalization in higher education. The chapter ends by defining VI using the theoretical foundations consulted.

The literature review (Chapter 3) explicates the discourse around VI and related terms, and presents the concept of Comprehensive Internationalization (CI) as the base model for this research. It then reviews literature with relevance to VI on all of the components of CI, before asserting the state of research on VI.

Chapter 4 presents the methodology. After discussing potential methodological approaches, the choice of content analysis methodology is explained, together with the data base around which it was centered. Following the steps proposed by Krippendorff (2013), the processes of unitizing, sampling, recording, reducing data, and inferring that have been respected in this research are presented. Central to this research is the data base of conference abstracts, which has been scrutinized with both coding and computer-aided text analysis (CATA). The chapter closes with a discussion of the validity and reliability of the research at hand.

Chapter 5 displays the results of the content analysis process. It starts by outlining the *big picture* of the analysis, thus allowing the determination of global results: How is the corpus composed regarding the geography of presenters, field, and year of conferences? Who are the priority target groups and participants of measures discussed? What concepts and themes, means and practices, and aims and functions are examined?

Afterwards, the tentative first model of VI, based on the model of CI and on results from the global analysis, is provided. To test the fit of this conceptual model for addressing the research question and to substantiate it with contents, results from the analyses of aspects pertaining to the categories of VI are presented. These results represent the backbone of this research, detailing categories and dimensions in which VI is found, and means/practices in addition to aims/functions of its usages.

Chapter 6 presents a discussion of the results: Concepts and themes, means and practices, and aims and functions are revisited and considered in their broader contexts within the VI discourse. These results serve as the foundation for the development of the conceptual model of VI. The methodology, including its advantages and limitations, is reexamined.

In Chapter 7, key findings of this research and implications for the broader internationalization discourse are evaluated. This research closes with considerations of the value of VI, in addition to recommendations for practice and future research.

2 Theoretical foundations

This research springs from two phenomena in higher education that have traditionally existed in different spheres: digitalization, as manifest in digital technology, and internationalization. This chapter embeds both of them in their broader contexts, while centering on the intersection of the two that is at the focus of the study at hand.

2.1 Digital technology and virtuality

Digital technology and the Internet have penetrated all areas of life and society in recent years. They have transformed the ways we obtain information, purchase goods, or drive our cars (cf. e.g., Bunz, 2014). Scholars have compared the invention of the computer on a parallel with the inventions of language, writing, and printing in terms of their impact on society – facilitating “the next society” (Drucker, 2001; cf. also Baecker, 2007). Society communicates and connects in different ways than generations past:

Technology . . . changes what being in the world is in a fundamental philosophical as well as in a political way. Society shifts as we gather around machines in new ways that connect us and another differently and according to new patterns: we are different in the world and amongst each other. We restructure. (Bunz, 2014, p. 60)

In the top-down, one-to-many structure of the mass media of the past (e.g., television, newspapers), as identified by Marshall McLuhan, media producers more or less determined what information people in a society could obtain, and how they could do so (cf. Castells, 2010, pp. 358–359). According to Castells (2010), in the “emerging horizontal social spaces” (p. xxvii) on the Internet, however, social media facilitate many-to-many *mass self-communication*: News and information transmission are being democratized by blogs, vlogs, podcasts, wikis, SMS, etc. (Castells, 2010, pp. xxvii–xxviii). As communication on the Internet and in virtual communities is on the rise, virtuality does not constitute a *parallel universe* in detachment from the offline or “real” world, but is instead “integrated with other forms of interaction in an increasingly hybridized everyday life” (Castells, 2010, p. xxix). An amalgam of material, social and virtual spaces thus mark the everyday experience, suspending the difference between lifeworld and mediated environment [Husserl: *Lebenswelt* and *Medienwelt*] (Grell, Marotzki, & Schelhowe, 2010, p. 7). This integration of virtual with analog spaces corresponds to the centuries-old conceptualization of the virtual (a term first recorded in 1654) as “being something in essence or effect, though not so formally or in name” (Virtual, 1995, p. 862). This definition has been superposed with the (digi-

tal) technology-centric view of the virtual as “not physically present as such but made by software to appear to be so from the point of view of a program or user” and as “established or conducted using computer technology” (Virtual, 2013). However, there is no reason the invention of digital technology should have erased the broader meaning of the term. In Castells’ line of argumentation, “technology is society” (Castells, 2010, p. 5), in the sense that the technological tools which a society uses are interwoven with the society itself. While some scholars contest this proclaimed unity of technology and society (including those cited in the following), there is consent about technology being a force “we live with” (Bunz, 2014, p. 59), a “phenomenon with a certain functional character which it imposes on society” (Walter Benjamin, 1936, p. 490, paraphrased by Bunz, 2014, p. 59), and which shapes the relations between humans and their world (Verbeek, 2005). Bunz (2014) calls technology a “second nature” (p. 50). In this line of argumentation, the Internet and digital technology are not detached from the “real” physical world. Instead, virtuality is *real*, and our culture has embraced it in the form of *real virtuality*. Castells notes that:

A new culture is forming, the culture of *real virtuality*, in which the digitized networks of multimodal communication have become so inclusive of all cultural expressions and personal experiences that they have made *virtuality a fundamental dimension of our reality* [emphasis added]. (Castells, 2010, p. xxxi)

Castells introduces the term “real virtuality” in response to the pervasive term “virtual reality”. In his view, the latter is often misunderstood as an opposite of *real reality* outside of digital spaces. Instead, for scholars following Castells’ line of argumentation, virtual reality is just as real as physical reality (cf. e.g., Grell et al., 2010, p. 7).

In the interplay between online and offline components of communication, the analog does not disappear, yet is contextualized differently – and, according to some scholars, *augmented* (Stalder, 2016, p. 14). “Das Analoge wird immer digitaler” [the analog is becoming ever more digital] (Stalder, 2016, p. 76), or, as Castells puts it, “the grid of electronic communication overlies everything we do, wherever and whenever we do it” (Castells, 2010, p. xxx). An example exists in *augmented reality* applications where digital information is superposed over the surroundings in the physical world, thus creating a *hybrid* experience of analog and digital (cf. de Witt & Gloerfeld, 2018 for the higher education context).

Following the line of argumentation established in this section, just as virtual reality is not to be understood as a parallel, or second-rate reality, VI designates an integral part of internationalization – in Castells’ sense of *real virtuality*. Before elaborating further on the term VI, I lay further foundations for its comprehension by exploring two key phenomena which VI is based on. These are a) digitalization, and b) internationalization of higher education. While Chapter 2.2 explores the connection of digital technology and higher education in general, Chapter 2.3 establishes the analytical connection between internationalization and digitalization in higher education, which forms the main theoretical foundation for the research at hand. Finally, Chapter 2.4 provides the definition and conceptualization of VI.

2.2 Higher education and digitalization

2.2.1 Digitalization and virtualization in higher education

Real virtuality and the hybridization of virtual and analog practices has reached higher education, where scholars have proclaimed “the digital turn” (e.g., Hochschulforum Digitalisierung, 2016; Kergel et al., 2018). In the scholarly book “The Digital Turn in Higher Education” (Kergel et al., 2018), Rachwal (2018) posits: “One important aspect of our time seems to be the hybridization of the digitized and the analog worlds in which digitalization may well be seen as constructive of ourselves” (p. 28). In this line of reasoning, students and faculty become metaphoric “cyborgs” (Haraway, 1991; Rachwal, 2018, p. 28), i.e., hybrids of human and avatar. The OECD notes in its 2019 edition of “Trends Shaping Education”:

When virtual becomes reality

The Internet has become an integral part of our lives. Many common activities that once required physical contact or social interaction are now carried out online, such as talking to family and friends or consulting a doctor. But digital is no virtual ‘second life’. It is increasingly an integral part of our physical reality. Whether it’s a job, a room for the night, or the love of your life, online activity often translates into offline outcomes. This challenges the education system, which must take advantage of the tools and strengths of new technologies while simultaneously addressing concerns about potential misuse, such as cyberbullying, loss of privacy or illegal trade in goods. (OECD, 2019, p. 98)

Scholars who have observed the emergence of mobile and e-learning now embrace the idea of “embedded virtuality” (Weiser, 1991) as an integrated dimension of learning in higher education: “Contemporary E-Learning dissolves in a mobile learning which is embedded in an augmented reality. . . . From this perspective, E-Learning is not an ‘add on’, but a new media dimension within learning processes” (Heidkamp & Kergel, 2018, p. 41). This way, analog places take on new pedagogical meaning – for instance, cafés become common places of learning (Alexander, 2004, p. 31).

Scholars thus envision “radically enhanced pedagogies” and possibilities “that we can only begin to guess” with digital media (Dron, 2014, p. 260). They regard information technologies as “game changers” (Oblinger, 2012) and recommend the redesign of the education system to tap the opportunities offered via ICT (Sendov, 1997, p. 418). By analogy to the notion of technology as society (Castells, 2010) and to the aforementioned cyborg concept, Sendov (1997) suggests that we regard “the subject of education as not simply the student, but a student equipped with a microcomputer” (p. 418). An account from practice in the U. S. shows how the digitalized educational landscape changes teaching and learning:

Professors are expected to model innovative intellectual inquiry. Even on my discussion-based, brick-and-mortar campus, it seems as if every week there is an email about another training session for the latest platform to make teaching more ‘streamlined’ and ‘efficient.’

We can now teach classes without using a single sheet of paper if we have the know-how to upload readings, purchase e-books, download student assignments, and give audio feedback. We can record our lectures, flip our classrooms, and hold office hours online. (Whitaker, 2018)

Digitalization in higher education does not only affect teaching and learning, but rather its entire organization, affecting academics, administrators, and other professional staff (Selwyn, 2014, p. 7), in what I suggest may be coined *comprehensive digitalization*. A special edition of “The Chronicle of Higher Education” published on April 13, 2018, titled “The Digital Campus. The Robot Has Arrived”, discussed applications as diverse as computerized grading tools, student data mining, machine translations for international students, and open research data. In that same journal, artificial intelligence was presented as one of the big current trends on campuses, expanding to applications in support services. This example indicates that the discourse around digitalization and virtuality has reached massive interest among HEI professionals – far beyond IT departments.

While not all such enthusiastic future visions will become a widespread reality, with hype and speculation pervading the discussion (Selwyn, 2014, p. 5), digitalization has permeated higher education in a way that “the nature of what it is they do during the course of their professional lives” (Selwyn, 2014, p. 55) has changed for students, faculty, administrators and support staff alike. Selwyn (2014) argues that digital technologies are so intertwined with higher education they are “part of the everyday furniture of universities rather than an exotic novelty” (p. 7). Digital practices are “business as usual” (Weller, 2011, p. 6), and cyberspace has changed how academic identity is constructed (Sokol, 2012). Schuster and Finkelstein (2006) observe that:

Of the two most significant developments in recent years that have been reshaping academic work and careers, one is obvious and ubiquitous: the technological revolution that permeates the academy. Its effects already are profound. Furthermore, instructional technology indisputably will continue to transform how academic work is done and, though less obviously, will affect significantly how academic careers are constructed. (p. 191)

The authors attribute technology a profound role transforming academia as early as 2006. Ten years later, they attested technology an even larger significance, regarding it as the most important dimension transforming the work of faculty (Finkelstein, Martin Conley, & Schuster, 2016, p. 12). Selwyn (2014) also notes that digital technologies have become integral elements of all core functions of academia, including teaching, research, public engagement, and private scholarship (p. 61). Concerning the role of digital technology for research,⁵ he adds:

Digital technologies have had a profound effect on the processes and practices of academic research – from the generation and collection of data; the ways in which data are ‘mined’, organized, stored, analysed and represented; the ways in which research findings are communicated; as well as the collaboration of different researchers around the world. (p. 61)

⁵ While the study at hand does not deepen the discussion on the role of digitalization for scholarly research practices, a few key aspects of this topic are mentioned here for embedding this research in the broader higher education context.

Information technology has thus extended beyond its traditional borders within the sciences to reach the humanities, making digital humanities proliferate (cf. e.g., BMBF, 2015; Mandal, 2017; Schreibman, Siemens, & Unsworth, 2016).⁶ Another aspect of the digitalization of academic work is electronic (including open access) publishing, which has started a new era in publishing culture (Jaakkola, Aramo-Immonen, Henno, & Mäkelä, 2016, p. 1030). Martin Weller goes one step further: In his interpretation, research practice is not only changing in the confined realm of methodologies applied by scholars to answer research questions, and in new ways to publish their findings. Instead, the emergence of the “digital scholar” brings with it practices of “sharing” and “openness” – and a new “state of mind” for the scholars who are using them (Weller, 2011, p. 7). Scholars collaborate and share their data, participate remotely in conferences, and contribute to open digital practices: In Selwyn’s words, for Weller, “the digital scholar is well connected, always curious, with a ‘default’ predilection to share over a range of informal and formal channels” (Selwyn, 2014, p. 64). The proliferation of digital research infrastructures has contributed to this development (cf. e.g., Barjak et al., 2010; Benderly & Kent, 2014; BMBF, 2013; ESFRI, 2016).

Selwyn (2014) calls for moderation regarding far-reaching extrapolations of individual (or in some cases, discipline-specific) digital practices to all of academia:

A sizable body of writing and commentary has argued to the contrary of Weller’s portrayal of the ‘digital scholar’ – pointing instead to the fundamentally divisive ways that digital technologies actually act to impinge on the lives and freedoms of academic workers. (p. 65)

The networked scholar who shares all of his or her thoughts and data, in this view, is not the only new model for being a faculty member in the digital era. Open practices co-exist with more closed ones, the latter of which may even remain the majority.

Beyond academe, “digital labour” (Selwyn, 2014) also extends to administration and support structures in HEIs. Selwyn (2014) notes:

In many universities, it is expected that a student or academic can fulfill all of the administrative requirements of their university through virtual portals, online proformas and email. Of course, these tasks still involve behind-the-scenes human involvement, yet this takes place at a distance and on an asynchronous basis. A librarian still has to retrieve the returned books and relocate them on the shelves. A finance officer still has to approve and process the expense claim forms. These are not roles that have been completely automated, although the nature of the work (and therefore the professional role) has clearly shifted. . . . The crucial issue here is how these digital systems now mediate much of the work of these professional staff, thus further contributing to ‘invisibility of their work’. (p. 58)

Thus, while job positions remain in place, the day-to-day tasks are transformed for large parts of administrative staff who have more flexible working practices, shared

6 Fittingly, the research at hand contributes to the *digital humanities*.

access to resources, and are involved in collaborative work. The nature of communication has shifted, and it has created a “reliance on digital technologies” as in “any other modern information and knowledge-oriented organization” (Selwyn, 2014, p. 57).

Critique towards enthusiastic accounts of the digitized futures of universities is abundant – see, for example, the twenty portraits of “warners, sceptics, scaremongers, apocalypticists” in Peters (2013) – and not restricted to scholarly research, but extending to popular literature (e. g., Deimann, 2014; Himmelrath, 2018; National Forum for the Enhancement of Teaching and Learning in Higher Education, 2014). Nonetheless, it is uncontested that digital technology will continue to play an important role in HEIs: Peters (2013) notes about the authors in his edited book that “none of the twenty critics wants to obstruct or reverse the digital development. Each of them regards the social change caused by digitalization as unstoppable and irreversible” (p.12). However, scholars have yet to determine all outcomes of the “digital turn”: “Despite the rhetoric to the contrary, the use of digital technology within universities is not a straightforward issue that will unfold inevitably over the next few years. Instead, there is much to discuss, debate and disagree about” (Selwyn, 2014, p. 7).

As early as 1927, Walter Benjamin acknowledged the revolutionary potential of any kind of technology, and highlighted the importance of human agency and of the “social interpretation of technology” (Benjamin, 1927, p.45, as cited in Bunz, 2014, p. 61). Following Benjamin, Bunz (2014) argues in favor of purposefully shaping practices of technology use in the digital age: “Digitalization allows us to create a different future. It will become what we make of it” (p.115). In fact, different scholars mention the need to evaluate chances and risks of the digital (r)evolution (Bischof & von Stuckrad, 2013) and to empower actors in HEIs to make informed decisions when shaping the future of HEIs and the role of digitalization within. By analyzing one particular aspect of digitalization, i. e., its relationship with internationalization, this research contributes to the scholarly discourse, and may help HEI stakeholders in their endeavor to prepare their institutions for the *hybrid* future.

2.2.2 Contributions from the distance education field

A discussion of the digitalization of higher education would not be complete without considering an important frame of reference: distance education. Distance education has existed for much longer than digital media and the Internet, having provided *virtual* forms of education through correspondence study long before the emergence of digital technology. It can (and often does) exist without them (cf. Moore & Kearsley, 2012, pp. 2–3): “Distance education is teaching and planned learning in which teaching normally occurs in a different place from learning, requiring communication through technologies as well as special institutional organization” (Moore & Kearsley, 2012, p. 2).

Some have misinterpreted the term “technology” in this definition to mean digital technology (cf. Dron, 2014), while it includes, in particular, postal correspondence

(Moore & Kearsley, 2012, p. 3). Accordingly, the term “educational technologies” (Veletsianos, 2010) includes printed study materials (cf. also Zawacki-Richter et al., 2015, p. 115). While distance education is not a new form of education, digitalization and the Internet have facilitated its success story in recent years, as well as societal developments including lifelong learning trends. In fact, digitalization has transformed the distance education field.

The recent emphasis on digital and, in particular, online modes of delivery, does not reflect all of distance education⁷ – and yet, some actors have even stopped subsuming “correspondence courses” under their “distance education” definitions (Seaman, Allen, & Seaman, 2018, p. 5; Snyder, de Brey, & Dillow, 2018, p. 477). While this practice is questionable from a scholarly point of view, it is symptomatic of the huge impact of digitalization on the field. According to Dabbagh (2005), the Internet has redefined the boundaries and pedagogies of distance learning, stretched its scope and deepened its interconnectedness, to the extent that learning interactions that were previously perceived as impossible can now be facilitated (p. 25). She regards such activities as prompting a redefinition of distance learning as “the deliberate organization and coordination of distributed forms of interaction and learning activities to achieve a shared goal” (p. 25). As Bozkurt et al. (2015, p. 330) note: “The 21st century thus begins with a paradigm shift in attitudes towards online education”. Online *and* distance education (ODE) taken together are increasingly being seen as “the way of tomorrow” (Peters, 2014, p. ix), with soaring enrollment numbers projected by 2030 (Titlestad, 2015).

Distance education is already today expanding in traditional institutions, a trend which is changing ways of teaching, learning, and the academic profession itself. In the digitized higher education landscape, distance education has entered the mainstream of higher education (Saba, 2011, p. 214). Whitaker (2018) notes: “Being a professor once meant standing on a podium, usually behind a lectern, holding forth to auditoriums of sleep-deprived students. Now 25 percent of undergraduates never even see their professor face-to-face” (para. 13). In fact, 14.9 % of the students enrolled in higher education in the USA exclusively take distance courses (in Fall 2016), and a further 16.7% take some distance courses in the same year (Seaman et al., 2018, p. 11). In some other parts of the world, numbers are higher still: In Russia and Turkey, approximately 50 % of the students in higher education are enrolled in distance education, and Brazil saw an enrollment growth of 900 % from 2000 to 2010 (Qayyum & Zawacki-Richter, 2018). In Australia, the proportion of domestic students studying externally amounts to 29 %⁸ (Latchem, 2018, p. 13). And in Germany, the FernUniversität Hagen is the largest national university in student numbers (FernUniversität Hagen, 2019, p. 68).

In addition to distance education changing its face and extending its scope, boundaries between campus-based and distance education blur (Guri-Rosenblit,

7 Instead, online education is generally considered a “subset” of distance education (Anderson, 2008, p. 2; Moore & Kearsley, 2012, p. 3).

8 25 % is the proportion if the private Open Universities Australia consortium is excluded, as some scholars do.

2014, p. 114; McGreal & Conrad, 2015; Naidu, 2003, p. 350): E-learning and m-learning (“electronic learning” and “mobile learning”, i. e., learning with mobile devices) are increasingly being incorporated into traditional on-campus education, and flipped classroom methodology hybridizes traditional learning – in what scholars denote as blended or hybrid mode. E-learning⁹ can be used in both distance and campus-based education (Guri-Rosenblit, 2009, pp. 9–10). This contributes to said blurring of boundaries, especially as wearable technologies and augmented reality applications become increasingly common (Wellburn & Eib, 2010, p. 75). As Picciano (2017) notes: “Online education is not just an evolution of distance education, it is an evolution of all education” (p. 4).

Two examples illustrate the relevance of the distance education field for HEI internationalization because of their inherent borderlessness: open educational resources (OER) and massive open online courses (MOOCs).

The introduction of OER into higher education is regarded by scholars as a major game changer for higher education. While distance education and “open education” have been used as synonyms for decades (“the idea being that distance education can open access to learning” (Moore & Kearsley, 2012, p. 3)), the OER movement that started in the 2000s focuses on the capacity of digital media to enhance possibilities of providing low-cost quality education and access to higher education. OER are defined as “digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research” (OECD, 2017; cf. also Willems & Bossu, 2012). They have proliferated in recent years, also fueling the broader open educational practices (OEP) movement in which the idea of openness is not only applied to teaching and learning materials and resources, but to a broader set of practices, generally to include open access, open learning, and open scholarship (Naidu, 2016).¹⁰

Since UNESCO coined the term “open educational resource” (UNESCO, 2002, p. 28), two independent bibliographic studies have found growing interest in OER among HEIs since the late 2000s (Weller, 2016; Zancanaro, Todesco, & Ramos, 2015). The interest in OEP is also rising, according to recent publications (Cronin & MacLaren, 2018; Weller et al., 2018).

MOOCs – massive open online courses – relate to OER. Siemens (2013) defines MOOCs as courses that are “massive, involving hundreds and thousands of students”, “open, in terms of access”, “online, exclusively”, characterized by a “set start and stop time”, and by content being “somewhat structured and sequenced” (p. 6–7).¹¹ However, with small MOOCs being developed and OER being bundled into courses (for example, with OER University, cf. McGreal, Mackintosh, & Taylor, 2013), the distinctions between OER and MOOCs blur (Weller, 2016, p. 406; cf. also McGreal, 2015; Siemens, 2013, p. 7).

9 i. e., “any type of learning using electronic means of any kind (TV, radio, CD-ROM, DVD, mobile phone, personal organizer, Internet, etc.)” (Arafah, 2004, p. 10; cf. Altbach, Reisberg, & Rumbley, 2010, p. 210; Guri-Rosenblit, 2009, p. 2)

10 For further details about OEP, refer to Paskevicius (2017), Cronin and MacLaren (2018), Weller, Jordan, DeVries, and Rolfe (2018), and Ehlers (2013).

11 Similar conceptualizations include that of Anderson (2013).

While scholars often regard MOOCs as a subset of OER (e.g., Deimann, 2014, p. 177), the term OER is not usually a discursive backdrop in the MOOC discussion. Literature reveals the clear distinction that OER encompass open *content* of any form, whereas MOOCs describe whole *courses* (cf. e.g., Giehle, 2014; OECD, 2007; Siemens, 2013; UNESCO, 2002). This research also adopts this distinction.

MOOCs have proliferated at HEIs worldwide in recent years, with a veritable explosion since 2013 (Bozkurt, Akgün-Özbek, & Zawacki-Richter, 2017, p. 124). The literature on MOOCs has equally grown “extremely rich” (Zawacki-Richter, Bozkurt, Alturki, & Aldraiweesh, 2018, p. 243), with three generations emerging from the literature:

The first-generation cMOOCs embraced a decentralized, learner-centred approach; the second-generation xMOOCs were characterized by teacher-centred teaching and learning; the third-generation hybrid MOOCs took a more pragmatic approach by combining the two previous approaches; to diversify learning opportunities and to reach a broader audience. (Zawacki-Richter et al., 2018, p. 243)

From a different bibliographic survey of theses and dissertations on MOOCs, Bozkurt, Ozdamar Keskin, and de Waard (2016) conclude that MOOCs, although part of a “hype” trend around the year 2012 (“the year of the MOOC” (Pappano, 2012)), have matured in the meantime. The authors expect an increasing diversity in MOOC applications (p. 214) – and the flourishing of a diversity of derived forms may be interpreted as an indicator for such development, including SPOCs (small private online courses) (A. Fox, 2013), vocational MOOCs (vMOOCs), blended MOOCs (bMOOCs), small open online courses (smOOCs), or participatory open online courses (POOCs) (Jungermann & Wannemacher, 2015, p. 4).

While the access argument is a dominant theme in the OER/OEP discourse (cf. e.g., Hylén, 2006; Lane, 2008; Patru & Balaji, 2016; Weller, 2016), MOOCs are frequently also referred to in contexts different from the demands of learners and societies (Jansen & Konings, 2017, p. 21), such as increasing an institution’s visibility, driving student recruitment, or supplementing on-campus education (Jansen & Konings, 2017, p. 20).

What makes both OER and MOOCs relevant for the study at hand is that they have further stirred up the distance education and e-learning discourses, facilitating the delivery of materials across borders and therefore, contributing to VI. Knight (2014), for example, notes that international program mobility can also take on forms of MOOCs (p. 49). Be it with OER, MOOCs, or entire online degrees, digitalization contributes to internationalizing education. With such development, internationalization becomes more connected to the distance education field than has traditionally been the case. Boubsil and Carabajal (2011) illustrate:

Irrespective of motivation, the Internet allows education to cross borders, boundaries, and distances – geographic, social, linguistic, and cultural – on a hitherto unforeseen scale. Fueled by technological developments, online distance education is changing the traditional face and form of higher education. (Boubsil & Carabajal, 2011, p. 16)

Two decades ago, ODE was seen to cross national borders (Blight, Davis, & Olsen, 1999, p. 15), and it continues to do so. Also, the internationalization of the distance curriculum has been in early, but already powerful, stages at the time:

The combination of information technologies and telecommunications has meant that world events are no longer localised, but spread around the world within a split second via technologies ranging from Email to satellite video links. For those with access to these technologies, the global village has arrived. . . . Information technologies and telecommunications build on existing distance education courses by adding value to the design of internationalised learning experiences. (Alexander and Blight, 1996, p. 20, cited by Blight et al, 1999, p. 22)

In addition to creating new international opportunities for campus-based education, digitalization thus also opens new possibilities of internationalization for (fully) distance education, the traditional way of physical mobility often not being open to students enrolled in distance degrees (cf. Otto, 2014). In fact, as Moore and Kearsley (2012, p. 8) found, HEI leaders and policy makers regard the addition of an international dimension to the educational experience as a reason to introduce distance education degrees or to set up a new distance education institution. This line of argumentation represents a central backdrop in this research.

2.3 Internationalization and digitalization

2.3.1 Internationalization: definitions and broader discourse

For years, the accepted definition of internationalization in higher education (Helms, Brajkovic, & Rumbley, 2016, p. 2; Kondakci, 2011; Wächter, 2008, p. 14) has been that of Canadian internationalization expert Jane Knight: “Internationalization at the national, sector, and institutional levels is defined as the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education” (Knight, 2003b, p. 2).

The strength of this definition, according to other scholars (cf. e.g., Coelen, 2016, p. 36; Wächter, 2008, p. 14), is its comprehensiveness: Internationalization covers multiple dimensions (international, intercultural, global) and areas of higher education (purpose, functions, delivery). This opens a broad field of aspects that pertain to the process of internationalizing HEIs.

The definition is also extensive regarding what may count as internationalization: While a strong focus on mobility and international recruitment have been its main manifestations in HEIs for many years, this definition from the beginning included the potential of encompassing other forms of internationalization – which helps explain its ongoing topicality, even though the internationalization discourse has changed in the past years.

Recently de Wit, Egron-Polak, et al. (2015) have found it advisable to add some specifications to the established definition, defining internationalization as (additions in *italics*):

the intentional process of integrating an international, intercultural or global dimension into the purpose, functions and delivery of post-secondary education, in order to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society. (p. 29)

The scholars based their modification on the understanding that internationalization does not happen as an automatic process, but that strategic and intentional action has to be taken for it to thrive. The revised definition furthermore posits that internationalization is not an aim in itself, but that broader aims, i. e., quality enhancement and a positive impact on society, are its ultimate goals (cf. also Brandenburg, de Wit, Jones, & Leask, 2019; de Wit & Leask, 2019). The IAU, adopting this view, states that “the definition notes that internationalization needs to serve societal needs, rather than focusing solely on economic rationales and returns” (International Association of Universities, n. d., para. 2). Knight herself rejects such a move, and recommends the upholding of her original definition which, according to Knight (2016a, p. 327), is neutral and descriptive, without being prescriptive.

I side with the latter line of argumentation that a definition which does not already prescribe the aims and functions of internationalization, but keeps those open to interpretation, is most valuable. For this research, the separation is particularly useful because it allows the deduction of aims of internationalization from the data themselves, instead of prescribing a lens of societal usefulness to the reading of texts. It also allows the separation of aims that directly address the introduction of an international dimension into higher education (for example, intercultural competencies, global knowledge, international experiences) from aims that serve broader purposes of higher education or society (such as pedagogical innovation, capacity building, broadening access, enhancing quality, etc.).

Recent years have seen a shift in focus in HEIs regarding what they count as internationalization, and what they aim to achieve within and with it. Program and provider mobility have become a central aspect, including branch campuses, joint/double degrees, virtual universities, etc. Education hubs, i. e., countries attracting foreign students and staff more than others, have also flourished (Knight, 2014, p. 45). The internationalization at home (IaH) movement (cf. Crowther et al., 2000) has left its mark in particular, and these days, the two areas of internationalization – abroad/cross-border and at home – are presented as equitable “pillars” (Knight, 2012) of internationalization (see *Figure 1*).

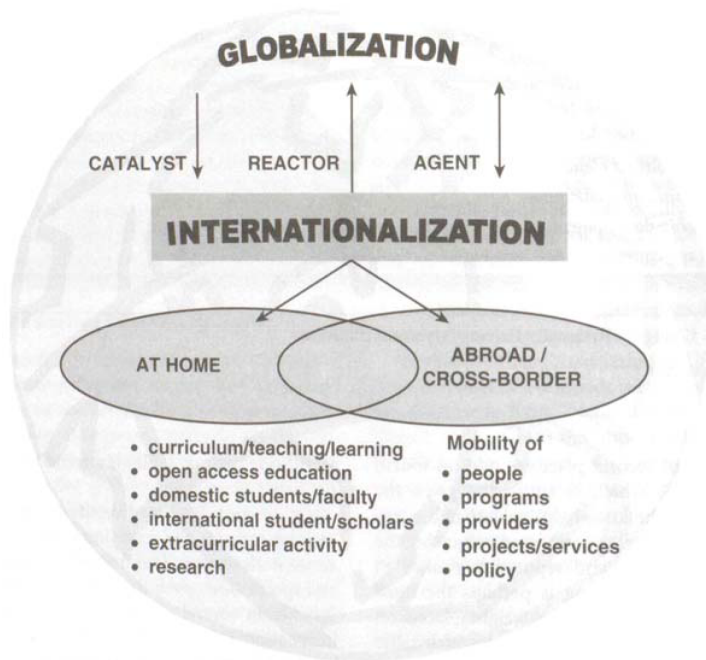


Figure 1: Two pillars of internationalization: at home and abroad/cross-border (From “Concepts, Rationales, and Interpretive Frameworks in the Internationalization of Higher Education,” by J. Knight, in D. Dear-dorff, H. de Wit, J. Heyl: *The SAGE Handbook of International Higher Education* (p. 34), 2012, Thousand Oaks, CA: SAGE)

Internationalization at home (IaH) has been developed in response to the insight that all students cannot go abroad to have an international, intercultural, or global experience. Therefore, the curriculum or campus “at home” are expected to internationalize in order to reach more, if not all, students.¹² Crowther (2000) argued that “traditional approaches such as mobility are a start [for internationalization], but do not go far enough, in that they have a limited audience and little institutional impact” (p. 40) – and today, this line of argumentation is established (Beelen & Leask, 2011; Beelen, 2016, 2017b; Egron-Polak & Hudson, 2014; Hochschulrektorenkonferenz, 2017; Soria & Troisi, 2014).

IaH is “the purposeful integration of international and intercultural dimensions into the formal and informal curriculum for all students within domestic learning environments” (Beelen & Jones, 2015, p. 69). The term thus designates activities that take place in HEIs’ domestic realms, while not being restricted to serving domestic students: The phrase “all students” indicates (as Beelen, 2014, and Leask, 2015, p. 11 confirm) that international students in domestic learning environments are also included in the conceptualization of IaH.

¹² For further discussions on this development, see, for example, Bijmens, Boussemaere, Rajagopal, Op de Beeck, and Van Petegem (2006, p. 24); E. Jones (2014); Wächter (2000, p. 6.).

While IaH, in this perspective, is concerned with aspects of internationalizing teaching, learning, research, and co-curricular activity on the home campus, internationalization abroad is concerned with the mobility of people (students/faculty), and also of programs, providers, projects and services, and policy: Branch campuses, bi- or multilateral degree programs, and smaller-scale projects are all part of internationalization abroad (see *Figure 1*). HEIs which are strong in both areas have been called “internationally engaged” or “internationally focused” universities (von Foskett & Maringe, 2012, p. 44).

A concept related to IaH is internationalization of the curriculum (IoC). While the term can be confused with IaH, it is conceptualized differently: “Internationalization of the curriculum is the incorporation of international, intercultural, and/or global dimensions into the content of the curriculum as well as the learning outcomes, assessment tasks, teaching methods, and support services of a program of study” (Leask, 2015, p. 9).

In this definition, there is no mention of *domestic* learning environments, contrary to the IaH definition. Beelen and Jones (2015, p. 68) point out that the curriculum (and IoC) can include forms of physical mobility (e. g., mandatory student exchange programs), whereas IaH is restricted to an HEI’s domestic contexts. IaH thus allows for an exactitude in separation between the two spheres (pillars) of internationalization, domestic and abroad, which the concept of IoC lacks.

While this exactitude is appealing for establishing analytic categories as the basis for scholarly research, the geographical notion of “at home” is not practical for this research on internationalization in the *virtual* space, as is further elaborated in Chapter 2.3.3. The concept of IoC, which allows *a priori* for the integration of international mobility, can connect with a concept such as “virtual mobility” without asking for physical location. Therefore, this dissertation will give preference to the term IoC.

However, while *allowing* the integration of some elements from the “internationalization abroad” pillar, IoC does not encompass all of them. Mobility of programs, providers, projects/services, or policy (Knight, 2012) are clearly not in the focus, and neither are domestic and international faculty and instructors, nor administrative staff (see *Figure 1*).

While providing the basic underpinnings for all further considerations in this work, the definitions and conceptual models described in this section are insufficient as analytic foundations for this research, which aims at developing a comprehensive view of VI, encompassing not only curricula, but the “purpose, functions, and delivery” (Knight, 2003b, p. 2) of higher education in their entirety. The following section presents a conceptual framework from the literature that has been identified as serving the purpose of providing a comprehensive understanding of internationalization.

2.3.2 The conceptual model of Comprehensive Internationalization (CI) as a basis for the conceptualization of Virtual Internationalization (VI)

For this research, it has been established as helpful to have at hand a practical framework to classify aspects of internationalization of higher education, in addition to the definition of internationalization established in the previous section. Different scholars have proposed *areas* (e.g., Kehm & Teichler, 2007), or chronological *generations* (Knight, 2014) of internationalization. These look at internationalization as a phenomenon on different organizational levels (national, sector, and institutional). As this research looks only at the institutional context, perspectives including “mutual influences of education systems on each other” and “national and supranational policies” (Kehm & Teichler, 2007, p. 264), “development cooperation” (International Association of Universities, 2015), or the forming of “education hubs” (Knight, 2014) are too broad for staking out the concept of VI on the institutional level only.

Focusing on the institutional level, the American Council on Education’s Center for Internationalization and Global Engagement (ACE-CIGE) has developed the concept of Comprehensive Internationalization (CI) (American Council on Education, 2017b; Hudzik, 2011) as a framework for HEIs aiming at introducing an international dimension into their entire spectrum of activities. The idea of comprehensiveness resonates with the idea of an “internationally engaged” or “internationally focused” university (von Foskett & Maringe, 2012, p. 44), discussed in the previous section, while providing clear areas in which this “engagement” may take place.

Instead of focusing on selected aspects only (such as mobility or the curriculum), CI strives to “infuse international and comparative perspectives throughout the teaching, research, and service missions of higher education” (Hudzik, 2011, p. 6). Gacel-Ávila (2012) frames this idea at the macro, meso, and micro levels of HEIs:

The notion of comprehensiveness means that strategies should be transversal to the whole policy design, integrating the international dimension in all institutional policies and programmes, and impact the three levels of the educational process: macro (decision making and design of institutional policies), medium (curriculum structure and policy) and micro (teaching and learning process). (p. 495)

This perception of internationalization as an institution-spanning concept has been catching on: “Much of the current discourse now revolves around the concept of comprehensive internationalisation” (de Wit & Hunter, 2015, p. 44).

Yet, the imperative notion of the concept of CI is not practical for this research, the aim of which is to explore the potentiality, not the *necessity*, of combining the virtual with the international dimension of higher education. However, in research conducted in recent years, the derived *model* of CI and its underlying conceptualization has been proven to hold not only prescriptive, but also analytic value. Besides the ACE-CIGE’s own approaches of “Mapping Internationalization on U. S. Campuses” (American Council on Education, 2012; Helms & Brajkovic, 2017) on the basis of the model and concept, applications by Butler (2016) on community colleges, Piazza (2015) on technical colleges, and LeBeau (2017) on an urban research university have confirmed the analytic potential of the model.

The model of CI consists of six categories of internationalization: articulated institutional commitment; administrative leadership, structure, and staffing; curriculum, co-curriculum, and learning outcomes; faculty policies and practices; student mobility; and collaboration and partnerships (see *Figure 2*).



Figure 2: Comprehensive Internationalization (From *Mapping Internationalization on U. S. Campuses* (p. 3), by R. M. Helms and L. Brajkovic, 2017, Washington, DC: ACE)

The ACE-CIGE has provided a detailed conceptualization of these categories (see *Table A 1*): It details how human and non-human actants (Latour, 2005) in each of the categories can contribute to (comprehensive) internationalization. Chapter 3.2 will further discuss these aspects and their relevance for VI.

I chose this model and its underlying assumptions as the conceptual basis for the conceptual model of VI for three main rationales. Firstly, the *comprehensive* approach of the model makes it suitable for this dissertation: CI addresses not only physical student mobility, but “all of campus life”, and even its “external frames of reference, partnerships, and relations” (Hudzik, 2011, p. 6). This understanding of internationalization as an institution-spanning concept makes CI ideal for investigating all combinations of the virtual and the international in HEIs, whichever area they may appear in. Using a model with claim to comprehensiveness as the basis can help navigate the field and classify the concepts that emerge in the analyses in relevant existing schemata.

Secondly, the CI model is tailored to higher education’s institutional context. Unlike other conceptualizations, it does not include mention of external agents on the sectoral or national levels. Instead, it focuses on detailing and differentiating the institutional level in all its facets. On this level, it highlights the exceptional role of a diverse range of actants on all levels within HEIs, encompassing “institutional leadership, governance, faculty, students, and all academic service and support units” (Hudzik, 2011, p. 6). This reflects observations made by other scholars and institutions that internationalization as a concept has diversified to include the whole HEI

community, including academic leadership, administrative staff, individual professors and students (International Association of Universities, 2015, para. 1).

Thirdly, the CI model is well described (conceptualized) and researched, and it is widely used in the internationalization discourse (cf. e.g., de Wit & Hunter, 2015, p. 44; Knight & de Wit, 2018). By basing the concept of VI on this well-established concept, I intend to keep it integrable (*anschlussfähig*, cf. Luhmann, 1995) within the discourse in the field. This decision also facilitates testing the concept for its transferability to a related context. A practical advantage of this integrability is the fact that practitioners in HEIs wishing to intensify their activities in one particular area of internationalization can use the respective chapter in this dissertation to find information on using digital media to foster this component. The model is not only used by the U.S.-American Council on Education (ACE), it is also applied in Latin America (Gacel-Ávila, 2012), and in Europe, where the European Commission modifies and recommends the following for its member states:

A comprehensive internationalisation strategy should cover key areas grouped into the following three categories: international student and staff mobility; the internationalisation and improvement of curricula and digital learning; and strategic cooperation, partnerships and capacity building. These categories should not be seen as isolated but as integrated elements of a comprehensive strategy.¹³ (European Commission, 2013)

Beyond being topical by referring to the recent development of digitalization in higher education, this 2013 conceptualization shows noticeable parallels to one which dates back four decades: Harari (1972, p. 3) defined internationalization combining the same three main elements: international content of the curriculum, international movement of scholars and students concerned with training and research, international technical assistance and cooperation programs (cf. also Arum & van de Water, 1992; Knight & de Wit, 1995, p. 15). This shows that ideas which have gained prominence and visibility in practice only recently (IoC, movement of faculty, international cooperation) have been around for a long time, and that the meaningful contribution to society (re-introduced by de Wit, Egron-Polak, et al. (2015, p. 29)) is not a new idea either – in this case, it is reflected in the concept of technical assistance (later referred to as development aid or cooperation for development). Hence, the current model of CI is a logical continuation of ideas that have long been present in the discourse, while reflecting new developments and a practical, agency-focused stratification of components, which holds several advantages for this research. The central advantage of the model of CI formulated by Hudzik and the ACE-CIGE vis-à-vis the European Commission definition is that it further stratifies the institutional context: six, not three, categories reflect the recent scholarly discussion which has put emphasis on aspects previously underrepresented in the discourse, such as administrative staff (Beelen, 2017a; Hänßler, 2011; Hunter, 2018; Racké, Forsthuber, & Crosier, 2013), faculty (Kwiek, 2015; Teichler & Cavalli, 2015; Woldegiyorgis, Proctor,

¹³ It is noteworthy for this research that the European Commission mentions the internationalization of digital learning as part of comprehensive internationalization.

& de Wit, 2018), and institutional partnerships (Altbach & Knight, 2007; Brandenburg et al., 2013; François, Avoseh, & Griswold, 2016; McBurnie & Ziguras, 2007; Wilkins, 2016; Ziguras & McBurnie, 2015).

Scholars and political actors have advocated for the integration of digital media in the CI context, e.g., de Wit (2016): “Online intercultural learning is in this comprehensive context a logical step towards a more inclusive, innovative approach to internationalisation” (p.76). In a more general fashion, the German Hochschulforum Digitalisierung posits that the digital change fosters the comprehensive internationalization of higher education (Hochschulforum Digitalisierung, 2016, p.69), leaving room for imagination in what ways this change may occur, and highlighting the need for further research. This dissertation intends to close this gap, by adding concrete examples of VI for all categories of CI, and by developing a conceptual model of “virtual comprehensive internationalization”. The term “comprehensive” will be dismissed from the conceptualization, leaving it as “virtual internationalization”, for the following reason: As noted above, the ACE-CIGE conceptualization of CI was not initially conceived as an analytic model. The adjective “comprehensive” was included in the model of CI to advocate for adopting internationalization-related measures in *all* areas depicted. Scholars using the model in an analytic, instead of a prescriptive way, may thus drop the term “comprehensive”. One could argue that the adjective should be preserved to indicate the acclaim of the model of being comprehensive regarding the field of HEI internationalization which it depicts – but then, any definition or analytic model, effectively *per definitionem*, aspires to be comprehensive of what it describes or depicts. Therefore, I argue, the adjective “comprehensive” is not essential to the conceptualization of VI. It would not add any information that the term “virtual internationalization” did not already include.

2.3.3 Spatial terms in the virtual space?

A re-evaluation of internationalization-related vocabulary

The *virtuality* of the form of internationalization under investigation in this dissertation implies that the spatial terms and categories that are common in the internationalization context need to be re-evaluated. For instance, I have already noted in Chapter 2.3.1 that the dichotomic terms *at home* and *abroad* are not suitable in all contexts of VI, because the physical location of students (and of HEIs) becomes less relevant, resulting in the theoretical distinction between “at home” and “abroad” becoming less useful. Equally problematic are the terms *incoming* and *outgoing*: A student traveling or moving to the host country to study would be (an) “incoming”, and a student leaving the country to study abroad would be (an) “outgoing”.¹⁴ The reason for these choices of terms in other contexts is obvious: The location of the international experience has been a central trait and differentiator of internationalization activities in the major part of internationalization activities. Students would go on a study *abroad* trip as an outgoing/incoming, or they would stay *at home* and still get an international experience of some kind via IaH.

¹⁴ Both terms can be used as nouns, in addition to their (also common) uses as adjectives.

In VI, these boundaries blur. It is clear that the virtual space is not devoid of spatial points of reference, and that students are never entirely virtual persons: As hybrids (“cyborgs”, see Chapter 2.1), they are still bound by the specifics of their localized realities (e.g., time zones) when venturing in their virtual (second) lives. However, when virtual spaces are involved, spatial location ceases to be the main determinant of what kinds of international experiences are possible. Students may take a MOOC from abroad while residing at their domestic institution, or they may take virtual orientations or a language course prior to a physical stay abroad. Faculty may co-teach with international colleagues virtually, and international office staff may network with peers at partner institutions abroad online. The provider of a particular MOOC, training program or networking platform may not be interested in where in the world their participants reside.

Domestic nationals who stay in their home country while participating in virtual mobility (such as Collaborative Online International Learning (COIL)) still fall in the category of IaH. However, the danger of the dichotomization of *at home* and *abroad* lies in not identifying intermediate and deviant cases, for instance:

- Blended forms of embedding physical field trips in virtual field trips;
- International online experiences for distance education students;
- Military students or expatriates abroad participating in online education from their home country to obtain a domestic degree *despite* residing abroad;
- Refugees participating in MOOCs from their host or another country;
- Students who self-determinedly pick and choose online offers from HEIs in different countries (cf. the concept of heutagogy, Hase & Kenyon, 2007).

Leask (2004) argues that even the dichotomy of *international* and *domestic* should be questioned once ICT enters the scene:

The use of information and communication technologies (ICTs) in education has the potential to redefine the concepts of “the international student” and “an internationalized curriculum” (Leask, 2000). Distance and time need no longer be barriers to international exposure and awareness for any student with access to a computer and a modem. In this sense, all students can now be considered as international students in terms of their virtual mobility. (p. 337)

This interpretation of the impact of ICT on the internationalization discourse (“all students can now be considered as international”) demonstrates the necessity of a re-evaluation of our understanding of *international* vs. *domestic*, especially as “increasingly in recent times the use of the terms ‘international student’ and ‘domestic student’, and the polarization this suggests, is seen as obscuring the diversity within both groups” (Leask, 2015, p.11). Beelen (2014) reflects on the same dilemma and notes: “We should take care to avoid the impression that the domestic students are always national in outlook and international students always represent an international mindset. . . . The domestic student body has become quite diverse” (p. 296). In fact, in the globalized world, in which the domestic student body is often diverse

from the outset, it is inadequate to create the impression that it was of national homogeneity. The term *national* will be avoided for this reason, as will its counterpart *foreign*, following the argumentation of the OECD (2017, p. 296): As the concept of *foreignness* is inadequate for capturing student mobility across countries, it is not helpful in the context of VI either, because whether or not a student is naturalized in a certain country is not a relevant question in the context of this research either.

Coming to terms with the challenge of finding suitable terms for the context at hand, I follow a pragmatic approach by continuing to speak of *domestic* and *international* students, thereby connecting to the internationalization field (Beelen & Jones, 2015; Leask, 2004; Knight, 2012; Rumbley, Altbach, & Reisberg, 2012; Ward, 2015a). This way, I deliberately give in to some vagueness (– “*all students can now be considered as international*”). However, instead of handling with the impracticable concepts of “nationality” and “foreignness” that create lines where they are not useful, I open up the possibility that a student can simultaneously be *international* **and** *domestic*, depending on the perspective from which they are viewed: If a group of students of a domestic class (however diverse they may be) collaborates with a group of students from another country, their internal diversity is not in the categorical focus – which does not mean that it is invisible or irrelevant in practice –, and students are simplistically labelled “domestic”. But if differences within this group and the *international* diversity **among** students in a domestic class are brought into focus, the same students are spoken of as “international”. It is important to keep this complexity in mind throughout this dissertation.

2.4 Defining Virtual Internationalization (VI)

The term Virtual Internationalization (VI) designates the concept under investigation in this dissertation. In the line of argumentation outlined in the chapter on digitality and virtuality (Chapter 2.1), it refers to Castells’ concept of “real virtuality”, reflecting the view that “appearances are not just on the screen through which experience is communicated, but they become the experience” (Castells, 2010, p. 404). VI is thus an *aspect* of internationalization, not something apart.

The use of the adjective “virtual” is a deliberate choice – from a range of potential terms, such as digital, online, technological, electronic; or compounds such as e-internationalization, Internet-based internationalization, ICT-based internationalization. Because of their technology-centric perspective, these do not, I argue, grasp the idea that is being conceptualized in this work as accurately as the adjective “virtual”. The term virtual, with its two sides of “being something in essence or effect” (Virtual, 1995, p. 862) and being “not physically present as such but made by software to appear to be so” (Virtual, 2013), and with its theoretical underpinnings provided by Castells (2010), presents itself as the term of choice.

The terms digital, online, technological, electronic, ICT etc. all designate different things, therefore this research determines what kind of technology is included in

the definition of the “virtual”. Despite the “virtual” often being associated with computers and software, I wanted VI to also encompass communications technology that is not digital, in line with the definition of the “virtual” established in Chapter 2.1: The old-fashioned landline telephone, (non-digital) television, or potential technological developments of the future that may not involve digital data, should also be included in the definition of VI. As non-digital means of communication enabled by communications technology – such as the television, radio, fax, or landline telephone – are decades old, they may not be relevant to current developments in the virtual internationalization of higher education. However, they may become re-contextualized in the new media mix, potentially in those countries in particular that are not (yet) as highly digitized as others. This hypothesis will be tested in the analysis.

The Oxford English Dictionary’s definition of “digital” is “involving or relating to digital or computer technology, esp. the Internet” or “involving digital data; making use of digital computers or devices” (Digital, n.d.) – and thus too narrow to encompass the aspects just listed. The terms “online” or “Internet-based” would be even narrower, grasping only certain electronic media: those that make use of the Internet and World Wide Web, but neglecting other forms, such as CDs, DVDs, or even the (wireless or wired) telephone and SMS services. Those are, however, a reality at many HEIs, and through the virtuality they create, may contribute to VI. Hillier (2018), for instance, promotes “bridging the digital divide with off-line e-learning” to enhance equity in accessibility of distance education offers, and SMS and wireless phones without Internet service are widespread in developing countries (Castells, 2010, p. xxvi; Gregson & Jordaan, 2009; World Bank, 2016).

The terms “technological” or “technology-based” would be broad enough to encompass all forms of VI. Yet they are in fact *too* broad: “Technology” can cover physical mobility, because it includes trains, planes, and cars, and it also refers to “methods, systems, and devices which are the result of scientific knowledge being used for practical purposes” (Technology, n.d.). Technology has also been defined broadly for the distance education context, referring to correspondence study as “the first technology used for distance education” (Moore & Kearsley, 2012, p. 3, see Chapter 2.2.2). This research does not address paper-based correspondence study – not because I did not recognize its continued importance to the distance education field, but because it has not transformed the discourse and practices in higher education internationalization in recent years: Correspondence study may well be interpreted as a form of virtual education, *de facto* enabling students to pursue studies from abroad. These practices do not however denote a purposeful process of internationalizing institutions.

The term “electronic” and its prefix “e-” appear suitable: They are broad enough to cover digital and non-digital issues, as long as they are “of, concerned with, using, or operated by devices in which electrons are conducted through a semiconductor, free space, or gas” (Electronic, n.d.) – applications which include “electronic nicotine devices” or “electronic music” (Electronic, n.d., sample sentences). Usages of the term electronic are fairly broad – and yet, because of the widespread use of the prefix

“e-” for similar contexts, the term e-internationalization, in analogy to e-mail or e-learning, represents the second best option I identified.

I chose the term “information and communications technology” (ICT) because it covers digital and non-digital forms of communication, thereby “spanning a continuum from the more ‘low-tech’ to the more ‘high-tech’” (ICT, 2016). Also, it focuses on the two areas in which VI is relevant: (international) *communication* and the exchange of *information* in the broad sense of “facilitating information collection, processing, usage, transfer, storage, retrieval, sharing, interpretation, and adoption” (Adedokun-Shittu & Shittu, 2015, p. 2514), while making use of information technologies such as computers or databases and/or communications technologies such as wired or wireless networks (Arafteh, 2004, p. 2).

Having considered terminology in depth, reformulating Knight’s definition of internationalization, this research proposes the following definition of the term “Virtual Internationalization”:

Virtual Internationalization at the national, sector, and institutional levels is defined as the process of introducing an international, intercultural, or global dimension into the delivery, purpose or functions of higher education *with the help of information and communications technology (ICT)*. (My definition, based on Knight, 2003, p. 2, – modifications italicized.)

Thus, by including ICT in Knight’s broad definition, the resulting definition of VI is comprehensive enough to cover all kinds of ICT-supported measures and processes at different organizational levels, encompassing the delivery, purpose and functions of higher education. Note however that this work only focuses on the institutional level, not specifically examining the influences of external factors on the national and sector levels. As, according to Knight (1994, p. 12), the central drivers of internationalization are institutions and their actors (leadership, faculty, staff), this choice of focus intends to grasp these driving forces behind VI.

I previously explored the potential of the concept of VI for higher education (Bruhn, 2017). In that paper, I laid a foundational stepping stone for this dissertation by considering the global, intercultural, and international dimensions of VI. I found that VI can be applied to all of these dimensions, and in two perspectives: *clientele* or *reach*, and *curriculum*: For the *global* aspect, said research contrasts universally available programs (clientele/reach) with a global perspective of the curriculum (global citizens, global understanding, etc.). For the *intercultural* dimension, it discusses interculturally sensitive classrooms (clientele) and intercultural competence (curriculum). The *international* dimension is addressed with virtual TNE (clientele) and knowledge about other countries and cultures (curriculum) (Bruhn, 2017, pp. 3–6). The paper showed the potential of VI beyond virtual mobility, but did not consider VI in the comprehensive perspective adopted in the research at hand. This dissertation thus closes the gap left open by the publication by Bruhn (2017), “further investigating the manifestations and potentials of Virtual Internationalization in higher education” (p. 6).

While scholars have identified digitalization as a central catalyst of non-physical internationalization (cf. e.g., Wannemacher & Geidel, 2016; Willige, 2016), all of VI does not have to be digital, according to the definition adopted. Instead, the concept has been formulated as based on *ICT*, a term which will be used as a synonym of *virtual* throughout this work. The terms “digital” and “online” will also occur in many instances, because de facto, most of ICT (in higher education) these days is digital and/or online (cf. e.g., Bischof & von Stuckrad, 2013; Hoffman, 2013; Shapiro et al., 2016). Even so, this chapter has not conceptualized VI in a techno-centric perspective on internationalization. Instead, with recourse to Castells (2010), Stalder (2016), Bunz (2014), and other scholars, this research focuses on the “realness” of virtuality for the actors involved in internationalization processes in HEIs, and therefore, on the potentials of tangible effects that ICT-based internationalization can have on all stakeholders of higher education.

3 Literature review

3.1 The combination of digitalization and internationalization in the scholarly discussion

The German Hochschulforum Digitalisierung¹⁵ (2017) has recently proclaimed the “digital turn in higher education” (p.7). In the realm of this digital turn, internationalization is one of the key topics: Digitalization and internationalization are regarded as mutually dependent trends, with the digital turn promoting the “integral internationalisation of HEIs . . . bring[ing] forth new possibilities for further internationalisation” (p. 16).

Beyond the German context, combining ICT and internationalization in higher education has become equally widespread in recent years. Chapter 2.3 has provided first glimpses into such practices: Be it via internationally available MOOCs and OER, transnational online and distance education, virtual mobility projects, or globally operating (virtual) universities – just as they have done in other areas of higher education, ICT and digitalization have transformed internationalization.

Given that prior to this research, VI had not yet been presented as a comprehensive concept,¹⁶ one cannot expect to find literature covering the same conceptualization. However, it would be remarkable if this dissertation was the first attempt at analyzing relationships between the virtual and the international in the higher education context. Therefore, this literature review needed to adopt a wide angle view and critically assess a broad scope of literature on related terms.

The first part of the literature search covers the term “virtual internationalization” and the related terms “digital internationalization”, “e-internationalization”, and “online internationalization”¹⁷ (see Chapter 2.3.3 on terminology). This search across the major catalogs¹⁸ yielded several results, with no clear-cut distinction among the usages of the four terms listed. In the following, I will therefore treat them as synonyms.

The earliest mention of the term “virtual internationalization” I could retrieve is a source from 1921. It appeared in a New York Times article which discussed a telecommunication cable from Yap (at the time occupied by Japan) to Guam (U. S. territory) as “virtual internationalization” (Associated Press, 1921). Despite its (presumed) invention a century ago, the term has only entered a broader discourse in recent

¹⁵ German Forum for Higher Education in the Digital Age

¹⁶ except in my own prior publications (Bruhn, 2017, 2018)

¹⁷ each time including its British English spelling, “internationalisation”

¹⁸ including ERIC, ProQuest, EBSCOhost, JSTOR, IDP Database of Research on International Education, and the Library of Congress inventory

years – in particular, in international business literature (e. g., Abraha & Jallow, 2013; Pezderka & Sinkovics, 2011; Tran, Yonatany, & Mahnke, 2016).¹⁹

For the higher education field, VI is generally conceptualized as a form of internationalization of the curriculum. Among the first to do so were Blight et al. (1999), who evaluated that “new technologies may allow a virtual internationalisation of the form of the curriculum” (p. 27), an idea also reflected in the contributions in the publication edited by Wächter (2002), by the “E-Internationalization for Collaborative Learning” (EICL) project group (EICL Project, 2013), Mavridis, Leftheris, Tsiatsos, and Kudryavtseva (2012), and Ghasempoor, Liaghatdar, and Jafari (2011, p. 36). Middlemas and Peat (2015) also conceptualize VI as a curricular concept including collaborative experiences, but also “international awareness and understanding of disciplinary developments” (p. 48): “We define virtual internationalisation as a flexible learning and teaching approach that makes the most of everyday web-based technologies to support the achievement of international learning outcomes on taught programmes” (Middlemas & Peat, 2015, p. 47). And Thorne (2016) describes VI as equal with virtual mobility in his publication advocating (for) the “Virtual Internationalization Turn in Language Study”.

Alqahtani (2018) follows a different approach in his dissertation on “Virtual Internationalization of Higher Education: A Comparative Study Between Saudi and UAE Universities”. In his understanding, VI “encompasses the utilization of ICT to dispense transnational education programs and courses to students” (p. 4) – that is, virtual TNE. Samoilenko (2013) follows a similar approach. Van Damme (2001, p. 428) speaks of cyber-universities as an example of VI. Furthermore, Lorenz, Wittke, Steinert, and Muschal (2016, p. 110) and Fachhochschule Lübeck (2015, p. 5) use the term “digitale Internationalisierung” [digital internationalization] to designate the recruitment of new target groups of international students via online studies, MOOCs, and e-lectures.

Fugate and Jefferson (2001) open yet another perspective, writing that “distance learning . . . can deliver some virtual internationalization benefits to students who are limited in mobility” (p. 163), thus connecting internationalization to the distance education field.

While none of these perspectives alone encompass the entire concept of VI embraced in the research at hand, these angles taken together provide a valuable starting point for the comprehensive conceptualization of VI that this research intends to provide: Some focus on curricular aspects, others on virtual TNE and cyber-universities, while certain others focus on international marketing, and a last group of authors, on domestic ODE.

Teichler and Cavalli (2015) are among the few scholars who suggest a broader understanding of VI by mentioning “any type of virtual internationalization or glob-

¹⁹ The literature review conducted for this research not having included the past 100 years, I cannot claim with certitude that conceptualizations of internationalization of a virtual kind have not been established since 1921. However, due to the discursive backdrop of *virtuality as reality* (Castells, 2010) of this research, and of its anchorage in the digitalization discourse, only recent discussions of related concepts are of interest for this research, which aims at developing a conceptualization of virtual internationalization in higher education for the digital age.

alization" (p. S114), yet do so without further specifying the term (nor repeating it elsewhere).

Knight (2014) ranges virtual aspects of internationalization into her scaffold of "three generations of crossborder higher education", with the "virtual university" and "online/distance" program mobility figuring in her second generation "program and provider mobility" category (p. 45).

Leask (2004) approached ICT-assisted internationalization in higher education in a more systematic way. She provides an extensive list of ways in which HEIs can "use ICTs to assist in achieving internationalisation outcomes" (p. 340). Yet, all of them are curricular:

- Using the technology to establish international contacts and networks in the discipline/professional area;
- Virtual visits by guest lecturers/presenters with an international profile who address specific topics or answer specific questions online at appropriate times during the program;
- Group and individual projects with a focus on international issues, case studies, and/or exemplars; tasks that require the development of skills in group dynamics and the establishment of working relationships with people from diverse cultural backgrounds, for example, tasks requiring analysis of media reports from international newspapers from different cultural perspectives, online interviews with students from other cultures, and/or professionals who have worked internationally;
- Locating, discussing, analysing, and evaluating information from a range of online and offline international sources;
- Online opportunities to analyse the issues, methodologies, and possible solutions associated with current areas of debate within the discipline from a range of cultural perspectives;
- Accessing online international sources such as journals, conference proceedings, and professional associations; and
- Online simulations in which students have the opportunity to participate in and learn from dynamic and complex cross-cultural role-plays in a controlled online environment. (Leask, 2004, pp. 340–341)

The OECD publication "Approaches to Internationalisation and Their Implications for Strategic Management and Institutional Practice" (Hénard, Diamond, & Roseveare, 2012) provides a continuation and extension of such considerations. In that paper, the authors outline what a more comprehensive concept of VI may include, noting:

ICT enables virtual internationalisation, which can increase access and choice, as well as helping to mitigate brain drain, a critical concern for less developed countries. . . . There is still relatively little awareness of what ICT can offer to enhance the learning experience, especially on a global scale and across physical borders, although the recent emergence of massive online open courses (MOOCs) may lead to some rapid changes. (Hénard et al., 2012, p. 28)

Enabling access to higher education, broadening choices of education, enhancing learning experiences by providing pedagogical innovation and new educational re-

sources – such are some of the potential benefits of VI which Hénard et al. (2012) identify. They describe ways in which, in their view, ICT can support internationalization:

- As ICT is increasingly impacting educational institutions, institutions can also use it to foster internationalisation and the means whereby it can be achieved. The borderless nature offered by ICT enables institutions to collaborate and compete.
- ICT can overcome traditional barriers to internationalisation often tied to a country's regulatory policies (such as immigration policies).
- The virtual environment facilitates partnerships with foreign institutions for the joint design of educational programmes, and the recruitment of foreign experts for the design and delivery of courses or programmes, freed from geographical and physical constraints.
- Likewise, virtual mobility enables students to take advantage of other institutions' courses without leaving the home university and country, thus opening up the range of educational programmes available that are not contingent on financial resources needed for physical displacement.
- In a sense, ICT “democratises” access – where available – to an international learning experience, as access to foreign educational programmes is no longer necessarily tied to the cultural experience that results from physical mobility. (Hénard et al., 2012, p. 28)

This list shows that scholars are evaluating the potential of ICT to support internationalization in more ways than curricular adaptations or virtual TNE. However, a systematic consideration of all potential aspects along the lines of a comprehensive framework has not yet been developed.

In the remainder of this chapter, I will proceed along the lines of the CI model and present endeavors pursued in the existing literature of combining each of these aspects with digitalization.

3.2 Virtual contributions to internationalization

3.2.1 Articulated institutional commitment to VI

Internationalization and digitalization are among the most important strategic fields of HEIs today. Several studies attest to this for countries around the world (de Wit, Egron-Polak, et al., 2015; Egron-Polak & Hudson, 2014; Helms & Brajkovic, 2017; Sursock, 2015). For instance, analyzing the results from the EUA Trends 2015 survey, Sursock (2015) found that internationalization and ICT are top priorities in HEIs across Europe, and that both are likely to gain in importance:

Indeed, when asked which developments have been important to their institution, 70 % of respondents mention the former [internationalization] and 62 % the latter [ICT] (Q11). . . . Internationalisation and ICT continue to occupy the top two places but with an increase in value: 83 % for the former (+13 points) and nearly 78 % for the latter (+16 points).

Furthermore, in general, institutional change related to learning and teaching has been highly important for 62 % of respondents and “Innovative teaching methods and techniques are being introduced” in 57 % of institutions. (p.76)

But the question remains: If HEIs rate both internationalization and digitalization as so important, do they also combine the two in their institutional strategies?

Some studies on general trends in higher education include mention of combining the virtual and the international. Sursock (2015, p. 26), for instance, notes that “today, a good internationalisation strategy . . . involves cooperation and competition strategies . . . and savvy use of digital technologies” (p. 26). She does not however indicate to what extent this may be implemented in practice.²⁰

Some studies that focus on strategic internationalization in HEIs also include an aspect of the use of ICT (de Wit, Hunter, & Coelen, 2015; Egron-Polak & Hudson, 2014; EUA, 2013; Helms & Brajkovic, 2017). De Wit, Hunter, et al. (2015) reach the conclusion that there is “very little sign of any significant activity” (p. 275) in developing digital learning as part of institutional internationalization strategies in Europe, and the IAU 4th Global Survey presents a similar conclusion:

Given the attention paid by policy makers and higher education leaders to the use of ICTs including in internationalization, the findings concerned with *Delivery of distance/online, and/or e-learning courses/programmes designed for students in other countries* as well as Off-shore provision are somewhat surprising, but consistent with findings of previous IAU Surveys. They are, once again, given the lowest priority among selected internationalization activities. (Egron-Polak & Hudson, 2014, p.78)

Results show that cross-border e-learning, as one aspect of articulated commitment to VI, is deemed a low priority, but a non-negligible one, all the same: Ca. 5 % of the respondents count it among their top three priority internationalization activities. Furthermore, respondents in none of the world regions report that funding has increased for cross-border e-learning in the past three years, indicating a possible barrier to further expansion (Egron-Polak & Hudson, 2014, p. 85). Leaders in higher education do however seem to be starting to think differently: In the USA, the study “Mapping Internationalization on U.S. Campuses” (Helms & Brajkovic, 2017) reveals:

For many institutions, technology is playing an important role when it comes to internationalizing curricular content. About one-third (32 percent) of respondents reported that their institutions are using technology (e.g., video conferencing, online learning programs, social media) to facilitate course-level collaboration between faculty and/or students on the home campus and counterparts overseas. (p. 18)

²⁰ The more recent Trends 2018 study (Gaebel et al., 2018) does not discuss the topic of internationalization in as much length as the Trends 2015 version, leaving “more space for other topics” (p.10). However, the importance of internationalization appears not to have diminished, with 87 % of participants ranking the provision of international opportunities among their top three institutional learning and teaching strategies – more than any other item polled (p.15). In addition, 53 % of participants indicate that their institution participates in international initiatives on teaching enhancement (p. 75).

The authors of said study found that ICT is increasingly used strategically in HEI collaborations on both faculty and student levels. Similarly, in Australia, universities have started to integrate globally networked learning in their internationalization strategies (Murray & Leask, 2015, p. 199), with at least some institutions also considering transnational distance education a strategic field of development (Murray & Leask, 2015, p. 202).

The studies on strategic internationalization identified for this literature review show that VI has entered institutional strategy at a slow pace, but that is not (yet) fully-fledged. For instance, a study by Zawacki-Richter and Bedenlier (2015) mined internationalization strategy papers in German universities for mentions of technology use. The authors found that 21 out of 124 strategy papers (16.9%) dealing with internationalization included mention of digital media in the broader sense. In most of these cases, however, strategy papers dealt with potentials in the areas of marketing and information transfer, not with some conception of innovative offers for international target groups or international experiences for domestic students (Zawacki-Richter & Bedenlier, 2015, p. 15). The authors therefore detect a considerable development potential for German HEIs regarding strategic anchoring of the use of digital media to expand internationalization activities and to access international target groups (Zawacki-Richter & Bedenlier, 2015, p. 23).

However, there appears to be some movement in this field. For example, scholars found HEI administrations to perceive MOOCs as a potential for advancing internationalization: According to the findings obtained by Gaebel et al. (2014), the most important strategic priority in HEIs concerning MOOCs is “increasing the international visibility and reputation of the institution” (p. 70); and the 2015 “Bologna Process Implementation Report” calls MOOCs an “internationalization instrument” (European Commission, EACEA, & Eurydice, 2015, p. 264). Finally, in the UNESCO Science Report, Aebischer (2016) notes: “MOOCs are becoming a tool for co-operation, co-production and diversity. Competition to produce the best courses, yes, but monolithic domination, no.” (p. 5)

The majority of studies including mention of strategic use of ICT for internationalization are found in the internationalization field. However, some studies that have their focus on strategic ICT use in higher education also include an aspect on internationalization. In particular, Gaebel et al. (2014) found that representatives from 8% of the institutions in their European sample regard “enhanc[ing] internationalisation” as the “most important objective of [their] institution regarding the development of e-learning in the future” (p. 47). In the “Trends 2015” study, Sursock (2015) reports a value of 9% for the same question (and for the same region). While both these numbers are low, Gaebel et al. (2014) conclude that “results from the survey seem to suggest that the advantages of e-learning for internationalisation have not yet been fully explored” (p. 47).

In conclusion, digitalization and internationalization are both key trends informing HEI strategies today. However, the potential of combining both is, according to literature, not being harnessed widely. Concerning the state of scholarly research,

it can be noted that the strategic linkage of internationalization to digital change has not been investigated exhaustively.

3.2.2 Administrative leadership, structure, and staffing

Internationalization and digitalization are both seen as senior leadership tasks at many HEIs. Gaebel et al. (2014), for instance, observe growing institutional interest in e-learning and digitalization, which changes governance and management structures of HEIs:

At 84 % of [participating] institutions, survey responses were submitted by senior staff in charge of e-learning (heads of e-learning centres, vice-rectors, etc.), or by special advisers to the heads of institutions. . . . The senior leadership status of most respondents reflects increasing institutional interest in e-learning. It also indicates changes in governance and management structure. Positions such as ‘vice-rector for information management and technology’ or ‘adviser to the President for ICT-based learning’ are very recent creations. Furthermore, the titles and status of respondents suggest that e-learning at many institutions is supported through centralised institutional structures and special projects and initiatives. (pp. 41–42)

Likewise in the internationalization field, senior management is often involved, as Helms and Brajkovic (2017) note for the U.S.: They observe that institution presidents are often seen as the top catalysts for campus internationalization (p. 10).

Olson, Green, and Hill (2005) add that comprehensive internationalization, understood as internationalization encompassing the entire campus, cannot be limited to single administrative entities, but must be part of a broader institutional effort. A similar discourse has been observed in Europe (Hänßler, 2011) with, for instance, Laitinen (2012) advocating for embedded internationalization, and asserting that internationalization cannot be marginalized to be the responsibility of a few (para. 7).

While both internationalization and digitalization are seen as senior or matrix leadership tasks, scholars have not yet exhaustively researched their connection – even though some organizations have recommended that they do so: The OECD, for instance, advises them to “reflect on all aspects of the relationship between the institution’s internationalisation strategy and ICT, including pedagogical quality, adaptation of materials to the learning needs of the host country, and the competency and capacity of faculty hired to teach on line” (Hénard et al., 2012, p. 31).

Extending the perspective of this review beyond international surveys and peer-reviewed publications, this research found a few examples of such connections of ICT and administrative management: The FernUniversität Hagen, for instance, employs a prorector for digitalization and internationalization – who unites both tasks in one person (FernUniversität Hagen, 2017, p. 29). And the Vice President for International Affairs at the Georg-August-Universität Göttingen advocates for installing strategic connections between internationalization and digitalization in HEIs (Casper-Hehne & Reiffenrath, 2017). As there is neither any research into whether such connections are the exception or the rule, nor into whether the fact of uniting the roles of internationalization and digitalization in one person leads to a proper con-

nection of the two areas of responsibility, it is not possible here to evaluate the pervasiveness of such practices.

Staff development for administrative staff is another aspect of relevance in this context. Institutions recognize the need to provide staff with globally focused professional development to support their engagement in internationalization processes (Helms & Brajkovic, 2017, p. 14). But does VI play a role in these contexts? And is ICT harnessed to provide staff development for internationalization?

While literature on this particular topic cannot be found, practical examples of such connections exist. For instance, COIL Consulting “works with campus leadership to frame and implement new COIL initiatives” (Rubin, n.d., para. 1). And in Europe, Uni-Collaboration provides a platform “aimed at supporting university educators and mobility coordinators to organize and run online intercultural exchanges for their students” (UNICollaboration, n.d., para. 2). Yet, literature on combination between the virtual and the international in administrative leadership and staffing is currently sparse.

3.2.3 Curriculum, co-curriculum, and learning outcomes

Scholar-practitioners in higher education internationalization differentiate between the curriculum and the co-curriculum for practical reasons: Curricula (i.e., formal learning requirements) are outside of the influence of administrative staff in international offices and other non-teaching entities, while co-curricula (i.e., support services and additional activities) are within their reach (cf. Helms & Brajkovic, 2017).²¹ In the series “Internationalizing the Co-Curriculum”, Ward (2015a, 2015b, 2015c) discusses “a wide range of programs and services separate from, but complementary to, the curriculum” (Ward, 2015a, p. 1). These include the integration of global and intercultural education into co-curricular programming for all students (Ward, 2015c): Intercultural training (p. 17) and leadership seminars, international themed lectures, symposia, or conferences (p. 9), and co-curricular virtual exchange projects (p. 16) are among the examples which she addresses.

The research at hand holds it to be irrelevant that a measure (for instance, a virtual exchange project) is part of the curriculum or of the co-curriculum, insofar as its *function* is identical: internationalizing student learning. This dissertation does not therefore include a detailed separation of curricular and co-curricular activities.²²

However, not all of the aspects which Ward categorizes as “co-curricular” are ranged in the category of *curriculum, co-curriculum, and learning outcomes* in this research: Both the use of ICT to enhance student affairs to meet international students’ needs (Ward, 2015a) and the support of international students, their orientation and

21 Leask (2015) prefers to speak of the formal, informal, and hidden curriculum. While the formal and informal curriculum correspond to the categories of curriculum and co-curriculum, the hidden curriculum refers to “unintended, implicit and hidden messages sent to students” (p. 8).

22 It would in fact be difficult to draw a clear-cut analytical line between curricular and co-curricular activities, because *which is which* differs from one institution to another, especially in between countries. In many cases, aspects which Ward categorizes as pertaining to the co-curriculum are part of the (formal) curriculum: For example, study programs around the world require intercultural training and international experiences in their curricula (cf., e.g., Goucher College, 2018, and many of the study programs listed on <https://www.internationales-management-studieren.de>).

integration (Ward, 2015b) are ranged in the category of *physical student mobility*: If ICT is used to smoothen administrative processes, to help students integrate into their new environment, or to complement orientations, in the analytical perspective adopted in this research, they have the function of supporting physical student mobility, and not the curriculum or learning outcomes.

Since the beginning of the IaH movement, scholars have recognized the potential of ICT for internationalization. In the 1990s, the EU project HUMANITIES discussed the potential of *virtual mobility* (Schweighofer, 1996). Since then, the term virtual mobility has circled the internationalization scene in higher education; in particular, following the publication of “The Virtual Challenge to International Cooperation in Higher Education” (Wächter, 2002). It includes contributions on “Physical Versus Virtual Mobility: A Paradigm Change in International Cooperation” (Scott, 2002) and on “The Possibilities and Limits of Virtual Mobility in International Cooperation” (van der Wende, 2002), in addition to national perspectives from Australia, the U. S., and Europe on the same topic.

Today, virtual mobility is often equated to a collaborative form of globally networked learning, virtual exchange, or COIL (de Wit, Egron-Polak, et al., 2015, p. 34), as the definition by Vriens (2010) demonstrates: Virtual mobility is described as “a set of ICT-supported activities that realise international *collaborative* [emphasis added] experiences in a context of teaching and/or learning” (cited in Lawton, 2015, p. 77; cf. also Op de Beeck & Van Petegem, 2012, p. 161).

ICT-supported collaborative international experiences have found influential advocates in UNICollaboration in Europe and the Collaborative Online International Learning (COIL) movement in the U. S. The former uses the term “virtual exchange” instead of COIL, while also “globally networked learning”, “telecollaboration” or “online intercultural exchange” are sometimes used (UNICollaboration, 2014, p. 1).²³ UNICollaboration proposes the following definition of virtual exchange:

Virtual exchanges are technology-enabled, sustained, people to people education programs. They entail the engagement of groups of students in online intercultural exchange, interaction and *collaboration* [emphasis added] with peers from partner classes in geographically distant locations, under the guidance of educators and/or expert facilitators. (UNICollaboration, 2014, p. 1)

Again, student interaction and collaboration across borders are described as the key features of virtual exchange, COIL, and similar forms of virtual mobility.

23 The term “virtual exchange” experienced a “stage victory” over “COIL” in 2019, when the annual “COIL Conference” was renamed “IVEC – International Virtual Exchange Conference” (SUNY COIL Center, 2019). The particular weakness of the term COIL has traditionally been its anchorage in the State University of New York (SUNY) program (and institute) with the same name, which, according to my own conversations at the COIL Conference of 2016, saw both SUNY staff and external actors struggle with the term as the primary one for virtual forms of collaborative international exchange. In 2019, the conference name “COIL” evidently fell victim to the gradual expansion of the SUNY COIL concept across the United States, and it is possible that the term will disappear in the discourse beyond SUNY in years to come. In the time period in which the data collection for the research at hand was carried out, however, COIL was the dominating term in the U. S. context (cf. e. g., de Wit, 2013).

Other scholars and practitioners, however, have conceptualized virtual mobility in a broader manner. Urry (2007), in his terminology of the proclaimed “mobility turn”, distinguishes five forms of mobility, its two physical ones being corporeal travel of people and the physical movement of objects. He adds imaginative travel (e.g., reveling in memories, movies or books), virtual travel (e.g., in virtual worlds like Second Life) and communicative mobility (movement of images and information) (p. 47; examples partially taken from Wimmer & Hartmann, 2014, p. 11; and from Urry, 2000, p. 2). COIL-style virtual mobility would in this categorization fall under communicative mobility, because it is the conversation in class that “travels”.

It would not be useful here to go into more detail about the different forms of mobility conceptualized by Urry or other scholars, because not all of them are relevant for the context of VI. For this research, it is sufficient to note that non-physical forms of mobility are diverse: Virtual travel, imaginative and communicative mobility together enrich the possibilities of virtual mobility in the higher education context. In this spirit, the EADTU EPICS consortium advocates for experimenting with a variety of virtual mobility concepts, including collaborative online learning, but also virtual seminars and projects:

Virtual mobility should not only be considered as an instrument to enrich physical mobility but as an innovative and fully fledged form of international mobility per se. It can add new and innovative educational opportunities, with the additional possibility to create an environment for several international universities simultaneously, rather than remaining in only one host and one home university like a physical mobility scheme usually provides. It can offer more varied modes of study which can be shorter, less time specific and place independent, as well as supply more personalised and more specialised opportunities for the student. It includes collaborative learning in online student communities, virtual seminars, virtual projects, joint thesis work, constructive group learning around wiki-like activities with different stakeholders involved, etc. An international experience by virtual mobility therefore is not restricted to one university or country and group of fellow students. (EADTU, 2010, p. 4)

Additional aspects that are less often discussed include virtual internships (Bijnens et al., 2006; Op de Beeck & Van Petegem, 2012; Ruggiero & Boehm, 2016; Vriens & van Petegem, 2011) and virtual field trips (Georama, 2016; Joo, 1999, p. 249; Veletsianos, 2010, p. 290).

Recent years have also seen the adjective “open” being added to the virtual mobility discourse: Authors discussing “open virtual mobility” argue that in the virtual space, virtual mobility does not have to be restricted to institutions which have signed bilateral institutional agreements. Instead, similar to the “free movers” part in the physical Erasmus + program, in which students can apply for mobility on online courses or learning activities from abroad independent of formal university agreements (Ubachs & Henderikx, 2018, p. 10). The Erasmus + funded Open Virtual Mobility (openVM) project takes up this idea (OpenVM, 2018). Finally, the authors of the Hochschulforum Digitalisierung envision a *Digital Bologna* which enables students

to pick and choose courses from different HEIs across Europe – without physically traveling to any of them (Hochschulforum Digitalisierung, 2016, p.75).

One central aspect that differentiates the opportunities of virtual from physical mobility is the fact that the former can be applied to fully-online and distance degrees much more easily than the latter. This central advantage has been recognized by, for example, Ruiz-Corbella and Álvarez-González (2014), who envision a virtual mobility program for distance education students in particular, modeled on Erasmus+ (cf. also Klöpper, 2014). Aguado, Monge, and Del Olmo (2014) also discuss full-semester online studies at a foreign university for distance students. And the Hochschulforum Digitalisierung (2016, p.80) acknowledges that the creation of a global community in virtual space can prepare online and distance education students for a career in an international environment.

The EU program *Erasmus + virtual exchange* embraces a broad array of innovative initiatives directed at online, distance, and on-campus education providers. These include programs facilitating moderated discussions, professional training for educators to develop virtual exchange projects, advocacy training, and interactive open online courses (European Youth Portal, 2018). Interestingly, Erasmus + virtual exchange is targeted not only at university students, but also at the general public, thus extending the reach of virtual mobility to non-formal contexts as well. Evidently, the Erasmus + label for such initiatives is deceptive to some extent: Contrary to the initiatives described by Ruiz-Corbella and Álvarez-González (2014) and Aguado et al. (2014), full-semester online studies at a foreign university are not among the sponsored projects. Instead, the program demonstrates that virtual exchange does not have to mean attempting to *clone* physical mobility, but that ICT opens up mobility potentials that did not exist in the past. The scholars cited here regard them as complementary to curricular internationalization in on-campus and distance education alike, as well as in non-formal contexts. As Ubachs and Henderikx (2018) note, it can also be an add-on to physical mobility: They expect that “in the future almost all students will be involved in virtual mobility, including those who go abroad” (p.7).

Beyond virtual mobility – even in its extended form that includes ideas such as the virtual Erasmus + or virtual internships – there are still more ways to internationalize the curriculum with ICT. Some of its aspects were already identified two decades ago, when Blight et al. (1999, p. 27) described a broad range of ways in which curricula can be internationalized, also addressing the potentials that new technologies and ICT can play in these contexts. The OECD study by van der Wende (1996) advocated for the use of new technologies for internationalization as well, as further elaborated in van der Wende (1997):

The reach and the effectiveness of internationalised curricula should be enhanced by an increased application of new technologies such as tele-conferencing, computer simulations, and open and distance learning techniques. This would improve the accessibility of these programmes to a wider and more diverse group of students, and could represent a more affordable alternative to the mobility of staff and students. (p.70)

She then provides the “OECD typology of internationalised curricula” as a basis for further endeavors in broadening this view on curricular internationalization beyond virtual mobility:

Type 1: Curricula with international subject matter (e.g. international relations, European law)

Type 2: Curricula in which the traditional/original subject area is broadened by an internationally comparative approach (e.g. international comparative education)

Type 3: Curricula which prepare students for international professions (e.g. international business administration)

Type 4: Curricula in foreign languages or linguistics which explicitly address cross-cultural communication issues and provide training in intercultural skills

Type 5: Interdisciplinary programmes such as area and regional studies (e.g. European, Scandinavian, Asian studies)

Type 6: Curricula leading to internationally recognised professional qualifications

Type 7: Curricula leading to joint or double degrees

Type 8: Curricula of which compulsory parts are offered at institutions abroad, taught by local academics

Type 9: Curricula in which the content is especially designed for foreign students (van der Wende, 1997, pp. 56–57)

However, even this extensive list does not appear exhaustive in today’s diversified higher education landscape that allows, for example, for the integration of foreign course materials including OER or MOOCs in curricula, and the recognition of non- or semi-formal qualifications such as open badges and micro-credentials (Blessinger & Bliss, 2016). In fact, many students today supplement their formal curricula with content from foreign HEIs, as a study by Willige (2016) shows: 31 % of the students enrolled at German HEIs who responded to her survey reported using offerings from HEIs in another country. Of these students, 63 % stated that they were using learning materials from HEIs abroad to complement their (domestic) lectures, 30 % reported attending foreign online lectures, and 13 % said that they took online courses (such as MOOCs) from outside Germany. A small percentage of 1% reported that they were enrolled in entire online degrees from abroad (p. 28). The fact that almost one in three students in the survey was found to take offerings from foreign HEIs, and the broad spectrum that students used, provides some indication that ICT has enabled students to define their own practices of internationalizing their learning.

The IAU 4th Global Survey contains indications as to the status which HEIs themselves accord to curricular and co-curricular VI: Asked which three co-curricular²⁴ activities facilitating internationalization were given the highest priority, 12 % of the respondents ranked “interaction with students in other countries using ICT” among their top three (Eggen-Polak & Hudson, 2014, p. 102). This number is rela-

24 there called “extracurricular”

tively low compared to other values polled, which seems to suggest that ICT use in curricula and co-curricula is still a low priority in internationalization efforts for HEIs. However, the authors of the IAU study warn us not to jump to conclusions because these low numbers may be explained, at least in part, by an issue with the terminology of curriculum vs. co-curriculum: if it “is a structured activity, perhaps respondent institutions found that it is already part of the curriculum, and does not fit in this group of options” (Egron-Polak & Hudson, 2014, p.103). This evaluation underscores the observation made earlier that the categories of curriculum and co-curriculum are not always useful and may even render survey results uninterpretable.

In conclusion, the diversified literature base shows that scholars have studied curricular VI in a variety of ways. However, most research on curricular and co-curricular VI has focused on virtual mobility, and in particular, on two of its aspects: collaborative online exchanges with classes abroad, and virtual exchange semesters in the tradition of physical Erasmus + exchanges. However, as has become clear in this chapter, the term “virtual mobility” has more than these two perspectives, and extends to areas which have not traditionally been associated with higher education internationalization: online and distance education, and non-formal learning. This chapter has furthermore detailed that the variety of forms which curricular (and co-curricular) VI can adopt – in virtual mobility and beyond – has not been investigated.

3.2.4 Faculty policies and practices

In this research, based on the conceptualization by Helms and Brajkovic (2017), faculty policies and practices concern the hiring, tenure, recognition, and the professional development of faculty and of other persons directly involved with teaching, including further academic and teaching staff. In order to simplify, I speak of faculty to designate all of these groups as opposed to administrative staff (discussed in Chapter 3.2.2).

In the context of this research, aspects that concern both an international and a virtual component regarding hiring and professional development with the focus on teaching are of interest. This research focuses on the *education* part of higher education, not on its *research* side, excluding aspects of international collaboration itself and the potential benefits of ICT to facilitate and enhance those. Research is, in fact, also not mentioned in the base model of CI (see *Table A 1*).

3.2.4.1 Hiring & tenure

Literature on the relationships between ICT, internationalization, and hiring and tenure practices is sparse. This research assumes that considerations of hiring faculty for their proficiency in combining the virtual and the international play a role at least in some cases, for instance, when an expertise in teaching international students online is what the job specifically asks for. Furthermore, this research assumes that experience in conducting transnational research projects at a distance also plays a role

in hiring practices.²⁵ Based on the developments in educational technology in recent years (“the technological revolution . . . permeates the academy” (Schuster & Finkelstein, 2006, p. 191; cf. also Selwyn, 2014, p. 7; Weller, 2011, p. 6) and on prior research, this research further assumes that such practices have increased in the past few decades. While it may be true in some cases that senior faculty are not versed in technology (“generational skills gap”, Grovo, n. d.), Picciano (2017, pp. 8–9) suggests that faculty are at the forefront of digitalizing higher education, rather than lagging behind. In support of this hypothesis, Teichler and Cavalli (2015, p. 124) argue that the digital transformation has captured academia as a whole, rendering digital collaboration and virtual mobility a staple. Additionally, for the aspect of teaching, Schuster and Finkelstein (2006) create a link between the internationality of instruction and ICT:²⁶

The physical movement of [academic staff] across international boundaries, however substantial, has become a less prominent dimension of internationalization as modes of electronic communication have obliterated borders, a process fueled by the preeminence of English as the language of scholarship and, increasingly, of instruction. (p. 11).

A powerful force permeating postsecondary education indisputably is technology. . . . Its effects are evident everywhere, including . . . [in] the ways technology eradicates the significance of national boundaries, at least for some scholarly purposes. Technology profoundly alters the two domains at the core of academic work: scholarship and instruction. (p. 14)

Taking the discussion one step further, Ladyshevsky (2016) analyzes the effect of hiring online lecturers from abroad on the internationalization of higher education. Based on a case study, he concludes that ICT has great potential to alleviate *brain drain* in developed and developing countries alike (cf. also Benderly & Kent, 2014) and to internationalize higher education, while maintaining (or even increasing) quality of instruction. Ladyshevsky (2016, p. 3) argues that new modes of working – enabled through ICT – will become a reality if hiring international faculty who continue to live abroad becomes a widespread practice. Yet, with the exception of isolated case studies and hypothetical considerations, there is little prior literature on the practices and potentials of combining ICT and faculty internationalization in hiring and tenure.

3.2.4.2 Faculty development

Scholarly literature addresses faculty development for both internationalization and digitalization – yet not often together. Beelen (2017b, p. 140) regards faculty as pivotal and “ultimate stakeholders” for both digitalization and internationalization, while Teichler and Cavalli (2015) and Schuster and Finkelstein (2006) discuss the necessity

25 The practice of valorizing international experience in staffing decisions appears to diverge across countries: While Sursock (2015) finds 84 % of the respondents to her EU-based study reporting that they were strategically “hiring staff with an international experience” (p. 82), Helms and Brajkovic (2017) found that only 10 % of the institutional representatives in their U. S.-based study specified international work or experience as a consideration in faculty promotion and tenure decisions (p. 21).

26 while also mentioning research as a second aspect of the ways in which academic work has changed, and continues to change

of staff being competent in *both* ICT and internationalization issues. Yet, none of these authors address both together.

For the aspect of internationalization, Brewer and Leask (2012) assert that “faculty development is critical” (p. 250), and respondents to the IAU 4th Global Survey agree: “Professional development for faculty to enhance their ability to integrate international/intercultural dimensions into teaching” is among the most frequently prioritized internationalization activities of HEIs worldwide (Egron-Polak & Hudson, 2014, p. 99). Helms (2015) adds that hiring and tenure decisions favoring faculty with a global focus in early stages of their career helps build a globally engaged professorate (p. 1).

Faculty development for digitalization is equally highly valued in the discourse as faculty development for internationalization: In Europe, 84% of institutions that participated in the EUA e-learning survey report entertaining staff development and support measures for e-learning (Gaebel et al., 2014, p. 38), while the NMC Horizon Reports of 2012, 2013, and 2014 rank “integrating technology in faculty education” among the most “significant challenges” for HEIs (Adams Becker et al., 2017, p. 5).

In a rare example of literature bridging internationalization and digitalization, Leask (2004) envisions that “staff development needs to focus . . . on utilizing the online environment to internationalise the learning environment and the learning experience” (p. 345).²⁷ The extent to which such aspirations have materialized since 2004 is not easy to determine – further research would be required. There is, however, some scholarly literature on the professional development for and via VI. One case study addressing the aspect of international staff in online education discusses a cross-border professional development course set up to train online tutors and mentors in online and distance education (Jayatilleke, Kulasekara, Kumarasinha, & Gunawardena, 2017). The exemplary course is itself delivered online.

From other studies, it is not clearly deductible whether there is a connection of faculty, internationalization, and digitalization. The IAU 4th Global Survey, for instance, asks for “intercultural skills-building workshops”, but only “for staff *and* students” [emphasis added], which does not allow a differentiation between the two groups (Egron-Polak & Hudson, 2014, p. 102).²⁸

While research is sparse, practice appears to be less so, as shown in the examples from the COIL 2016 conference, which I attended. Representatives of the University of Minnesota reported on their professional development program installed to prepare faculty for COIL projects (Nechodomu, 2016). DePaul University presented “structural synergies and a successful faculty development model to support an institutional COIL initiative”, delivered via blended learning (Morgan & Leon, 2016). In addition, the “ACE COIL Leadership Academy” is reportedly targeted at both administrative and teaching staff participating in COIL “leadership teams”

27 For more research on the pivotal role of faculty for internationalization, see Beelen (2017b), Finkelstein, Walker, and Chen (2013), Childress (2009), and Helms (2015). For digitalization, see Schuster and Finkelstein (2006), Ladyshevsky (2016), and European Commission (2014).

28 This item is reported among the top three co-curricular activities to enhance internationalization by 29% of respondents.

(American Council on Education, 2017a), an idea which, for instance, Esche (2018) builds upon. Scholars and administrators now pose the question “how to prepare professors who thought they’d never teach online” (Young, 2016) – nor internationally – more often than in the past.

In general, practices of internationalizing curricula (with ICT) clearly have a flipside for faculty who teach them (for instance, in international online programs), or who deliver virtual guest lectures (see Chapter 3.2.4): Not only do students who participate in these programs encounter an international experience, but the teaching staff involved do as well. Via such virtual teaching mobility (e.g., Tereseviciene, Volungeviciene, & Dauksiene, 2011), and from the interaction with foreign learning cultures, instructors can benefit from the deepening of discipline-related and intercultural competencies as a form of professional development.

Virtual staff exchanges were already envisioned during the “Second Virtual Erasmus Week”, organized by the Observatory on Borderless Higher Education (OBHE) well over a decade ago (OBHE, 2006), and years later, Bergervoet (2014) and Wannemacher and Geidel (2016) portrayed them as complementary to student virtual mobility. Tereseviciene et al. (2011) also present a project involving a blended model which integrates physical and virtual mobility for academic staff.

But what can a such virtual exchange look like? Wannemacher and Geidel (2016, p. 20) identify examples of international cooperation that involve digital components. These examples are all targeted at the curriculum, an observation which confirms the interconnectedness of the curricular and the faculty component of internationalization detected earlier in this chapter. Their examples include the following three categories: digitized guest lectures, joint development of digital or blended courses, and joint development of digital learning and teaching materials or of whole online study programs (p. 20).

In conclusion, this research found little scholarly literature on the subject of faculty development for and with VI, while practical examples appear to be more common. If “technology is transforming higher education and its faculty” (Finkelstein et al., 2016, p. 12), and internationalization is also an important issue concerning faculty policies, it appears to be useful to further research the practices of making faculty more competent in VI issues. Accordingly, Leask (2004) maintains that “it is important that a strong framework of professional development and student services supports the use of ICTs to achieve internationalisation outcomes” (p. 350).

3.2.5 Physical student mobility

This section is about the aspect of internationalization that generally dominates institutional internationalization priorities: physical student mobility. It both refers to the recruitment and support of international students (be they in degree or credit mobility), and to sending domestic students abroad (credit mobility).²⁹ Institutions around the world regard these as the two most important internationalization activi-

29 The term degree mobility refers to entire degrees earned abroad, while credit mobility refers to shorter periods spent abroad (to earn academic credit).

ties (Egron-Polak & Hudson, 2014, p. 47; Helms & Brajkovic, 2017, p. 25). VI in this sense is interrogated in relation to its potential to support both areas of physical mobility – incoming and outgoing.

The areas to discuss here are manifold and diverse: They include international online marketing and recruitment, the advising of domestic and international target groups, optimized processes to support physical international mobility of domestic students, and international student support.

3.2.5.1 International student recruitment and marketing

International online marketing and student recruitment are widespread in HEIs today. The two “classic” online marketing tools e-mail and website (cf. e.g., Krebs, 2006; Meffert, Bruhn, & Hadwich, 2015) are so common in U.S.-American HEIs that, to mine for novel technologies, the study “Mapping Internationalization on U.S. Campuses” (Helms & Brajkovic, 2017) excludes these two items from a question asking for technology use in recruiting efforts (– “other than email and web pages” (p. 25)). Social media marketing, virtual fairs and virtual advising with webinars and online sessions are regarded as *hotter* topics than older forms of *new media*. This is not only true in the USA. GATE-Germany (2016), for instance, presents a broad spectrum of ICT instruments that can be made use of for the entire spectrum of relationship marketing, from “prospect” via “client” to “spokesperson” (Kanlica, 2016). This portfolio includes websites, e-brochures, online events, virtual experiences, social media, apps, e-learning with MOOCs, blended learning, cross-channel marketing, customer-relationship management, and search engine optimization (GATE-Germany, 2016, p. 15). The “Research in Germany” virtual fair is one example in which international prospects can attend virtual presentations by German HEIs and visit their virtual booths to obtain information (Research in Germany, 2018). On the spokesperson end of the relationship marketing cycle, Fletcher (2016) presents a virtual alumni conference to foster the sense of affiliation among international alumni. Recruitment, “customer satisfaction” and “customer loyalty”³⁰ are on the one side of relationship marketing for HEIs. On the other are international visibility and reputation.

The diversity of approaches to international recruitment and relationship marketing with virtual means is complemented by OER and MOOCs, which scholars regard as important visibility and recruitment tools (Bischof & von Stuckrad, 2013, pp. 12 and 35–36). The authors of the Hochschulforum Digitalisierung (2016) publication, for instance, argue that online educational offers allow prospects from abroad to obtain direct insight into teaching at the university in question (p. 68–69). Findings from the EUA e-learning survey of 2014 confirm this argument for the participating institutions in Europe: “International visibility is by far the most common motivation for developing MOOCs, followed by the wish to boost student recruitment” (Gaebel et al., 2014, p. 54).

30 Because the designation of students as “customers” is controversial (cf. e.g., Guilbault, 2018), I use quotation marks here.

3.2.5.2 International student support

Ward (2015a) identified four key areas of international student support: welcoming international students, adjusting services and programs to meet their needs, facilitating interaction between international and other students, and assessing students' experiences (p. 3). While these cover the "client" through the "spokesperson" phase of the relationship cycle, this list lacks one area which has received an increasing amount of attention in recent years, and which is closely connected to digitalization: the pre-departure (or "active prospects", Kanlica, 2016) phase. Scholars acknowledge this phase as important for the onboarding process (e.g., Marsh, 2017), and national and sectoral organizations in many countries encourage the provision of pre-departure support for international students online, including the Academic Cooperation Association (n.d.) and the DAAD (Ripmeester & Pollock, 2011, p. 29).

The thematic expansion of preparatory and integratory offers in recent years is clear in offerings such as the MOOC "Study Skills for International Students" by the University of East Anglia, UK – "a course looking at key skills that international students need in order to be successful at a UK university" (Futurelearn & University of East Anglia, 2018), or the SPOCs (small, private courses offered only for students of the institution) in the BioCheMINternational project of the German Hochschule Fresenius, set up to mitigate potential deficits in knowledge and skills among international students coming to Germany (Daubenfeld, Ramstetter, & Zenker, 2016, p. 6). Klenner, Grimm, and Brauweiler (2016), present a flipped classroom approach to preparing international students of a particular partner institution for study abroad at the host institution, and Zhang, Robb, Eyerman, and Goodman (2017) discuss "virtual worlds and gamification to increase integration of international students".

Ripmeester and Pollock (2011) acknowledge the positive effects of ICT in both preparational and post-arrival support, benefitting not only international students, but also domestic peers (and the institutions themselves) if both are connected to each other (p. 39). Scholars have nevertheless noted that ICT can only be employed in meaningful and effectively supportive ways if the students for whom they are designed feel comfortable using them: Students from diverse cultural backgrounds may have different needs in this regard (Sleeman, Lang, & Lemon, 2016). Social media may also contribute to a "ghettoization" of international students if they keep to themselves instead of interacting with peers from their host institution, as Mikal, Yang, and Lewis (2015) have shown.

For all phases in which international student support is provided, scholars once again categorize the website and e-mail as "classic" tools (Kelo, Rogers, & Rumbley, 2010, p. 65). In recent years, offerings have diversified to include live chats, Google Hangouts, Facebook groups, and online orientation courses (Ward, 2015a, p. 4), in addition to video testimonials, diaries of international events, online visa application forms, downloadable brochures, and other online documentation (Kelo et al., 2010, p. 30). According to Kelo et al., 2010 (p. 30), offerings may serve to develop skills and (intercultural) competencies.

Op de Beeck, Bijmens, and Van Petegem (2008) propose a structure to cluster areas in which virtual support measures can be useful, namely: information available for exchange students, selection of students, flexible assessment methods, language preparation, cultural preparation, e-coaching, and evaluation and feedback on the exchange (p. 24).

Beyond the traditional applications in credit and degree mobility, the potential of ICT to integrate international students has also been exemplified in the case of refugees. These involuntarily mobile students differ from “traditional” international students, may be older, have family commitments, and they may (voluntarily or involuntarily) remain in the country (cf. Roman, Mizikaci, & Goschin, 2007, p. 168). Linking internationalization and digitalization to refugee education, Zimmer (2017) presents the educational model of Kiron, which offers self-paced online courses (MOOCs), live online tutorials, and on- and offline student services (p. 5). Funded by the German Ministry for Education and Research (BMBF), Kiron and its partner institutions, which include HEIs in Germany and abroad, open the opportunity for students to transfer to “offline” degrees at the partner HEIs after ca. two years of online learning (Zimmer, 2017, p. 4). Only about half of Kiron students reside in Germany, which demonstrates the borderless attractiveness of such initiatives for refugees who are involuntarily mobile (Roman et al., 2007, p. 168; cf. also Witthaus, 2018).³¹

Other initiatives for integrating refugees include (single) MOOCs and online information platforms (Rampelt & Röwert, 2017, p. 4). Such initiatives for refugees have in fact been installed in a number of countries including in Germany (Rampelt & Röwert, 2017; Seyfarth, Bremer, & Paland-Riedmüller, 2016; Zimmer, 2017), Sweden and the UK (Traxler, Contreras, Morais, & Creelman, 2017), and the USA (Rampelt & Röwert, 2017).

3.2.5.3 Supporting education abroad

Regarding the support of outbound mobility with virtual means, the literature describes all phases of a physical exchange experience (prior, during, and after) as supportable by ICT. Op de Beeck et al. (2008) exemplify cultural preparation, support while abroad, and re-entry support with online courses, blogs, and e-coaching in virtual discussion areas. Physical mobility experiences are in this sense “enframed” (Bishop, 2013) with online presences. The Bologna Follow-Up Working Group on Mobility and Internationalization (BFUG M&I WG, 2015) recommends predeparture use of virtual tools, such as e- and blended learning offers, social media, interactive information tools, chat, and video (p. 33). While such predeparture offerings in fact dominate the (virtual) landscape of supporting outbound mobility (cf. e.g., Prior Wojenski, 2014), Mikal and Grace (2012) stress the additional potential of ICT to support students during their stay abroad. They expect ICT-facilitated grids of social support provided by home institutions to enhance students’ confidence and risk-taking while

31 The importance of including “involuntarily mobile” students in the internationalization discourse was among the central outcomes of the WES-CIHE Summer Institute at Boston College on the subject “Innovative and Inclusive Internationalization in Higher Education” in July 2018, which I attended.

abroad (pp. 287–288). Further, Op de Beeck et al. (2008) make the case for including virtual post-exchange cultural support to mitigate the reverse culture shock (p. 35). Another potential benefit of engaging returnees, as described by the authors, lies in their role in counseling prospective new exchange students, thus closing the circle by linking feedback given and information provided (p. 128). Ward (2015b) also highlights the importance of the re-entry phase, for the same two reasons just identified: “Students are returning to their home campus with global experiences and new perspectives to share with their peers – and also with the social and psychological challenges of re-entry” (p. 7).

Op de Beeck et al. (2008) highlight yet another aspect: the potential of virtual student assessment opportunities for outgoing exchange students. While abroad, students are unable to take campus-based courses and examinations at their home institutions, but they may take some of them online (pp. 36 and 130–138). While at the time of the publication by Op de Beeck et al. in 2008, this appeared to be a rather uncommon practice, eight years later, the HISBUS study in Germany (Willige, 2016) found that 91% of the study abroad students in their sample reported having taken online courses at their home institution while abroad, and nearly all (98%) conveying that they participated in virtual assessments from their home institution. Nine out of ten students (89%) in the sample reported that they took virtual assessments of the foreign institution after having returned home (p. 16), which can be interpreted as another aspect of re-entry facilitation: the opportunity to complete studies begun abroad even after leaving the host institution. In fact, virtual student support can be a two-way street: Not only can sending institutions provide ICT infrastructure and services to support study abroad, host institutions can do their part by providing similar offerings (pre, during, and post) for their incoming students, (ideally) complementing one another (also see Chapter 3.2.5.2). This idea of reciprocity is reflected in the following quote by the BFUG M&I:

Host institutions could provide virtual platforms or newsletters connecting mobile participants with their own staff and students in order to support exchange on local activities or academic culture. The sending institution and the mobile student can stay in touch via blogs, Moodle, e-mail, Skype, Facebook, intercultural diaries or regular reports, especially in case of an internship where technical training aspects are relevant. (BFUG M&I WG, 2015, p. 34)

Another recognized way of supporting outbound mobility with ICT is an enhanced exchange of data among institutions, as specified, for instance, in the “Erasmus Without Paper” project (Erasmus Without Paper, n.d.), and in the Groningen Declaration (Groningen Declaration Network, 2012), which has been adopted by a worldwide network of signatories (Groningen Declaration Network, 2018). The emergence of blockchain technology has fueled the discussion around international data portability and security, potentially leading to a breakthrough in making student data transferable in a secure manner (European Commission, 2018, p. 11; Stacey, 2018; U. S. Department of Education, 2017, p. 53).

In the light of ICT permeating study abroad programs, scholars have argued that more students may opt to spend time at an HEI in another country, because phases abroad can be more easily integrated into their studies, and because support structures from their home institutions are easily accessible during their entire stay (Hochschulforum Digitalisierung, 2017, p. 16).

In fact, degree mobility has seen a significant upsurge in recent years – from 2.7 million in 2004 to 4.3 million in 2014 (DAAD, 2017, p. 19; OECD, 2017, p. 295), and short-term (credit) mobility has also risen around the world, including in Europe (European Commission, 2017, p. 16), the USA (Snyder et al., 2018, p. 472), and Australia (Australian Government Department of Education and Training, 2017). Further research would be necessary to investigate the role of ICT in this development. Clearly, however, as numbers of physical mobility are rising, so do the numbers of students who could benefit from support generated with ICT.

This section has shown that literature describes a multitude of approaches towards supporting physical mobility with virtual means. It seems advisable to structure the diverse and complex field and carve out core aspects for a more systematic approach towards VI in physical student mobility.

3.2.6 Collaboration and partnerships

The CI component discussed in this section encompasses institutional partnerships, collaborative degree programs, institutional presence abroad, and other offshore programs – i. e., a broad spectrum of transnational activities. The following section examines the scholarly discussion on the role of ICT in these contexts.

Wannemacher and Geidel (2016) argue that digitalization touches on all areas of international cooperation between HEIs. Learning management systems and digital communication and collaboration infrastructures enable, for example, the availability of digitalized language courses and learning materials across institutions, to work on trans-institutional projects, create virtual text depositories, photo galleries and podcasts, run simulations, offer online tutorials, and to uphold contact to students abroad (Wannemacher & Geidel, 2016, p. 17). This section examines the diverse areas of international collaboration and partnerships to provide an overview of the diverse ways in which scholarly literature addresses ICT for these contexts.

3.2.6.1 International partnerships and collaborative degree programs

Scholars have argued that via novel forms of ICT use, digitalization advances the field of international HEI co-operations at institutional level (Hochschulforum Digitalisierung, 2017, p. 17). An example of an ICT-enabled institutional partnership is the Latin America-centric consortium *Aula Cavila*.³² It takes advantage of the Internet to create new kinds of international collaborations – and a “borderless” university campus. The consortium’s objectives include the development of an open community via Moodle, an electronic knowledge base for lecturers, shared curricula, spaces for e-books and electronic documents, and a virtual front desk for the administration

32 Most of its members are from Latin America, while two are from Portugal and one is from Spain.

of the consortium (Aula Cavila, n.d.). Aula Cavila's founders argue that this type of collaboration would not be possible without ICT and virtuality, and that a multitude of synergies can be realized via the virtual space (Aula Cavila, n.d., p. 1).

New kinds of international collaborations among HEIs also include the joint development and use of MOOCs, SPOCs, and other virtual educational resources (such as OER). Institutions collaborating this way include the EuroTech Universities Alliance, in which HEIs from Germany, Denmark, the Netherlands, and France collaborate to develop MOOCs (Hochschulforum Digitalisierung, 2016, p. 79).

Besides collaborations that focus on the sharing and joint development of knowledge and course materials, HEIs also use ICT to facilitate collaborative curricula in the form of joint or double degrees and certification programs.³³ For instance, Helms (2014) found that institutions use blended models for joint and double degree delivery, including programs with a substantial online component combined with a short-term, in-person exchange experience (p. 19). Such blended forms of joint or double degrees that incorporate ICT to amplify the study abroad experience have a lot in common with those measures discussed in Chapter 3.2.5 on *physical student mobility*: Online preparatory courses and COIL, which are highlighted by Helms (2014, p. 19) as potential aspects of blended joint/double degrees, have been mentioned for "regular" study abroad as well (see Chapter 3.2.5.3). Among institutions offering blended joint degrees with part of the courses taking place online are Lille University of Science and Technology (France) and Georgia Institute of Technology (USA). In their joint program, about 20 % of courses are offered online (Delisle, 2009, p. 22).

Joint and double degrees are widespread: According to the IAU 4th Global Survey, representatives of 64 % of the HEIs in the sample reported that they were offering joint degree programs, and an even higher percentage (80 %) stated having double degree programs in their portfolio (Egbron-Polak & Hudson, 2014, p. 107). Obst and Kuder (2012) found that nearly all of the institutions responding to their survey³⁴ were planning an expansion of their current offers of joint or double degree programs in the future (p. 5). While HEIs appear to see great potential in joint and double degrees, a comprehensive analysis of ICT use in them has not been conducted to date.

3.2.6.2 Institutional presence abroad ("physical" TNE)

Scholars define institutional presence abroad as any form of cross-border activity that includes a physical presence in a foreign country, including branch campuses, study (abroad) centers, joint ventures, and foreign-backed institutions (Wilkins, 2018). While Knight (2016b, p. 34) and François et al. (2016, p. 8) include (fully) distance

33 Obst and Kuder (2012) distinguish joint from double degrees as follows: "In joint-degree programs, students receive a degree certificate issued jointly by the host institutions; in double-degree programs, students were given degree certificates, issued separately by each of the institutions involved in the program" (p. 6). This definition is shared by scholars and institutions in the field, including Knight (2011) and the European Union (2008, p. Article 4).

34 95 % of 245 institutions in 28 countries

education in their definitions of TNE, this research considers them separately in order to better discriminate different potential applications of VI.

Among practices of blending on-campus TNE with virtual elements from the home campus of the awarding institution to support TNE students is an online support system for TNE portrayed by Spichkova, Harland, and Alharthi (2016). Annabi and Wilkins (2016) report on smaller online learning elements (MOOCs and OER) being used in TNE, and Shao and Crook (2015) discuss the potential of a group blog to support cultural learning among TNE students. While a diversity of case studies can be found on the role of ICT for branch campuses and other forms of institutional presence abroad, the need remains to bring them all into a scheme – and to identify practices and potentials which scholars and practitioners may not yet have seized.

3.2.6.3 Online and distance TNE programs

Part of “other offshore programs”, ODE programs range in the *collaborations and partnerships* category in the CI classification by Helms and Brajkovic (2017). This categorization is in line with the general scholarly discourse, which regards online and distance education as one of the facets of TNE (François et al., 2016, p. 8; Knight, 2016b, p. 34), see the previous section. However, it becomes a little complicated here. While classified as *collaborations and partnerships*, ODE often does not include a collaborative element, but is developed and offered independently of foreign partner institutions. Knight herself struggles with this:

An evolving and complex area of TNE is the borderless world of e-learning. As e-learning continues to expand and innovate, more attention will need to be given to how it aligns with the distance education “independent” and “collaborative” categories of the proposed TNE framework. While the key elements of curriculum design, qualifications offered, and academic oversight are key areas of consideration, others may need to be considered. The issue of TNE through e-learning merits further research. (Knight, 2016b, p. 45)

What complicates things is that ODE does not always have an international mission. Rather, it is often targeted at a domestic clientele. And still, many ODE programs find international students enrolling in them – due to their virtuality and, therefore, accessibility. Institutions around the world observe such tendencies, including Germany’s distance university in Hagen (DAAD, 2012, p.8) and Georgia Tech in the U. S., whose Online Master of Science reportedly recruits 18 %³⁵ of its enrollment from abroad (Choudaha, O’Sullivan, Kinser, & Besana, 2016, p.10). Even a brand name that suggests internationality does not always reflect a truly international mission. For instance, the online branch of Pennsylvania State University, Penn State World Campus, is “not really chosen to promote itself to the world, . . . though international students can obviously enroll” (Kinser, 2016). This may explain why some institutions do not consider ODE a form of TNE (e.g., DAAD, 2012, p.8). Others

35 415 of 2.292 students total in spring 2015

argue that ODE is *per se* international, because virtual learning arrangements naturally address an international target group (Projektgruppe Virtuelle Bildung, 2014, p.72).

In fact, while many institutions offering online degrees do not give international students who enroll much thought, there are programs that specifically target students abroad. Among them are online “virtual universities” (François et al., 2016, p. 8; Knight, 2016a, p. 328), and consortia such as the African Virtual University, which is expanding on the African continent (Bannier, 2014, p. 81). Also, fully online joint or double degrees have been implemented. Examples include the joint Master of Distance Education of the University of Maryland University College (UMUC) and Carl von Ossietzky University of Oldenburg (Bernath & Rubin, 2003) and the double degree in information technology offered by Carnegie Mellon and Tecnológico de Monterrey (Knight & Lee, 2012, p. 348).

Whether or not institutions that offer online and distance programs target international students, HEIs may offer *support* to them. One example is the so-called “iM-OOC” by SUNY Empire State, “Mastering American E-Learning”. What is noteworthy about this free course is that it prepares not only for online TNE, but also for online or blended study that includes a physical component (Chukhlomin, 2016). This aspect touches on the question of intercultural appropriateness of online learning, see Gunawardena (2014): “Although distance learning can transcend geographical boundaries, differences in sociocultural contexts, values, and expectations of diverse educational systems and learners may prove to be its greatest challenge” (p.75).

Sadykova (2012) highlights the particular challenge that online and distance education poses to international students, as compared to on-campus education:

International students not only have to possess rich vocabulary, good command of grammar rules and be skillful in academic writing, but they also need to be aware of colloquialisms, set phrases, slang, culturally specific analogues and metaphors, as well as references to American (popular) culture . . . In the virtual learning environment, these language issues could be complicated due to lack of visual cues and immediate feedback. (Sadykova, 2012, pp. 40–41)

Gunawardena (2014, p. 87) acknowledges that, while distance learning can easily transcend geographical borders, it may not be as easy for international students to thrive in these environments. Differences in sociocultural contexts, values, and expectations have implications for the design of online learning environments and learner support systems to meet the needs of diverse learners.

There are several case studies on programs utilizing ICT to support campus-based TNE (see above), although there is not yet much literature discussing support for international online students specifically (de Wit, 2017). Nevertheless, scholars regard online education as a key trend impacting TNE (Kizhakeparampil, 2008, p. 84; Marginson & van der Wende, 2007, p. 42); and in a webinar on the future of TNE, participants rated online education as its biggest growth opportunity: Of 204 participants, the largest portion (41%) opted for “online education”, ahead of “joint/dual

degrees” (26 %), “validation/franchise” and “international branch campuses” (each 10 %) (Choudaha et al., 2016, p. 5). One recent technological development, blockchain technology, may become an additional enabler of transnational ODE, in addition to supporting data transfer in campus-based education abroad (see Chapter 3.2.5.3). UK-based Woolf University commends itself as the world’s “first blockchain university” (Pells, 2018; Woolf University, 2018), and as rendering learning borderless by using the digital ledger to administer and regulate contracts and payments, and to record and store academic achievement (Pells, 2018, para. 2). While Woolf University allows students to take courses physically, its declared aim is to provide education “in a geographically agnostic manner” (Woolf University, 2018, p. 2).

It remains to be seen if blockchain technology and initiatives like Woolf University will “transform the way humans educate themselves” (Woolf University, 2018, p. 12), as the founders of that university proclaim. Critical voices may raise the point that online degrees have been around for quite some time, and that blockchain technology does not *per se* transform the options available for learning and teaching in the virtual space. After all, Woolf University announces the facilitation of personal teaching through Skype, but adds that it equally supports traditional, face-to-face teaching (p. 1), which does not appear as radical as “the world’s first blockchain university”, or “geographically agnostic” (p. 2) higher education. It remains to be seen how much disruptive potential blockchain technology really holds for higher education internationalization (cf. also Chapter 3.2.5).

In conclusion, this section touched on the complexity of VI in ODE, and revealed that scholars are divided over the role of ODE for internationalization, and even struggle with categorizing it (e. g., Knight, see above). In this dissertation, my aim is to bring some analytic clarity into this issue.

3.3 Summary: the state of research on VI

The literature review showed that combining ICT and an international dimension in higher education is not new. The term “virtual internationalization”³⁶ has appeared in the scholarly discourse in several facets, as a term alternatively designating internationalization with the help of ICT in the areas of the curriculum, TNE, international marketing, or ODE. However, scholars have not yet described VI (or a similar term) as a comprehensive concept. A close examination of the individual categories of the model of Comprehensive Internationalization (CI) shows that the influence of ICT has not been explored and conceptualized in a comprehensive manner for any of them in the scholarly literature.

While scholarly literature is not exhaustive on ICT use in all of the categories of CI, this research has found manifold examples of VI when extending the search scope beyond the peer-reviewed journal world. While HEI strategy papers generally

36 alternatively labeled online internationalization, digital internationalization, or e-internationalization

do not include mention of a combination of the virtual and the international (Zawacki-Richter & Bedenlier, 2015), the gray literature of project reports and conference proceedings revealed practices flying below the radar of strategic internationalization or digitalization. Individual research projects (EICL, HUMANITIES, EPICS, OpenVM, BioCheMINTernational, Aula Cavila) that address more aspects of VI than the scholarly literature were identified. This research found that such projects were often presented at conferences (COIL, Hochschulforum Digitalisierung, IEEE, EduLearn, ERACON, UniCollaboration, GfHf Jahrestagung, BMBF Fachtagung). Conference proceedings are not usually indexed in common research databases and therefore this research assumes that not all facets of VI were identified in the literature review. Further research is therefore required to conceptualize VI as a comprehensive concept. This dissertation aims to address this gap.

4 Methodology

In this chapter, I describe the methodological approach adopted in this dissertation. After discussing alternative approaches, I describe the document-based content analysis methodology applied to this piece of research. Following the step-by-step approach to content analysis developed by Krippendorff (2013), I describe how sampling frame and sample were selected, and how the conceptual model was established following a multilayered analysis comprising iterative coding and text mining methods.

4.1 Assessment of potential approaches

VI is difficult to grasp. As Chapter 3 has shown, ICT-supported internationalization is present in diverse organizational entities of higher education institutions (from classroom to administration), and in different stages of institutionalization (from ad hoc to strategic). Some endeavors are small-scale, *grass-roots* developments, like the professor inviting an expert from abroad to hold a webinar for domestic students. Examples like this one will not figure in the respective institution's official documents such as strategy papers, annual reports, etc. – and yet such practices provide important aspects of VI. Even the more institutionalized endeavors, such as a social media platform for international students established by an HEI's International Office, will not necessarily figure in its official documentation. Instead, such measures often blend in with broader internationalization or digitalization efforts and are not themselves part of an institution's high-level discourse. This creates a challenge when attempting to collect data in order to establish a conceptual model of VI: How can relevant information be identified and accessed, and how can the conceptual model be saturated?³⁷

Methods commonly used in educational research include observation-based research, questionnaires, in-depth interviews, focus groups and group interviews, and systematic reviews (Arthur, Waring, Coe, & Hedges, 2012). These have, however, been evaluated as suboptimal for addressing the research question at hand, as outlined in the following.

This research dismisses observation-based research because the information necessary to address the research question is spread across institutional entities (from classroom to administrative) and across institutions around the world. It would not have been useful to observe students, faculty, or administrators dealing

37 "Saturation is the point in data collection when no new or relevant information emerges with respect to the newly constructed theory." (Saumure & Given, 2008, p. 196)

with technology, for the purpose of developing a comprehensive model valid for all institutional levels.

Developing a questionnaire to hand out to experts at HEIs appeared as an attractive option at first glance. A major advantage of this method would have been the possibility of including a large and diverse sample in the survey. Yet, in line with the exploratory character of this research, it would have been necessary to rely mainly on open-ended questions to “solicit a long, more detailed response about the phenomenon being discovered” (S. R. Jones, Torres, & Arminio, 2014, p. 146), which would have complicated the interpretation of results. The major weakness of applying questionnaires in this research, however, would have been the problematic selection of survey participants: The aim of this research being to explore different dimensions of a phenomenon present at diverse organizational levels of HEIs (managerial, administrative, program and faculty levels), this research did not presume that one person within an HEI would have an expertise on, for instance, each one of the small-scale ad hoc initiatives and research projects in different departments. The criterion “whether the respondent can answer the question” (S. R. Jones et al., 2014, p. 146) would have been at risk. Due to the diverse levels of expertise of survey participants, one option would have been to develop different questionnaires, adapted to diverse target groups – and then to hand them out to experts across HEIs in different countries to include both Western and non-Western applications of and approaches towards VI. The questionable practicability and comparability of the results of a such method are obvious, and additional concerns can be raised regarding the interpretability, reliability, and validity which may result – among other reasons – from the inconsistent terminology used across HEIs and countries (see in particular, Chapters 3.1 and 3.2.3).

The method of interviewing holds some of the same disadvantages as the questionnaire method; in particular, identifying the right experts on each and every aspect of the topic under investigation. It creates the additional disadvantage that, for practical reasons, interviews can only be conducted with a more restricted number of people than a survey. The question of sufficient variation of responses is therefore more pronounced than in the survey method. Despite these difficulties, I have, for some time, cherished “grounding” the theory on interviews, controlling the data collection process with theoretical sampling and constant comparison “moving back and forth between data and conceptualization” (Charmaz, 2009, p. 138). However, I dismissed the Grounded Theory approach (as first described by Glaser & Strauss, 1967) because of the difficulty of theoretical sampling.³⁸ If it is already difficult to identify relevant experts within the single HEI – and across HEIs within one country –, how should the theoretical sampling go about in multiple countries in order to maximize the variety of responses and reach (theoretical) saturation?

38 “Theoretical sampling is a method of data collection based on concepts/themes derived from data. The purpose of theoretical sampling is to collect data from places, people, and events that will maximize opportunities to develop concepts in terms of their properties and dimensions, uncover variations, and identify relationships between concepts.” (Corbin & Strauss, 2008, p. 143)

Corbin and Strauss (2008) conceptualize saturation as follows:

“Saturation is usually explained in terms of ‘when no new data are emerging.’ But saturation is more than a matter of no new data. It also denotes the development of categories in terms of their properties and dimensions, including variation, and if [sic] theory building, the delineating of relationships between concepts.” (p. 143)

Saturation would, in fact, have been difficult to determine because it would have been impossible to approach relevant experts from each and every country (and within these, from all relevant institutional entities from HEIs in which VI is practiced), and thus include diverse ideas informing the different components of VI. The model of VI, if comprehensive, has to be informed by a truly diverse sample which also includes Western and Non-Western perspectives to make sure that no new properties, dimensions, and variations would be found in HEIs and countries that I had not included.

This research determined focus groups and group interviews as equally inappropriate because the aim of the research is not to find out about a few experts’ “perspectives on ideas, products, and policies” (Jarvis & Barberena, 2008, p. 286), but about collecting these ideas, products, or policies in the first place, without judgement about their usefulness. The difficulty of assembling relevant experts is even more pronounced in focus groups and group interviews than in the methods listed above.

I looked into the option to conducting a systematic review (Gough, Oliver, & Thomas, 2012b) instead of the narrative literature review conducted for this research. However, the function of the literature review in this dissertation was not to identify and synthesize “evidence” (Gough, Oliver, & Thomas, 2012a, p. 6) from previous research to answer a specific question. Rather, it served the exploratory function commonly fulfilled by a narrative literature review to “develop increasing understanding of a phenomenon under examination” (Boell & Cecez-Kecmanovic, 2015, p. 165). The field of VI having been uncharted territory prior to this research, an understanding of this hitherto unconceptualized term had to be established before it would be possible to carry out more systematic research. The relevance criteria necessary for a systematic literature review, facilitating “explicit procedures to determine what studies are relevant” (Boell & Cecez-Kecmanovic, 2015, p. 165) could not be defined in advance. As systematic reviews, with their focus on collecting “research evidence” (Gough et al., 2012a, p. 4; Hammersley, 2002), serve a different function than charting a territory, Ridley (2012) considers them as “clearly different from a dissertation or thesis literature review” (p. 189).

Scholars have suggested that systematic and narrative reviews are not exclusive (e.g., Hammersley, 2002). Zawacki-Richter et al. (2018), for example, have proposed a follow-up on their exploratory research with “more in-depth content analysis, for example by means of a systematic review” (p. 243). It would have been possible to follow up on the global understanding established via the literature review conducted for this dissertation with a systematic review of relevant journals to attempt collect-

ing further “research evidence” on aspects identified in the narrative review. Krull and Duarte (2017), for example, proceeded accordingly. I have not selected this as the method of choice for this study because, as Chapter 3 has shown, not all the practices in VI find their way into the peer-reviewed journal world. The selection of the population on which the systematic review would be performed would therefore have been problematic. Certainly, a systematic review would also have been possible on a document base that does not consist of journal articles, as Gasevic, Kovanovic, Joksimovic, and Siemens (2014) have demonstrated for research proposals. However, the inconsistent terminology used across HEIs (see Chapters 3.1 and 3.2.3) would have challenged the research design and interpretability of results.

Having dismissed other sources of information that educational researchers commonly tap into, I realized that this research would be based on documents, evaluated “in such a way that empirical knowledge is produced and understanding is developed” (Bowen, 2009, p. 34). Scholars recognize that “documents of all types can help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem” (Bowen, 2009, p. 29; cf. also Merriam, 1988; Sadykova, 2012, p. 84).

Which documents would be suitable? It would seem appropriate to refer to strategy papers and other official institutional documentation, as Zawacki-Richter and Bedenlier (2015) did for a related study. However, they showed, for their sample of German HEIs, that internationalization strategy papers and other strategy documents rarely made an explicit connection between the virtual and the international. In only 21 of 124 HEIs in their sample was some kind of connection made, and these mostly referred to a singular aspect of internationalization: international marketing (Zawacki-Richter & Bedenlier, 2015, p. 15).

Instances of VI do not appear to be in the strategic focus of institutions: Many of them are not positioned at the broader, strategic level, but instead developed in smaller-scale departmental projects or by the individual initiatives of faculty, administrative staff, or other actors within HEIs (see Chapter 3.3).

Certainly, documentation below the institutional (strategic) level would be possible to identify and analyze. Yet, the decision on which other HEI-internal documents to include and which to exclude would threaten to result in arbitrary criteria. A multiple case study approach would have been necessary to enable a purposeful selection of HEIs and analysis of their documentation – potentially in combination with interviews or questionnaires (cf. e.g., Yin, 2014). However, criteria for the selection of cases would have been difficult to establish and more difficult to justify: There is a noticeable danger of researcher bias in the selection of cases. Even if sound, transparent criteria could be identified (for instance, via theoretical sampling, cf. e.g., Eisenhardt, 1989), the data collection would be difficult to operationalize if many institutions were to be taken into consideration (cf. Stake, 2006). Then, even with a large number of case studies, saturation of the model would be at least questionable, because the existence of further instances of VI can hardly be excluded.

Having considered alternative sources of information, I base this study on the document type of conference proceedings from relevant fields. The following chapter serves to elaborate why this data type was selected before the methodology of determining relevance criteria and of accessing information within the data base is presented.

4.2 Documents: the data base

The literature review (Chapter 3), revealed that scholarly literature is not exhaustive in several aspects concerning VI. Scholarly and professional conferences and their proceedings provided insight into VI practices within HEIs beyond the more formal scholarly literature. Scholars have, in fact, acknowledged that at conferences, the increasing discursive relevance of the digitalization of universities plays out (Heidkamp & Kergel, 2018, p. 42; Zawacki-Richter et al., 2018, p. 246) and that conference proceedings hold valuable information worthwhile exploring (Indulska, Hovorka, & Recker, 2011, p. 66; Zawacki-Richter & Naidu, 2016, p. 263). Conferences are places where, on the one hand, educational scholars present their research and findings, but on the other hand, also administrative professionals, representatives from educational technology companies, and other actors discuss their projects, products, and ideas. Thus, they unite a broad spectrum of scholars and professionals in their respective fields, who present various perspectives including strategic, faculty-based, administrative lenses, and perspectives from the external environment of the systems of higher education (e. g., national or sectoral entities such as ministries of education or national bodies in charge of international affairs in education (e. g., the DAAD), as well as education technology companies).³⁹

For instance, in the internationalization field, the European Association for International Education (EAIE) conference provides “a platform for strategic exchange” for “academic and non-academic professionals” (EAIE, 2018, para. 1). Similarly, the American NAFSA Annual Conference & Expo asserts that it serves “the diverse needs of the entire international education community” – with circa 10,000 attendees from more than 3,500 institutions in over 100 countries each year (NAFSA, 2018, para. 2). In the southern hemisphere, the Australian International Education Conference (AIEC) attracts 1,300 delegates from 500 organizations, including “international education practitioners, teaching staff, researchers, policy makers and other stakeholders” (AIEC, 2019, para. 1), with 15–20 % of participants from overseas.

39 My personal experience of conferences that I attended (and those at which I presented) in the fields of both internationalization and online and distance education confirms this observation made by Indulska et al. (2011). Conferences attended in the course of this dissertation research were: HFD Digital Turn, Berlin, 2015; NAFSA Regional Conference, Alexandria, 2015; SUNY COIL Conference, New York, 2016; EDEN Research Workshop, Oldenburg, 2016; AIEA Annual Conference, Washington, 2017; ICDE World Conference, Toronto, 2017; HPI-SAP MOOC Symposium, New York, 2018; WES/BC-CIHE Summer School, Boston, 2018; HFD Digital Turn, Berlin, 2018; COER Inaugural Meeting, Oldenburg, 2018.

In the online and distance education field, the European Distance and E-Learning Network (EDEN) gathers a “Network of Academics and Professionals (NAP)” (EDEN, 2017, p. 2) of 200 institutional and 1,200 individual members at its annual conference and research workshops. In the USA, the Online Learning Consortium (OLC) prides itself in uniting “thousands of faculty, system administrators, course designers and interested professionals in the pursuit of quality digital learning” (OLC, 2018, para. 4) at its conferences. The annual conference of the Open and Distance Learning Association of Australia (ODLAA) unites a network of “educators, instructional designers, educational researchers, education consultants, and administrators from across Australia and overseas dedicated to advancement of research, practice, and support of education ‘across time and space’” (ODLAA, 2018, para. 1).

This diversity of academics and professionals (and thus, diversity of perspectives) present at conferences in fields relevant for this dissertation results in the presentations and sessions being “rich in relevant information” (Flick, 2014, p. 177) concerning all different levels of higher education, from management to administration to the individual classroom and faculty. To access this information, I therefore chose to conduct a content analysis of the document type of conference proceedings. As Flick (2014) notes:

Analyzing a document is often a way of using unobtrusive methods and data produced for practical purposes in the field under study. This can provide a new and unfiltered perspective on the field and its processes. Therefore, documents often permit going beyond the perspectives of members in the field. (p. 359)

Flick is not alone in praising document analysis for its unobtrusiveness (cf. also Julien, 2008, p. 121), and for its unfiltered perspective in which no “acts of measurement interfere with the phenomena being assessed and create contaminated observations” (Krippendorff, 2013, p. 45). However, it is important to consider that documents were produced for a different purpose than the researcher’s. As Coffey (2014) notes: “We cannot treat documents – however official or otherwise – as firm evidence of what they report” (p. 369). They should therefore not be treated as containers of *just the right* information. Instead, the contexts of their use – including, in this case, audience, purpose of the contribution, and purpose of the conference – should also be considered (Prior, 2008, p. 825; 2003, p. 2; Wolff, 2004, p. 285):

Documents are not just a simple representation of facts or reality. Someone (or an institution) produces them for some (practical) purpose and for some form of use (which also includes a definition of who is meant to have access to them). When you decide to use documents in your study, you should always see them as a means for communication. You also should ask yourself: Who has produced this document, for which purpose, and for whom? What were the personal or institutional intentions to produce and store this document or this kind of document? (Flick, 2014, p. 355)

It is not possible, in particular, to draw any definite conclusions about the quality, success, or prospects of measures discussed in conference proceedings. While it can

be expected that some presenters assess successes and failures of their research, projects or programs, others may use a conference as a platform for promoting their ideas, services or products from a biased perspective. Also, abstracts and session descriptions do not communicate the entire discourse at conferences. They merely provide an overview of topics that are scheduled to be discussed.

For this research, however, the trustworthiness of presenters, the meta-discourse on these ideas, or the actual relevance of alleged breakthrough inventions presented by commercial companies are not important: The aim of this study being to identify a large diversity of approaches towards combining the virtual and the international in higher education, a repository of *unchallenged* ideas provides a welcome basis. The critical assessment of these approaches is not part of this dissertation, the aim of which comprises explorative modelling, not valorizing its individual components.

One key advantage of document analysis is that it “can cope with large volumes of data The volume of data is limited largely by what a researcher can read reliably and without losing track of relevant details” (Krippendorff, 2013, p. 47). Contrary to, for instance, a case study approach, the sample can become as large as several hundred sampling points without losing the ease of analysis, as the following sections will demonstrate in detail. Bowen (2009) has characterized document analysis as a systematic procedure for reviewing or evaluating documents (p. 27), which entails many of the advantages of a systematic review of journal articles (cf. Gough et al., 2012b). In fact, Bowen (2009) calls document analysis a “systematic review of documentation” (p. 36).

Titles and abstracts of journal articles have been the focus of document analysis in numerous studies in higher education (e.g., Bedenlier, Kondakci, & Zawacki-Richter, 2017; Bond, Zawacki-Richter, & Nichols, 2019; Cretchley, Rooney, & Gallois, 2010; Hsu, Hung, & Ching, 2013; Koseoglu & Bozkurt, 2018; Kosmützky & Krücken, 2014; Marín, Duarte, Galvis, & Zawacki-Richter, 2018; Zawacki-Richter et al., 2018; Zawacki-Richter, Alturki, & Aldraiweesh, 2017; Zawacki-Richter & Naidu, 2016). Many of the advantages of analyzing abstracts within journals hold true for abstracts of conference contributions, because it can be assumed that there, too, “abstracts are lexically dense and focus on the core issues presented in articles” (Cretchley et al., 2010, p. 319).

Also, while not all conferences ask for, or publish, proceedings with articles of several pages, they always provide short session descriptions. These session descriptions serve the same function as abstracts summarizing papers, highlighting the most important points made in a contribution (cf. the definition of “abstract” by Pedretti, 2018). They are, therefore, more comparable than entire proceedings: A significantly different input length (from a few words to several hundred) would bias computer-assisted analyses (see Chapter 4.7) and give undue emphasis to topics that are discussed in long articles. The lexical density of abstracts, which focus on themes and results of the presented topics, also reduces the risk of sampling data that are irrelevant to the research question, in particular when (semi-)automatized (com-

puter-assisted) analyses are employed: Abstracts do not, for instance, include a methodology section, literature review, or meta-information such as headings (“methodology”, “conclusion” etc.).

Having determined conference titles and abstracts as the documents of choice for addressing the research question, in the following, I define the concrete methods with which the information needed to build the conceptual model is generated (cf. Wolff, 2004, p. 287).

4.3 Content analysis: the methodology

In the previous section, the discourse at conferences – as communicated via titles and abstracts – was identified as a suitable data base for answering the research question. This chapter describes the general methodology employed to gain insight from this data base: content analysis. I define content analysis, explain why the methodology was chosen, what types of analyses were pursued in particular, and how I proceeded with the analyses.

Julien (2008) defines content analysis as follows:

Content analysis is the intellectual process of categorizing qualitative textual data into clusters of similar entities, or conceptual categories, to identify consistent patterns and relationships between variables or themes. . . . This analytic method is a way of reducing data and making sense of them – of deriving meaning. (p. 120)

This definition describes the approach pursued in this study: Patterns and relationships between terms or themes were identified, clustered, and catalogued into conceptual categories resulting in the model of VI. Krippendorff (2013) specifies the kinds of inferences that can be derived from content analysis: “Content analysis is a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (p. 24). This definition indicates the possibilities and limitations of content analysis: What it *can* do is make replicable and valid inferences, within the context of the use of the texts analyzed (here: higher education). What it *cannot* do is make generalizable inferences beyond the context of the use of texts selected – here, for example, to the school context (see Chapter 4.9.1 on validity). *Figure 3* illustrates how with content analysis, inferences are drawn from texts to find answers to research questions valid for the context in which the texts have been created.

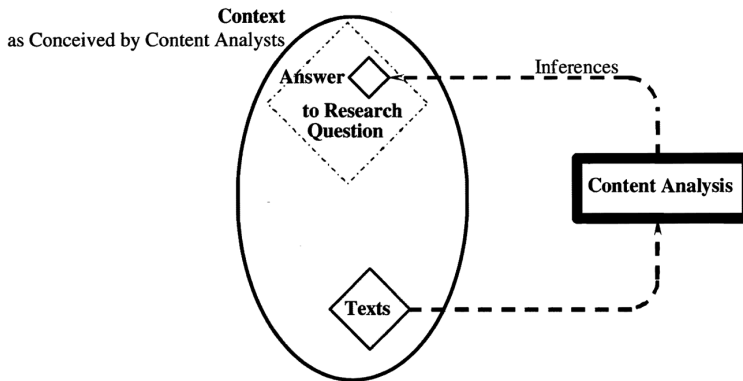


Figure 3: Content analysis: answering questions concerning a context of texts (From *Content Analysis. An Introduction to Its Methodology* (p. 82), by K. Krippendorff, 2013, Thousand Oaks, CA: SAGE)

There is some disagreement about the term content analysis and related concepts – thematic analysis, textual analysis, and text analysis –, in particular concerning the dimensions *qualitative* – *quantitative*, and *inductive* – *deductive* (and sometimes, abductive). Some scholars understand content analysis as a methodology in which “deductively derived theory and deductively derived data analysis work ‘down’ from preexisting theoretical understandings” (Ezzy, 2002, p. 82; cf. also Bauer, Sürdem, & Biquelet, 2014, p. xxxiii). Others claim “conventional” content analysis to be inductive (Hsieh & Shannon, 2005/2014, p. 243), and Krippendorff (2013) positions it as an abductive technique (see below). Others avoid taking a clear position on the kinds of inferences that can be made through content analysis, arguing, for instance, that in content analysis, categories are *not necessarily* developed inductively (Flick, 2014, p. 429), or that a mixture of both inductive and deductive approaches can be useful (Julien, 2008, p. 120).

Scholars do not agree on the qualitative/quantitative aspect either. While for Franzosi (2004, p. 562), content analysis is typically quantitative, and Ezzy (2002, p. 85) argues that it is always qualitative, I follow the argumentation of a multitude of scholars who hold that content analysis may be both qualitative and quantitative (Ary, Jacobs, & Razavieh, 2002, p. 442; Bauer et al., 2014, p. xxxiii; Elo & Kyngäs, 2008; Julien, 2008; Krippendorff, 2013; Oleinik, 2011; Weber, 1985, p. 10). As Krippendorff (2013) states:

The quantitative/qualitative distinction is a mistaken dichotomy between the two kinds of justifications of content analysis designs: the explicitness and objectivity of scientific data processing on one side and the appropriateness of the procedures used relative to a chosen context on the other. For the analysis of texts, both are indispensable. (p. 88)

The terms *text analysis* or *textual analysis* have been introduced to bridge difficulties in definition, but these do not provide clarification: “One of the difficulties of [text analysis] in the social sciences is the Babylonian confusion over terminology for text elements and analytic operations. [Text analysis] has been developed by different,

sometimes distant, disciplines, each playing their own language game" (Bauer et al., 2014, p. xxv).

Not attempting to further contribute to this discussion in the limited scope of this dissertation, I adopt the term content analysis, based on the comprehensive conceptualization by Krippendorff (2013), who breaks the analysis process down into distinct consecutive units. I thus understand content analysis in a comprehensive sense, *including* (instead of being opposed to) text analysis, text mining and thematic analysis etc. as applicable methods, following Krippendorff (2013), Cohen, Manion, and Morrison (2018), Schreier (2014), and Elo and Kyngäs (2008).

The only aspect in which the methodology adopted diverged from Krippendorff's is in the inferences made. Krippendorff (2013) holds that content analysis is always abductive: "Abductive inferences proceed . . . from particulars of one kind to particulars of another kind. (These are the kinds of inferences of interest to content analysis, where they proceed from texts to the answers to the analyst's questions.)" (p. 42).

Converse to what Krippendorff (2013) had in mind, this dissertation does not aim at inferring from one set of particulars to other particulars, but at a conceptualization. The conceptual model is not an *explanation* of phenomena (Harman, 1965; cf. also Douven, 2013), but a certain lens on these phenomena, an *exploration*. Therefore, the research at hand is not abductive, but *inductive*, in the sense that I gather data to build concepts or a theory (Merriam, 2002, p. 5). Inductive reasoning is used "to develop understanding and theory where none currently exists" (N. J. Fox, 2008, p. 430).

While Krippendorff (2013) does not include inductive inferences in the content analysis as he understands it, other scholars do so – for instance, Elo and Kyngäs (2008): "Inductive content analysis is used in cases where there are no previous studies dealing with the phenomenon or when it is fragmented" (p. 107). Lewins and Silver (2007) add that for the development of new concepts and theories, the inductive approach is desirable (p. 84).

Besides being an inductive approach, the methodology also involves *deductive* elements, in line with scholars recommending this combined approach (e.g., Julien, 2008; Lewins & Silver, 2007, pp. 84–87). In particular, this research assumes the model of comprehensive internationalization as a suitable basis to build upon. As Krippendorff (2013) states: "By deriving categories from established theories of the contexts of their analyses, researchers can avoid simplistic formulations and tap into a wealth of available conceptualizations" (p. 367). In this way, the process starts with some predefined, higher-level areas of interest which I explicitly look for in the data (cf. Lewins & Silver, 2007, p. 86). A pre-defined coding schema thus presented an *a priori* structure (Lewins & Silver, 2007, p. 11) in which codes – some concept-driven (deducted), some data-driven (inducted) – were identified and developed in an iterative coding process (Fereday & Muir-Cochrane, 2006, p. 1; Schreier, 2014, p. 171). This process will be discussed in more detail in Chapter 4.6 (Recording).

Having determined the data base, general methodology, and inferences that could be made within the analysis, the concrete methods used to address the research question and its partial operationalizations will be discussed.

On the general plan, this research followed the schema of content analysis presented by Krippendorff (2013). *Figure 4* demonstrates the components included in this process (cf. also Krippendorff, 2013, pp. 84–86).

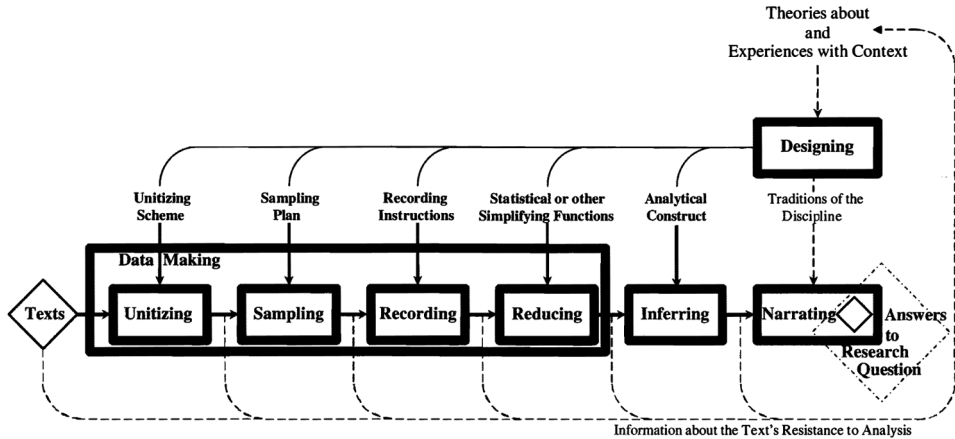


Figure 4: Components of content analysis (From *Content Analysis. An Introduction to Its Methodology* (p. 86), by K. Krippendorff, 2013, Thousand Oaks, CA: SAGE)

This research adopted the analytic step-by-step process of unitizing, sampling, recording, reducing, inferring, and narrating to assure a transparent and reliable analysis (see Chapter 4.9.2). Within this schema, various methods were used to analyze the corpus. Some of them were computer-assisted, with a strong quantitative component; others involved coding and a more qualitative approach. Drawing on the advantages of different methods, thus leveraging off their respective weaknesses, could be expected to provide a solid base for the inferences made.

The concrete methods used are further detailed in the following chapters, which discuss the design of the different steps of the content analysis process.

4.4 Unitizing

The first step in the content analysis process consists of defining the observed units as well as the form of their recording, which makes them available for subsequent analysis. Krippendorff (2013) notes:

The first task in any empirical study is to decide what is to be observed as well as how observations are to be recorded and thereafter considered data. Empirical research needs to rely on a multitude of observational instances that collectively support an often statistical hypothesis or conclusion, or that exhibit patterns that single cases cannot reveal. In

unitizing, the researcher draws relevant distinctions within an observational field. This creates a multiplicity of observations, information-bearing instances, or units for short, and readies that multiplicity for subsequent analysis. (p. 98)

The primary unit of observation in this research is the text of the abstract plus its title, the two combined forming one unit.⁴⁰ I decided to unite title and abstract into one unit because titles may in some cases contain information that abstracts do not address (or utilize different wordings). They may therefore provide valuable additional information enhancing the richness of the sample. Secondary units of analysis are metadata on the texts. These data are recorded as separate units in order to facilitate analyses on sub-datasets, which, for instance, allow the filtering of abstracts according to their geographic provenance, the field of the conference at which they were contributed, etc. Together with the main unit of analysis (coded TITLE+ABSTRACT LOWERCASE⁴¹), these metadata units are listed in *Table 1*.

Further units for analysis are created by coding during the analysis process (see Chapter 4.6). The information on all of these units of analysis (title + abstract, metadata, and codes generated in the course of the analysis) are stored in the spreadsheet software program Microsoft Excel, which serves as the central data base for all further analyses.

⁴⁰ I argued in Chapter 4.2 why whole papers – even where available – were not taken into consideration.

⁴¹ The conversion of text to lowercase is employed in order to facilitate subsequent computerized analyses (see Chapter 4.7.4).

Table 1: Data format: metadata

FIELD TITLE	ATTRIBUTE DESCRIPTION	EXAMPLE
PRES NO	ID assigned to the database entry	362
TITLE+ ABSTRACT LOWERCASE	Title + full text of the abstract (converted into all-lowercase letters)	mobile students need mobile data. students increasingly work, study and live in different geographies, sometimes several at the same time. what if student data would be accessible on a citizen-centered basis? would that increase the necessary global mobility muscle? join ets, duo and the uk dare consortium in a panel discussion that will address technology, data security, performance, data sharing and privacy, repository functions, the groningen declaration and the eaie's task force digital student data portability (dsdp).
CON FIELD	Field of the conference	Internationalization
ORGA INST	Name of the organizing institution	EAIE
CON NAME	Name of the conference	EAIE Annual Conference
CON YEAR	Year of the conference	2014
CON UN WORLD REGION	World region of the conference (according to the geographic division by the UN)	Europe
CON UN SUB REGION	World sub-region of the conference (according to the geographic division by the UN)	Eastern Europe
CON COUNTRY	Country of the conference	Czech Republic
PRES UN WORLD REGION	World region of the presenter (according to the geographic division by the UN) – institution of the first author of the contribution only	Europe
PRES UN SUB REGION	World sub-region of the presenter (according to the geographic division by the UN) – institution of the first author of the contribution only	Western Europe
PRES COUNTRY ALL	Countries of <i>all</i> presenters of the contribution	UK, Netherlands
PRES INST ALL	Institutions of <i>all</i> authors of the contribution	Liverpool John Moores U, UK; ETS, Netherlands; Dienst Uitvoering Onderwijs, Netherlands

4.5 Sampling

4.5.1 Purposive sampling: determining an information-rich and manageable sample

Having established that conference proceedings (abstracts) are the data base of choice for this research, and determined the relevant units for the analysis, the development of a sampling method for the research was then required. How could a corpus of relevant abstracts be compiled?

Scholars have argued that building a well-founded conceptual model depends on a sample that is “rich in relevant information” (Flick, 2014, p. 177), but which also needs to remain manageable. Krippendorff (2013) argues that purposive (relevance) sampling, instead of random sampling, is the preferred sampling method for content analysis, because “the use of random samples always entails the admission that one does not have a clue regarding what the population of interest looks like or where to find the needed information. In content analysis, this is rarely the case” (p. 120). In fact, it is possible to delimit what is *relevant information* for the study at hand: instances where the international and the virtual discursively intersect. To identify and sample those instances, purposive, nonprobability sampling was pursued, combining criterion sampling and maximum variation sampling (Flick, 2014, pp. 175–176). Criterion sampling means that all cases which fit a particular criterion which is being studied are sampled (Cohen et al., 2018, p. 219). Following this principle meant that only those cases (titles + abstracts) were selected that held information of relevance to the research question, that is, the combination of a virtual and an international dimension in higher education. The sampling method also involves maximum variation sampling because the sample needed to exhibit a wide range of characteristics in connection with the issue under investigation (cf. Cohen et al., 2018, p. 219). This diversity was necessary to inform the complexity of the model. As Cohen et al. (2018, p. 218) note, purposive sampling can help achieve representativeness, enable comparisons to be made, allow the focus on specific, unique issues or cases, and to generate theory through the gradual accumulation of data from different sources.

In fact, all applications mentioned by Cohen et al. (2018) are relevant within the research at hand: The sample needs to be representative of the phenomenon of VI in higher education, and it needs to allow comparisons between different categories of VI and to focus on specific and relevant cases. Finally, it needs to allow the generation of theory⁴² through thorough analysis of different sources and the gradual accumulation of facets of VI.

As with any form of nonprobability sampling, the sample therefore “does not pretend to represent the wider population; it is deliberately and unashamedly selective and biased” (Cohen et al., 2018, p. 219). This means in particular that no inferences are possible as to the pervasiveness of the phenomenon of VI. Numerical and fre-

42 in this case, a conceptualization, not a theory in the proper sense of the term (see Chapter 1.2)

quency statements can only be “quasi-statistical” (Becker, 1970, as quoted by Maxwell & Chmiel, 2014a, p. 545) in the sense that they can help understand the thematic diversity of the sample. So how can an *a priori* biased sample of “(inevitable) arbitrariness” (Barthes, 1967, p. 96, cited by Bauer & Aarts, 2000, p. 23) satisfy the research requirements? The answer is that, because this research does not ask for the prevalence of the phenomenon, but instead, is interested in probing for its potential variety, nonprobability, criterion-based sampling remains the method of choice.

In line with maximum variation sampling, the creation of the sample (in this case, the corpus of conference abstracts) is an iterative, purposive, step-by-step process: “Sampling proceeds according to the relevance of cases, rather than their representativeness.” (Flick, 2014, p. 173).⁴³ Under the headline “How to construct a corpus in the social sciences”, Bauer and Aarts (2000) write:

Linguists and qualitative researchers face the corpus-theoretical paradox. They set out to study the varieties in the themes, opinions, attitudes, stereotypes, worldviews, behaviours and practices of social life. However, as these varieties are as yet unknown, and therefore also their distribution, the researchers cannot sample according to a representativeness rationale. But paradoxes often resolve when we consider time. Linguists suggest a stepwise procedure:

- (a) to select preliminarily
- (b) to analyse this variety
- (c) to extend the corpus of data until no additional variety can be detected.

In other words, they conceive the corpus as a system that grows. (p. 31)

This research adopts the principle of successively expanding the corpus described by Bauer and Aarts (2000) to create the diverse and relevant sample required.

I started by analyzing major conferences in relevant fields, and from around the world, for the most recent available year.⁴⁴ If in this iteration, I discovered that a certain conference did not have any, or very few instances of VI, or that it featured topics pertaining to a narrow area of the field only (for example, marketing and recruitment (NAFSA), intercultural competencies (ACTFL)), I did not follow these conferences further back in time, but rather sampled other conferences to diversify (i. e., saturate) the sample instead of accumulating more of the same aspects. This process is elaborated in more detail in the following sections.

I need to note that the sampling process was bound by availability. For some conferences, abstracts for only the most recent year were available, and requests for proceedings from past conferences for the purpose of this research were not always successful. However, as the sample did not need to fulfill any criteria regarding which *particular* conferences would need to be included – diversity and richness in information being the only selection criteria – this did not constitute an issue for the reliability and validity of this dissertation (see Chapter 4.9). Another limitation con-

43 It thus borrows a portion of theoretical sampling from the Grounded Theory world (Charmaz, 2006; Corbin & Strauss, 2008; Glaser & Strauss, 1967), which has been recognized, with regards to corpus construction, as “as a general principle . . . beyond Glaser and Strauss” (Flick, 2014, p. 173).

44 A more detailed discussion of the sampling dimensions geography, field, and timeframe, follows later in this chapter.

sists in Western countries dominating the geographic regions for which information on internationalization and digitalization conferences was accessible with the Internet searches conducted; a key limitation being the language of search terms employed (English). I attempted to counter this within the sampling process (see the following section) to further diversify the sample, but here, again, the question from which country a contribution came was not decisive, but its *saturative* value.

In the following, I specify how I considered geography, field, and timeframe (Chapters 4.5.2, 4.5.3, and 4.5.4), before detailing the concrete criteria for data collection for the corpus construction process (Chapter 4.5.5).

4.5.2 Geography

Traditionally, Western countries and regions including the EU, North America, and Australia have dominated the discourse, which is manifest in many relevant conferences taking place in these regions in both fields of internationalization and digitalization – including international ones with several thousand delegates, such as NAFSA and EAIE, see Chapter 4.2. The USA being the country of provenance of the model of CI, while demonstrating a strong institutional commitment to both internationalization and digitalization of higher education (see Chapter 3.2.1, in particular, Helms and Brajkovic (2017), and Seaman et al. (2018)), I expected to find a strong diversity of topics regarding categories of CI in the USA. I therefore put special emphasis on conferences taking place there. Yet, as detailed in Chapter 3, internationalization, distance education and online learning are widespread around the world, and they follow different conceptualizations and priorities. Bedenlier et al. (2017) identified “regional forms of internationalization, evolving under different temporal and contextual conditions and taking different shapes and meanings accordingly” (p. 21). Therefore, besides including conferences from countries and regions with a strong track record in internationalization and/or online and distance education (see Chapter 3: North America, Australia, Europe), I included conferences from all continents, including Asia, Africa, and Latin America. However, availability of documentation from relevant conferences resulted in a Western-centric sample, which suggests that voices from non-Western countries are not as present as the Western discourse. However, as the conferences selected were for the main part international ones, attracting contributions from all over the world, a diverse, international sampling frame was expected to alleviate this issue. Conferences included in the sample took place in all UN world regions:⁴⁵

- 47 in the Americas (45 USA, 1 Canada, 1 Ecuador);
- 16 in Europe (7 UK, 2 Germany, 1 Croatia, 1 Czech Republic, 1 Hungary, 1 Ireland, 1 Norway, 1 Portugal, 1 Spain);
- 7 in Oceania (7 Australia);
- 3 in Asia (1 India, 1 Malaysia, 1 Turkey);
- 1 in Africa (1 South Africa).

⁴⁵ The assignment to world region and sub-region, throughout this dissertation, is based on the classification established by the United Nations (UN) (United Nations, n.d.).

4.5.3 Field

In addition to a regional variation, a diversity of relevant fields was evaluated as equally important. Key fields were, as discussed in Chapter 4.2, ODE and educational technology, as well as internationalization. For the ODE/educational technology field, in an iterative process of constant comparison (see Chapter 4.5.1), I selected conferences by the organizations EDEN, EDUCAUSE, ELI, ICDE, ODLAA, OLC (formerly the Sloan Consortium), and USDLA. For the internationalization field, I selected AIEA, CAIE, CIEE, CIES, Diversity Abroad, EAIE, IEAA, IIE, NAFSA, OBHE, and The Forum.⁴⁶

Additionally, I included conferences from other education-related disciplines that are not specialized in either internationalization or digitalization, to further diversify the sample and include aspects that are used in higher education practice. These disciplines (and selected conferences) were:

- **General higher education.** These conferences were included in the sampling frame because they were expected to open up more strategic and macro-level perspectives in particular, because many of them also attract higher-level HEI management. Selected conferences were AASCU, ACE, AERA, CIDER, GFHF, and League.
- **Educational disciplines.** Further, the perspectives of three different educational disciplines were selected: Foreign language education (ACTFL), teacher education (AACTE), and engineering education (ASEE):
 - **Foreign language education** is characterized by an *a priori* international perspective. Also, it has traditionally fostered the VI discourse, with virtual exchange having been popular in online foreign language education for decades, prominently represented by the longstanding MIT Cultura project (Furstenberg & English, 2016; Furstenberg, Levet, English, & Maillet, 2001; Hauck & O'Dowd, 2016, p. 22).
 - **Teacher education** represents a potential multiplier effect for VI to the next generation of students, which made me include this field in the sampling frame.
 - **Engineering education.** This field was expected to contribute potentially serendipitous findings, being both high-tech and international in outlook, but presumably providing a very different perspective to the arts field of foreign language education.

I did not limit the research to the largest conferences of international acclaim (such as NAFSA, EAIE, ICDE, AERA, or EDEN), but also included smaller and less well-known conferences to identify hidden or emerging discourses that fly under the radar of larger conferences. The complete list of selected conferences and numbers of contributions sampled from each can be found in *Table A 3*, while *Table 2* displays an overview of the numbers of organizations and the numbers of conferences analyzed by discipline.

⁴⁶ For the abbreviations of organizations hosting conferences, see *Table A 2*.

Table 2: Number of organizations in the sample and number of conferences analyzed, by field

FIELD	# OF ORGANIZATIONS IN THE SAMPLE	# OF CONFERENCES ANALYZED
Internationalization	12	28
Online and distance education & educational technology	6	23
Educational discipline	3	10
General higher education	6	13
Total	27	74

Note. Educational disciplines are foreign language education, teacher education, and engineering education.

4.5.4 Timeframe

Conferences in the sample date from 2012 through 2017. This short timeframe was selected because in corpus construction, materials should be synchronous, i.e., chosen from within one “natural cycle” (Bauer & Aarts, 2000, p. 32). Studies mapping research trends in ODE have identified five-year windows as phases of relative synchronicity (Bedenlier et al., 2017; Marín et al., 2018; Zawacki-Richter et al., 2017; Zawacki-Richter & Naidu, 2016), while looking at decades has aided scholars at identifying broader developments (Bond et al., 2019; Cretchley et al., 2010). Furthermore, in the fast-moving landscape of digital media, many means and practices introduced ten or fifteen years ago may already be obsolete. In general, this is not because their aims and functions are no longer important, but because other means (media) now fulfill them (cf. e.g., Wachtler et al., 2016, p. 11). For instance, functions once limited to physical data volumes (CD, DVD, or tape) have often been taken over by the Internet (streaming services such as YouTube, podcasts, etc.), and functions of portable music players (MP3 devices) have been substituted by multi-functional, also known as “smart”, mobile telephones. Assuming that functionalities that remain relevant in higher education would not be eradicated, but substituted by alternative forms as technologic change progresses, probing for recent manifestations was assumed to satiate the research.

The sampling was conducted in the summer of 2017. Given that academic conferences typically take place in the spring or fall, the most recent conference of any given organization in the sample would either be of 2017 (for spring conferences) or 2016 (for fall conferences). After having completed this first round of sampling for 27 conferences, I decided which of these would be followed further back in time. This decision was made based on a first circle of analysis of the data: Could it be expected that more of the same conferences would add to the richness (diversity) of the sample (see Chapter 4.5.1)?

For two reasons, I chose not to follow conferences further back in time. The first applied to conferences that yielded results which were similar: The ACTFL confer-

ence, for instance, resulted with almost three in four (72 %) of its 36 sampled contributions having “intercultural, international, and global competencies” at their focus; and at NAFSA, the proceedings were characterized by a strong focus on international recruitment and marketing. The second reason applied to conferences that did not yield any or very few (1–5) results for the first year of sampling. This was the case for conferences by the organizations AACTE, ACE, AERA, CAIE, CIES, Diversity Abroad, GFHF, IEAA, League, ODLAA, The Forum (see *Table A 3*).

I made an exception, however, for two groups of organizations with a low yield for the first conference sampled: The first of them offered a spectrum of conferences with a range of foci (EDUCAUSE Annual Conference, Connect, ELI Annual Meeting), so that I wanted to include the entire diversity of these different conferences. I gave other conferences a second or third “try” because the focus of the conference was so distant from the main discourses of internationalization and/or ODE/educational technology that even a few results would enrich the sample with a different viewpoint. This strategy turned out to be fruitful for some (ASEE: 17 contributions out of 8 conferences sampled), and less so for others (AASCU: 0 out of 3). With this sampling method, I selected 74 conferences for the years 2012 through 2017 (see *Figure 5*).

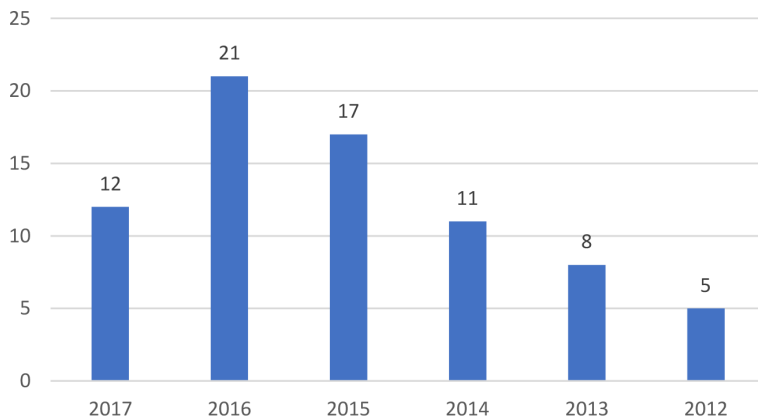


Figure 5: Number of conferences, by year

4.5.5 Criteria for data collection

Having established criteria for selecting the sampling frame (that is, the conferences from which the sampling would occur), I needed to determine criteria for sampling and corpus construction. The proviso for selection was that all abstracts should contain both an international and an ICT component. Therefore, the conference programs and/or books of abstracts were searched for key terms, while contributions that did not adhere to the criterion of combining an international and a virtual dimension despite matching search terms were manually deselected. Each of the titles and abstracts thus identified would form a unit for the analysis (see Chapter 4.4).

Search terms used for the literature review, as well as key terms found within the literature review itself, provided the basis for the search terms selected. Asterisks (*) indicate that the search in fact consisted of a character string search, not a word search. This way, for instance, *cultur* would be found in terms like cross-cultural, intercultural, etc. The search strings were:

- **Internationalization of higher education:** *international*, *global*, *cultur*, *transnational*, *abroad*, *mobil*⁴⁷, *language*, *offshore*, *branch*, *foreign*
- **Online and distance education, educational technology:** *distance*, *online*, *virtual*, *digital*, *flexib*, *technolog*, *open*, *OER*, *MOOC*, *blend*, *hybrid*, *reality*, *game*, *gamif*, *media*, *internet*, *web*.⁴⁸

Contrary to a regular literature search, the search strings employed were selected according to the type of conference at hand. When I was looking at an internationalization conference (such as NAFSA, EAIE, etc.), I mined for the strings from the ODE/educational technology area only, but not from the internationalization area – because all contributions could be assumed to be about some international element by default. Similarly, for conferences from the ODE or educational technology field, I only included the search terms from the internationalization area. For conferences from general higher education or discipline-specific fields however, I included search strings from both areas simultaneously.

The list of character strings that could indicate a virtual and/or international dimension is not exhaustive. Among the words I might have included are all specialized kinds of social media (Instagram, YouTube, Facebook, Weibo), mobile devices (iPad, tablet, smartphone, etc.), and single nationalities (Chinese, Indian, Dutch. . .).

Two factors attenuate the fact that by default, not all contributions will be identified using any list of incomprehensive search terms. The first of these is the multiperspectival approach. While I did not mine for the string *Chinese* in ODE/educational technology conferences (and therefore, potentially missed contributions on this group of international students), I identified contributions on using ICT for Chinese students in conferences from the internationalization field – because for these conferences, I only used search terms from the ODE/educational technology field. Similarly, while it may be possible that the research missed conferences in the internationalization field that included only the term “iPad”, but no other term from the list of technology-related terms above, conferences from the ODE and educational technology field would compensate.

47 *mobil* can also refer to the ODE/educational technology field (mobile learning, mobile devices, etc.). The manual sample selection was crucial here.

48 As I was only able to search for strings, not words, within the PDFs in my sample, I had to exclude the string *ICT* from the sampling criteria because it would identify any word that included the three letters in a row (strict, depicting, etc.). However, I trusted that abstracts and titles would introduce the term “information and communications technology” or simply “technology” in full before using its abbreviation, as is customary (and reflected, for instance, in abstracts [455, 256, 276, 186]). In cases where this may not be the case, often, other terms from the ICT field are found (i.e., in [549, 218, 287, 290]). It cannot be ruled out that some contributions that would have fit into the sample were missed by not including *ICT* as a search string. However, the large number of units in the sample attenuates this effect, as will be argued later in this chapter.

The second factor is the sheer number of cases sampled, assuming the repetition of similar topics, and therefore, theoretical redundancy (saturation). For instance, while the sampling method may have missed one contribution on Chinese students who benefit from social media to better connect to students at their host institution, there would be many contributions in the sample that cover international students with this experience.⁴⁹

While this sampling method did not identify every contribution that might count as combining a virtual and an international dimension at the selected conferences, it is important to keep in mind that purposive sampling and corpus construction is incomprehensive by default, and “deliberately and unashamedly selective and biased” (Cohen et al., 2018, p. 219), while still remaining an appropriate basis to answer the research questions, and to produce valid and reliable results (see Chapter 4.9).

It should be noted, however, that any statistical analyses should be taken with caution: A statement such as “international marketing is the topic of x % of contributions” has limited value because when a particular maximum in sampling units was found, I tried to minimize its occurrence in subsequent sampling (by excluding conferences that focus on mono-thematic topics, see Chapter 4.5.4). As noted in Chapter 4.2, the contributions themselves are biased in the sense that they are also influenced by external factors such as: scope of the conference, kind of audience, background of presenting institution/profession of presenter, intention to be conveyed (e.g., financial/business interests?), etc. Percentages of occurrence do however provide an indication of which topics are more or less frequently discussed in HEIs.

Finally, the sample was defined by content-related aspects regarding the research question: field, geographic location and focus, and year. The availability of data of comparable quality (for instance, academic character of the abstract) was intentionally not one of those factors, because it would have brought an involuntary bias into the research; overly positively selecting conferences held by organizations that asked contributors to write (peer-reviewed journal style) abstracts, and shutting out those that – for example, because of their less-academic target group – did not. Because I was explicitly interested in diverse (that is, including non-academic and practical) approaches toward the combination of ICT and an international dimension, I intentionally included a few conferences for which only titles of contributions were available. Naturally, these data were not as rich as abstracts with 300+ words, and as could be expected, the yield from these conferences was lower than for those which provided abstracts, because it was often not possible to tell if the combination of ICT and an international dimension was made in the presentation. However, it was possible to include a few titles with a direct and obvious relevance for VI.⁵⁰ For 16 out of 74 conferences in the sample, only titles were available, yielding 14 out of 549 contributions that consisted of a title only. Due to this low percentage (2.6 %), for

49 The sample validates this assumption, see contributions 219, 487, 241, 239, and 353.

50 These titles included: “Successful social media campaigns to inspire students to study abroad” [228], “International student mobility through TNE and MOOCs in East Asia” [201], “The Global STEM Virtual Community: Communication technology for scholars before, during and after research abroad” [139].

legibility, I refer to “abstracts” and “contributions” throughout this dissertation, while titles are meant to be incorporated in these terms. Also note that this research speaks of “presenters” and “authors” of abstracts in the plural, not differentiating between abstracts with one and many authors, thus in particular avoiding stating presenters’ genders (referring to them as “they”, not “he” or “she”).

By expanding the sampling frame in the dimensions of geography, field, and time, the results of this research create insights into the research question *In what ways and for what purposes are ICT and an international dimension combined in higher education . . . ?* – for different people in various contexts, including developing and developed countries, peripheral and central countries, domestic and international students, internationalization professionals and digitalization and online learning experts, different disciplines, etc.

I excluded monothematic conferences which I expected would only accumulate evidence on a particular aspect of VI already represented in the sample. In particular, I excluded the COIL Conference, which only discusses collaborative online international learning – in diverse facets, but always within the realm of a particular kind of curricular internationalization.⁵¹

4.6 Recording: coding scheme, concept- and data-driven codes

Given that the aim of this study was to conceptualize VI and to develop a corresponding model, it was important to transform the complexity of the corpus into interpretable units which would allow the description of the properties of VI in sufficient depth. I selected coding as the first method of choice, because it permitted me to “classify[] large amounts of text into an efficient number of categories⁵² that represent similar meanings” (Hsieh & Shannon, 2005/2014, p. 242).

VI is a complex phenomenon, covering the varied components of CI (see Chapter 2.3.2). It involves diverse means and practices, aims and functions (1.2), and target groups (domestic and international) (2.3.3). Therefore, a multi-faceted coding scheme was needed to extract concepts from the raw data and develop them in terms of their properties and dimensions (Corbin & Strauss, 2008, p. 159; cf. also Maxwell & Chmiel, 2014, p. 25). This chapter covers the coding scheme and coding instructions.

51 In fact, pre-empting some of the results of this research, the string *COIL* or closely connected terms *collaborative online international*, *virtual exchange*, *globally networked*, *telecollaboration* or *tele-collaboration* are included in 21 (4%) of the conferences.

52 Some authors employ the term “category” where this research speaks of “code”. For clarity, the term “category” is reserved, in this dissertation, for the aspects of the models of CI and VI, and for the dimensions of the coding scheme.

Table 3: Data format: coding categories

FIELD TITLE	ATTRIBUTE DESCRIPTION	EXAMPLE
PRES NO	ID assigned to the database entry	362
TITLE+ ABSTRACT LOWERCASE	Title + full text of the abstract (converted into all-lowercase letters)	mobile students need mobile data. students increasingly work, study and live in different geographies, sometimes several at the same time. what if student data would be accessible on a citizen-centered basis? would that increase the necessary global mobility muscle? join ets, duo and the uk dare consortium in a panel discussion that will address technology, data security, performance, data sharing and privacy, repository functions, the groningen declaration and the eaie's task force digital student data portability (dsdp).
TARGET GROUP	Target group of the measure (indexed) <u>Options:</u> <i>1=Domestic</i> <i>2=International</i> <i>3=Both</i>	3
PARTICIPANTS	Participants of the measure (indexed) <u>Options:</u> <i>1=Domestic</i> <i>2=International</i> <i>3=Both</i>	3
VI CATEGORY	Category of comprehensive Internationalization (indexed) <u>Options:</u> <i>1=Articulated institutional commitment</i> <i>2=Administrative leadership, structure, staffing</i> <i>3=Curriculum, co-curriculum, learning outcomes</i> <i>4=Faculty policies and practices</i> <i>5=Physical student mobility</i> <i>6=Collaborations and partnerships</i> <i>7=Online and Distance Education</i>	5

(Continuing table 3)

FIELD TITLE	ATTRIBUTE DESCRIPTION	EXAMPLE
FUNCTION TYPE	Generalized aim/function of the measure	organizational innovation
FUNCTION	Concrete aim(s)/function(s) of the measure (data-driven, open coding)	transferable mobility data
PRACTICE TYPE	Generalized means/practice of the measure	standards (quality, accreditation, recognition, data portability)
PRACTICE	Concrete means/practice(s) of the measure (data-driven, open coding)	data security, performance, data sharing and privacy, repository functions, Groningen Declaration, EAIE's Task Force Digital Student Data Portability (DSDP)

While the coding scheme was defined *a priori*, based on the research question, the codes themselves were partly deducted from prior taxonomies from the context of the internationalization discourse (concept-driven), and partly developed inductively from the data (data-driven). This practice has been described by Schreier (2014):

Qualitative content analysis typically combines varying portions of concept-driven and data-driven categories⁵³ within any one coding frame. At the same time, a part of the categories should always be data-driven. This is to make sure that the categories in fact match the data – or, to put it differently, that the coding frame provides a valid description of the material. (p. 171)

Coding was employed, in particular, to address partial questions Q2 and Q3 (on means and practices, and on aims and functions): I extracted them as individual categories from the data. It was also used to help answer partial question Q4 on a conceptual model (see Chapter 1.2), as will be elaborated in Chapter 4.8.

Note that the coding in this research did not signify the extraction of the authors' intention, or what they wished to convey. Instead, "content analysts who start with a research question read texts for a purpose, not for what an author may lead them to think" (Krippendorff, 2013, pp. 37–38). Some abstracts, for instance, only alluded to a combination of ICT and an international dimension as a minor aspect. In these cases, it was merely necessary to extract this aspect for analysis.

In continuation of Table 1 in Chapter 4.4, which displayed the metadata of the contributions, the coding scheme is shown in Table 3. The remainder of this chapter will provide further detail on these categories – including the coding instructions (Krippendorff, 2016).

Table 4 demonstrates this coding scheme on a few examples extracted from the actual data base which this research is based on.

⁵³ here: category = code

Table 4: Coding categories and exemplary extracts from the data base

PRES NO	PRES TITLE	TARGET GROUP	PARTICIPANTS	VI	FUNCTION TYPE	FUNCTION	PRACTICE TYPE	PRACTICE
200	Students as Mentors in TNE	2	3	6	enhancing the experience of TNE students	student success for TNE students	e-mentoring/e-tutoring	peer-to-peer mentoring program Student Learning Advisor Mentors (SLAMs) for TNE students
235	Digital discussion: hot topics among international students in social media	2	2	5	enhancing the experience of international students	gaining insight into the international perspective, hot topics that international students discuss within the online space	social media and virtual communities	social media, articles, news and issues generating the most buzz or discussion in English and non-English speaking student forums
241	Online communities: connecting prospective and current international students locally and globally	2	2	5	enhancing the experience of international students	fostering a sense of belonging in the virtual space, improving connectivity with, and between, prospective and current international students	social media and virtual communities	online peer-to-peer community forum for international students
238	Putting your international experiences to work: an online program that enhances the professional benefits of outbound mobility in a digitally connected world	1	1	5	enhancing the experience abroad	supporting students' career development in preparing, being there, and coming back	online media and e-learning	multimedia online program for students undertaking outbound mobility experiences (OMEs)
533	Open distance learning (ODL) through Ubuntu values and principles	1	3	7	pedagogical innovation	Introducing cultural concepts from abroad into ODL (Ubuntu)	online media and e-learning	humanist "Ubuntu" online learning in Western countries

Note. For legibility, instead of the field TITLE+ABSTRACT LOWERCASE, only the title of the contribution is shown in this overview.

The coding scheme displayed in *Table 3* and *Table 4* is specified in the following:

1. TARGET GROUP

This category recorded the domestic vs. international *status* of the clientele, targeted by the measure described in the respective abstract, whether they are students, administrative staff, or faculty, along the characteristics:

- domestic (indexed: 1)
- international (2)
- both (3)

The question to answer here (coding instruction (cf. Krippendorff, 2016)) was: *Who – domestic, international, or both target group(s) – is at the focus of the contribution, or the “beneficiary” of a practice, as described by the presenter?* As opposed to other categories in the coding scheme, in this case, the focus conveyed by the presenter was important to reduce bias. While the researcher may (or may not) assume that both domestic and international students benefit from an e-tandem for incoming international students in contribution number 200 in *Table 4*, for instance, the abstract focused on the benefits for international students in this case. I thus coded according to the picture conveyed by the abstract, not according to my interpretation. To compensate for this gap between target group and the actual participants in a program or measure (who may all benefit), I created a second category:

2. PARTICIPANTS

This category recorded the participants (students, administrative staff, faculty) of the respective measure or program, along the characteristics:

- domestic (indexed: 1)
- international (2)
- both (3)

The question to answer here (coding instruction) was: *Independent of the target group (targeted beneficiaries), which group(s) are participants in the measure or program?*⁵⁴ This item *can* be identical to the “target group” item, but it does not have to be, as the e-mentoring example in the previous section demonstrates. Another example in *Table 4* is contribution 533, in which the “Ubuntu” concept is transferred to domestic learning contexts, and thus, for a domestic student clientele to benefit from, but involving international students and their perspectives.

In the comparison of the target group and participants categories, it was possible to analyze which of the two groups (domestic/international) is in the focus of VI in the sample.

⁵⁴ For clarification: Persons *conducting* a certain measure, but who are not involved as actual *participants* of the measure (for example, faculty holding a class, or administrative staff advising students) are not included in this analytic unit.

3. VI CATEGORY

This column records the category of VI which the abstract refers to. Based on the model of Comprehensive Internationalization (CI), the preliminary options were:

- Articulated institutional commitment⁵⁵ (indexed: 1)
- Administrative leadership, structure, and staffing (2)
- Curriculum, co-curriculum, and learning outcomes (3)
- Faculty policies and practices (4)
- Physical student mobility (5)
- Collaboration and partnerships, physical presence abroad (6)

In addition to this preliminary scheme, the research introduces a seventh category to the iterative coding process: The code with index number 7 refers to (fully) online and distance education. The rationale for extending the coding options defined *a priori* (and thus, the categories of CI) will be detailed in Chapter 5.2.

4. PRACTICE

In a process of open coding (Corbin & Strauss, 2008, p. 160), I recorded the concrete practices described in the respective abstract, only coding means and practices that involved a virtual element to create an international dimension. Multiple codes were possible for each abstract. The question to answer here (coding instruction) was: *Concretely, in what way(s) is a form of ICT used to foster an international dimension in the abstract?* Examples from Table 4 include a “multimedia online program for students undertaking outbound mobility experiences (OMEs)” [238], an “online peer-to-peer community forum for international students” [241], and a “peer-to-peer mentoring program Student Learning Advisor Mentors (SLAMs) for TNE students” [200]. While this category helps identify instances of VI within the abstracts, it does not yet permit a comprehension of them on the higher, more abstract level necessary for a comparative analysis.

To do this, I introduced a second level of analysis – PRACTICE TYPE –, based on the PRACTICE category, in analogy to the recommendation by Lewins and Silver (2007) for theory construction from data:

Working inductively is characterized by careful and detailed inspection of the data on a number of levels. This ‘bottom-up’ approach starts at the detailed level and moves through recoding, regrouping, rethinking, towards a higher level of abstraction. The aim may often be to generate theory from the data. (p. 85)

5. PRACTICE TYPE

This category builds upon, and constitutes an abstraction from the open codes in the PRACTICE category. In an iterative process of evaluating and re-evaluating the codes in the PRACTICE category, higher-level codes were established, as described by Julien (2008): “Identifying themes or categories is usually an iterative process, so the

⁵⁵ This category is however absent from the actual codes attributed to abstracts in the sample, as will be discussed in Chapter 5.3.

researcher spends time revisiting categories⁵⁶ identified previously and combining or dividing them, resolving contradictions, as the text is analyzed over and over” (p. 120).

The classification obtained is characterized by codes that are broad enough to encompass different practices, but narrow enough to add a sufficient depth to the model. Some examples in Table 6 include “online media and e-learning” ([238] and [533]), “social media and virtual communities” ([235] and [241]) and “e-mentoring/e-tutoring” [200].

6. FUNCTION

Just as for the PRACTICE category, the research recorded the functions of the respective practice(s) in a process of open coding. Multiple codes were again possible for each contribution. The question to answer here (coding instruction) was: *Concretely, what function(s) does the combination of ICT and an international dimension have in the abstract?* Examples from Table 4 include “student success for TNE students” [200], “fostering a sense of belonging in the virtual space; improving connectivity with, and between, prospective and current international students” [241], and “introducing cultural concepts from abroad into ODL (Ubuntu)” [533].

7. FUNCTION TYPE

This category represents a second level of abstraction to the FUNCTION category. In the same way as for the PRACTICE TYPE category, key codes were attributed to the abstracts.

I should explain why Microsoft Excel was the software of choice throughout the coding process. Using a spreadsheet program instead of sophisticated computer-assisted qualitative data analysis software (CAQDAS) such as MAXQDA, NVivo, or Atlas.ti (cf., e. g., Cohen et al., 2018, p. 653; Lewins & Silver, 2007) for the coding stage may seem old-fashioned or even inadequate. While designated CAQDAS holds manifold opportunities to facilitate coding, assist in interpreting codes, and to attribute multiple codes per category, per abstract; these functionalities were not required in the case of this research. The spreadsheet program allowed the recording of one code, per category, per abstract, and it was an intentional choice to restrict the coding to just that. The rationale for this decision is as follows: With very few exceptions,⁵⁷ each abstract presents one topic: a program, a project, or a more general idea. The aim of the coding stage was to put this one topic under scrutiny to identify the general idea pertaining to the use of ICT in an international context, as represented in the abstract. If this one idea discussed was using *games/gamification* (only), or *virtual reality/augmented reality* (only), these were recorded as the PRACTICE TYPE categories for that contribution. If however *games/gamification* or *virtual reality/augmented reality* were reported as part of a broader concept using *online media and e-learning*

⁵⁶ here: categories = codes

⁵⁷ These exceptions consist of abstracts of session descriptions or roundtables, which may announce several topics to be discussed at once.

more generally, an abstract was to be coded with that broader code. While this practice necessarily removed some complexity that the coding stage would have been able to record otherwise, it served to record the “core” of the idea expressed in the abstract: If *online media and e-learning* were evaluated by the presenter as a *good idea in general* for combining ICT and an international dimension, this was its essential message for informing the concept of VI. If, however, a presenter focused on *virtual reality/augmented reality* as a means in and of itself, this fact was to be recorded separately. This way, the essence of the discourse on VI as represented in the corpus could be better understood. The lost complexity was re-introduced with other methods, see Chapter 4.7.

The necessity of reducing complexity in the first step of analysis was even more pronounced for the FUNCTION TYPE category: I expected that the aims and functions of a particular measure would be elusive to begin with, as they would not always be made explicit. Here, it was essential to pick the most obvious code. If, for example, an abstract discussed an online orientation for international students, this measure would be coded as *enhancing the experience of international students* in the FUNCTION TYPE category. One may argue that this measure had further functions, for example, providing intercultural competencies or broader skills, or even pedagogical innovation, quality enhancement, access, etc. This process of attribution of an undefined number of codes, however, would decrease reliability, because different researchers would code abstracts according to their individual reading and interpretation of the texts. Restricting oneself to the one most central code could be expected to provide a more reliable result, while also allowing an identification of what was most central to contributions, and to draw conclusions from this.

Furthermore, this research regarded the maintenance of codes reduced in the way just elaborated as a key asset to keep the dataset (including its metadata) interpretable for subsequent statistical analyses, as well as for filtering and analysis tasks (cf. Chapter 4.7.2).⁵⁸ Accordingly, keeping the entire dataset including its metadata and (newly created) codes within one central data base was expected to prove useful for the research.

The given coding instruction (one code per category, per abstract) worked very well in most cases. In just a few instances, determining this one overarching code was not unambiguous. For instance, one abstract in the sample discusses e-mentoring by social media [198]. It could therefore be coded as both “e-mentoring/e-tutoring” and/or “social media and virtual communities” in the PRACTICE TYPE category. In these cases, it was necessary to decide which was the *predominant* or the *most characteristic* type. In this concrete case, it was the “e-mentoring/e-tutoring” aspect, because the main idea was the tutoring component, not the community-building component. I should clarify, however, that it is not possible to deduct the complete absence of another practice type if it is not coded this way.

⁵⁸ In the first-level categories PRACTICE and FUNCTION, several codes per abstract were recorded, all combined in one spreadsheet field. On the second level (PRACTICE TYPE and FUNCTION TYPE), however, only one overarching code per abstract was attributed.

To compensate for this deficiency at the coding stage – among other reasons –, this research introduced a second pillar of analysis which will also be the topic of the following chapter: computer-aided textual analysis. This research expected both strands of analysis taken together (mixed methods) to fill in gaps and blind spots that just one of them was unable to address. At that stage, the research required additional software.

4.7 Reducing data with computer-aided text analysis (CATA)

While I identified coding as a suitable method to address the research questions, I also noted limitations (Chapter 4.6). I therefore chose to mix methods to obtain a *second opinion* on the data. Scholars have noted that, in qualitative research, the mixing of methods “can reduce biases or deficiencies caused by using only one method of inquiry. . . . In qualitative inquiry, researchers tend to use triangulation as a strategy that allows them to identify, explore, and understand different dimensions of the units of study, thereby strengthening their findings and enriching their interpretations” (Rothbauer, 2008, p.892). Text- and word-based analyses were identified as suitable to perform this task, following Guest, MacQueen, & Namey, 2012 and Oleinik, 2011.

In addition to said *second opinion* for research sub-questions Q2 on means and practices and Q3 on aims and functions,⁵⁹ question Q1 on concepts and themes could not be addressed with coding: The focus on pre-defined categories within a given coding scheme did not allow the identification of the general discourse in terms of terminology used, thematic connections made, etc. This research question required a more quantitative approach to analyzing the dataset, as will be discussed in this chapter.

Computer software has complemented the possibilities of data analysis in content analysis. Today, CAQDAS often includes quantitative elements – for instance, automatic coding based on frequency of occurrence, word statistics, or correlation matrices. By providing mixed methods analysis software for qualitative data, CAQDAS bridges the gap of qualitative and quantitative research (Cohen et al., 2018; Provalis Research, 2018a).

With software tools becoming increasingly complex and featuring manifold options for in-depth text analysis, I put several software programs under scrutiny; analyzing their ability to help answer the particular research question raised in this research.

Which software one uses depends on the questions one wishes to ask of the data, the kinds of data one has, what one wishes to do with the data, the processes of analysis one

59 ultimately also contributing to answering Q4 on a conceptual model of VI, see Chapter 4.8

wishes to conduct, the technical requirements of the software, the competence level of the researcher/user of the software, costs and the level of detailed [sic] required in the analysis. (Cohen et al., 2018, p.653)

I dismissed software which would have identified concepts and themes based on inherent algorithms and machine learning, including WordStat, QDA Miner, Leximancer, and R (Provalis Research, 2018b; Leximancer, 2018; Silge & Robinson, 2018). These programs have proven to be effective in research mining large amounts of text, such as journal articles of several decades (e.g., Bedenlier et al., 2017; Bond et al., 2019; Hsu et al., 2013; Indulska et al., 2011; Zheng, Huang, & Yu, 2013) or blogs (Chen, 2014; Tseng, Wu, Morrison, Zhang, & Chen, 2015). They have proven particularly well suited for mapping the contents of corpora of which little is known, except the contexts in which they were published, and which demonstrate a wide variety of clearly distinguishable topics (cf. e.g., Bedenlier et al., 2017).

The main reason this research dismissed such software aids was the limited context-sensitivity of these kinds of automated analyses. In particular, I expected the dataset to be characterized by the same terms used repeatedly – in different contexts, but within a narrow, monothematic frame of reference: Virtual Internationalization. It could be assumed that many of its key words (international, global, intercultural/cross-cultural/cultural etc.), etc. would appear in myriad contexts, rendering it impossible for software to detect stable connections of words. Ambiguous words and contextualization, in fact, bear the danger of distorting results (Hobolt & Klemmensen, 2005, p. 378). The Leximancer manual draws the consequence of recommending the removal of “over-connected” concepts (Leximancer, 2018, p. 97) – which is not recommendable in this case, given the fact that the complexity of the connections of such highly connected words is what is looked for in the sample.

In addition to words used ambiguously, others were, on the contrary, used synonymously. For example, the (compound⁶⁰) terms “virtual exchange”, “collaborative online international learning”, and “telecollaboration”, while not having any word in common, are considered as synonymous (see Chapter 3.2.3). It was questionable that current computer software would be able to machine-learn this given the small data base, which this research did not expect would permit such a wide-ranging transfer by the software’s algorithm. For this reason, Guest et al. (2012) warn that “key concepts can be completely glossed over in a word-based analysis” (p. 10). What is more, some concepts – including “intercultural competency” (and its synonyms), “international students”, and “online learning” – need to be set in relation to their context as entities, not as individual words, in order to grasp their full meaning – and their significance for the text as a whole. In Leximancer, for example, if the result of the analysis is that the concept “international” often appears in the textual vicinity of the concept “student” and “faculty”, it is not possible to deduct if it is “international students” that are often connected with “faculty”, or rather, “international faculty” that

60 Compound terms are not usually recognized as single units of analysis by the software programs cited, as will be elaborated later in this chapter.

are connected with “students”. There is a significant shift in meaning between the two, and an intolerable one for this research. Not all software programs allow the pre-definition of compound terms as units for analysis.⁶¹

In the particular case of this research, therefore, I reduced automated processes to identification of words and character strings, and to basic computational and statistical tasks, while not consulting machine-learning-based algorithms. Dismissing any *black box* research also helped make calculations and results transparent and replicable by anyone reading this research, thus supporting reliability and validity (see Chapter 4.9).

Computer-aided text analysis (CATA) (Krippendorff, 2013, p. 212) was used in four distinct ways, the first two of which pertain to research sub-question Q1 on concepts and themes, while the last two provide triangulation and an additional information source for sub-questions Q2-Q4 (means and practices, aims and functions, conceptual model) (see Chapter 1.2).

1. Identifying central terms (Q1)

First of all, this research used computer software to identify central terms across the dataset. To accomplish this task, frequent words and word groups (n-grams) were extracted and thematically grouped. (software used: AntConc)

In addition, the dataset was probed for those search terms that had been used for its sampling in the first place: Which of the terms that had been identified as potentially important for VI are in fact used in its context? Which of these terms are represented in many abstracts, which only in a few of them? (software used: Excel)

2. Probing for themes and contexts of use (Q1)

Having identified central words and word groups (n-grams), the object was to explore the contexts of their use. In particular, the three dimensions of the definition of internationalization – intercultural, international, and global – were probed for the contexts which they applied to in the VI framework, and nuances in meaning identified. This step provides insight on the dimensions of internationalization (and on related terms) that VI applied to. (software used: AntConc)

Taken together, the central terms (1) in conjunction with the contexts of their use (2) were used to provide information on concepts and themes prevalent in the dataset.

3. Probing for transversal topics (Q2-Q4)

As a third field of application, software was used to probe for transversal topics which the coding stage was not able to identify. In particular, this applied to the VI

⁶¹ Leximancer, for instance, allows the pre-definition of “compound concepts”. This does not mean however that n-grams are probed for together, but that “both concepts . . . appear in the same (2-sentence) piece of text” (Leximancer, 2018, p. 83), which would not alleviate the problem of interpretation just described. Leximancer also permits to “merge word variants”, in which case, the merged words would be interpreted as synonymous to each other, even when only one of them appeared in the analyzed segment of the text (Leximancer, 2018, p. 56). Neither algorithm meets the affordances of this research.

category of *articulated institutional commitment*. While understanding strategic action is key to understanding CI – and VI –, conference contributions were not expected to discuss institutional commitment itself – but rather, its concrete manifestations and areas of application. It was unlikely to find a contribution arguing that an internationalization strategy should be established – rather, what this strategy should be about, in either of the (other) categories of the VI model (administrative leadership, curriculum, faculty policies, etc.). To retrieve underlying strategic action and subsequently draw conclusions on that topic from the dataset at hand, it was therefore necessary to probe for strategy-related terms. (software used: Excel)

Software was also used to determine other transversal concepts, including, for instance, faculty (academic and teaching staff): While only some abstracts were expected to have faculty policies and practices as their focus, it was informative to also probe for occurrences of faculty-related terms in the entirety of the data set. (software used: Excel)

4. Probing for related and synonymous terms (Q2-Q4)

Lastly, software was used to probe for terms with similar meaning within the dataset. This was used, in particular, for terms such as “virtual mobility”, “collaborative on-line international learning”, “virtual exchange”, etc.

While the coding stage already took care to group such terms into logical units (for the example just cited: PRACTICE TYPEs *virtual mobility (COIL/virtual exchange)* and *virtual mobility (other)*), computer-assisted analyses permitted a return to the original diversity of terms used, thus allowing an acknowledgement of disagreement within the VI discourse on terminology, and an identification of nuances in meaning. (software used: Excel)

Guest et al. (2012, p.10) value word-based techniques as efficient and reliable, with minimal interpretation involved. The advantages of computerized word-based analyses, therefore, lie in their far-reaching researcher-independency and, as a result, reliability (see Chapter 4.9.2). Crofts and Bisman (2010, p.183) list the improved familiarity with detail, mastery over the data, reduction of the magnitude of the data, and the opportunity to enhance systematization, logic, transparency, speed, and rigor of the research and analysis process as arguments in favor of using software in qualitative research.

Krippendorff (2013) argues that one should, however, consider that software has its own limitations: “Without human intelligence and the human ability to read and draw inferences from texts, computer text analysis cannot point to anything outside of what it processes” (p. 29).⁶² The mixed-methods approach of using both computerized techniques (at the computer-assisted stage) and the human judgement based on coding instructions⁶³ therefore appears as the way forward to balance advantages and limitations of each approach.

62 As Chapters 4.6 and 4.7 will discuss in more detail, this applies, in particular, to the AntConc-based analyses – because in Excel, targeted and “human judgement”-guided tasks were performed.

63 The computer-assisted stage is not void of human judgement either, as will be detailed in Chapter 4.9.

After providing a few technical remarks, the following chapters will further explain in which ways this research leveraged AntConc and Excel for the computer-aided analyses.

4.7.1 Technical remarks: conventions for the language used in the content analysis

Because different analytical entities are employed in distinct ways throughout this dissertation, it is important to define conventions for their use. These are as follows:

- **Quotation marks** (for example, “cultural”) are used for **entire words or word combinations**. For instance, the AntConc search for “cultural” would issue the exact word “cultural” only, not “intercultural” or “cross-cultural”; and the search for “cultural difference” would not retrieve the word combination “cultural differences”.
- **Asterisks** (for example, *cultur*) are used for **character strings**, that is, anything from word-parts to word combinations. For instance, the Excel search for *cultur* would issue the words “culture”, “cultural”, “intercultural”, “cross-cultural”, etc. The asterisk can also be employed for truncation on one end of the string only. For example, the search for *cultural would result the words “intercultural” and “cross-cultural”, but not “culturally”.
- **Italics** are used for **lemmatized words** (for example, *culture* for the words culture, cultures, culturing; and *cultural* for the word cultural (only)). The process of lemmatizing is described in Chapter 4.7.3, and lemmas used in the sample displayed in Table A 6.
- Italics are also used for **codes**. The fact that codes generally consist of more than one word (such as *intercultural*, *international*, and *global competencies* or *access to higher education*), together with the context in which they are employed, counters any possible confusion resulting from this double functional assignment of the use of italics.
- **Capitalization** is used for **categories in the coding scheme**. For instance, FUNCTION TYPE refers to a category in which codes including *intercultural*, *international*, and *global competencies* or *access to higher education* are ranged.
- **Square brackets [INDEX NO]** are used for references to **abstract numbers**. These unique identifiers (from 1–549) allow the retrieval of any original contribution, making conclusions transparent and replicable.

4.7.2 Microsoft Excel: organizing, categorizing, and manual text analysis

As elaborated in Chapter 4.6, I decided against off-the-shelf CAQDAS for coding the data. While these software programs have been proven to hold great value for complex coding tasks, MS Excel provided a reliable and organized *one-stop-shop* for both qualitative and quantitative text analyses. It allowed a) the organization of all of the data points in one spreadsheet; b) the coding, grouping, re-grouping, re-naming of codes; c) the performance of analyses on the codes and other metadata (filtering, simple statistical analyses, pivoting, etc.); and d) the performance of manual text

analysis and probing tasks. While a) and b) were described earlier (Chapter 4.6), in the following, I will specify how I approached the latter two aspects (c and d).

With regards to c), Excel was used for quantitative analyses of codes and other metadata. This research used the following tools inherent to the software:

- **Filters.** The database spreadsheet was repeatedly filtered in different ways to obtain customized sub-datasets which could then be separately analyzed. Any of the codes and metadata could be selected as filter options, individually or in combination with each other. For instance, all abstracts that were coded as “5 – Physical student mobility” could be extracted for a separate consideration independent of the rest of the corpus, and subsequent analyses (text mining, probing, or further filtering tasks (for instance, with target group “international students” only)) could be performed. Chapters 5.3 through 5.9 draw on this technique.
- **Diagrams** were used to demonstrate numerical values of limited complexity. For example, they permitted the calculation and displaying of the target and participant group(s) of measures employed in order to compare them (see *Figure 11* and *Figure 12* in Chapter 5.1.4).
- **Tables and pivot charts** were used to calculate and showcase more complex relationships, for instance, the number and percentage of conferences and contributions by field (see *Table 9* in Chapter 5.1.2).

With regards to d), I used formulae to conduct customized text probing tasks. For instance, particular character strings and their occurrence across abstracts (in the entire corpus or in filtered sub-datasets) could be identified. Contrary to the other software program used for text mining (AntConc, see following section), Excel would permit the identification of the number of contributions in which a particular string occurs, instead of their overall occurrence. For instance in *Table 5*, the formula `=WENN(ISTFEHLER(SUCHEN("global";B2));0;1)`⁶⁴ would result in the value 1 if the string *global* occurred in the abstract in field B2 (no matter how often it occurred), and in 0, if it did not occur. The addition of all values thus obtained across the sample would result in the total number of abstracts which include the string *global*. By comparison, AntConc would count *all* occurrences of the string *global*, irrespective of their loci within the sample: If it occurred three times in that same abstract in B2, it would be listed three times instead of once.

Obviously, different analytical purposes can be pursued with each of these two values obtained – and both have been used for this study.

64 notation for the German version of Microsoft Excel

Table 5: String identification in MS Excel (example)

	A	B	C	D
1	PRES NO	TITLE+ABSTRACT LOWERCASE	1GLOBAL	5EMPLOY
2	1	designing it guidelines for global programs. global programs in higher education continue to grow. these year-round programs shuttling students, faculty, and staff to ...	1	0
3	2	offering an online, project-based cloud computing to globally distributed carnegie mellon student. we will present our experience, best practices, and pitfalls in ...	1	0
4	3	building organizational capacity for a global learning ecosystem: it's an iterative process. our world is characterized by steadily increasing globalization, ...	1	0
5	4	a self-managed multilingual virtual classroom. learn about methodologies and tools for promoting multilingual virtual classrooms where the environment is able to adapt to ...	0	0
6	5	blendkit2016 offers international staff development opportunity: a case study at yaba college of technology in nigeria. the blendkit2016, a facilitated blended course ...	0	0
7	6	developing global citizenship and collaboration skills through online undergraduate global health education. global health engages students with a world outside the ...	1	0
8	7	using online resources to enhance the learning experience of international students. international students have unique prior-learning-experiences and expectations. ...	1	1
9		...		
10		SUM (ALL CONTRIBUTIONS):	187	70

One particular advantage of using such customized formulae was that they also provided the option of combining different word searches in one; for instance, looking for the occurrence of *either* “MOOC” or “massive open online course” in a contribution (2MOOC⁶⁵), resulting in 1 if either term occurred in the text of the contribution (no matter how often one or the other occurred). This went beyond the possibilities of automatic text analysis programs such as AntConc.

Similarly, the exemplary formula behind row D (5EMPLOY) in the example in Table 5 resulted in 1 if (at least) one of the strings *employ*, *work place*, *work-

65 =WENN(ISTFEHLER(SUCHEN("MOOC";B2));WENN(ISTFEHLER(SUCHEN("massive open online course";B2));0;1);1)

place*, *career*, or *job*, occurred within the abstract in the same row, column B.⁶⁶ It was also possible to conduct more complex calculations, for instance, counting abstracts in which *both* the string *global* (column C 1GLOBAL) *and* one of the strings in column D (5EMPLOY) occurred⁶⁷ – to identify abstracts which combine employability with a global dimension. Such inferences, however, had to be taken with caution, because the occurrence of terms from both word fields within the same abstract did not have to mean that they are contextually linked; it could merely provide some indication that there *might* be a relationship. This potential connection would therefore need to be further investigated. Similarly, abstracts could be identified in which, exemplarily, *neither* the string *global* *nor* one of the strings in column D 5EMPLOY occurred.⁶⁸

The method of filtering out certain categories (see above) allowed the performance of these same customized analyses for sub-datasets, for instance, for one VI category only. This way, it was possible, for instance, to check for co-occurrence of the word fields 2MOOCand 7RECRUIT/MARKETING⁶⁹ in the “physical student mobility” category only, to retrieve information on how often the two were combined in that partial dataset.

Excel thus provided full control over the aspects in focus, by allowing the introduction of context-related knowledge for the clustering of terms to word families (employability, recruitment, etc.). The self-programmed and transparent code allows any fellow researcher to reproduce the results obtained, thus enhancing reliability (see Chapter 4.9.2). Only the validity of results needs to be assessed. In the example on “employability” given above, for instance, one could argue that search strings should be added (for example, *work*) or removed. I will take care to address these validity issues as results are reported in the process.

Having performed the described qualitative (coding) and simple quantitative text analysis tasks in Excel, I complemented the analysis with a concordancing software that allowed an implementation of more complex text mining tasks.

4.7.3 AntConc: word count, n-grams, clusters, and concordances supporting the textual analysis

While the customized text analysis in Excel allowed for a targeted analysis, in particular, for testing preliminary hypotheses on the data, software-based methods that would less depend on the researcher’s own judgement were employed to reduce potential researcher bias. Guest et al. (2012, p. 107) argue that word searches and key

66 Excel permitted the combination of up to seven search terms in one. The underlying formula here is as follows:
=WENN(ISTFEHLER(SUCHEN(“employ”;B2));WENN(ISTFEHLER(SUCHEN(“workplace”;B2));WENN(ISTFEHLER(SUCHEN(“workplace”;B2));WENN(ISTFEHLER(SUCHEN(“career”;B2));WENN(ISTFEHLER(SUCHEN(“job”;B2));0;1);1);1);1)

67 =WENN(UND(C2=1;D2=1);1;)

68 =WENN(UND(C2=0;D2=0);1;)

69 =WENN(ISTFEHLER(SUCHEN(“recruit”;B2));WENN(ISTFEHLER(SUCHEN(“marketing”;B2));WENN(ISTFEHLER(SUCHEN(“customer”;B2));WENN(ISTFEHLER(SUCHEN(“target group”;B2));WENN(ISTFEHLER(SUCHEN(“brand”;B2));WENN(ISTFEHLER(SUCHEN(“consumer”;B2));WENN(ISTFEHLER(SUCHEN(“invest”;B2));0;1);1);1);1);1);1)

word in context (KWIC) techniques are simple yet effective analytic methods to reach this aim (cf. also Krippendorff, 2013, pp. 214–220).

As supplemental techniques, word searches and KWIC analyses hold several advantages. First, they are simple and quick relative to other data analysis techniques. Many software programs perform them, and the resulting reports are straightforward and easy to understand. Word-based methods are also flexible and can be used at virtually any point in the analysis process, serving as a handy backup tool if and when needed. They can help find analytic gaps and generate more complete analyses than an inductive thematic analysis alone. (Guest et al., 2012, p. 112)

A concordancing software allows these operations, and AntConc was selected for its ability to accurately perform them, as demonstrated in a wide range of studies in the (higher) education field (among which are Berger, Friginal, & Roberts, 2017; De-Capua, 2016; Dixon & Moxley, 2013; Gates Tapia, 2017; Hua, Handford, & Johnstone Young, 2017; Park, 2016). In addition, Diniz (2005) evaluated the software as “user-friendly and straightforward” (p. 26).

AntConc, Version 3.5.7 (Anthony, 2018a), is programmed to carry out text-level research based on textual data. It was developed by Laurence Anthony at Waseda University, and it includes seven tools for textual analysis, four of which have been included in this research. The documentation by Anthony (2018b) aids comprehension regarding the use of the individual functions. The tools I employed in this dissertation were as follows.

4.7.3.1 Word/lemma count

A simple list of the most frequent terms across all contributions allowed me to obtain a first impression of the contents of the corpus. For this list, I applied a lemma list based on the British National Corpus (BNC) as recommended by Anthony (2016). This lemma list would combine terms from within the same word field to one term (e.g., forms of “to be”: “I am”, “he was”, . . .), or student/students, etc. (see *Table A 6*). Its algorithm was more advanced than a stemming procedure, which would have cut off the stems of word forms to combine terms, but not referred to a dictionary of terms that lexically belong together (Krippendorff, 2013, p. 216). For instance, verb forms of “to teach” were not combined with forms of the noun “teacher” in the lemmatization algorithm, whereas the stemming algorithm would have done so. This made a finer analysis possible, because verb forms of “to teach” and the noun “teacher” should in fact be considered as different concepts for the analysis at hand to differentiate actors from acts.

In addition to being lemmatized, the list of most frequent terms was “cleaned” of functional words with low semantic content (such as “and”, “or”, “from”, “because”, “on” etc.) that would not add insight into answering the research questions, via a stop list. This is common practice and recommended in corpus-based research (cf. Krippendorff, 2013, p. 216; Lewins & Silver, 2007, p. 72; Silge & Robinson, 2018, Chapter 1.3). Note that terms from the stop list were removed from the list of most frequent lemmas, but not from other text analytic tasks, because they may well be

important for informing n-grams and clusters (e.g., “teaching and learning”, “students from abroad”, etc.).

Having performed these two pre-processing tasks, the resulting list would help answer Q1 by:

- a) Identifying frequent words (lemmas) in the sample, indicating their centrality;
- b) Obtaining indication whether the corpus is suitable to answer the research questions, according to the criteria:
 - Does the context of higher education prevail throughout the corpus?
 - Are both internationalization-related and digitalization-related topics central to the sample?
 - Are ideas and topics discussed diverse (i.e., e.g., beyond “virtual mobility”)?

The lemma list furthermore permitted me to determine if the sample featured those terms that had been at the basis of the sampling. It also helped identify unexpected terms, which could then be followed up with close reading. It would also showcase which internationalization- and/or digitalization-related words were more important than others in the VI discourse(s) as represented in the sampled abstracts. This way, it would provide some indication on terms and concepts worthy of being followed up on, but it could not inform the model (cf. Krippendorff, 2013, p. 214). A closer examination using the following methods was essential to draw any more wide-ranging conclusions.

4.7.3.2 N-grams

Because some concepts consisted of more than one word, looking for one word (or lemma) at a time was not sufficient (cf. Krippendorff, 2013, p. 214). Instead, it was necessary to identify compound expressions and terms that frequently co-occurred in the immediate vicinity of one another. Such co-occurring terms are also called n-grams, with the letter n serving as a variable to be replaced by the digit indicating the number of terms included. For instance, n-grams were collected on the level of 2-grams (bigrams) (such as “distance education” or “virtual mobility”), 3-grams (“teaching and learning”), 4-grams (“collaborative online international learning”), 5-grams (“alternative to traditional study abroad”), and 6-grams (“students who are unable to travel”). The results of this analysis were used to gather further information on Q1 asking for themes and concepts in the sample. If, for instance, the term “collaborative online international learning” frequently occurred within the sample, it would seem advisable to further investigate what the term meant in the contexts of its use. Other terms that did not pertain to VI, but were employed in its context (such as “teaching and learning commons”, “online course” and “distance education”), would remain in the “pipeline” to inform the different components of the model. Others, such as “have been” or “in order to”, were not semantically rich and were therefore not taken into consideration for developing the model.

Figure 6 demonstrates the user interface of the AntConc software and exemplarily showcases a selection of n-grams (2-grams and 3-grams) from the corpus, including their frequency (“Freq”).

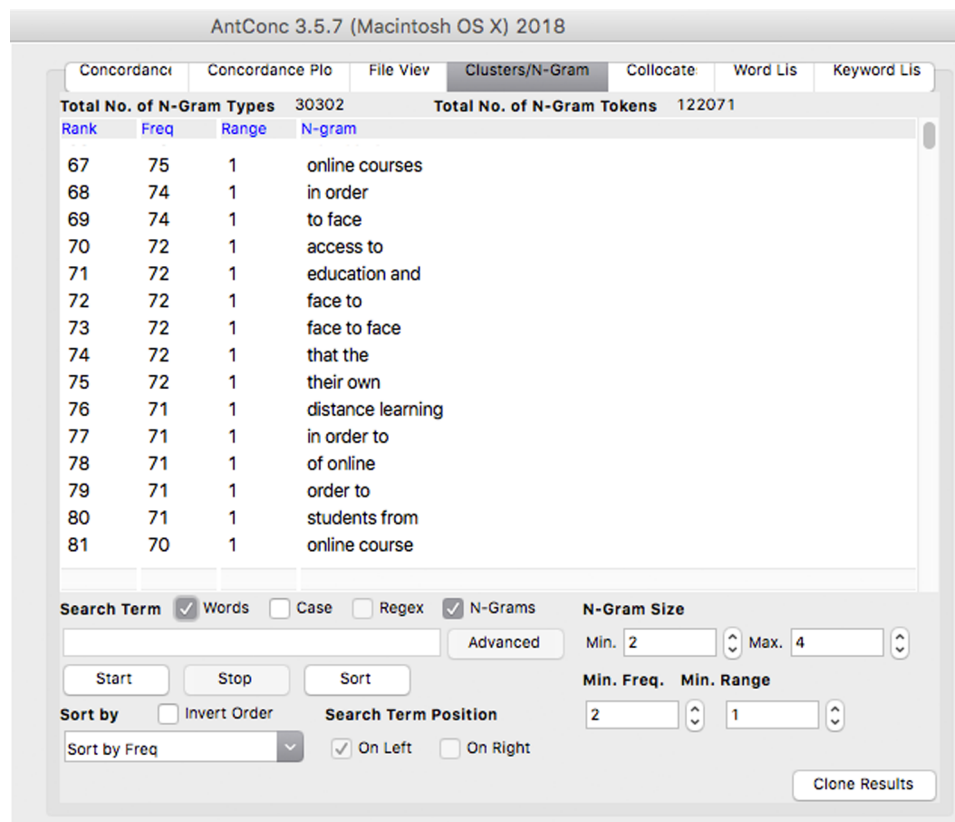


Figure 6: Word-level n-gram, size 2 to 4, AntConc (example)

4.7.3.3 Cluster analysis

After I identified frequent words and n-grams in the sample, a cluster analysis offered the possibility to probe for words and strings in context, this time choosing particular words or n-grams of interest. Figure 7 exemplarily shows a selection of clusters for the word “virtual”.

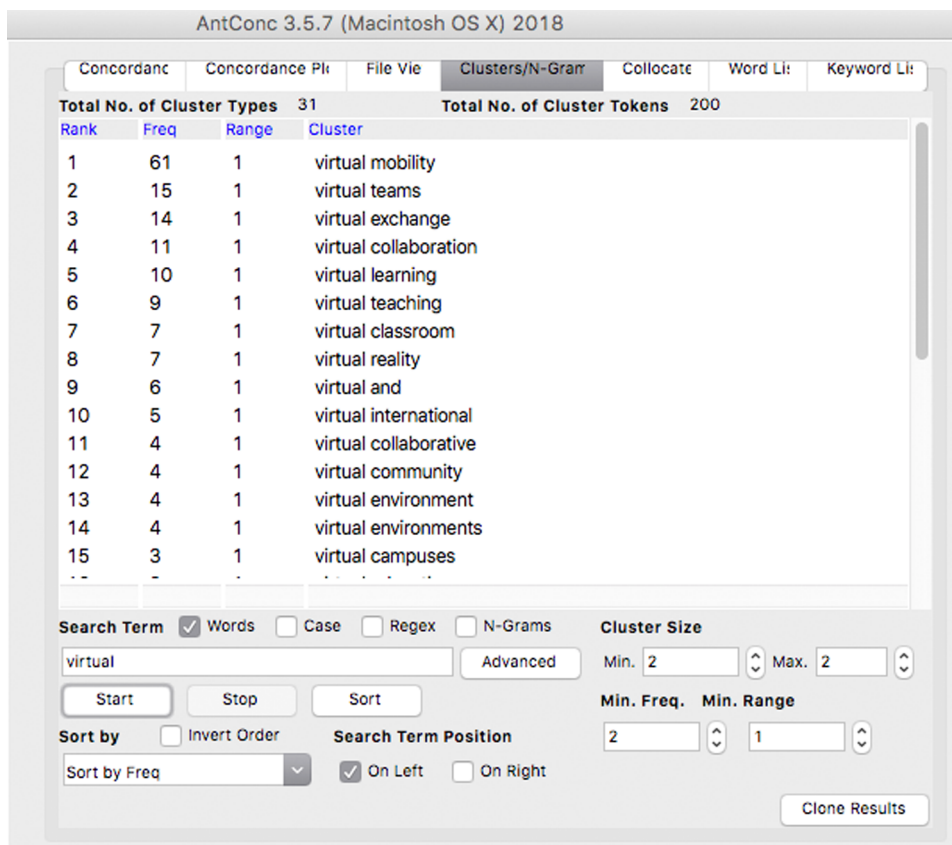


Figure 7: Cluster analysis of “virtual”, AntConc (example)

The cluster analysis was used to explore the contexts of central words in the sample. For example, *Figure 7* demonstrates that “virtual mobility” is a frequent cluster (occurring 61 times across the sample), but that the word “virtual” is also used in manifold other combinations. Thus, it could be concluded that concepts referring to “virtuality” are not restricted to the idea of “virtual mobility” in the sample, but encompass a diversity of conceptualizations. To explore these, broader contexts of use needed to be investigated. Here, concordances (or KWIC) were consulted, as described in the following.

4.7.3.4 Concordances – key words in context (KWIC)

To dig deeper into the contexts in which the terms identified were being used in the sample – be they words, n-grams, or clusters – their broader environments needed to be investigated. A KWIC search, also called concordancing, was helpful in pursuing this task (cf. Cohen et al., 2018, p. 654; Krippendorff, 2013, pp. 217–218). By listing all occurrences of a term (defined here as word, n-gram, or cluster) in all of its immediate textual environments, the KWIC search allowed the identification of passages

in abstracts in which these terms were used, and helped the understanding of these contexts. *Figure 8* demonstrates this for the string **virtual**, which, for example, found concordances of “virtual mobility”, “virtual pedagogical model” and “virtual professionals”, and allowed the immediate exploration of the contexts of their use by consulting the original text passage.

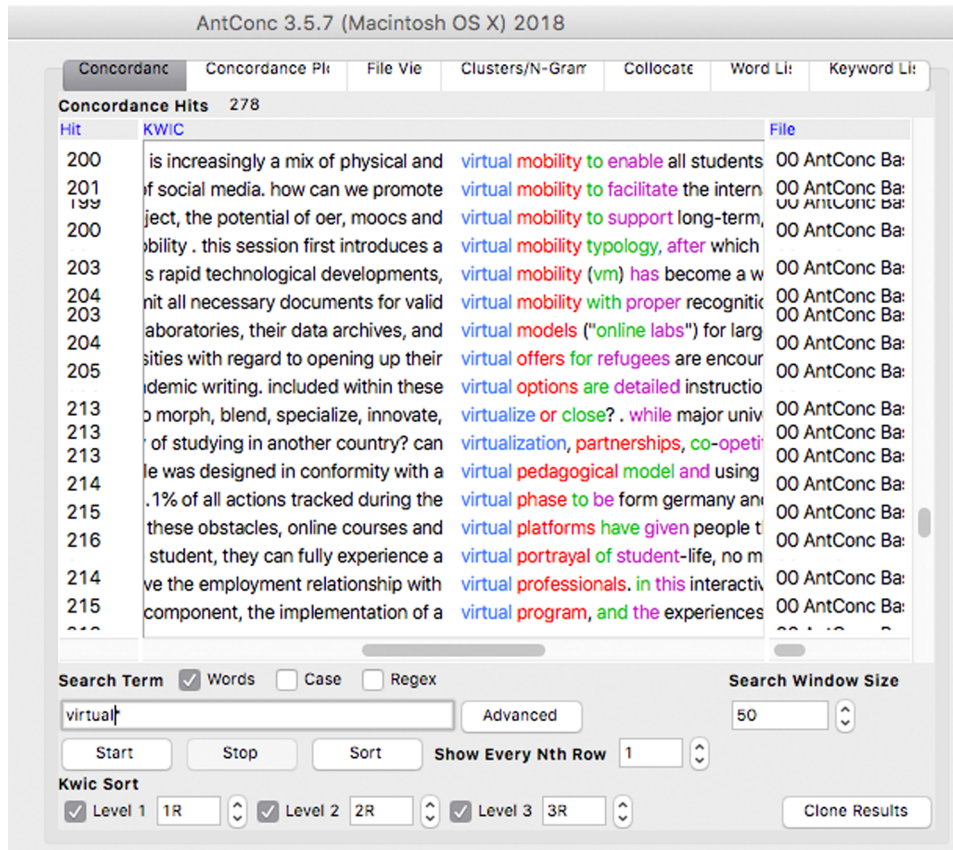


Figure 8: Concordances of string *virtual**, AntConc (example)

4.7.4 Data preparation and cleaning

Prior to conducting computer-assisted analyses, the format of the input data needed first to be streamlined. The measures taken were as follows:

4.7.4.1 Translation

Most of the abstracts in the sample were in English. However, because contributions from one German conference were included (GFHF Jahrestagung 2017), I needed to translate these first.

4.7.4.2 Orthography

As conferences took place around the globe, with some participants using American English and others using British English, the spelling of central terms needed to be harmonized to prevent faulty results. Regarding the research at hand, this necessity is striking in the case of the terms “internationalization”/“internationalisation”, “globalization”/“globalisation”, and “programme”/“program”. Throughout the data base, language was harmonized as follows:

- British spelling with “s” to American “z” for applicable terms⁷⁰ with the following stems: digitalis*, digitis*, globalis*, nationalis*, organis*, personalis*, individualis*, contextualis*, specialis*, standardis*, recognis*, maximis*, criticis*, prioritis*, centralis*, virtualis*, monetis*, institutionalis*, humanis*, democratis*, marginalis*, modernis*, valoris*, emphasis*, synthetis*, finalis*, localis*, realis*, incentivis*, utilis*, summaris*, optimis*, sentisis*, analys*, revolutionis*, regionalis*, industrialis*;
- Further spelling differences from British to American English: programme → program; centre → center; neighbour → neighbor; favourite → favorite; favour → favor; labour → labor; behaviour → behavior; enrol → enroll; endeavour → endeavor.

Lastly, spelling was converted to lower case only (see Chapter 4.4), particularly because of the prevalence of inconsistent capitalization conventions across titles in the sample. This research assumes that these data preparation measures improved the data quality of the output generated by CATA.

4.8 Inferring: developing the categories and dimensions of VI

The interplay of the different methods discussed above (qualitative and quantitative) led to the development of the different categories and dimensions of VI and, subsequently, to the conceptual model. First of all, I explored the big-picture properties of the sample: What is the geographical distribution of contributions? Which fields are they from? How many results were recorded per year? And which are more often at the center of interest in the contributions: international or domestic clientele? While I did not expect these global results to answer the research questions, I evaluated them as crucial for providing the contexts which the sample represents, and for which therefore I could obtain valid results (cf. Krippendorff, 2013, p. 24). Within this big picture analysis, the research then identified central themes, concepts, and terms on the basis of CATA – addressing the first of the sub-questions leading this research (Q1).

⁷⁰ I took care not to wrongly change letters in this manual spelling check, for instance: individualism, emphasis, realist, optimist, analysis, etc.

After that, I asked more specific questions of the data. Proceeding VI category by VI category, the research analyzed the different aspects of VI, focusing on means and practices (Q2) and aims and functions (Q3). These explorations were guided by analyses of codes attributed to the data (Chapter 4.6) and triangulated with CATA (Chapter 4.7).

Lastly, I extracted the main ideas from each of the categories and dimensions analyzed and introduced them into the conceptual model of VI (Q4). This model was based, in particular, on the model of Comprehensive Internationalization (CI) and on aims and functions identified in this research.

The last stage of the content analysis process, as designed by Krippendorff (2013), the narrating part, is this dissertation – which will not obtain a separate chapter in this methodology section. Instead, I will now discuss validity and reliability, before reporting the results of the analysis.

4.9 Validity and reliability

4.9.1 Validity

The validity of measurement is defined as “the extent to which a measure actually taps the underlying concept that it purposes to measure” (Ary et al., 2002, p. 569). Miller (2008) adds:

Most who do qualitative work agree that the validity of all research is heightened by ensuring that research procedures remain coherent and transparent, research results are evident, and research conclusions are convincing. (p. 910)

While there is much debate around whether qualitative research can attain “validity” in the same sense as quantitative research, and whether credibility (instead of internal validity), transferability/generalizability (instead of external validity), or trustworthiness (Lincoln & Guba, 1985; cf. Cohen et al., 2018, p. 248) are more suitable terms, I follow Krippendorff (2013, p. 389) in adopting the term validity for content analysis, and Cohen et al. (2018) in assuming a pragmatic approach by respecting their criteria of validity at different stages of the research process (pp. 267–268).⁷¹

4.9.1.1 Design stage

This research took the following measures to minimize threats to validity at the design stage:

- **Choosing an appropriate timescale:** A synchronous timeframe was evaluated as an adequate field of measurement (Chapter 4.5.4). In the research at hand, not only the timescale, but also the geography (4.5.2) and field of the conferences

⁷¹ As several items are relevant to ethnographic research (in particular, questionnaire- or interview-based research) only, I will only reproduce those that are relevant for my research questions and methodology.

sampled (4.5.3) were taken into consideration in order to assure validity beyond the restricted contexts of one geographical region or discipline.

- **Ensuring that there are adequate resources for the required research:** Conference abstracts were publicly available for everyone to download from the websites of the conference organizers. For conferences of previous years, it could be more difficult; here contacting the organizers was sometimes necessary.
- **Selecting an appropriate methodology for investigating and answering the research questions:** Mixing computer-assisted and manual methods was evaluated as a good way to address the questions Q1-Q4 and to mitigate the limitations of each single method.
- **Selecting appropriate instrumentation for gathering the type of data required:** As the conference proceedings were available in electronic form (PDF or DOC), it was easy to identify relevant contributions with an automated “search” function. In rare cases where documents were not searchable, I read documents closely, with the keywords beside the document.
- **Using an appropriate sample (i. e., which is representative, not too small nor too large):** Abstracts from conferences in relevant fields were evaluated as appropriate to answer the research question (Chapter 4.2). The successive, purposive sampling method, consisting of elements from criterion-based and maximum variation sampling, was chosen to serve this purpose (Chapter 4.5.1).
- **Selecting appropriate foci to answer the research questions:** The research question was operationalized into four partial questions, adopted to illuminate an appropriate spectrum of the topic under investigation.

4.9.1.2 Data gathering stage

At the data gathering stage, I took the following measure:

- **Ensuring standardized procedures for gathering data:** A transparent set of search terms was adopted for data collection (Chapter 4.5.5).

4.9.1.3 Data analysis stage

At the data analysis stage, the research minimized threats to validity by:

- **Avoiding subjective interpretation of data:** A standardized scaffold for the coding scheme with specific coding instructions was employed to avoid subjective and arbitrary coding (Chapter 4.6). Furthermore, the combination of computer-assisted and manual methods was employed to counter any potential bias (Chapter 4.7) and for “reducing the halo effect” of the researcher’s prior knowledge influencing results (Cohen et al., 2018, p. 267).
- **Using appropriate statistical treatments for the level of data:** I took care to ensure that inferences from quantitative analysis methods (such as word frequency and concordance counts) were not made beyond the scope of what a purposively collected sample allows (Chapter 4.5.1).

- **Recognizing extraneous factors which may affect the data:** The contexts of use of the data base – conference proceedings – were assessed and acknowledged (Chapter 4.2).
- **Avoiding poor coding of qualitative data:** An *a priori*/pre-ordinate coding scaffold was developed for assuring saturation of categories informing the research questions, while and an *a posteriori*/responsive approach to the generation of codes was chosen to assure that codes correspond to the data base they relate to (Chapter 4.6).
- **Avoiding making inferences and generalizations beyond the capability of the data to support such statements:** I acknowledged that statements can only be made on the contexts of use of the sample within the higher education environment (Chapter 4.3).
- **Avoiding selective use of data:** All abstracts in the dataset were analyzed in the same way, and deviant cases which did not correspond to expectations, and which did not fit the pre-established categories of the model of CI, were equally reported – and influenced the model accordingly (as Chapters 5.1.7 and 5.2 in particular will show).
- **Avoiding Type I and/or Type II errors:**⁷² As only data was selected for the sample that included mention of both an international and a virtual dimension, the collection of data which would falsely state the existence of a (VI) phenomenon that is not there (Type I error) could be excluded. It was necessary to be more careful of Type II errors: If the sample did not show the existence of a certain phenomenon, this did not have to mean that it did not exist outside of the sample. In the case of this research, which aims at inductively establishing a new conceptual model, an additional conceptual difficulty surfaced: It could well be possible that potentialities of the theoretical field have not yet been exploited in practice. To mitigate this danger, the pre-existing and well-established model of “comprehensive internationalization” was used, which could be assumed to be comprehensive enough for an application to a little-explored field. Because Type II errors were in fact a challenge in this research, I took particular care to reflect on potential sources of such errors throughout the research.

4.9.1.4 Data reporting stage

At the data reporting stage, validity is aspired to by avoiding the selective and unrepresentative use of data, by indicating the context and parameters of the research, by presenting the data without misrepresenting the message, making claims which are sustainable by the data, and by ensuring that the research questions are answered (Cohen et al., 2018, p. 268).

72 • “Type I error: The error that occurs when a researcher rejects a null hypothesis that is in fact true. Type II error: The error that occurs when a researcher fails to reject a null hypothesis that is in fact false.” (Ary et al., 2002, p. 569).

4.9.2 Reliability

Scholars have conceptualized reliability in qualitative research as “the extent to which a measure yields consistent results; the extent to which scores are free of random error” (Ary et al., 2002, p. 566). And Krippendorff (2013) notes for content analysis:

Techniques are expected to be *reliable*. More specifically, research techniques should result in findings that are *replicable*. That is, researchers working at different points in time and perhaps under different circumstances should get the same results when applying the same technique to the same phenomena. (p. 24)

Just like the term validity is contested in qualitative research, so is reliability – in particular, for its requirement of replicability that cannot be achieved in the same way as in quantitative research. Scholars have introduced terms such as dependability or consistency to replace the term (Cohen et al., 2018, p. 248), but I again follow Krippendorff (2013) as well as Denzin and Lincoln (1994) and Kleven (1995), who maintain the term reliability for qualitative research. Following their example, Cohen et al. (2018, pp. 270–271) map out three questions to be answered regarding reliability, which I will answer in the following:

4.9.2.1 Stability. Would the same observations and interpretations have been made if observations had been conducted at different times?

Given that the key result of this study is a conceptual model that is supposed to stand the test of time, this is a vital question. Many of the technological developments which are key to the sample on which this research is based can be assumed to be of short-lived relevance (e. g., particular social media platforms). So how could it be possible that different times would provide the same result? Regarding the *past*, the conceptual model would necessarily have many more blanks concerning not-yet-realized potentialities: Different forms of VI would not yet have existed in practice, because digitalization has facilitated the extent of virtualization necessary for VI to thrive (see Chapter 2). Concerning the *future*, this research attempted to make sure that the conceptual model will stand the test of time in particular by establishing a *typology* from the concrete practices and functions at play at a certain point in time, thereby abstracting from current manifestations. Facebook, Twitter, or the brand COIL (as recorded in the PRACTICE category) may not be there in a few years' time. Some kinds of *social media and virtual communities* and of *virtual mobility* (COIL/virtual exchange) (PRACTICE TYPE), however, can be expected to be here to stay. Similarly, for aims and functions of VI, the purposes of *enhancing the experience of international students* or of *exporting higher education* (FUNCTION TYPE) are expected to remain more stable than individual functions (FUNCTION category).

Stability can thus be postulated for as long as the internationalization and digitalization discourse itself, which this research applies to, remains stable.

4.9.2.2 Parallel forms. Would the same observations and interpretations have been made if other observations had been conducted at the time?

Any sampling method *per definitionem* does not cover the entire population of a phenomenon. Therefore, I took precautions to render the sample as relevant and representative as possible. This research could have selected other conferences that, had they fulfilled the same criteria as those selected (diversity in time, geography, field), could have been assumed to lead to similar results. Would a different sample and methodology (such as interviews, case studies etc.) have led to the same results? I postulate that in a perfect world in which the researcher has unlimited resources and time, they would have: Hundreds of case studies with institutions around the world, including close observations of their departments and bottom-up observations would have revealed similar examples to those presented on at conferences and, consequently, would have led to the same conceptual model. Also, interviews with hundreds of representatives at different organizational levels of HEIs around the world would have led to similar examples. I cannot rule out that these methods would have revealed a more complete picture than the one employed here. Yet, they are not realistic options because of the immensity of produced data and an unmanageable data collection process, especially for one researcher working alone. I deemed the selected sample and methodology as the most efficient and effective form of research.

I can assume that parallel forms would have led to similar results, and that in a perfect world with unlimited resources, a more complete picture might have been achieved.

4.9.2.3 Inter-rater reliability. Would another observer, working in the same theoretical framework, have made the same observations and interpretations?

This research has taken precautions to answer this question in the affirmative. The coding scaffold and instructions were selected to objectivize the coding process, channeling codes into categories. However, I assumed that discrepancies on the first level of the open coding stage (FUNCTION and PRACTICE) would occur, because different coders would read the dataset differently and select different (while similar) open codes. The second level of abstraction (FUNCTION TYPE, PRACTICE TYPE) could be expected to be more intersubjective. In addition to the coding scheme with its clear categories and coding instructions, the triangulation with CATA providing a “second opinion” on the data were measures taken to assure inter-rater reliability.

5 Results

5.1 The big picture: exploring the sample

This first chapter of the results section presents the big picture of the sample at hand and its composition in terms of:

- Geography;
- Field of the conference;
- Timeframe;
- Target groups and participants;
- Means and practices combining the virtual and the international;
- Aims and functions combining the virtual and the international;
- Central themes, concepts, terms.

This chapter provides a first indication of which countries/regions are more or less strongly represented than the sampling frame would lead to assume. It also identifies the disciplines from which conferences yielded the most results, whether domestic or international target groups are primarily at the focus, and what aspects are more discussed than others. Furthermore, it explores what means and practices are predominant and which are less often used, and what aims and functions are pursued with VI. The analysis of the timeframe plays a minor role, given that a synchronous sample was selected. This chapter thus only serves to report the yield of conferences for each year.

The basis for the first six items of the analysis listed is the metadata collected (geography, field, timeframe), in addition to codes manually assigned (target groups, participants, means and practices, aims and functions). These are evaluated with CATA (Excel). CATA is also conducted to identify central terms, concepts, and themes from the abstracts themselves (not its metadata). Here, in addition to MS Excel, AntConc is used.

5.1.1 Geography

While I sampled the place of the conference in advance, the analysis sought to answer the question which countries and regions the presenters came from. The rationale for this analysis was to find out a) whether the sample could be assumed to capture diverse approaches from across the globe, and b) which regions and countries could be assumed as active in VI.

As elaborated in Chapter 4.5.2, I stratified the sampling frame across world regions, focusing on the USA. The resulting conferences were held in the following world regions (as reproduced from Chapter 4.5.2):

- 47 in the Americas (45 USA, 1 Canada, 1 Ecuador);
- 16 in Europe (7 UK, 2 Germany, 1 Croatia, 1 Czech Republic, 1 Hungary, 1 Ireland, 1 Norway, 1 Portugal, 1 Spain);

- 7 in Oceania (7 Australia);
- 3 in Asia (1 India, 1 Malaysia, 1 Turkey);
- 1 in Africa (1 South Africa).

For this analysis, I probed which countries and regions contributors presenting on a VI-related topic came from. For this task, if more than one presenter was listed in the conference proceedings, I included the countries of *all* of them, not only the first mentioned author/presenter, in order to take international collaborations into account. This explains why instead of 549 contributions, this chapter has 705 documented individual presenters at its focus.⁷³ These were from all world regions with particular foci on the Americas and Europe, as *Table 6* shows.

Table 6: Number of presenters, by world region

WORLD REGION	# OF PRESENTERS
Americas	300
Europe	265
Oceania	77
Asia	45
Africa	18
Total	705

⁷³ Also, contrary to the peer-reviewed journal world, the first, second, or third position of an author's name did not have to mean a hierarchical ordering.

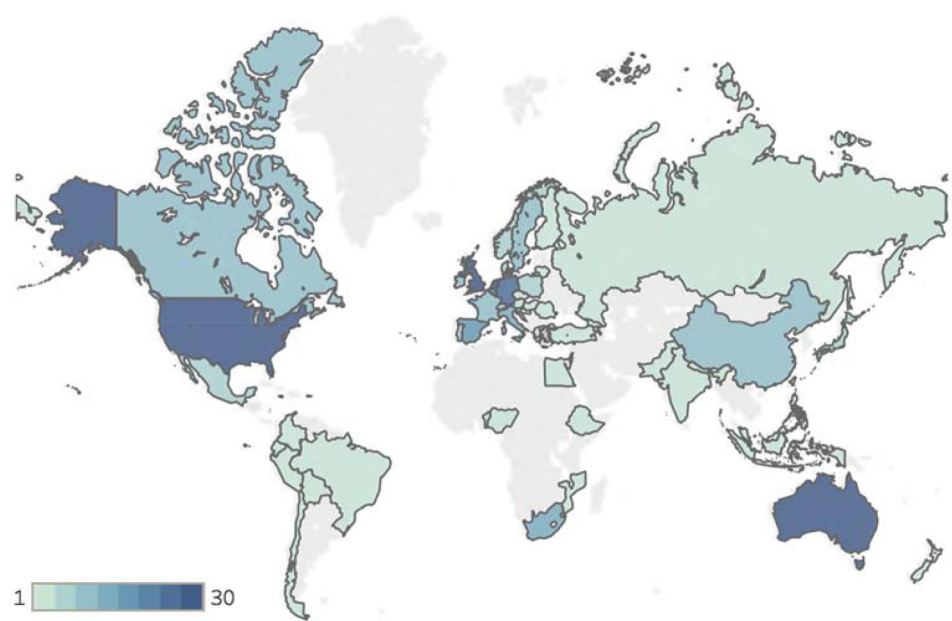


Figure 9: Number of presenters, by country of affiliation

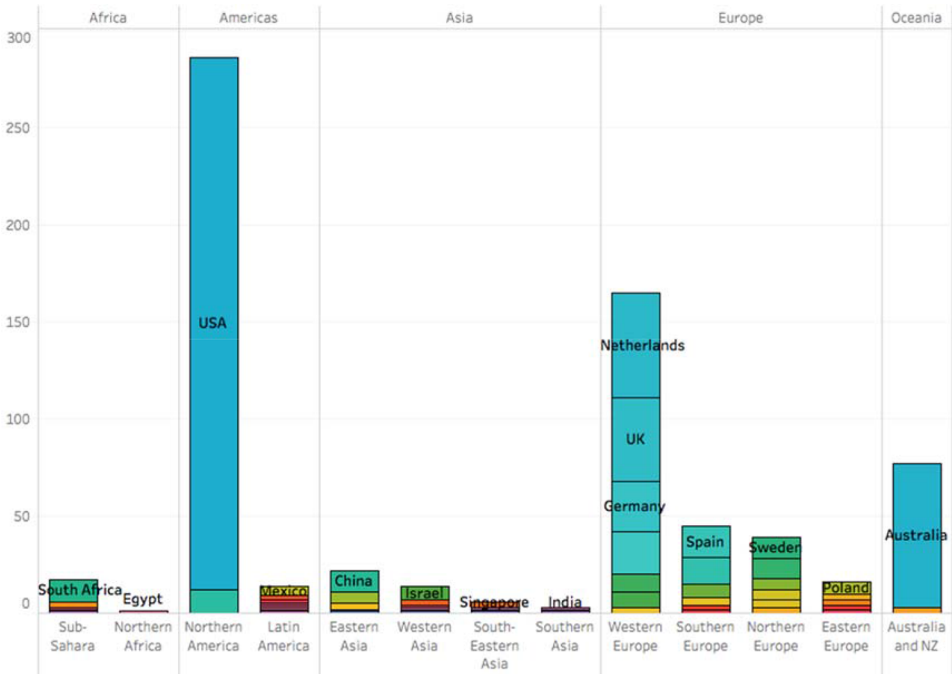


Figure 10: Number of contributions, by UN world region, UN sub-region, and country

Note. Table A 4 displays the complete data at the basis of this visualization.

As *Figures 9 and 10* present in more detail (see *Table A 4* for the underlying numbers), most contributions in the sample had at least one presenter from the USA (274 total). This was not an unexpected result, given that most conferences were sampled in that country. With 74 contributions, Australia was the second largest country by number of contributions. Ranked three, four and five respectively were the Netherlands (54), UK (43), and Germany (26). The strong presence of the Netherlands may surprise in particular, with no conference in the sample having taken place there. The same is true for the strong presence of Sweden (11) and China (11).

Figure 10 also demonstrates that the strongest UN sub-regions of contributions in the sample were Northern America, Western Europe, and Australia and New Zealand. This was not unexpected either, as most conferences in the sample were held in those same regions (see Chapter 4.5.2 and *Table 7*). However, when set against the number of conferences in their own region, the number of presenters from some regions can be regarded as *overperforming*, yielding more results than expected, and others as *underperforming*, yielding less than expected (on the terms, cf., e. g., Marginson, 2006, pp. 25–27): As *Table 7* demonstrates, 62.2% of the conferences in the sample were held in North America, but only 40.6% of the presenters came from that region (numbers based on *Table A 5*). Thus, North America can be regarded as underperforming in the sample with regards to contributions to VI. On the other side of the spectrum, Europe can be regarded as overperforming, with 37.6% of the presenters coming from that region, while only 21.6% of the conferences in the sample were held in that region. The other world (sub-)regions – Africa, Asia, Oceania, and Latin America and the Caribbean – had minor deviations concerning their representation at conferences, each showing below 3 percentage points of divergence between the number of conferences held in that region and the number of presenters from that region.

While these data provide some indication about the world regions in which VI is most discussed, with Europe being underrepresented and North America overrepresented in the sample, these findings should not be overinterpreted. In particular, many conferences sampled in the U. S. yielded very few sampling points, an effect intrinsic to the sampling method mining for qualitatively diverse, not necessarily quantitatively numerous, sampling points.

I therefore added a second layer of analysis, comparing the travel activity from one region to another. This may hint at higher VI activity in regions from which presenters travel to other regions in order to present on a VI-related topic than is represented in the sample. *Table 8* demonstrates that presenters from some regions were in fact more likely to travel to other regions to present on VI than from others.

Table 7: Number of conferences, contributions, and presenters, as well as percentages of conferences and presenters, by UN world region

REGION	# OF CONFERENCES IN THAT REGION	# OF CONTRIBUTIONS IN THAT REGION	# OF PRESENTERS FROM THAT REGION	% OF CONFERENCES IN THAT REGION	% OF PRESENTERS FROM THAT REGION
Africa	1	15	18	1.4	 2.6
Northern America	46	255	286	62.2	 40.6
Latin America and the Caribbean	1	1	14	1.4	 2.0
Asia	3	30	45	4.1	 6.4
Europe	16	176	265	21.6	 37.6
Oceania	7	72	77	9.5	 10.9
Total	74	549	705	100	100

Note. The Americas were split up into Northern America and Latin America and the Caribbean for this representation, taking into account the fact that most conferences in the sampling frame were from the USA/ Northern America, thus attempting to get a finer picture about Latin America and the Caribbean as well.

Table 8: Presenters crossing regional borders

WORLD REGION	# OF PRESENTERS FROM THAT REGION	# OF PRESENTERS OUTSIDE OF THEIR REGION OF ORIGIN	% OF PRESENTERS OUTSIDE OF THEIR REGION OF ORIGIN
Africa	18	8	44.4
Americas	300	59	19.7
Asia	45	40	88.9
Europe	265	64	24.2
Oceania	77	17	22.1
Total	705	188	26.7

As *Table 8* shows, while just over one in four presenters overall (26.7%) crossed regional borders to present on VI, presenters from Asia (88.9%) and Africa (44.4%) were most likely to do so. Again, these findings do not have to signify that some regions have a stronger VI activity than others. Other potential reasons for the discrepancy include:

- Presenters perceiving a lack in relevant conferences in some regions (and therefore traveling elsewhere to present on these topics);
- A lived practice of collaboration between presenters from different regions leading to invitations of scholars from those regions to present;

- A higher travel affinity of presenters from some regions, meaning that presenters from those regions would be just as likely to travel for other topics.

To draw conclusions on whether topics of VI tend to be more pronounced than the sample would lead us to expect in those regions that are less prominently represented in the sample, these data at hand would have to be offset with complementary data, in particular:

- Data on the availability of VI-relevant conferences in the countries of origin of the presenters (or, better still, on presenters' *perception* of the availability of such conferences in their own regions);
- Data on the distribution of collaborative presentations: Were presenters from one region more likely to co-present with presenters from another region (or were they, for the most part, collaborating with presenters from the same region)? If they tended to collaboratively present with presenters from another region, which were the strongest discernable connections?
- Data on the general distribution of presenters from regions of origin at the presentations in the sample (beyond VI-related topics).

While these may be valuable research paths, for this dissertation it suffices to acknowledge that the sample represents contributions from all over the world. This research has therefore assumed that the sample captures ideas and concepts from all continents, even though sampling points do not appear to be ideally distributed geography-wise. For the conceptual model of VI to be valid, it required a sufficient variety, not an ideally distributed geographical representation, which this research assumes has been achieved with this sample.

In support of the assumption that the sample covers the discourse around the world, it can be noted that the number of contributions sampled from countries around the world mirrors the findings by Bedenlier et al. (2017, p. 6), who demonstrated that over the past two decades (1997–2016), the discourse on internationalization in the exemplarily analyzed Journal of Studies in International Education (JSIE) has been dominated by the USA, Australia, the UK, Canada, and the Netherlands, which occupy ranks 1 through 5 in the contributions. Results for Africa, Asia, and South America mirror their findings as well: South Africa, Japan, China, South Korea, and Mexico were identified as the strongest in these regions (Bedenlier et al., 2017, p. 6), which approximates the results for VI in the study at hand, as represented in *Figure 10* and *Table A 4*, the only significant difference consisting of South Korea (one contribution only). There is some indication, therefore, that the discourse on VI is as similarly distributed globally as the discourse on internationalization in general.

5.1.2 Field

Having explored the contributions by geography, the fields which the contributions came from were then investigated.

Table 9: Number and percentage of conferences and contributions, by field

FIELD	# OF CONFERENCES	# OF CONTRIBUTIONS	% OF CONFERENCES	% OF CONTRIBUTIONS	DIFFERENCE
Internationalization	28	290	37.8	52.8	+15.0
Distance/online education	23	168	31.1	30.6	-0.5
Educational discipline	10	53	13.5	9.7	-3.9
General education	13	38	17.6	6.9	-10.6

Note. The column DIFFERENCE displays the differential between the percentage of conferences from a certain field and the percentage of contributions from that field. The balance is positive if the percentage of contributions is higher than that of conferences, and negative if the percentage of contributions is lower than that of conferences from the respective field.

The last column in *Table 9* demonstrates that conferences in some fields were richer in VI-related topics than others. The sampling for conferences in the field *general education* resulted in a lower yield than the number of conferences in the sample would lead us to expect (-10.6 percentage points), while the field *internationalization* had a higher outcome than disciplines on average: While only 37.8 % of conferences pertained to that field, over half (52.8 %) of the contributions in the sample were from it (+15.0). The difference was not as substantial for the educational disciplines and for the *distance/online education and educational technology* fields, which both yielded approximately as many contributions as expected given the number of conferences sampled (-3.9 % and -0.5 %, respectively). The second largest field in the sample was the *distance/online education and educational technology* field, with 30.6 % of the contributions and 31.1 % of the conferences in the sample.

As the sample is non-probabilistic, it is not possible to draw any statistically valid conclusions from these numbers. Yet, there is some indication that the combination of ICT and an international dimension is most discussed in the internationalization field, while it does not inform general education as much as it informs the individual disciplines and the ODE/educational technology field.

5.1.3 Timeframe

The third of the preliminary explorations of the sample concerns the timeframe. As described in Chapter 4.5.4, the analysis started with the most recent conference of each organization (which took place in 2016 or 2017), and subsequently followed those that were expected to contribute to diversifying the sample back in the years. The number of contributions thus sampled per year can be found in *Table 10*: The most substantial year in the sample is 2016 (192 contributions), while previous years show falling numbers, with 57 contributions for 2012. 2017, due to the date of data

collection in spring, yielded the fewest abstracts in the sample. In line with the purposive sampling method adopted, the number of abstracts sampled per year has limited explanatory power. In particular, it does not allow the deduction that there was more discussion about the topic under investigation in some years than in others. Also, it is not possible to deduct whether the sampling method revealed itself as efficient: Its aim having been to diversify, and not to merely increase the size of the sample, it is possible only to draw the conclusion that the combination of ICT and an international dimension has been part of the discourse for years, instead of having been a one-off topic of a particular year.

Table 10: Number of conferences, contributions, and contributions per conference, by year

YEAR	# OF CONFERENCES	# OF CONTRIBUTIONS	# OF CONTRIBUTIONS PER CONFERENCE
2017	12	33	2.8
2016	21	192	9.1
2015	17	107	6.3
2014	11	83	7.5
2013	8	77	9.6
2012	5	57	11.4
Average per year	12.3	91.5	7.8

5.1.4 Target groups and participants

Next, the sample was investigated regarding the target groups and participants which were at the focus of abstracts. *Figure 11* shows that the sample includes contributions focusing on both domestic and international students and staff. More abstracts had domestic (41%) than international students or staff only (31%) at the center, while just over one in four abstracts (27%) discussed measures and programs with both domestic and international students or staff as the target group.

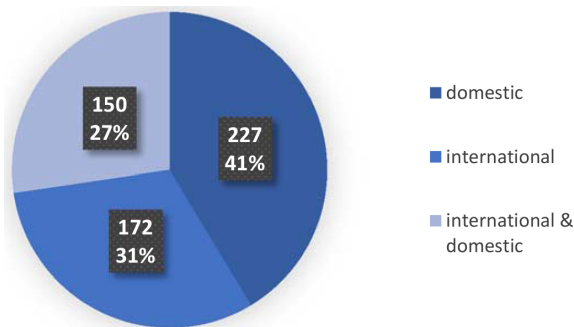


Figure 11: Target group: domestic, international and both

Looking at participants, *Figure 12* demonstrates that a higher percentage than in the target group category – almost half of the measures discussed (48 %) – includes both domestic and international students or staff as participants. In the other 52 % of the cases, domestic and international groups are separated in measures combining ICT and an international dimension.

It can be noted that significant numbers of abstracts are included in the sample for each of the two groups – domestic and international. Therefore, this research concludes that the sample permits the drawing of conclusions about measures for both domestic and international students and staff.

On a content-related note, these data on participants show that VI is used to provide domestic and international clienteles with an international experience independently of one another – whereas in physical mobility, for instance, personal contact between both groups is inherent.

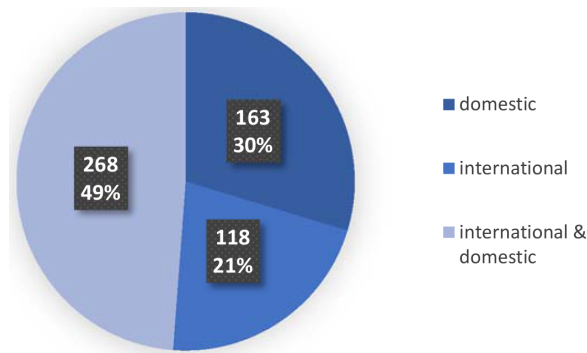


Figure 12: Participants: domestic, international, and both

5.1.5 Concepts and themes

Now approaching the contents of the sample, this section sets out to answer partial question Q1: *What are the common concepts and themes in the discourse when ICT and an international dimension are combined?* As discussed in Chapter 4.7, I used AntConc and Excel to find answers to this question.

The first approach taken was to identify the most frequent terms occurring in the corpus. I used AntConc (Anthony, 2018a) to perform this task, complementing analyses with Excel searches and calculations where useful (see Chapter 4.7.2). Having eliminated functional words with low semantic content (stop words) and combined word forms into a lemma list (see Chapter 4.7.3), I extracted the 25 most frequent lemmas in the sample. They are on display in *Table 11*. A more comprehensive list (of the 100 most frequent lemmas) can be found in *Table A 6*.

Table 11: 25 most frequent lemmas

#	COUNT	LEMMA	LEMMA WORD FORM(S)
1	1,859	student	student, students
2	1,220	learning	learning, learnings
3	1,003	online	online
4	832	course	course, courses
5	771	education	education
6	697	international	international
7	549	university	university, universities
8	450	technology	technology, technologies
9	449	global	global
10	444	program	program, programs, programming
11	444	study	study, studied, studies, studying
12	364	experience	experience, experienced, experiences, experiencing
13	360	social	social
14	292	institution	institution, institutions
15	281	media	media
16	265	virtual	virtual
17	264	development	development, developments
18	262	teaching	teaching
19	253	project	project, projects, projected
20	252	educational	educational
21	247	teacher	teacher, teachers
22	241	digital	digital
23	240	research	research, researched, researching
24	238	cultural	cultural
25	225	faculty	faculty, faculties

Note. Lemma forms that did not occur in the corpus have been removed from the lemma list in this representation, but have been preserved in *Table A 6*.

Table 11 shows that the sample centers on the word field of higher education in general, with the lemmas *student*, *learning*, *course*, *education*, *university* in its uppermost ranks. The sample also entails both an international (*international*, *global*, *cultural*) and a virtual (*online*, *technology*, (*social*) *media*, *virtual*, *digital*) aspect, with both word fields represented in the most frequently employed lemmas of the corpus. While this was not unexpected given the sampling method used, it validates the assumption that the sample equally reflects the international and the virtual dimension under scrutiny.

The sample appears to be student-centric. There is some indication in the lemma list that *faculty* or *teachers* and their *research* and *teaching* are addressed as separate target groups, and that *institutions* and their *development* are issues under discussion, but the fact that *students* and *learning* are ranked at number one and two suggests that these are the main target groups in the sample. To illustrate the proportion: The lemma *student* occurs just over eight times as often as the lemma *faculty*, and *learning* five times as often as *research* (calculations based on Table 11). Yet, only approximately one in four contributions does not discuss students (the string **student** occurring in 74% of the abstracts, as an Excel analysis revealed, see Table A 7), which indicates that the sample displays a diversity of topics (and target groups) instead of focusing on student-related aspects only.

Extending the search beyond the 25 most frequent lemmas (to the top 100, see Table A 6) displays more terms from both the international (*country*, *world*, *abroad*, *culture*) and the technology-related spheres (*MOOC/MOOCs*, *video*, *platform*).⁷⁴ Most of the 100 most frequent lemmas, however, originate from a diverse array of other areas of higher education, both on the institutional (meso) and program or course (micro) level of HEIs. Tentatively grouping the results obtained (while being aware that some words can be used in very different contexts, e. g., *social*, *open*, *work* or *information*), the corpus speaks of:

- **Strategic action:** *program* (444 occurrences), *project* (253), *strategy* (167), *impact* (122), *challenge* (213) and *opportunity* (184), *tool* (220), *model* (179), *design* (177), *result* (164), *process* (152), *approach* (148), *context* (139), *develop* (118), *marketing* (120), *future* (106);
- **Faculty/staff:** *teaching* (262), *teacher* (247), *research* (240), *faculty* (225), *practice* (192), *professional* (122), *work* (176), *academic* (138), *training* (134);
- **Curricular aspects:** *experience* (364), *activity* (188), *content* (174), *classroom* (179), *discussion* (143), *curriculum* (119), *material* (116), *engage* (112), *learn* (136);
- **Support:** *needs* (212), *support* (193), *resources* (148), *information* (144);
- **Openness:** *open* (224), *access* (154);
- **Different loci of higher education:** *university* (549), *classroom* (179), *distance* (153), *college* (106);
- **Skills and competencies:** *skill* (208), *knowledge* (178), *understanding* (113), *competence/competency*⁷⁵ (71/68);
- **Groups and collaboration:** *participant* (218), *group* (211), *community* (193), *collaboration* (185), *communication* (163), *team* (138), *collaborative* (110), *network* (108);
- **Broader social aspects:** *social* (360), *development* (264), *environment* (170), *engagement* (116).

This is a preliminary and subjective approach to the data, and categorizations different to the one reproduced here are well possible. While further in-depth analysis is

⁷⁴ The lemmas *mobility* and *mobile* have not been listed here because they are used in both word fields. They can refer to both international mobility/internationally mobile students and staff, and to mobile technology and devices.

⁷⁵ The lemma *competence* is used 71 times and *competency*, 68 times. Both lemmas taken together would have figured in the top 100.

necessary before drawing more solid conclusions, this basic viewing of the data reveals that a broad array of topics is addressed in the corpus, not limited to the realm of “virtual mobility” and its specific field of IoC. In particular, the strong presence of strategic terms suggests that measures are often embedded in broader strategies. Also, terms that may refer to broader social aspects (including *development* and *environment*) and to skills and competences (including *knowledge* and *understanding*) suggest that internationalization is not the only aim pursued in the abstracts, but that broader purposes of higher education play a crucial role.

I followed up on these findings with an n-gram analysis of collocates of 2–6 words. The lists thus generated include many collocates of limited significance for the research question at hand (the seven most frequent 2-grams, for instance, being “of the”, “in the”, “and the”, “on the”, “to the”, “for the”, and “will be”). Therefore, for this analysis, I selected those most frequent terms from the top 50 n-grams from each of the six n-gram lists that have a higher semantic content and provide insight to the research question (see Table A 8). The exploration of these frequent n-grams provided insight into how the virtual and the international are addressed within the corpus: The **virtual** aspect occurs in collocations including “social media” (203 occurrences), “online learning” (101), “online courses” (75), “virtual mobility” (61), “online education” (37), “open online” (35), “blended learning” (32), “online international” (31), “massive open online courses” (20), and “virtual teaching and learning” (9).

The **international** occurs, for example, in “international students”/“international student” (140/52), “study abroad” (91), “international education” (58), “around the world” (36), “cultural differences” (29), “transnational distance learning” (16), “across the globe” (14), “study abroad programs” (12), “traditional study abroad” (10), “impact of cultural differences” (5), or “from all over the world” (5). Beyond, n-grams pertaining to the previously identified word fields could be identified (see Table A 8):

- **Strategic action:** best practices (46), challenges and opportunities (13), international student recruitment (12), development and implementation (9), internationalization of higher education (6);
- **Faculty/staff:** teaching and learning (64), case study/studies (37 + 31), teachers and students (12), online faculty development (11), students and faculty (11), teaching and learning commons (10);
- **Curricular aspects:** learning environment (41), learning outcomes (33), blended learning (32), student learning (29), in the classroom (22), education and training (11), motivation and learning strategies (7);
- **Support:** students who are unable to travel (4), the unique needs of international students (4);
- **Openness:** open educational resources (23), massive open online courses (20), formal and informal (11), virtual teaching and learning commons (9), open research and open education (8), access to international learning opportunities (3), arenas with an open culture (3);
- **Different loci of higher education:** face to face (72), distance learning (71), distance education (37), around the world (36), transnational distance learning (16),

across the globe (14), open and distance (10), face to face classroom (10), online and blended (9), e-service distance education (7), online and face to face (6), open and distance learning (6);

- **Skills and competencies:** knowledge and skills (15), community of inquiry (9);
- **Groups and collaboration:** social media (203), sense of community (10).

The preliminary categories drawn from the analysis of the list of most frequent lemmas have thus substantiated with n-grams found, with the exception of *broader social aspects*, which are not traceable in the most frequent n-grams. Further analyses will be necessary to determine how they are – or are not, in fact, – addressed. The tentative categories *skills and competencies* and *groups and collaboration* are less prominent in the n-grams than in the lemma list. The *different loci of higher education*, including face to face and distance, in addition to international places (“transnational education”, “around the world”, “across the globe”) are strongly represented in both lemma and n-gram lists. In the *strategic terms* category, “best practices” are the most frequent n-gram – suggesting that HEIs like to look to the example of others in matters of VI. Beyond, several n-grams directly refer to aspects of VI: “virtual mobility” (61), “online international learning” (9), “collaborative online international learning” (8), “alternative to traditional study abroad” (4), or “cultural diversity in online learning” (4).

These findings support the assumption that the sample is suitable to find out about the combination of the virtual and the international in higher education beyond already well-explored (curricular) contexts, and thus allows the research questions for means and practices and aims and functions of VI to be answered.

Having performed the lemma identification and n-gram count over the entire sample, the distribution of terms across the individual abstracts was the focus of the analysis, because the sheer number of occurrences of terms across the sample did not provide information on their distribution from abstract to abstract: Some terms may occur often in few contributions and thus raise the word count, but not occur in most other contributions, while for other terms, the effect may be the opposite.

Therefore, I performed a search in Excel for those character strings that guided the research (as described in Chapter 4.5.5), and calculated the percentage of abstracts in which they occur. The aggregate results of these analyses, as detailed in Table A 7, are as follows:

- **Internationalization of higher education:** *international* (53 %), *global* (34 %), *cultur* (35 %), *transnational* (3 %), *abroad* (15 %), *mobility* (11 %), *language* (16 %), *offshore* (1 %), *branch* (1 %), *foreign* (4 %)
- **Online and distance education, educational technology:** *distance* (11 %), *online* (53 %), *virtual* (20 %), *digital* (22 %), *flexib* (8 %), *technolog* (41 %), *open* (20 %), *OER* (4 %, including the strings *open education resource* and *open educational resource*), *MOOC* (10 %, including the string *massive open online course*), *blend* (7 %), *hybrid* (2 %), *reality* (3 %), *game* (3 %), *gamif* (3 %) *media* (26 %) *internet* (8 %), *web* (15 %)

Note that the strings found are not necessarily related to the topics under investigation: “Reality” does not have to relate to some kind of virtual or augmented reality, and “open” may refer to an “open discussion”, an “opening event”, “open-ended questions”, etc. This analysis can thus only provide a global overview of the distribution of terms across the dataset, and it cannot replace a closer look at the data.

This research found that all of the character strings selected for sampling occur in the sample, but with a different distribution. The most distributed character strings from the guiding terms across abstracts are **international** and **online**, both occurring in over half of the abstracts (53 % each). In ca. one third of the abstracts, both these strings occur simultaneously (31%), indicating that the concepts behind “online” and “international” have a tendency to be used in the same contexts, but not exclusively: Other concepts than “online” are combined with “international”, and other concepts than “international” are combined with “online”. In one quarter of the contributions (25 %), neither **online** nor **international** are included, indicating that a diversity of other concepts characterizes the sample (see *Table A 7*).

I draw the following insights from comparing these numbers to the results from the list of most frequent lemmas:

- Six out of the ten most frequent lemmas are not among the search terms on which the sample is based. These relate to higher education in general: *student*, *learning*, *course*, *education*, *university*, and *program*. This confirms the expectation that the sample speaks for the higher education context, which supports the assumption that it is possible to draw conclusions on said context with the selected sample.
- The sheer frequency of words alone is not sufficient to determine their relative importance for the sample. In a particularly expressive example, the strings **online** and **international** are equally distributed across abstracts in the sample (each in 53 %), whereas the words “online” and “international”⁷⁶ have a significantly different frequency overall, “online” occurring 1.4 times as often as “international” (1,003 to 697). This mismatch is even more pronounced as the string **international** also refers to other words (“internationalization” (74), “internationally” (29), “internationalize” (11), “internationalized” (4), “internationalizing” (5)).
- An equal distribution of the words “online”, “international”, and its other word forms (internationalization, internationalized, internationalized, internationalizing, internationally) would have seen the string **international** occur two times in each abstract, while in reality, it occurs in every second abstract only. For the word “online”, the relation is 1.2 times to 0.5.⁷⁷ This demonstrates that the sample is more diverse than the simple word/lemma count might suggest.

76 In these two cases, the lemma is identical to the word (the lemma *online* refers to the word “online” only; and *international* to “international” only)

77 The string **online** refers to the word “online” only, except for two occurrences (i. e., “nonlinearity” and “nonlinear”), which were manually removed.

Beyond **online** and **international**, other frequent strings are **technolog** (41 %), **cultur** (35 %) and **global** (34 %). With **technolog**, a second search string from the ODE/educational technology field is shown to have great prominence, occurring in 28 % of the abstracts in which **online** does not occur, suggesting a variety of technological tools that may not be online. This hypothesis is assessed further in the following chapters. Other concepts from the ODE/educational technology field include **MOOC*/massive open online course** (10 %) which are more represented than **OER*/open education[al] resources** (4 %); and **virtual** (20 %) which is more often employed than **blend** (7 %) or **hybrid** (2 %) (see *Table A 7*).

With *international* and *global*, two of the dimensions of the definition of (virtual) internationalization are found to be prolific in the sample. The third dimension, *intercultural*, is also covered: At least one of the terms *inter-cultural/intercultural*, *cross-cultural/crosscultural*, or *multi-cultural/multicultural* can be found in 15 % of the abstracts (see *Table A 7*).

As demonstrated in *Table A 9*, the term “international” most often precedes “students” or “student” (140 + 51 times), confirming the observation made in the previous section that the target group of “international students” appears to be important within the corpus. For the domestic target group, “international education” (58) and “international learning” (16) are key terms within the corpus, indicating a focus on international experiences for domestic students. Furthermore, the occurrence of terms such as “international collaboration”/“collaborations” (13/5), “international partners”/“partnerships” (9/8), “international experts” (5) or “international opportunities” (29) indicates that not only topics that involve students are discussed, which is promising as regards the diversity of approaches towards the combination of ICT and an international dimension discussed in the corpus – and thus, the diversity to tap into for the model of VI.

The term “global” occurs in an even broader diversity of clusters than the term “international” (see *Table A 10*). An unexpected result was that it most frequently precedes the word “health” (27 times), which indicates that internationalization is not (at least: not only) addressed as an end in itself within the corpus, but, for instance, also as a social function – here: improving health globally. Other frequent terms are “global campus” (26), “global learning” (18), “global education” (17) and “global classroom” (13), alluding to a borderless kind of education. Beyond, the centrality of the concept of “global citizenship”/“citizens”/“citizen” (25/9/6) and of “global community” (5) indicates that the global dimension is not only addressed with regards to the geographical spread of education, but also to the broadened mindset of students (and/or staff). Thirdly, the term “global” is also used in connection with the idea of skills and competencies such as “global awareness” (9), “global competency”/“competencies”/“competence”/ (9/5/4) or “global perspectives” (6).

The string **cultur** often appears in contexts where it designates an intercultural dimension, as a closer examination of the data in a KWIC search reveals (see *Figure 13*): “Cultural exchange” is sometimes used synonymously with “intercultural exchange” (hit 336 in *Figure 13*), and so are “cultural experiences” and “intercultural experiences” (e. g., hit 347). The “clash of cultures” (hit 355) and “the mix of cultures”

(hit 358) both also refer to intercultural issues. However, in the sample, culture also refers to areas not related to interculturality in the sense of internationalization: It is also used in the sense of a “teaching and learning culture” (hit 358), “pop culture” (hit 357), and “mainstream socio-cultural experiences” (hit 346). Elsewhere in the sample, the string is also part of the word “agriculture” [520].

Concordance Hits 630		
Hit	KWIC	
333	omoting cultural dialogue, embracing technology &	cultural exchange experiences. lesson plans to promote
334	ce distance learning enriches curriculum, enables	cross-cultural exchanges and interviews with subject matter
335	ch practitioners encounter when organizing online	intercultural exchanges and then identifies the strategies
336	boldic network also works for supporting	cultural exchanges as the materials often contain
337	instructors to develop their own online	intercultural exchanges. 73 connecting chinese learners online
338	to set up and run online	intercultural exchanges 374 psyche opening event: the secrets
339	goal is to accommodate to foreign	cultural expectations or to assimilate students into
340	to enable more students to gain	cross-cultural experience in a professional setting and
341	universitas 21, it was observed that true	intercultural experience (or 'global citizenship') requires the
342	environment for the participants to share	intercultural experiences amongst each other in order
343	to engage in learned discussion about	cultural experiences and become meaningful digital citizen
344	ducational environment, enhances their social and	cultural experiences and increases their connection to
345	, but also to share and mainstream	socio-cultural experiences in various forms. teacher collaborati
346	and listening practice as well as	cultural experiences. provided will be a framework
347	of gv teams to provide meaningful	cross-cultural experiences similar to those on study
348	to the cutting edge social and	cultural experiences. these include live exhibitions of
349	their capacity to provide students with	cross-cultural experiences via gv teams. however, questions
350	video and spoken vignettes focusing on	intercultural expertise, cultures of learning, doing business
351	, the likelihood of a clash of	cultures exponentially increases. yet, instructors may not
352	research platform for diverse modes of	cultural expression and collaboration. students from media
353	get a better understanding of particularly	culture-related factors that could jeopardize the learners'
354	solution that helps foreign students prepare	culturally for erasmus+ and other mobility programs
355	selfie: leveraging digital trends in pop	culture for marketing . in this session, we'
356	theoretical model for teaching and learning	culture for online courses. 18 using virtual exchange (
357	challenges presented by the mix of	cultures. for the team to work effectively,

Figure 13: Concordances of the string *cultur*: KWIC detail view (AntConc)

When looking at clusters including the string *cultur* and their frequency (see *Table A 11*), VI occurs most often⁷⁸ in connection with:

- **Concepts of cultural difference and diversity:** “cultural differences” (29 times), “cultural diversity” (16), “different cultures” (8), “culturally based learning preferences” (5), etc.);
- **Competences (and challenges) in dealing with cultural diversity:** “intercultural competence” (18), “cultural awareness” (7), “cultural issues” (7);
- **Opportunities that lie in interculturality and diversity:** “intercultural learning” (10), “openness to multiculturalism” (6), “cultural heritage preservation” (5).

This research deems it necessary to take care of these cases as the data are further analyzed, but already draws the conclusion that the three dimensions of internationalization (international, intercultural, and global) are prolific within the sample. A diverse range of terms related to technology and ODE is also represented, as has been noted in this chapter. Beyond, as *Table A 7* shows, of particular importance appears

78 after having dismissed clusters with generic terms (stop words), as described in Chapter 4.7.3

to be the idea of flexibility in learning/education, the string **flexib** occurring in 8 % of the abstracts. Transnational education, however, appears to play a minor role within the sample, with only 4 % of the abstracts including at least one of the terms **transnational**, **offshore**, or **branch**.

The concepts of **distance education** or **distance learning** are present in 8 % of the abstracts, which suggests that the sample provides an appropriate database to not only explore VI in campus-based education, but also in the ODE field.

This chapter provided further indication that the dataset appears to be suitable to answer the research questions: The sample is set in the higher education context (as the most frequent lemmas show), and it features a strong presence of terms from both the internationalization and the ODE/educational technology fields. Regarding topics discussed, the sample appears to feature a strong variety; not dominated by its most frequent terms (*international* and *online* each occurring in 53 % of the abstracts), but featuring an array of aspects combining the virtual and the international.

5.1.6 Means and practices of combining the virtual and the international

In this section, I will explore the PRACTICE TYPE coding category to provide a global overview of the different ways in which ICT is incorporated in means and practices in the sample. The category PRACTICE providing more exhaustive, but also very complex insight, is only cursorily reported in this section, but will help inform the more detailed analyses in subsequent chapters.

As Table 12 demonstrates, 17 different codes were distributed for the PRACTICE TYPE category in total.

The decision to consolidate practices to one general underlying idea (see Chapter 4.6) has proven useful in generalizing the presenters' ideas of VI. Table 12 demonstrates that the most distributed code in the PRACTICE TYPE category was *online media and e-learning*, applied to almost one in four abstracts (24 %). This generic code incorporates all instances where online media and digital learning are used to enhance learning in one way or another, without highlighting any more specific measures.

After *online media and e-learning*, the most frequently employed means and practices in the sample were *social media and virtual communities* (13 %) and *virtual mobility (COIL/virtual exchange)* (9 %). Next was *virtual mobility (other)* (8 %), which includes, for instance, virtual internships, virtual field trips, etc. – meaning *other* than virtual student exchange and collaborative online international learning. The static Web 1.0 *website and online presence* was also part of frequent means and practices (7 %). *MOOCs/open courses*, *virtual TNE in general* (that is, designated virtual university programs and degrees abroad), *OER/open content*, and *ICT in intercultural diverse courses* each were at the center of roughly every 20th contribution. Other means that were not, as a standalone⁷⁹ method, as widespread in the sample,

79 Standalone, here, signifies that they are not part of a broader media mix and subsumed under *online media and e-learning*.

included *m-learning*, *virtual reality/augmented reality*, *games/gamification*, and *e-mentoring/e-tutoring* (1–3 %).

Table 12: Practice types and their frequency

PRACTICE TYPE	COUNT	%
online media and e-learning	132	24%
social media and virtual communities	72	13%
virtual mobility (COIL/virtual exchange)	49	9%
virtual mobility (other)	44	8%
website and online presence	40	7%
MOOCs/open courses	34	6%
virtual TNE in general	29	5%
ICT in interculturally diverse courses	27	5%
OER/open content	26	5%
ICT in standardizing (quality, accreditation, recognition, data portability)	24	4%
games/gamification	17	3%
ICT in staff/faculty development	16	3%
m-learning	14	3%
e-mentoring/e-tutoring	8	1%
ICT in an internationalization strategy	6	1%
virtual collaboration among staff/faculty	5	1%
virtual reality/augmented reality	5	1%
Total	549	100%

The fact that 17 distinct measures and practices were identified, each with at least five occurrences, demonstrates that a diversity of measures and practices is covered in the sample, providing a rich data base for analysis. Virtual mobility in the form of COIL/virtual exchange is at the focus of 9 % of the abstracts, while other forms of *online media and e-learning* and *social media and virtual communities* are more frequent within the sample.

One could argue that some codes, for instance, *ICT in interculturally diverse courses*, *ICT in standardizing (quality, accreditation, recognition, data portability)*, and *ICT in staff/faculty development*, appear to already incorporate the function of ICT, not (only) the practice. Here, it is necessary to remember that the means and practices category does not only include means (i.e., forms of ICT such as MOOCs, OER, etc.), but also practices (i.e., forms of use of ICT). The codes in question are such practices of use and are therefore allocated to the PRACTICE TYPE category, whereas the FUNCTION TYPE is on a different level. For instance, in abstracts coded *ICT in interculturally diverse courses*, the function of ICT does not lie in providing interculturally diverse courses – instead, in *enhancing the experience of interna-*

tional online students, or in developing *intercultural, international, and global competencies*, etc. (see Table A 14). The function of ICT in standardizing (*quality, accreditation, recognition, data portability*) lies in, for instance, *enhancing the experience of mobile domestic and international students*. The endeavor pursued in this research lay in discovering the underlying functions behind the concrete measures.

Another note on terminology, regarding the difference between *OER/open content* and *MOOCs/open courses* adopted in this research: The line between the two was drawn according to the question whether learning materials were in an unbundled “content” format, or in a bundled “course” format (see Chapter 2.2.2). I applied the *OER/open content* code if content *within* a MOOC was at the center of a contribution [276], if MOOCs were described as open content *among other OER* [292], or if they were part of an “open learning culture” [288].

The following chapter explores the aims and functions pursued by contributions in the sample, to further investigate this complexity.

5.1.7 Aims and functions of combining the virtual and the international

For aims and functions, the sample demonstrates an even greater diversity than for the means and practices: 24 different codes were identified for the FUNCTION TYPE category (see Table 13).

The most frequent function in the sample is *intercultural, international, and global competencies*, distributed to one in five contributions. This demonstrates that the aim to internationalize the experience of students and/or staff is a widespread issue in the sample. Beyond these *intercultural, international, and global competencies* however, *broader skills, competencies, and knowledge* that go beyond the idea of “internationality” are also addressed (5 % of the contributions). Similarly, while *access to an international experience*, a concept referring to the internationalization discourse, is at the center of 5 % of the contributions, increasing *access to higher education* is even more widespread within the sample (7 %). A significant portion of the sample (9 %) discusses *pedagogical innovation*, demonstrating that the combination of ICT and an international dimension is not limited to internationalization and digitalization discourses, but has reached mainstream discourses of higher education.

This result put me in a dilemma: If I was to address internationalization in the strict sense of the term, I needed to exclude abstracts that use the combination of a virtual and an international dimension as a vehicle to reach something else. However, as I have already laid out (Chapter 3.1), scholars and institutions have emphasized the interconnectedness of internationalization and broader functions (“to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society”, de Wit, Egron-Polak, et al., 2015, p.29), with Beerkens et al. (2010) asking: “If mobility is a means, then what exactly are the ends?” (p. 16). It did not seem to make much sense, therefore, to separate the aim of “internationalizing” from broader aims. For example, *capacity building or creating access to higher education* can be interpreted as a flipside of *exporting higher education*, depending on the viewpoint: For the exporting institution, offering virtual TNE falls

in the realm of internationalization, while for the host country, capacity or access may be identified as the predominant positive outcomes (cf. Tait & O'Rourke, 2014, p. 45). The aspect of internationality, in this case, is not the dominant feature.⁸⁰

Table 13: Function types and their frequency

FUNCTION TYPE	COUNT	%
intercultural, international, and global competencies	112	20%
pedagogical innovation	51	9%
enhancing the experience of international students	41	7%
access to higher education	40	7%
enhancing the experience abroad	34	6%
recruiting international students	31	6%
promoting the institution	30	5%
broader skills, competencies, knowledge	26	5%
enhancing staff and faculty training/development	25	5%
access to an international experience	25	5%
enhancing the experience of international online students	21	4%
exporting higher education	20	4%
enhancing the experience of mobile domestic and international students	16	3%
capacity building	14	3%
internationalizing the institution as a whole	12	2%
developing multipliers	11	2%
enhancing general advising	8	1%
promoting international exchange programs	7	1%
fostering partnerships	6	1%
connecting international and domestic students (within the same HEI or program)	5	1%
internationalizing online education	4	1%
enhancing the experience of TNE students	4	1%
quality enhancement	3	1%
developing interculturally sensitive staff/faculty	3	1%
Total	549	100%

I therefore decided to maintain these diverse aims and functions in the analysis, while extending the model of VI by a second dimension of *broader aims*. This way, each of the categories of VI received two layers: one including those functions that

⁸⁰ Sometimes, on the contrary, virtual TNE from abroad is criticized or even prohibited for being perceived as not addressing capacity and access issues in the right way (cf. e.g., Daily Independent, 2015).

are internationalization-related, and the other those that go beyond internationality. The next chapter will further elaborate on this, while Chapters 5.3 – 5.9 will differentiate between these two layers in separate chapters. The model of VI in Chapter 6.3 will revisit these results to establish the two-dimensional model of internationalization-related and broader aims of VI.

5.2 Application of the model of CI to VI

In this chapter, I apply the model of Comprehensive Internationalization (CI) to Virtual Internationalization (VI), taking into account the results from the global analysis of the dataset, as developed in the previous chapter. I thus propose a preliminary base model of VI from which the comprehensive, conceptual model of VI can subsequently be developed.

Chapter 2.3.2 presented the model of CI and described its components (or categories) as: articulated institutional commitment; administrative leadership, structure, and staffing; curriculum, co-curriculum, and learning outcomes; faculty policies and practices; student mobility; and collaboration and partnerships. The first step to take was to transfer this model to VI, maintaining the components as they were in the model of CI.

However, this attempt revealed the difficulty of ranging all of the abstracts in the sample in one of these categories: Abstracts pertaining to the field of fully online and distance education did not fit into either of the pre-defined categories. While it would have been possible to split them into the “curriculum” and the “collaboration and partnerships” components, it appeared advisable to treat them as a separate category because fully online and distance education has different affordances to campus education: Although the two modes of higher education overlap, with elements from distance education being introduced into the mainstream of on-campus education with the spread of online learning into blended forms (see Chapter 2.2.2), separating education which is entirely online (or delivered at a distance with other means) from primarily *offline* education allows the drawing of a more distinct picture of the different affordances of each mode of education. I therefore extended the model by the category of online and distance education (ODE).

Chapter 5.1.5 revealed that “distance education” and “online education” are strong themes in the sample, with at least one of the terms occurring in 8% of the abstracts. In fact, fully *online and distance education* is the backdrop of measures in a significant portion of abstracts (11%), as identified by the coding stage.

Figure 14 visualizes the numbers for contributions pertaining to each of the categories of VI. The largest portions of abstracts revolve around issues of *curriculum, co-curriculum and learning outcomes* and *physical student mobility*, which each constitute at least one third of the abstracts. This research expects that the most diversified picture of means combining ICT and an international dimension can be developed in these two categories. The category of *collaborations and partnerships* is covered in just

over one in ten contributions, as many as *fully online and distance education*. As 11 % of the sample represents around 60 contributions, the data base can be assumed to still provide *rich data* (see Chapter 4.5) to inform the conceptual model. The aspects of *administrative leadership* and *faculty policies and practices* are expected to yield a less rich picture, given the lower number of data points in the sample (24 and 21). These do not seem to be at the center of attention when the combination of ICT and an international dimension is the topic, at least not in the conferences in the sampling frame.

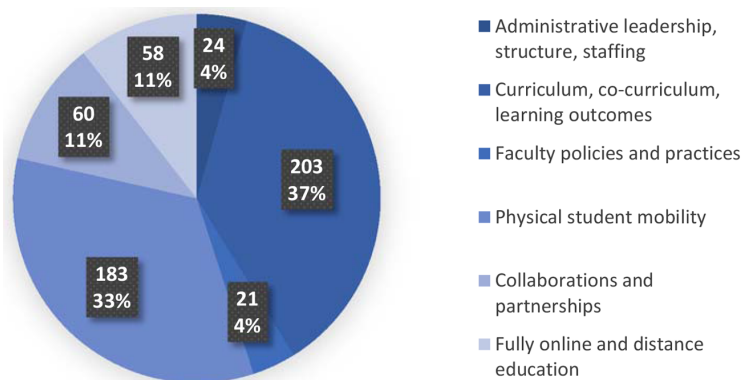


Figure 14: Yield by category of Virtual Internationalization

It can furthermore be deduced from the data at display in *Figure 14* that students and their international learning at home (curriculum) or abroad (physical mobility) are the core target groups of VI as discussed at conferences in the sample, whereas faculty and staff are less often in the focus. This observation substantiates the analyses of Chapter 5.1.5, which found the lemmas *student*, *learning*, *course*, and *education* among the terms at the very top of the word count.

A look at the target groups (*Table 14*) reveals that these differ across VI categories. International target groups dominate the categories of *physical student mobility* (with 44 % of the international-only and 28 % domestic-only target groups, and 28 % of the contributions directed at both), *collaborations and partnerships* (63 %/7 %/30 %), and *online and distance education* (64 %/10 %/26 %). Domestic target groups, on the other hand, are predominant in the *curriculum, co-curriculum, learning outcomes* category (5 % international, 73 % domestic, 22 % both). *Faculty policies and practices* were just as likely to target domestic faculty only as both domestic and international faculty (14 %/43 %/43 %), and *administrative leadership, structure, and staffing* were mostly targeted at both domestic and international groups (13 %/33 %/54 %).

These results provide a more detailed picture of target groups of the contributions than the one presented in Chapter 5.1.4, and they help put the results of the subsequent analyses into perspective by indicating the substance of the underlying sample size for sub-datasets.

Table 14: Yield by VI category and target group

VI CATEGORY	#	%	TARGET GROUP: DOMESTIC	TARGET GROUP: INTERNATIONAL	TARGET GROUP: DOM+INT
Administrative leadership, structure, staffing	24	4.4 %	8 (33%)	3 (13%)	13 (54%)
Curriculum, co-curriculum, learning outcomes	203	36.9 %	148 (73%)	11 (5%)	44 (22%)
Faculty policies and practices	21	3.8 %	9 (43%)	3 (14%)	9 (43%)
Physical student mobility	183	33.3 %	52 (28%)	80 (44%)	51 (28%)
Collaborations and partnerships	60	10.9 %	4 (7%)	38 (63%)	18 (30%)
Online and Distance Education	58	10.6 %	6 (10%)	37 (64%)	15 (26%)
Total	549	100 %	227 (41.3 %)	172 (31.3 %)	150 (27.3 %)

In the previous section (5.1.7), I argued that the model of VI would include a second dimension encompassing the “broader aims” that are pursued via combining ICT and an international dimension. This base model is displayed in *Figure 15*.

The *pie* form allows the addition of the second layer of *ICT and an international dimension for broader aims* in *Figure 15*, which the original *pillar* form of the CI model (as displayed by Helms and Brajkovic (2017)) would not have permitted. The latter format, however, holds some advantages for the purpose of the research at hand, and has therefore not been dismissed entirely, as the following chapter will show.

Chapters 5.3 – 5.9 will aim at conceptualizing the individual fields of the base model established in this chapter, and describe how the seven categories are reflected in the two dimensions of *ICT and internationalization* and *ICT and an international dimension for broader aims*.

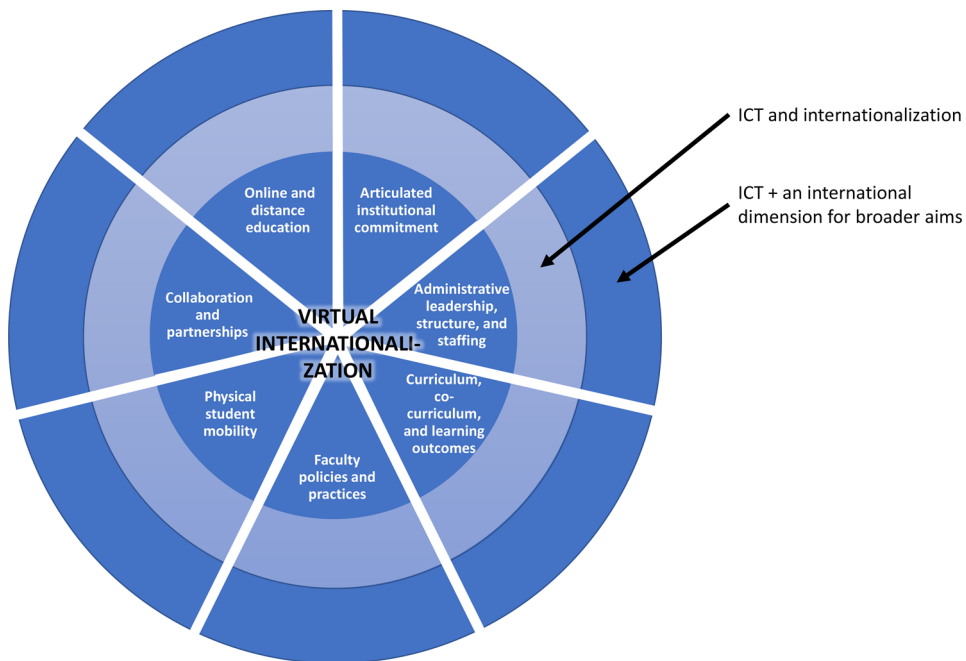


Figure 15: Seven categories and two dimensions of Virtual Internationalization

5.3 Articulated institutional commitment

As I explain in Chapter 4.7, none of the contributions in the sample addresses the category *articulated institutional commitment* exclusively, strategies *per definitionem* being transversal, in that they refer to the particular fields of application which they apply to. Regarding this research, these can be all of the six other categories of virtual CI, from the classroom to the program and institutional levels. As Gacel-Ávila (2012) notes:

The notion of comprehensiveness means that strategies should be transversal to the whole policy design, integrating the international dimension in all institutional policies and programmes, and impact the three levels of the educational process: macro (decision making and design of institutional policies), medium (curriculum structure and policy) and micro (teaching and learning process). (p. 495)

While not adopting the imperative notion of the quote above, I acknowledge the transversal character of *strategies and articulated institutional commitment* – not as a pillar besides the others, but as a cross-cutting factor that may affect all six other categories (see Figure 16).



Figure 16: The six parallel categories and one transversal category of Virtual Internationalization

In this chapter, I thus discuss different aspects of *strategic* internationalization, taking into account contributions which include terms from the word field of strategy/strategic internationalization. The Oxford English Dictionary defines strategy as:

the art or practice of planning the future direction or outcome of something; the formulation or implementation of a plan, scheme, or course of action, esp. of a long-term or ambitious nature. Also: policy or means of achieving objectives within a specified field, as *political strategy*, *corporate strategy*, etc. [emphasis added]. (Strategy, n. d.)

This definition provided some of the terms I mined for in the sample to identify strategic action, in addition to some of the vocabulary used in the description of “Articulated institutional commitment” by Helms and Brajkovic (2017) and the American Council on Education (2017b):

Articulated Institutional Commitment

Strategic planning involving key stakeholders articulates an institution’s commitment to internationalization and provides a roadmap for implementation. Formal assessment mechanisms reinforce this commitment by framing explicit goals and holding the institution accountable for accomplishing them.

Strategic planning. Internationalization is prioritized in mission statements and institution-wide strategic plans and through explicit internationalization plans.

Internationalization committee. A steering committee comprised of representatives from across the campus is designated to oversee implementation of internationalization initiatives.

Campus stakeholders. Focus groups, surveys and open discussions convey priorities, address concerns and gain buy-in by students, faculty, staff and other stakeholders.

Assessment. Following from articulated goals, progress and outcomes of internationalization are formally measured and assessed [emphasis added].

From the ACE and the Oxford English Dictionary definition, the underlined search terms were extracted, word forms with similar meanings added (for instance, internationalization/internationalize/internationalizing/internationalized), and their num-

bers of occurrences measured. Note that this procedure is only an approximation of the complexity of strategic action, and of retrieving the discourse around it as represented in the sample. It is possible that all contributions discussing strategic action were not identified by probing for these key terms because abstracts use different (in particular, less explicit) terms. Yet, this research presumes that using these terms from the definition of “strategy” and from the description of “articulated institutional commitment” grasp enough abstracts pertaining to this conceptual category for the purposes of the study. In fact, well over 1,000 occurrences for these terms have been accounted for, as the following list (sorted by the total number of occurrences) demonstrates:

- Assessment/assessments/assess/assessing/assessed/assesses/assessors (155 occurrences total (82/23/20/16/9/3/2 each));
- Strategies/strategy/strategic (201 (126/41/34));
- Implementation/implementing/implemented/implement/implementations/implements (154 (74/36/22/20/1/1));
- Future/futures (107 (104/3));
- Outcomes/outcome (103 (89/14));
- Goals/goal (94 (58/36));
- Internationalization/internationalize/internationalizing/internationalized (93 (73/11/5/4));
- Planning/plan/plans/planned (82 (30/26/19/7));
- Policy/policies (52 (27/25));
- Objective/objectives (47 (32/15));
- Progress (24);
- Measure (23);
- Stakeholders/stakeholder (22 (17/5));
- Commitment/commitments/committed/commit (17 (9/4/3/1));
- Long-term (12);
- Priorities/priority/prioritized/prioritizing/prioritize (11 (3/3/2/2/1));
- Mission (8);
- Direction/directions (6 (3/3));
- Scheme/schematic/schemes (5 (3/1/1));
- Oversight (1);
- Ambitious (1);
- Committee (1);
- Course of action (0).

Summing these numbers results in 1,219 total occurrences. Thus, these strategic terms taken together equal the second most frequent lemma, *learning* (1,220 occurrences, see *Table 11* in Chapter 5.1.5). Note that these terms do not necessarily refer to strategy in the sense of articulated institutional commitment. Instead, for instance, “assessment” in many cases refers to student examinations or recognition, and “outcomes” is often used in the sense of “learning outcomes”. Many different

programs or pedagogical practices (that do not reflect strategic action) are “implemented” throughout the samples; “objectives” often refer to learning targets, and so on.

To identify cases in which the search terms in fact refer to strategic action in the sense of articulated institutional commitment, KWIC searches were performed for all 1,219 occurrences of the above terms, and those abstracts were extracted that in fact addressed institutional strategies. In doing so, different strategic fields addressed by strategic action in the sample were identified. Relevant citations were grouped accordingly (see *Table A 12*).

The most frequent topic discussed is *strategies for innovation and future readiness* (50 occurrences), with *internationalization strategies (in general)* (37) and *international marketing and recruitment strategies* (35) following in second and third place respectively. Less often discussed are the *assessment of the success of strategic action* (18), *international collaboration strategies* (17) and *articulated faculty and staff policies* (7).

These occurrences add up to 164 mentions of articulated strategic action. Having eliminated duplicate entries – some abstracts appear in multiple strategic fields – one in four abstracts (135 of 549 = 25 %) was found to include explicit mention of strategic action using one of the search terms employed. Based on relevant citations extracted from these abstracts (see *Table A 12*), the following sections discuss the specific aspects mentioned in the sample.

5.3.1 Internationalization strategies (in general)

In the sample, mention of articulated internationalization strategies is made in a diversity of facets. *Comprehensive* internationalization as a strategic goal is mentioned in several contributions [144, 165, 215, 234], suggesting an uptake of comprehensiveness in the VI discourse. One contribution discusses the less common term “campus internationalization” [157], which is also used synonymously in the literature (including by Helms & Brajkovic, 2017).

Presenters acknowledge that internationalization paradigms are changing [232] and that ICT plays an increasing role in them [28, 32, 216, 307]. As terminology and discourses are changing [496], institutions are found “aligning their strategic plans with the emerging trends” [216]. In particular, authors recognize that online learning presents new affordances for internationalization [349]. Yet, most focus on potentials of ICT in strategic internationalization that had not existed previously. One of these potentials is argued to lie in internationalizing online learning [32, 506], others in delivering virtual TNE [28, 32, 209, 524] and in supporting “ailing branch campuses” [513].

The toolkit available for internationalization is considered expanding with ICT and the Internet [350, 408], helping achieve the goals pinned down in internationalization strategies [155]. They thus introduce, as one abstract explicitly calls it, “virtual internationalization⁸¹” [349].

81 which is, however, not used as comprehensively as in the definition employed in this research

Presenters identify virtual mobility (or “mobility 2.0”) as a key strategic issue [453, 264], and COIL as a concept worth institutionalizing [134, 157].

Rationales addressed for integrating ICT in internationalization strategies include the perceived needs to “respond to stakeholder demands” [504], and to “bring[] the highest quality education” to students. The use of ICT in internationalization is thus addressed as an issue of quality education. Other contributions discuss access to an international experience as a rationale for strategic use of ICT in internationalization – be it for enhancing inclusion in student mobility for domestic students [456] or for providing access to education worldwide [532].

5.3.2 International marketing and recruitment strategies

Many contributions in the sample that address strategic action have international marketing and recruitment as their focus. Most of these contributions are variations on the themes of marketing strategies [31, 151, 252, 347, 376, 441, 442, 456, 464] or recruitment strategies [179, 332, 351, 397, 410, 419, 433]. In particular, digital and social media strategies [159, 347, 397, 409, 421, 442, 447, 464] and content marketing strategies [248, 337, 421] are addressed. For instance, contributions discuss how to “align social media strategies with marketing goals” [159], “Instagram as part of your office’s or institution’s larger social media communications strategy” [325], or “viral and ‘gamification’ techniques . . . for attracting, engaging and converting prospective students” [332].

The willingness to look to other HEIs for inspiration in (online) marketing and recruitment is evident in one contribution looking to create a “benchmark of the world top 500 universities’ recruitment process” [491].

Only one abstract addresses public relations, discussing “a plan to increase the public awareness of your organization” [30]. This suggests a significantly minor role of public relations compared to targeted marketing and recruitment in the VI discourse.

5.3.3 International collaboration strategies

Several abstracts in the sample discuss institutional partnerships as a strategic endeavor [215, 408, 490], and this research detected an ICT-induced diversification of strategic collaborations. For instance, contributions discuss international partnerships to develop joint online courses or programs [11, 29] or to advance the “internationalization of online education” [506]. One discusses OER for “implementing ‘transformative partnerships’” [269], while others focus on strategic partnerships for virtual exchange [253, 134], one of which suggests that “implementing a COIL program requires new forms of institutional engagement and partnerships” [134].

Other abstracts examine the value which ICT can add to (traditional) strategic international collaboration, making it sustainable [30], successful [63] – and comprehensive [251].

One contribution, however, discusses VI as a threat to traditional collaboration, stating that “in order to embrace the challenges of increased competition and new

online learning methods, there is a trend towards closer and more strategic partnerships” [348] – in this case, to deliver physical exchange programs.

5.3.4 Articulated faculty and staff policies

Most abstracts dealing with strategic faculty and staff policies discuss developing skills of faculty and staff for online teaching and advising [24, 26, 129, 150, 256]. A few discuss broader issues, including a “defined job performance” [281] or “the full internationalization of university staff development, both for teachers and administrators” [264]. The fact that articulated faculty and staff policies are not often addressed as strategic issues in the corpus substantiates the observation made in Chapter 5.1- that they appear to be minor issues in the discourse on VI as reflected in the sample.

5.3.5 Strategies for innovation and future readiness

The strategic field addressed most frequently in this section does not refer to an internationalization-related ultimate aim, but to innovation and future readiness in a broader sense. An exemplary contribution titled “getting future ready: aligning institutional strategies with emerging trends” discusses “developing internationalization plans which are informed by key trends to help an institution achieve strategic goals” [216]. Another discusses “the integration of virtual mobility in higher education innovation and modernization strategies” [283]. And a third argues that the “university of the new area”, characterized by affordances of employability, internationalization and technology, is “forced to review strategies” [360]. The “role of the internationalization in the contexts of innovation, science and technology” [544] appears to be a hot topic in the VI discourse as reflected in the sample.

The observation that internationalization is not addressed as an aim in itself, but for future readiness and broader strategic aims, is reflected in contributions more concretely discussing measures, for instance, the strategic implementation of standards for data portability across institutions [152, 318, 423, 424, 434], leading to an automated admissions system for “international admissions of the future” [424].

One of the topics discussed in this section is access to higher education – for a variety of different target groups, whereby minority and non-traditional students are addressed [21, 69, 415, 530], including older students [311] and refugees [52]. Capacity building [537], “conflict sensitivity . . . for education in crisis and conflict programming” [223], and “sustained social change” [50] are other topics with a broader strategic appeal exceeding an institution’s immediate benefit.

Open education is also a frequent topic, most often reflected in the uptake of a strategic discourse around OER [15, 30, 254, 415, 504, 536], which has one contribution speaking of the “OERization” of higher education [536]. MOOCs are less discussed as a strategic measure [212, 366].

In conclusion, most abstracts in this section discuss ways to influence “the future of learning” [436] or to “shape the future of higher education” [546]. Only few discuss more reactive “strategies . . . that might help universities ride out the storm” [450].

5.3.6 Assessment of the success of strategic action

Abstracts in the sample not only discuss how to implement strategic action, but also how to evaluate its success. This applies to all of the strategic areas just discussed – from assessing internationalization strategies [322, 404, 258], to international marketing and recruitment strategies [233, 409, 438, 442, 449] and strategic international collaborations [492, 499], including for transnational and online education [496, 524, 496]. The success of faculty and staff policies are also assessed [24, 117, 484], as are strategies for future readiness and quality enhancement [53, 258, 288].

In conclusion, the sample shows a perceived need for assessment of the success of strategic action, and with regards to all aspects considered in this section.

5.4 Administrative leadership, structure, and staffing

Leaders and administrators are the actors within HEIs who develop mission statements and internationalization strategies, as discussed in the previous section. Therefore, the aspects discussed in that chapter can be interpreted as leadership for virtual CI. Leadership, however, extends to practices that are not manifest in official strategy papers, and this section covers these aspects.

Merely 24 abstracts (4%) in the sample have administrative leadership, structure, or staffing as their main focus. As large parts of the speakers at conferences are administrators and leaders in higher education, the low number of contributions focusing on this topic suggests that contributors are not interested in discussing their own roles, leadership or professional development for VI.

Almost all of the aims and functions (FUNCTION TYPE) in this segment concern either *internationalizing the institution as a whole* (12 abstracts) or *enhancing staff and faculty training/development* (11). Only one contribution discusses *access to higher education* (see Table A 13).

The most frequent means and practices (PRACTICE TYPE) to reach these aims are *ICT in staff/faculty development* (6), *ICT in an internationalization strategy*⁸² (5), and *social media and virtual communities* (4) (see Table A 14).⁸³ In the following two sections, the FUNCTION TYPE and PRACTICE TYPE coding categories (see Tables A 14 and A 15) are addressed, and examined regarding their association within the sample. The coding categories FUNCTION and PRACTICE and the full abstract texts provide additional context.

5.4.1 VI as a leadership commitment

The most frequent FUNCTION TYPE for the category of *administrative leadership, structure, and staffing* being *internationalizing the institution as a whole* (12 abstracts), a

82 This aspect is, however, not reported in this section, because internationalization strategies concern institutional commitment and have been addressed in Chapter 5.3.

83 Less frequent practices are *virtual mobility (COIL/virtual exchange)* (3), *online media and e-learning* (3), *OER/open content* (2) and *ICT in standardizing (quality, accreditation, recognition, data portability)* (1) (Table A 14).

comprehensive understanding of internationalization can be identified. Several means are detailed to reach that aim: In addition to the manifestation of VI in strategy papers, which the previous chapter covered, the sample presents examples of more implicit forms of leadership for virtual CI. One contribution, for instance, argues that the high-level commitment by HEI leadership to virtual exchange “directly contributes to opening up of universities” [253], while others suggest that management commitment helps set up and maintain global partnerships [373] or supports the “internationalization of international education” [234] – a term that is not elaborated further, and may refer to a supposed new level of internationalization.

The university administration’s role (and that of ICT) in helping both international and domestic students acquire intercultural competencies is the topic of one contribution [215], and another argues that the implementation of OER helps provide effective learning for students with disabilities, referring to both domestic and international students [504].

Focusing on IO staff, one abstract discusses how Senior International Officers (SIOs) can “boost the effectiveness of international events” and “enhance attendants’ experiences” with social media [381]. Other abstracts explore the possibilities of on-line tools to help IO staff measure internationalization – and to streamline processes and develop international standards [404].

5.4.2 Enhancing administrative staff training & development opportunities

Almost as many abstracts discuss leadership for comprehensive internationalization (*internationalizing the institution as a whole*, see previous section) as staff development incorporating both a virtual and an international dimension (*enhancing staff and faculty training/development*). This area of application refers indirectly to internationalization. For example, one contribution offers “technology hacks for the busy [international] office” [153]: self-help advice on leveraging office technology. I presumed that this helps internationalization – based on the assumption that it helps IO administrators work more efficiently – although the underlying function is to (self-)professionalize administrative staff and to optimize processes. A similar topic is addressed in one contribution discussing computer programming to improve processes in the study abroad office [193]. A third contribution stresses the importance of social media for professionals in the international education field: “In international education we all need to network, whether to forge new partnerships or maintain existing relationships” [401]. Once again, this is an indirect way of enhancing quality and efficiency of internationalization processes, an idea also reflected in a contribution presenting an “online professional network for international credential evaluators” [407]: Its community brings together professionals from around the world to share information and resources, and to promote best practices.

A contribution from the industry urges HEI leaders and IO administrators to “be first, be best, or be nowhere” in implementing technology if they do not wish to be outrun by “non-traditional providers disrupting their market with new business models and leaner, more agile operating structures enabled by these new, intelligent

technologies” [247]. According to these presenters’ line of argumentation, HEI leaders and administrators in international affairs need a new operating model to be “closer to the point of demand” [247].

Besides generalized calls to implement (commercial) technology in administrative processes from the side of the IT industry [247] and self-help/peer-help initiatives from inside the community of IO professionals (“it’s all about networking” [401]), abstracts also discuss options of providing formalized training. For example, the European Association of International Education (EAIE) offers the EAIE Academy, “a range of high-quality, cutting-edge training to meet the widespread needs of international educators and practitioners” [320], some of which is offered online. In a contribution from Australia, an online tutorial by the International Education Association (ISANA) helps its members navigate national policies for international education: In the tutorial, participants learn about “the intricacies of the various pieces of legislation that govern international education in Australia” [448]. Furthermore, a third abstract reports on a virtual program “to provide faculty and administrators in Myanmar with the tools to become their own Senior International Officer on campus” [217]. This contribution is valuable for this study as it is an example of VI on two levels: Firstly, it makes use of ICT to train administrative staff in another country. Secondly, it trains them to better foster internationalization. Similarly, an online leadership program by a U. S. institution offered in Spanish in Latin America makes use of ICT – this time, not to train multiplicators of internationalization, but to reach broader aims, here: development, quality, etc. [225].

In the realm of evaluation and measurement of managerial and organizational structures, the effectiveness of a “director of engaged learning” (i. e., a representative of staff with tasks in the realm of engaged learning, including study abroad⁸⁴) is the topic under investigation in the last contribution in this section. The abstract concludes that strong leadership necessarily includes proficiency in relevant technology, asking for “a leader that motivates faculty and students to create and participate in the activities and knows how to integrate instructional technology to create global opportunities for the students” [117].

5.4.3 Access to higher education

The one contribution that does not fit into either of the two categories discussed in this chapter on *administrative leadership, structure, and staffing* up to here, deals with leadership for opening up education in order to enhance access to education, both nationally and internationally [254]: “The concept was used for developing several study programs provided by an [*sic*] network of educational organizations in the national context and rolled out in different international programs supported by a global network of universities” [254]. Technology is used, in this case, for widening access and creating global standards – not to internationalize students or institutions, but for a broader aim.

84 See contribution 117 for the definition of “engaged learning” employed here.

This chapter has shown that development of faculty and administrative staff is discussed with the focus of internationalization, but also with broader aims such as job efficiency or access and capacity building abroad.

5.5 Curriculum, co-curriculum, and learning outcomes

As discussed in the literature review (Chapter 3.2.3), this research does not address the curriculum, co-curriculum and learning outcomes as separate topics, because for its analytical purpose, it is irrelevant if contents are fixed in explicit (or even mandatory) study programs or co-curricular offerings.

203 abstracts in the sample (37%) are ranged in this category, making it the largest discussed of the seven categories of VI (see Chapter 5.2). Among the different aims and functions, this study identified many that directly address internationalization. The most frequent FUNCTION TYPE, by a large margin, is *intercultural, international, and global competencies* (108), which accounts for over half of the abstracts in this category (see Table A 13). *Access to an international experience* is another FUNCTION TYPE that addresses internationalization, and at the focus of 14 contributions. Others include *connecting international and domestic students (within the same HEI or program)* (5), and *developing multipliers* for (virtual) internationalization (4). Taken together, these equal 131 contributions – almost two thirds of abstracts in this category (65%). The last third refers to abstracts that do not address internationalization, but *pedagogical innovation* (33 contributions), *broader skills, competencies, knowledge* (21), *access to higher education* (15), and *capacity building* (3) (see Table A 13).

The dominant means and practices (PRACTICE TYPE) are *online media and e-learning* (60), *virtual mobility (COIL/virtual exchange)* (41), *virtual mobility (other)* (30), *OER/open content* (18), *social media and virtual communities* (15), and *MOOCs/open courses*⁸⁵ (13) (see Table A 14). Curricular practices combining the virtual and the international transcend virtual mobility in the collaborative sense (*virtual mobility (COIL/virtual exchange)*), while making use of *online media and e-learning* without a border-crossing collaborative aspect is the most frequent PRACTICE TYPE.⁸⁶

An exploration of the target groups of curricular internationalization, displayed in Figure 17, shows that almost three in four contributions in this category are directed at domestic students (148/73%), while international students are at the sole focus of just 5% (11). Both groups are targeted by 22% (44). This result indicates that within the sample, the focus of curricular VI lies on domestic students, while international students are often additional target groups.

As Figure 17 also demonstrates, if international students are not explicit target groups, they are often participants: In about one third of contributions that target do-

⁸⁵ Minor occurrences are *ICT in intercultural diverse courses* (8), *games/gamification* (7), *m-learning* (5), *virtual reality/augmented reality* (3), and *e-mentoring/e-tutoring* (3).

⁸⁶ Given the sampling method of maximum variation sampling, it is, however, not possible to deduct that *virtual mobility (COIL/virtual exchange)* was necessarily less important than *online media and e-learning* in the VI discourse (see Chapter 4.5).

mestic students (only), international students are involved (32 %). Equally, if domestic students are not explicit target groups, they are often participants as well: this applies to five out of eleven contributions in the international target group (45 %). The remaining 101 contributions (domestic) and 6 contributions (international) involve their primary target group only, without the involvement of the other – in total, approximately half of contributions (53 %) (Figure 17).

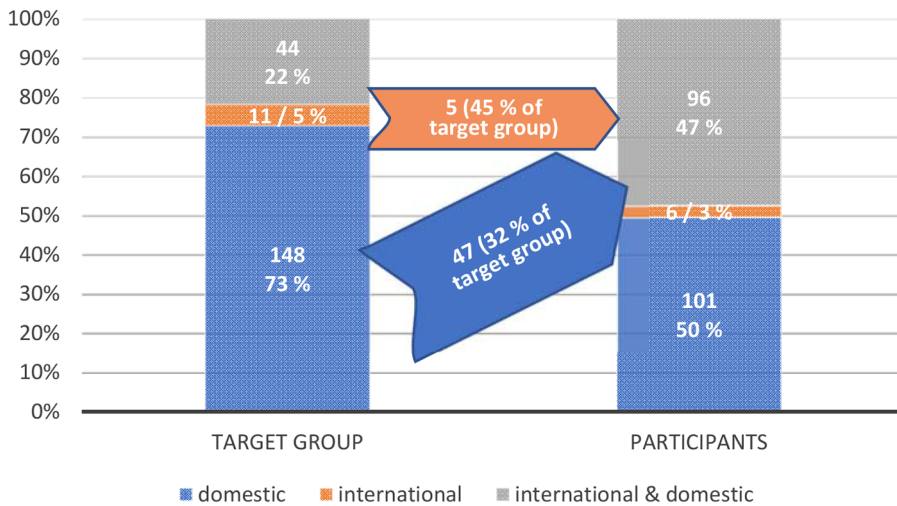


Figure 17: Target group and participants in the curriculum, co-curriculum, and learning outcomes

Note. The arrows between the “target group” and “participants” bars illustrate the numeric difference of students who are not in the respective target group, but participants of measures. The percentage in the arrows refers to the proportion of students in the partial samples of domestic and international students who are participants, but not the target group of measures.

The following sections explicate the concrete measures and practices (PRACTICE TYPE) involved in curricular VI, and explore how these measures and practices relate to specific aims and functions (FUNCTION TYPE) of a curricular combination of a virtual and an international dimension. Where relevant, this research makes a differentiation between measures for domestic vis-à-vis international students to inform the conceptual model.

5.5.1 Curricular and co-curricular VI

This section reviews contributions which describe the use of ICT to internationalize the *curriculum, co-curriculum, and learning outcomes* (IoC). While *online media and e-learning* is the PRACTICE TYPE code that appears most in this category, it is also a reservoir for a multitude of different measures and practices (PRACTICE category). I will therefore begin by examining the more specific practices. Table A 14 serves as the backdrop for numbers in this segment, unless otherwise provided.

5.5.1.1 Virtual mobility (COIL/virtual exchange)

The first aspect in focus is *virtual mobility (COIL/virtual exchange)*: virtual mobility assuming the form of collaborative work pursued virtually by student groups in different countries. As the literature review (Chapter 3.2.3) has shown, scholars often associate IoC with this facet of virtual mobility in the current discourse.

While literature has already identified a diversity of terms describing collaborative forms of virtual mobility, the corpus displays numerous other transcriptions and periphrases. Besides the accepted terms “virtual mobility”, “collaborative online international learning”/“COIL” and “virtual exchange”, at least 34 other ways of describing similar practices could be found:

“video collaboration” [14, 302], “collaborative online module” [34], “[technology-fostered] collaborative learning” [56], “language exchange partners online” [61], “collaboration . . . through online interaction” [66], “online world language course” with the opportunity “to speak with fluent speakers” [67], “telecollaboration 2.0”/“online intercultural exchanges” [72], “connecting Chinese learners online with native speakers in China” [73], “real-time video connections” [84], “innovative technologies . . . in the multicultural multilingual global STEM classroom based on the collaborative experience” [89], “transnational online learning experiences” [92], “online collaboration”/“videoconference link” [93], “long-distance collaboration”/“[international] virtual teams” [102], “international collaborative seminars” [106], “global virtual teams” [108], “global and collaborative learning” [130], “online international student collaborations”/“faculty and student collaborations utilizing online technologies as bridges between global classrooms” [133], “collaborative virtual teams between Peru and the Netherlands” [185], “ICT collaborative programs” [266], “virtual international classrooms” [328], “virtual internationalization”/“online collaborative exchange projects between their students and students at partner universities”/“online intercultural exchanges” [349], “global online classroom”/“global course collaboration” [466], “virtual student teamwork”/“in virtual, international and multidisciplinary teams”, “Erasmus + strategic partnership project on virtual student collaboration” [473], “virtual international collaboration” [521].

While terminology is equivocal, abstracts do not problematize definitory issues. Only one contribution defines a newly introduced term, distinguishing “international collaborative seminar” from “telecollaboration”:

Telecollaborations served as a methodological precedent to our redesign model of ‘international collaborative seminar’, which refers to a university course involving two in-person learning communities located at two simultaneous teaching sites collaborating through web-conferencing and asynchronous online work. [106]

The abstract does not, however, provide insight into how presenters assume that the concept of telecollaboration differs from this conceptualization of “international collaborative seminar”. Apart from this exception, it is unclear if presenters either avoid utilizing pre-defined terminology or are unaware of it. Future scholars may find it fruitful to research this topic.

In general, this research found that presenters acknowledge forms of *virtual mobility (COIL/virtual exchange)* as powerful tools for fostering internationalization.

One contribution reads: “Technology can support meaningful international interactions between university students who cannot study abroad and can enhance the experience of those who do” [474].

Analyzing the aims and functions (FUNCTION TYPE) pursued by *virtual mobility* (COIL/virtual exchange) in the sample, I found that over two thirds of these focused on *intercultural, international, and global competencies*. Among these, language skills are often addressed [61, 66, 67, 73, 84, 89, 402], and so are intercultural competencies for the globalized workspace and employability [18, 108, 328, 473].

Broader issues of developing responsible global citizens able to address global issues [475], and to execute social responsibility globally [102] are also discussed in the sample. One contribution explores the potentials of an international online collaboration to “ignite a passion for international social work” [466].

In other contributions, intercultural competencies and skills figure as final aims [66, 72, 92, 130, 185, 266, 349, 452, 473, 521], including “cultural understanding” [66], “openness to multiculturalism” [266] and the ability to address “cross-cultural issues” [72].

Some contributions emphasize *access to an international experience* as the aim of *virtual mobility* (COIL/virtual exchange) [134, 350, 377]. Both [350] and [377] use the argument that only 10 % of university students participate in mobility programs to advocate for COIL to serve “the other 90 %” [377].

5.5.1.2 Virtual mobility (other)

Forms of virtual mobility that are not collaborative in the COIL sense (coded: *virtual mobility (other)*) are diverse. Several contributions discuss “virtual field trips” or “e-traveling” [9, 13, 40, 75, 78, 79, 80, 85, 271]; others add insight into international “virtual internships” or “e-service learning” [184, 243, 287, 479, 523]. Transnationally accessible “virtual labs” are at the center of some contributions [92, 299, 519], and bringing international experts into the classroom – what I propose calling *virtual expert mobility* – in several others [57, 104, 226, 290, 345].

Examples of virtual field trips or e-traveling include an “online abroad model” which permits students who are not taking part in exchange programs in person to participate virtually in tours and live discussions – “along with the students in the field” [9]. Another contribution suggests “bringing the outside world into classrooms through virtual field trips” [40]:

Physical field trips can only be done so often and they usually can’t go that far – due to financial and/or logistical reasons. Virtual field trips provide a way to bring the outside world into the classroom when a physical trip is not feasible [40].

Arguing in favor of using drones in higher education internationalization, one contribution describes a virtual field trip in which, instead of visiting the concentration camp in Auschwitz in person, students get an impression from a drone transmitting

video images [271].⁸⁷ Another explores the potential of Google Earth for simulating a physical trip. It posits that “Google Earth can enhance reading, writing, speaking and listening practice as well as cultural experiences” [57]. Virtual travel can even extend to places that are per se virtual: In the case of the ancient Roman Empire, virtual mobility is the only way to facilitate a field trip [79].

This study found that virtual labs in which engineers can work together in transnational teams are discussed as a growing field [92] and that such labs are also used to connect science classrooms across Europe [299] and for “increasing global opportunities in STEM education” [519].

Examples of virtual internships and e-service learning (or virtual work experiences) include the EU-LLP-funded Pathway platform which facilitates international internships at a distance [453]. They also include a project allowing students who do not physically travel abroad with their classmates to experience some of the same benefits of their service learning experience [523]. A third contribution discussing virtual service learning programs argues that they can “break down the cultural and digital divide” [494], and a fourth presents virtual international volunteering as an opportunity “to enable more students to gain cross-cultural experience in a professional setting and provide different avenues for partnership and engagement with overseas organizations” [243].

An insightful example of e-service learning is a collaborative project between U. S. HEIs and Caribbean high schools: U. S. engineering students are put in virtual contact with secondary school students in Caribbean countries, to contextualize STEM knowledge in contexts of sustainable development (e. g., water scarcity problems). The project “aims to promote sustainable Caribbean communities through innovation in science, technology, engineering and mathematics (STEM)” [104]. However, it also offers “unique opportunities for engineering student training through non-traditional university partnerships” [104] – thus also providing international experiences to domestic students.

What I call *virtual expert mobility* can mean a multitude of different “virtual mobilities”.⁸⁸ The sample includes contributions on connections “between university students and business people” [57], on “online collaborative work [that] can bring specialists to every class” [290], as well as “an international research community which connects students to researchers and alumni globally” [345]. Which experts are included virtually in the curriculum appears to depend on both the subject area and on the learning goal pursued.

Summing up, aims pursued by *virtual mobility (other)* are, for a large part, *intercultural, international, and global competencies* for students – just as was the case for *virtual mobility (COIL/virtual exchange)*. The concrete aims and functions (FUNCTION) pursued by the diverse forms of virtual mobility – be they collaborative or “other” – are similar: language skills are mentioned [57, 85], and so are intercultural

87 I would like to emphasize here that no evaluation of usefulness, meaningfulness, or morality of measures is made in this research. It appears evident that some applications are more controversial than others.

88 Virtual mobility of faculty is a separate topic, discussed in Chapter 5.6, while administrative staff is addressed in Chapter 5.4.

skills for the workplace [57, 243, 287, 345], and intercultural competencies as aims in themselves [75, 80, 83, 290, 346, 443]. Furthermore, increasing *access to an international experience* is another aim discussed [9, 13, 40, 226, 271, 453], including in the sense of developing teachers as multipliers transferring a global perspective into schools [10].

5.5.1.3 OER/open content

OER/open content form another PRACTICE TYPE addressed in the partial sample on curricular internationalization, and presenters discuss them in forms of open textbooks [51, 111], as contents delivered via open software/apps [382, 495, 543] and via LMS and other platforms [276, 545], as podcasts [15], creative commons [43], open video and audio [68, 495], and other open media.

OER are discussed as a means to increase *access to an international experience* in one contribution presenting an open knowledge platform that shares materials openly and for free, making language learning available beyond fee-paying students [382]. A contribution with an international clientele at the focus discusses the provision of audio podcasts on cultural or political issues, one of which “has begun to have a global impact – with 1000 + plays and listeners from 26 countries” [15]. *OER/open content* are also used to develop *intercultural, international, and global competencies*: Free online resources are integrated into curricula “to promote cultural comparisons and enhance communicative activities” [70], or for promoting “cross-cultural and multilingual learning” [276]. Awareness and knowledge about a different country/region and culture is suggested to be transmitted via “reusable learning objects (RLOs) as a means to increase students' awareness of issues in Latin America” [493]. Another contribution recommends the use of openly available “off-the-shelf academic literacy support materials to improve language competency” [543]. Approaches to using OER for curricular internationalization in the sample are diverse.

5.5.1.4 MOOCs/open courses

MOOCs/open courses are not frequently addressed in the sample as a means for internationalizing curricula in higher education, but much more often for broader aims that I discuss in Chapter 5.5.2. Only one of thirteen contributions with the PRACTICE TYPE *MOOCs/open courses* in the partial sample has a clear connection to internationalization. This contribution discusses MOOCs for facilitating language learning [74].

5.5.1.5 Social media and virtual communities

Social media and virtual communities are used for internationalization purposes in curricular and co-curricular contexts in a variety of forms. Among these are an international Web 2.0 “community of collaborative learners” [462], a “global virtual community of female engineering students and professionals” [96], a Second Life [538] and a VOIP/Skype [222] application, and unspecified other social media. For example, one contribution explores “what it takes and how to really nail a red-hot active

student community” [246] for students dispersed around the world, and another discusses success factors of “active social media communities for (inter)national students” [376]. While there appears to be widespread consent about the high potential of the “multimodal visual and aural experience” [312] of the Web 2.0, presenters also advise that “social media is constantly changing and so must its applications in international education” [376].

The internationalization-related aims pursued with *social media and virtual communities* in curricula and co-curricula include, once again, *intercultural, international, and global competencies*, to be achieved, for instance, with social-media facilitated “peer-to-peer collaborations across cultures” [96]. One contribution discusses a peer-to-peer program in which students with an international experience connect with their less-experienced peers in a social media setting, the idea boiling down to “global citizens educating future global citizens” [510], and another discusses a “bridge to understanding” to be achieved with a social community of collaborative learners from different countries [462].

Particular emphasis is put on one internationalization-related aim that has not been identified for virtual mobility, OER, or MOOCs: *connecting international and domestic students (within the same HEI or program)*. This FUNCTION TYPE is targeted in one contribution aiming at “creat[ing] active online discussions among the national and international student population . . . and refin[ing] their global media presence to be truly social” [376]. Other abstracts suggest utilizing international alumni in social media “to enhance virtual collaboration and cross-cultural competencies” [485] for their domestic peers, or creating “a greater sense of community” [505] among dispersed students who reside in different countries.

5.5.1.6 Games/gamification

Games/gamification for curricular internationalization is proposed in six contributions which address *intercultural, international, and global competencies*. Examples of functions include the “virtual language immersion in online gaming” [65]. In addition, games for the inverted classroom to deepen knowledge about global issues, for instance, international terrorism, are also discussed:

Example artifacts included online news sources, emails, satellite images, photos, reports, and documented phone conversations. However, in order for the students to gain access to these artifacts, which help decipher the plot, the students needed to complete weekly online assessments based upon assigned readings. [23]

The advantage perceived by the presenter of this contribution is that the game in question “produced a level of engagement and excitement that was greater than normal” – and that students “might even have fun!” [23]. The “Minecraft generation and the future of global learning” is the topic of another contribution that discusses gamification for “comprehensive internationalization”, to be employed for both domestic students (“global learning”) and international students (“student services”) [165]. Another contribution describes a gamified infotainment app “training intercultural

competencies with the help of gamification” [237], and argues that mobile games allow students to develop their intercultural competencies wherever they are. Another suggests that “gamification of careers advice . . . is an excellent tool to train intercultural competences” [293], enhancing both intercultural and employability skills. And a last example posits that “gamification can prepare modern students for inevitable international interactions, both business and social, just as well as face-to-face communication with people from different cultures does” [426]. The contributions on games and gamification all appear enthusiastic, with presenters convinced of their extraordinary effects on curricular internationalization. Further research would be required to put these passionate accounts into perspective.

5.5.1.7 ICT in interculturally diverse courses

The practice of addressing intercultural diversity in curricula and co-curricula with the help of ICT has been coded with the PRACTICE TYPE *ICT in interculturally diverse courses*. Among issues discussed in the corpus is a non-threatening environment of interculturally sensitive online courses supposed to build trust between cultures [278]. Cultural diversity, as a contribution with a similar topic argues, is not a challenge, but instead a chance to broaden the horizon of domestic students [21]. A global language (Netspeak) is considered as an option for creating common ground among diverse students [309], while another contribution expects that “the use of pop culture and social media will increase undergraduate students' social and culture awareness” [126]. And a flipped cultural immersion course is considered to increase students' cultural competency [502]. One contribution focuses on making COIL interculturally sensitive, thus creating a welcoming environment and valuable experience for domestic and international students alike [259]. A final contribution discusses the potentials of a global seminar of enhancing students' ability to engage in and solve global problems “through a unique cross cultural learning network” [488]. Scholars and practitioners thus acknowledge the necessity of not only offering courses to a diverse clientele, but also managing these as loci where all students can thrive.

5.5.1.8 M-learning

Contributions coded *m-learning* explore the use of mobile devices for learning, including cellphones/mobile phones, smartphones, and tablets, as specific media. Three contributions on curricular internationalization cover *intercultural*, *international*, and *global competencies* while focusing on *m-learning*. One of these discusses a smartphone app for “learning about places and languages” [311]. The second argues that the tablet PC can be an effective learning tool in language and literature classes [480]. The third addresses “the teaching and learning utility of the iPad” [487] in a seminar on international studies. M-learning is not often addressed as a standalone topic, while the use of mobile devices is often incorporated in *online media and e-learning*, as the respective section (5.5.1.11) will detail.

5.5.1.9 E-mentoring/e-tutoring

Three abstracts discuss the conjunction of *e-mentoring/e-tutoring* with curricular internationalization. The first presents an e-tandem for language learning, offering students “the opportunity to communicate with native French/Chinese speakers of their own age” [297]. Students’ expectations of said e-tandem exchange, as reported by the abstract, include “improving oral communication skills, establishing a good friendship or a stable collaborative relationship with their language partners, exchanging cultural knowledge, and improving oral comprehension” [297]. The second contribution highlights the importance of cultural competencies for e-mentoring [19]. And finally, a creative two-way solution involves a program in which teacher candidates text-tutor international students: On the one hand, international students receive support for settling in at their host institution, and on the other, teacher candidates gain intercultural skills which are thought to benefit them in their careers [507].

5.5.1.10 Virtual reality/augmented reality

Virtual reality/augmented reality is the central topic of just two contributions with the focus on curricular internationalization, one of which discusses using augmented reality to provide authentic and engaging experiences to “accelerate local and global learning opportunities” [12]. The presenter of the second one expects “virtual worlds to serve as an online collaborative learning place for students by increasing social presence and engagement” [300]. It can be noted that virtual and augmented reality are not, as of yet, widespread in the discourse on curricular internationalization.

5.5.1.11 Online media and e-learning

Having discussed specific forms of ICT used in curricula for aims of internationalizing, I now turn to the code of *online media and e-learning*, which encompasses practices of incorporating ICT in curricular internationalization without highlighting particular concrete means, as in the following example:

The fact that almost all computers at a university are connected to the internet means that there are almost unlimited opportunities to interact with students and researchers across the globe. The challenge lies in using this technology to bring about internationalization. [408]

Almost two thirds (39 out of 60 = 65 %) of the abstracts in this category discuss ways of facilitating *intercultural, international, and global competencies*. Enhancing language learning with diverse forms of online media is one of the recurring themes, including with online language courses [4, 69, 291], blended courses [17], and online platforms/LMS [64, 82, 86, 148]. Online tutorials and forum discussions are further aspects examined [232]. Visual technology appears to be of particular relevance in this sub-category: Screencasts [90], news media videos [118], and videos designed for distance teaching [232] are discussed for enhancing language skills.

Beyond language skills, further aspects of *intercultural and global competencies* addressed with *online media and e-learning* include the development of competencies for globalized and digitized workplaces – “creating global citizens and increasing employability” [335] at the same time. For instance, online courses are discussed for developing students’ cross-cultural knowledge and skills for globalized workplaces [136, 380, 483] or to prepare students for communication in global communities [489]. Incorporating e-service learning in online courses is further expected to “break down the cultural and digital divide” [494] and thus enhance employability for all students, regardless of social and economic background.

The corpus addresses more generalized intercultural and global skills and competencies for the future society, including in contributions addressing “21st century skills” and “global awareness” [88]. “Nonmobility intercultural learning” [144] is the fitting keyword used in one contribution.

Storytelling is among the means discussed for reflecting about cultural differences for global citizenship [298], and so is the integration of cinema from other cultures into the curriculum for a “cultural immersion experience without having to leave campus” [119]. One other abstract explores “visual methodology” [127] in the forms of video and social media to help trigger conversations about authenticity and stereotyping across cultures and between people [127].

A last contribution focuses on the potentials of *online media and e-learning* for enhancing *access to an international experience*. Contrary to measures with that FUNCTION TYPE discussed in previous sections, it does not target domestic, but international students’ access: Presenters highlight that in emerging economies, making use of technology may be the only possibility to create international experiences for students “who otherwise would not have an opportunity to expand their horizons” [208].

5.5.2 Broader aims of combining ICT and an international dimension in the curriculum and co-curriculum

Broader aims of integrating ICT in the curriculum and co-curriculum include *pedagogical innovation* (33), the facilitation of *broader skills, competencies, knowledge*⁸⁹ (21), *access to higher education* (15), and *capacity building* (3) (see Table A 15). Numbers reported in this section in the following refer to Table A 14, unless otherwise provided.

5.5.2.1 Virtual mobility (COIL/virtual exchange)

Presenters mention that *virtual mobility (COIL/virtual exchange)* is used for broader applications than was reported in the previous section – in particular, to foster *broader skills, competencies, knowledge*. Among these is employability [285]. This research covered the case employability as part of *intercultural, international, and global competencies* in previous sections. The difference for contributions referenced here is that these put the focus on *broader skills, competencies, and knowledge* gained through

89 meaning abilities that do not concern *intercultural, international, and global competencies*

VI – without highlighting the internationality of the experience. To illustrate this, contributions may discuss entrepreneurial learning and international collaboration to achieve workplace-relevant knowledge and skills [437] which do not necessarily have to consist of intercultural competencies, but may encompass “collaborative competences” [257] or “transversal skills and key competences” [283].

Pedagogical innovation is another FUNCTION TYPE addressed with *virtual mobility* (COIL/virtual exchange). One contribution asks: “How can technology be best-harnessed to innovate pedagogical approaches to curriculum design and delivery, in order to enhance university students’ learning experience?” [93]. This contribution concludes that international collaborations among students from diverse backgrounds can transform higher education pedagogy in a positive manner. Further examples in which presenters discuss innovating pedagogy include one contribution addressing COIL projects incorporating OER, developed to create “cheap ways for students to collaborate internationally” [14]. Another contribution predicts how innovative COIL modules will enhance students’ motivation and self-efficacy [95], while yet another details how international collaborative experiences among students, but also teacher-student interaction, will create novel learning environments and formats for language learning [56]. A final abstract in this section discusses “international virtual mobilities for opening up education” [224], which is of particular relevance to this study because it addresses the opportunities of virtual collaboration for creating learning experiences that would not be possible without ICT.

5.5.2.2 Virtual mobility (other)

Forms of virtual mobility that are different to collaborative virtual exchange (code: *virtual mobility (other)*) are also used in curricula and co-curricula to achieve *broader skills, competencies, knowledge* – for example, in a project connecting university students and business people abroad to increase students’ employability [184], or in a Dutch-American collaborative project providing international work experiences “for real clients, in real time” [274].

Pedagogical innovation in virtual mobility projects (other than COIL/virtual exchange) includes implementing e-traveling for “innovative content-based course design” [85], or a virtual lab to provide “inquiry-based science education” [299]. A third example suggests virtual mobility scenarios that address issues facing HEIs today, including the challenges of an aging population and lifelong learning [306]. A last contribution with the focus on *pedagogical innovation* discusses a wide range of benefits of diverse formats of virtual mobility:

Virtual face-to-face distance learning enriches curriculum, enables cross-cultural exchanges and interviews with subject matter experts, and enables more productive, relevant, personalized, and interactive learning, provides equity in access for programs and expanded services while increasing professional development opportunities. [302]

As a last area of application of *virtual mobility (other)* discussed in the sample, one contribution from Nigeria addresses *capacity building* with e-service learning and pre-

dicts that by implementing “e-service distance education applications in regular universities” [479], the pressure of an increasing number of students can be mitigated, thus benefitting African higher education.

5.5.2.3 OER/open content

In the same way that contributions discuss different forms of virtual mobility for *pedagogical innovation*, others discuss *OER/open content* for the same purpose. For example, one contribution acclaims the opportunities that the “video cornucopia” of visual media available in the public domain, video in particular, offer for language education – from “truly authentic” to “simulated authentic” materials to choose from [68]. Another abstract explores how open learning and an open culture of sharing “allows for participation in global social online collaboration and interaction” [288]. A third discusses an OER platform that accommodates diverse learning styles in active, and global learning [495]. In what appears as an unconventional approach, HEI professionals attempt to learn from school teachers about OER integration to serve the international needs of business schools [378]. Finally, open textbooks developed in international collaboration are used to provide quality materials to HEIs in countries involved [111].

Presenters also discuss OER in terms of increasing *access to higher education* internationally – with creative commons [43] and by improving access and retention of diverse student audiences in partner countries [498]. Another contribution presents an institutional strategy for OER, to be implemented for “widening access, increasing attractiveness, profiling, reinforcing internationalization and worldwide collaboration for HEIs” [415]. It also emphasizes the potential of OER to support innovation and quality teaching and learning.

5.5.2.4 MOOCs/open courses

HEIs use *MOOCs/open courses* to increase *access to higher education*, providing online alternatives to traditional campus-based higher education globally [204], while some contributors explore the potential of such courses for helping solve the problem of educational inequality in emerging economies [46], as well as their capacity for democratizing education “by allowing worldwide access to courses from elite institutions” [221], and for providing “education to all” globally [451]. *MOOCs/open courses* are also considered as opportunities for lifelong learning [282] and, via open badges, as a means of providing better accessibility of formal higher education around the world [518].

Some presenters suggest that MOOCs foster *pedagogical innovation*: One contribution states that “the emergence of MOOCs has changed traditional pedagogies and made great difference in teaching and learning” in China [219], another, presented at the EAIE internationalization conference, discusses MOOCs as “vehicles to enhance the quality of education for on-campus students” [336], while another EAIE presentation provides pros and cons on the question if a “MOOC revolution” is un-

derway [366]. Addressing the pedagogical and cultural implications of the implementation of MOOCs, one presenter states:

The emergence of the MOOC phenomena in Europe has been dominated by a concern of the research community towards the over dominance of course design models which are inadequate both pedagogically and culturally. As such, there is a quest for alternative approaches that can meet high pedagogical quality standards and represent traditional European educational values, [such] as social equity and multiculturalism. [280]

MOOCs have also been pioneered as connectivist environments facilitating “creativity and multicultural communication” [527]: These authors posit that MOOCs can provide a novel, high quality learning experience which involves an intercultural component, but in which other aims are at the focus. One student participant of the MOOC in question notes:

The biggest thing I am looking forward to taking with me from this course is applying everything that enlightened me and applying to my life and interests. Connecting with others around the world and sharing my ideas, learning of theirs and learning from each other. [527]

Finally, one contribution addresses *broader skills, competencies, knowledge* that can be obtained by taking a diverse, global course: In a MOOC with participants from a multitude of countries, students learned about agriculture around the world [520].

While only one contribution in the sample discusses the potential of MOOCs to internationalize curricula (Chapter 5.5.1), their potential for broader aims – in particular, access and innovative teaching and learning – is acknowledged by a larger number (12). Enthusiastic accounts are part of the picture, but also admonishing voices which warn of pedagogical and cultural inadequateness [280] – or that MOOCs might just be one trend out of many in which “some join in, others do not” [366].

5.5.2.5 Social media and virtual communities

HEIs use *social media and virtual communities* to foster *broader skills, competencies, knowledge* in curricular internationalization. One contribution argues that, within the broadened community of inquiry facilitated by the Web 2.0, “the spaces of knowing are changing; no longer are learners constrained by institutional boundaries, but they can explore in virtual and cross-cultural settings” [312]. Knowledge becomes trans-institutional and international. Another abstract portrays students who use social media to discuss ethical dilemmas with peers from abroad, and who learn how to take responsibility for moral decisions [354]. In a third contribution, presenters discuss an approach of offering career support for international students via social media [334].

Using *social media and virtual communities* for *pedagogical innovation* is discussed in other contributions. One of them reports social media “as an art medium that in-

forms ESL/EFL⁹⁰ programming and language teaching practices” [47]: Its topic is the use of social media to transmit art and images to foreign language learners around the world. “Enhanced learning outcomes from didactic experimenting” [486] with social media and LMS in general is the topic of a second contribution, while a third discusses more philosophic aspects of the integration of social media and pedagogy:

What happens when pedagogues, native to the country of Descartes and Asterix, meet Anglo-Saxon didactics? What are the ingredients for success to keep customers, pupils and even students awake, active and happy? The didactic revolution is fuelled by the enormous impact of Web 2.0 and social networking in private and public life. [305]

In addition to the two FUNCTION TYPEs already discussed, *access to higher education* is the topic of one contribution reporting on *social media and virtual communities* in curricular and co-curricular contexts. This contribution discusses a global virtual community of female engineering students and professionals [99], opening up yet another perspective.

5.5.2.6 Games/gamification

Only one contribution discusses *games/gamification* as a means to reach broader aims – i. e., to increase *access to higher education*. This contribution explores games as parts of MOOCs in non-formal education – as a means for increasing motivation and access for nontraditional (and international) students of low socioeconomic status [255].

5.5.2.7 M-learning

M-learning is discussed in two abstracts on broader aims within the partial sample under investigation, both of which explore *pedagogical innovation*. The first topic addressed is an experimental project from Finland which equipped students with tablets to examine how they use them for learning inside and outside the classroom [363]. In a second contribution, presenters posit that laptops and tablets can enable global collaborative environments in which “innovative thinking” and a “deeper level of learning” [484] are fostered.

5.5.2.8 Virtual reality/augmented reality

In the realm of *virtual reality/augmented reality*, *capacity building* with Second Life as “one example of virtual reality” is explored: It is considered as an “alternative for teaching and learning in Africa” [538].⁹¹

5.5.2.9 Online media and e-learning

In *online media and e-learning*, employability is discussed in conjunction with internationalization (Chapter 5.5.1.11), but also with *broader skills, competencies, knowledge*.

⁹⁰ The abbreviations stand for: English as a second language (ESL); English as a foreign language (EFL)

⁹¹ While the use of Second Life is presumably not “virtual reality” in the current understanding of the term (i. e., full immersion in a virtual world), I ranged this contribution here because it presents Second Life as such.

The respective contributions describe a global economy or a globalized workspace, but the skills and competencies that are discussed as aims of the curriculum are not *intercultural, international or global* ones. For instance, one contribution reports on the practices of a virtual education center for entrepreneurial skills development, which offers e-learning modules on lingual and cultural issues as part of entrepreneurial skills and competencies [413]. Another argues that students need “skills such as collaboration, global awareness, information and technical literacy” [35] to be prepared for the globalized future in which not only local, but global virtual collaboration may be the new normal. These skills are often amalgamated under the term “21st century skills”, for instance, in [81]: technology is “tapped” to foster the “21st century skills students need to learn and work in a global economy” [81]. Another contribution understands critical thinking as one central skill for navigating a world “which is growing significantly global and flatter due to technology” [121]. Another contribution presenting two ICT-supported work-based initiatives argues that “the demands of the globalized workplace make it imperative that social and interpersonal knowledge, skills and competencies be incorporated in any on-job learning program” [281].

Beyond fostering skills for the changing workplaces and employability, other *broader skills, competencies, knowledge* discussed include “visual literacy” and a broadened horizon for the “global village” [124]: Using an image-based online tool, domestic students are connected with international peers to help them gain more diversified visual skills than they might with a more homogenous student group. A further contribution, this one on ICT in peace studies, takes a different direction: ICT-supported learning is argued to allow participants to acquire the analytical, methodological and applied skills they need for working in conflict zones around the world [294]. Finally, best practices of technology integration in the “21st-century classroom” are discussed to help digital natives grow up to become global citizens and lifelong learners [477].

Pedagogical innovation is another topic which is often addressed with *online media and e-learning*. The contributions do not highlight the learning outcomes, but instead the opportunities of making use of innovations in ICT for “catering to today’s students” [391] or adapting to new student learning styles and lifestyles “in a global, digital world” [342]. One contribution with this focus explores virtual labs, OER and other innovations to identify “the best learning activities in a global MOOC” [98]; and another announces that it plans to “open[] the dialogue on the future of formal education” [260], which in the view of its presenters will be marked by globalization and displacement, as well as “real and virtual worlds” [260]. The use of e-portfolios as a learning strategy for connecting formal and experiential learning around the world [272], and computational modeling and simulation tools “responding to the challenges of globalization and diversity” [541], add to the complex picture drawn in the sample. The effect of technological innovation on international education is also discussed – arguing that “disruptive innovation has the potential to completely redefine international education as we know it” [450]. Finally, technology use in curricula is

critically evaluated in terms of its potential to bring about positive change in developing countries such as Bangladesh, where “glocalized educational futures” and the potentials of technology as “the new panacea for sustained social change” [50] are problematized.

One contribution on an online service-learning course for Spanish in-service teachers [58] discusses *developing multipliers* with the help of *online media and e-learning*. It positions the teacher participants as multipliers for transmitting broader employability-related skills to their students.

Capacity building is at the center of a last contribution on *online media and e-learning* in curricula and co-curricula. It discusses digital maps developed by students that assist aid agencies, governments, and NGOs as they respond to humanitarian needs and crises [192].

5.6 Faculty policies and practices (academic and teaching staff)

Only a minor number of abstracts in the sample (21/4%) have faculty policies and practices and the (potential) role of ICT in these contexts at their main focus (see Table A 14). I did not interpret this as a complete absence of academic and teaching staff from all other abstracts, because in fact, the string **faculty** occurs in 68 (12%) contributions, and at least one of the strings **faculty**, **professor**, **lecturer**, **instructional designer**, **teacher**, **instructor**, **teaching staff**, **academic staff**, **researcher**, or **scholar** occurs in almost one in three abstracts (176/32%) (see Table A 7).

This research therefore assumes that faculty members play an important role in the context of VI. In this chapter, however, I only discuss abstracts that focus on faculty policies and practices, and thus, on hiring, tenure, and recognition, and on professional development of faculty and teaching staff (as detailed in Table A 1).

Means employed include *ICT for staff/faculty development* (10), *virtual collaboration among staff/faculty* (4) and *online media and e-learning* (3). One abstract each discusses *MOOCs/open courses*, *virtual mobility (COIL/virtual exchange)*, *virtual TNE in general*, and *social media and virtual communities* (see Table A 14). In this chapter I will further specify these means in connection with their functions.

5.6.1 Hiring policies and professional development for internationalization

None of the abstracts in the sample address hiring policies of HEIs. Only one of them acknowledges that hiring international staff is common practice: “As our institutions of higher learning become more multicultural, we are welcoming people into our professional communities who have teaching credentials and experience from around the world” [113]. It does not however make a connection to ICT.

While discussions on VI-related hiring policies are absent from the sample, the connection of ICT and professional development to help domestic and international

faculty navigate the complex, international, connected realities of higher education are recurring themes. I identified three distinct areas discussed in the corpus, which I discuss in more detail in the following three sections.

5.6.1.1 Developing domestic faculty and (teaching) staff (with the help of ICT) to prepare them for virtual or physical exchanges and international collaboration

A first aspect described by abstracts are possibilities of internationalizing domestic faculty with the help of ICT, and preparing them for virtual or physical exchanges and collaborations with colleagues abroad. One contribution, for instance, presents on a “global STEM virtual community: communication technology for scholars before, during and after research abroad” [139], and thus, on the use of ICT for supporting physical researcher mobility. Teaching is however not explicitly mentioned in the contribution. Another session discusses an interactive multimedia research platform allowing the performance of meta-research on data on cultural differences and global business practices – a platform which presenters refer to as “enhancing the internationalization of higher education” [398]. A third contribution portrays virtual mobility of academic staff as contributing to their personal and professional development: “Using an open collaborative learning environment, learners investigate aspects of connected, collaborative learning with modules based around topics such as digital literacies, collaborative and flexible learning, teaching in open spaces and course design” [264]. The program described in said contribution is offered at the HEI’s global partner universities, but also open to external participants from all over the world.

Another contribution addresses effects that a partnership between international ODE institutions has on faculty, and on the teaching and learning practices within the respective institutions. Presenters argue that virtual international collaboration “provides a unique opportunity for faculty members to gain the necessary knowledge and skills and also to think beyond their own institutional culture” [535]. Virtual collaboration between faculty in different countries is also in the focus of one contribution on “strengthening U.S. and Pakistani faculty connections through hybrid course design” [8]. By collaborating on an international project for their students, faculty are targeted to enhance their own “inter-culture communication” [8]. Another abstract suggests that faculty dispersed over many countries can lead to the strengthening of partnerships in countries involved, and to the development of high quality online courses for domestic and international clienteles [11]. The last abstract in this section focuses on strategies for initiating, implementing, and sustaining virtual teams in international faculty collaboration at a distance [27].

5.6.1.2 Developing faculty and (teaching) staff to teach international students anywhere (with the help of ICT)

A second aspect discussed revolves around developing domestic teaching staff: for teaching international students online, or for teaching international students *anywhere* with the help of ICT. One approach reported in the sample is the account by

one U. S. instructional designer promoting his experience abroad as a participant of the Fulbright Specialist program, which supports two- to six week projects abroad. The experiences gained during his stay in Croatia drives his engagement to encourage other instructional designers to “go abroad, gain insight, and share knowledge” [22]. He expects the knowledge gained on the structure of online courses outside the U. S. to have a positive impact on his own practice of conceptualizing courses.

While the previous example demonstrated how the motivation for professional development for internationalizing instruction can occur without an incentive from the home institution, there are also examples of HEIs themselves offering courses for targeted training and development of their faculty and (teaching) staff. One contribution is about efforts to “develop special training for predominantly North American faculty to teach international students” [24]: The course “Teaching the International Student” is targeted at ODE faculty who are confronted with more and more international students as online study programs expand into international markets. The professional development course in question is equally delivered online [24]. In a similar spirit, an HEI from Denmark developed a training program for faculty to “get ready to teach in the global classroom” [39]. While the course presented before is about bringing intercultural sensitivity into online teaching, this one focuses on bringing technology into on-campus teaching in which international students participate. The faculty training happens in a face-to-face setting in this case.

One other abstract puts forward the necessity of improving the work-life balance for faculty teaching in ODE “as we continue to grow education’s online presence using a global virtual employment model” [44]. The key idea here is the support of ODE faculty in their international teaching practice. And a last, again very different approach is taken at a U. S. institution that serves many military learners: There, faculty is being trained to work with those domestic online students who are abroad for work, but not international students [526].

5.6.1.3 Developing international faculty and teaching staff to navigate domestic higher education (online or on campus)

Beyond attempts to develop domestic faculty, the sample also addresses international faculty. For instance, a Canadian institution presents a hybrid post-graduate program to lower “barriers for internationally educated and experienced academic professionals to acquiring and maintaining a teaching position” [113] in Canada. The program includes content addressing active learning, and tips for developing professional communication strategies for their job search.

In a very different realm, one contribution discusses the need to provide online faculty dispersed around the world with “collaborative instructional design support” [490]: As faculty and instructional designers in transnational ODE struggle with finding the “right balance between a centralized (efficiencies of various types) and decentralized (sensitivity to context) approach” [490] to teaching, presenters strive to design a “glocal” (cf. Urry, 1999/2010, p. 361) support system which addresses both immediate needs of participating faculty and long-term sustainability [490]. Similarly, a so-

called “Online Teaching Academy” for training faculty from partner institutions of international joint programs [38] aims at providing faculty and staff not only with on-line teaching skills, but also with “strategies to help students become engaged online learners” [38].

5.6.2 Hiring policies and professional development for broader aims

ICT and an international dimension are also combined in the sample to reach broader aims in hiring policies and professional development. One of them is *pedagogical innovation*, which is at the focus of four contributions. One of these discusses utilizing Twitter to establish an international scholarly exchange and a “professional learning network” [115], benefiting both instructor and students:

By their very nature, micro-blogging activities can fit into any syllabus and are easily transferable to different courses, levels, and disciplines. Twitter’s international reach allows scholars to connect directly with colleagues in similar fields anywhere, both asynchronously and synchronously. This access to information and interaction offers unparalleled possibilities for both student and instructor. [115]

The declared aim of a project described in a second contribution is to implement a successful online course by helping TNE faculty make “effective use of outreach, collaboration, and instructional innovations across institutions” [11]. In a third contribution, faculty and (teaching) staff are invited to learn about pedagogical innovations for “enriching student learning with multimedia” and “international exploration” [131]. In a fourth, a partnership between a South African and a U.S.-American university is examined for aspects in which faculty “think beyond their own institutional culture” while virtually collaborating internationally [535].

Staff and faculty development is also targeted in other ways and measures for *enhancing staff and faculty training/development*. One contribution, for instance, posits that “understanding other countries’ educational systems and online faculty development programs provides guidance for the implementation of new strategies for community colleges in the U. S. Participants explore differences in online teaching and learning methods used globally” [129]. In line with the example of the instructional designer with the Fulbright grant attempting to gain international experiences (Chapter 5.6.1), this contribution delivers a similar argumentation but goes a step further: The internationalization component (i.e., making the own institution more international by learning from abroad) is not in the focus. Instead, faculty are invited to learn about and from different online teaching and learning methods to enhance their teaching in general.

One contribution addresses international, not domestic staff as a target group for *enhancing staff and faculty training/development*: A contribution from the University of Central Florida, USA, presents a program for developing teaching staff in Nigeria: “In the past, no program was available to help teachers use rich pedagogical strategies in blended and online learning contexts. Blendkit 2016 therefore created an opportunity to meet this need for staff” [5].

While staff development appears to be a common topic in the VI context, hiring policies and practices are not addressed as broader aims in the sample. Further research would be necessary to determine if a focus on the combination of international and ICT is in fact absent from hiring practices, or just not part of the discourse at conferences in the sample.

5.7 Physical student mobility

This chapter analyzes the combination of ICT and physical student mobility as represented in the corpus. 183 abstracts pertain to this category, making it the second most covered category of the sample. The abstracts address four internationalization-related aspects (FUNCTION TYPE) in similar numbers: *enhancing the experience of international students* (41 contributions), *enhancing the experience abroad* (34), *recruiting international students* (31), and *promoting the institution* (30). Further aspects addressing internationalization are *enhancing the experience of mobile domestic and international students* (16), *enhancing general advising* (8), *promoting international exchange programs* (7), *access to an international experience* (5), and *intercultural, international, and global competencies* (5) (see Table A 14).

Some contributions do not have internationalization in the narrower sense of the term as their final aim (FUNCTION TYPE), but, once again, broader aims. These are *broader skills, competencies, knowledge* (5) and *access to higher education* (2) (see Table A 14).

A broad spectrum is covered by contributions addressing the combination of ICT and an international dimension. The major part of them are directed at either of the two target groups of domestic or international students separately (see Figure 18), and it appears advisable to also separate the two in this chapter, because for the first time, domestic and international students are in clearly distinct target groups from the perspective of individual HEIs (which is the perspective taken in this research): While for the domestic group, study-abroad advising, pre-departure counselling and intercultural preparation, and returnee re-integration are priority concerns; for the international group, recruitment and marketing, orientation upon arrival, integrative programming, etc. are major issues. In fact, some codes already imply the target group which abstracts address (for instance, international students are targeted by contributions on *recruiting international students*, and domestic students by contributions coded *enhancing the experience abroad*). Other codes may apply to both domestic and/or international students (e.g., *access to an international experience*, and *intercultural, international, and global competencies*).

The distribution of contributions addressing domestic/international students is displayed in Figure 18. This representation demonstrates in particular that, contrary to the category of *curriculum, co-curriculum and learning outcomes* (Chapter 5.5), international students are more often in the focus than domestic students: 45 % of the ab-

stracts target only international students, and 27% only the domestic students, while 28% target both groups.

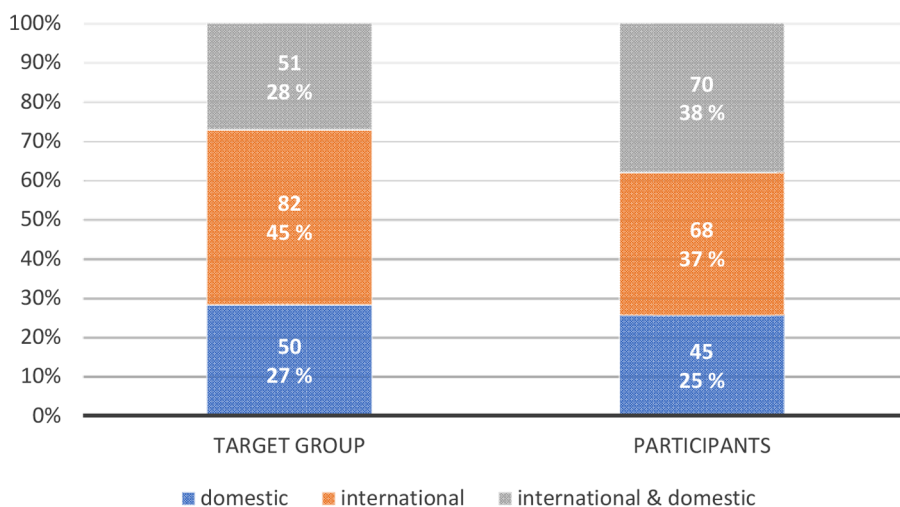


Figure 18: Target group and participants in physical student mobility⁹²

The most frequent means and practices (PRACTICE TYPE) in this category are *social media and virtual communities* (50), *online media and e-learning* (42), *website and online presence* (38), and *ICT in standardizing (quality, accreditation, recognition, data portability)* (18). Less frequent means are *games/gamification* (9), *virtual mobility (other)* (8), *m-learning* (5), *MOOCs/open courses* (4), and *virtual mobility (COIL/virtual exchange)* (3). A few dispersed contributions describe usage of *e-mentoring/e-tutoring* (2), *virtual reality/augmented reality* (2), *virtual TNE in general* (1), and *ICT in an internationalization strategy* (1) (see Table A 14).

The broad spectrum of both means and practices as well as aims and functions identified in this segment are further explored in this chapter. I begin by addressing international target groups with sections on international student recruitment and marketing (5.7.1) and international student support (5.7.2), before addressing the domestic target group with a section on education abroad (5.7.3). The last part of this chapter discusses broader aims of combining ICT and physical student mobility (5.7.4). Unless otherwise provided, numbers refer to Table A 15.

⁹² Contrary to the corresponding diagram in Chapter 5.5 (see Figure 17), this representation does not display the arithmetical difference between target groups and participants (arrows), because many of the underlying codes *per definitionem* exclude the possibility of integrating the respective other target group (e.g., *recruiting international students, enhancing the experience abroad*). Contrary to target groups and participants in the *curriculum, co-curriculum, and learning outcomes* category (Chapter 5.5), there is no theoretical potential of both domestic and international target groups being participants of the same measures in all cases, and therefore a such graphical representation has been evaluated as misleading.

5.7.1 International student recruitment and marketing

Sixty-one abstracts (i. e., one third of the contributions in the *physical student mobility* category) have either *recruiting international students* (31) or *promoting the institution* (30) at their center. I count both as contributing to *physical student mobility*, because I assume that international marketing in addition to general promotion of the institution and visibility aim at recruiting those (international) students that later live and study at the institution. This is of course a simplified view, because *promoting the institution* may also aim at further goals, such as strengthening collaboration, attracting talented scholars from abroad, enhancing the international visibility of an institution's research – and recruiting domestic students in addition to international ones.⁹³ This being said, except for one contribution presented at an ODE/educational technology-focused conference [491, at OLC Accelerate 2014], the 30 others originated from internationalization conferences which were explicitly focused on students and their physical “international education and exchange” (cf. e. g., NAFSA, n. d., para. 1). The simplified interpretation of *promoting the institution* does not capture the entire complexity of the potential of institutional visibility, but its thematic proximity to the theme of recruiting international students makes it fit here.

Coming to the contents of the abstracts discussing recruitment and general visibility, it appears to be consensus within the corpus that ICT is changing international marketing for HEIs, as quoted here:

Emerging technologies are significantly affecting and altering marketing and recruitment techniques used in the international education sector. With the changing needs and expectations of mobile-savvy students around the world, education providers need to adapt by using more sophisticated experiences when targeting prospects making their overseas study choices. [245]

Institutions have started to “integrate online marketing into mainstream student recruitment activity” [421] and to conduct “multichannel marketing” [331]. Social media and digital marketing are evaluated as having “radically changed the global landscape of international student recruitment.” [421, cf. also 347 with a similar content]. The language of abstracts in this partial sample involves a strong marketing-related vocabulary, and generic marketing terms are omnipresent: In 55 of the 61 abstracts (90%), at least one of the strings **recruit**, **marketing**, **customer**, **target group**, **market_**, **brand**, **consumer**, **invest**, **stakeholder** occurs (see Table A 7). Examples of marketing vocabulary include “brand marketing” [440], “creating brand affinity” [337] and “brand awareness” [331], “consumer loyalty” [440], “buy-in from critical stakeholders” [251] and “marketing automation” [251, 233]. They also include mention of the right “marketing mix” [316], achieving a high “return on investment” (ROI) [433, 233, 173, 316, 438], addressing “the informed buyer” [433] at each

93 Consequently, the code *promoting the institution* is coded *international & domestic* in the *target group* category, meaning that it can theoretically refer to both target groups. It is simplistically reported in this chapter focusing on international students, but the reader should bear in mind that domestic as well as non-student target groups may also be included in this term.

stage of the “buying cycle” [433], or “customer relationship management” (CRM) [405, 233].

Online marketing is seen as comprehensive of both Web 1.0 online marketing (PRACTICE TYPE: *website and online presence*), interpreted as a medium of information without the direct opportunity for interaction, and social media Web 2.0 marketing (PRACTICE TYPE: *social media and virtual communities*). It is observable in the sample that a new “marketing mix” [316] has permeated international recruitment and marketing, with Web 1.0 and Web 2.0 tending to not only co-exist, but merge into one another: While some contributions have either social media or their (less interactive) website presence at their focus, for several others, the distinction is not so clear. Websites evidently become more “social” and interactive, and social media are increasingly containers of information (such as news items on Facebook). Accordingly, user-generated content is discussed for both website and the social web [460], including vlogs [429], selfies and VR [164], or the “socially driven world” [248] in general. Therefore, abstracts cannot always be attributed to either of the two codes *website and online presence* and *social media and virtual communities*. In the coding process, I decided on the respective code to be adopted according to the main focus of the abstract (as described in Chapter 4.6). However, in the partial analysis of this chapter, I do not find it beneficial to distinguish between the two for the reasons outlined.

As Web 2.0 practices blend in with Web 1.0 *website and online presence* practices, *social media and virtual communities* are often presented as the new addition that HEIs cannot do without in their marketing mix: Abstracts mention “adjusting marketing and recruitment practices to the new [social media] paradigm” and ways to “fully embrace the potential of social media” [463]. They call social media a “mega-trend shaping the future of international student mobility” [252] and a phenomenon “changing the way we communicate with prospective and current students” [442]. The presenters describe social media marketing as a strategic activity, necessitating a “social media communications strategy” [325], “social media strategy” [442], or “content curation strategy” [337]. Among the particular social media channels discussed are the global players Facebook, Twitter, and Instagram (each occurring in 5 (i.e., 8%) of the abstracts in the partial sample on international student recruitment and marketing), blog(s) (4/7%), YouTube (3/5%), Google+ (1/2%), but also platforms that are predominant in particular countries only: One contribution addresses Cyworld (Korea), Renren (China), Orkut (Brazil, India), VK (Russia), and Weibo (China) as “the next frontier in social media and digital marketing” [438]. Two further contributions address the Weibo microblogging site [347, 449], suggesting a particular focus on China within the corpus.

Social media and online tools are portrayed as ways to reach students whom HEIs would not otherwise have access to. One example is the recruitment from difficult and disrupted markets, such as developing countries and countries in crisis [417]. Countries mentioned as examples are China, Nigeria, Pakistan, and states in the Middle East [417]. One contribution, for instance, talks about leveraging trends in

social media usage in the Middle East and in countries affected by the Arab Spring [435]. However, virtual and remote relationships are also sometimes seen as a “mine-field” that needs to be “navigated” [425]. One abstract describes challenges in increasing or maintaining international enrollments: “The challenges are many: building brand awareness in a digital era, capturing the attention of hyper-connected prospects, engaging them across multiple media channels (traditional, web, mobile and social) and getting them to enroll - all on a tight budget!” [331] Students’ *hyperconnect-edness* is portrayed as a challenge, but also as an opportunity [151, 338]: apps and online tools, in the perspective of one abstract, allow HEIs “to effectively tap into the ever-increasing interconnectivity of students” [338] as one means with potential for student recruitment. Like in this example, international students are in fact not always regarded as a group with different affordances to their domestic peers regarding marketing and recruitment. In several abstracts, they are portrayed as part of “the youth market” [439], as a new “generation” [460] pertaining to the current “pop culture” [164, 330] just like domestic students, and as common “native speakers of a new kind of language, digital” [460].

Other contributions address international students as a different target group, with one presenter asking: “Should cultural differences be taken into account when using social media? Should the same information be provided in various ways and networks to cater for a culturally diverse group, or can you stick with ‘one-size-fits-all’?” [394]

Acknowledging the differences between international and domestic target groups, presenters in one contribution strive to “understand[] how international students make decisions” [170], examining their behaviors in information search and social networks. Another asks: “How far can recruiters go to customize online campaigns for different geographic regions or different cohorts? Is it realistic to enable interactive communication in foreign languages?” [449]. International students and their (shifting) needs and expectations in an inter-connected world [252] are issues in focus.

Content available in different languages is, however, only discussed in three contributions in the partial sample on international student recruitment and marketing [370, 438, 449], and apart from the two contributions on “pop culture” [164, 330], just one mentions terms including the string **cultur** [394, see above]. While, according to the abstracts, cultural differences are not a frequently discussed topic in the communities represented in the partial sample, the *personalization* of recruitment and marketing is. There is some indication that recruiters skip the byway of reflecting on cultural differences and place the individual into focus right away: “Student recruitment is becoming increasingly competitive and sophisticated. Today’s students demand far higher levels of personalization in the communications they receive from prospective universities” [405]. This personalization happens via student portals [491, 405], by providing virtual chat [244, 361] and virtual advising [135]. There is one approach to also “read prospective students’ ‘digital body language’, the signals and intentions they exhibit online” [433] with the analysis of website cookies and

other digital traces – and to make use of this knowledge to enhance communication with them [433]. Among the hottest topics are mobile applications/apps, mentioned by 8⁹⁴ (13 %) of the 61 contributions in this selection of abstracts. They are seen to hold potential for personalization [405], and one abstract posits that “the level of interconnectivity among students increases with each new app and online tool” [151]. Presenters also suggest that mobile apps have “given rise to the informed buyer” [433], who self-educates him- or herself about prospective institutions rather than being recruited by third parties.

Addressing increasing competition on the international student recruitment market, one contribution recommends: “How a prospective international student rates your website depends on their experience on other university websites, so it’s vital to stay on top of the trends!” [370]. Novelty and website optimization in line with the newest global trends, as well as an optimized user experience, are portrayed as crucial. Presenters also advise their audience to “act quickly when the next trend pops up” [330]. Other contributions recommend the “co-opetition” [429] with trusted partner HEIs, or international benchmarking for leveraging best practices around the globe [491]. One advises the “leverage [of] foreign government objectives around international education to assist with your own institution’s internationalization and study abroad targets” [155], and the building of a successful online marketing campaign on this basis.

One contribution addresses marketing and crisis management, monitoring brand reputation, communication management in emergencies, and social listening to stay on top of the latest trends [289]. Approaches that mark such new trends in international student recruitment and marketing are virtual fairs [472, 449], wearable tech [429], gamification [440, 367, 332], virtual reality [245], and digital mash-ups [429]. In the eyes of presenters, these can contribute to building a positive brand image and to staying competitive internationally – by demonstrating the up-to-datedness of the HEI in question.

MOOCs are not mentioned in any of the contributions that have marketing and recruitment as their main topic. This was an unexpected result as literature has shown MOOCs to be often included in marketing activities (see Chapter 3.2.1, in particular, European Commission et al., 2015, p. 264; Gaebel et al., 2014, p. 70). In lieu of MOOCs, a few contributions include mention of shorter entities, in particular, online “live video broadcasts” [361] and “webinars” that “can help you reach your recruitment goals” [387].

One trend in both Web 2.0 and Web 1.0 marketing consists of integrating prospective and current students as well as alumni in the marketing process with user-generated content, which is expected to result in “organic marketing” [464]. Engaging prospective students is anticipated to make marketing and recruitment “scalable for any office size or budget” [179, see also 135], and using international alumni – for ex-

94 In order not to include words that only contain the string “app” (like “happen”, “happy”, “mapping”, the search terms used were *app_*, *app.* *app.* *application*, *apps*, see Table A 7). The results have also been cross-checked with the abstract texts to make sure they relate to apps/applications in the sense employed here.

ample in an “alumni ambassador program” [441] – is expected to yield effective and efficient marketing and recruitment. Ways mentioned to engage these diverse stakeholder groups are vlogs (video blogs) [460] and virtual mapping/online mapping tools [182, 464] that make international engagement, alumni, and research projects visible around the world. Contents going “viral” [332] are a welcome outcome, and leveraging pop culture trends such as selfies, memes, or viral campaigns [164, 330] are ways in which HEIs strive to achieve this outcome.

5.7.2 International student support

Of contributions that do not address either international student recruitment or marketing, 67 in this partial sample on physical student mobility discuss the support of international students – either by *enhancing the experience of international students* (41), *enhancing the experience of mobile domestic and international students*⁹⁵ (16), *enhancing general advising* (6), or by providing *intercultural, international, and global competencies* to international students (4). Of these, 19 address both domestic and international students (see *Table A 15*).

5.7.2.1 Before arrival: general advising, information and practical support

When a student from abroad gets closer to becoming an actual “customer” – because she or he has taken an interest in a particular HEI or program – for the host institution, this signifies the transition from marketing and recruitment to advising. Advising students starts at (but is not limited to) this stage; and this section starts by interrogating ICT applications employed for *enhancing general advising*.

The first point of contact between students and an international office is often located online: “Many students begin their journey toward a global experience within the digital environment. International educators can improve the first point of online contact with a student by understanding technology trends and basic principles of user experience and game design” [154].

The presenters regard ICT as an adequate means of communicating with students from an early stage of their (physical and virtual) *journey*. For IO staff, according to said presentation, it is necessary to achieve familiarity with user experience and even game design.

Tutorials integrated into the *website and online presence* are discussed by some contributors as adequate means for IO staff to “supplement in-person advising” [180], or to broaden the “scope of their advising” [150], making it accessible to students anytime, anywhere. Another contribution mentions an “online self-assessment tool” [374] which can help international students decide whether a particular study program is the right one.

Social media and virtual communities are also used for advising, for instance, with mobile messaging platforms: These are suggested to “deliver situation and context-relevant communication to students through a variety of [social media] channels

⁹⁵ This code was exclusively attributed to abstracts which refer to both domestic and international students, and is therefore reported for both international student support (this chapter) and for supporting education abroad (Chapter 5.7.3).

that traditional electronic communication is unable to do” [249]. The social web is thus regarded as containing huge potential for personalizing advising, and as holding far more potential than “traditional” e-mail and other forms of electronic communication.

Besides the aim of *enhancing general advising*, which revolves around universal options for providing support (even before students decide in favor of taking a physical journey abroad), the aim coded *enhancing the experience of international students* comes into play at the point when international students in fact require specific support instead of just general advising. It includes measures assisting in the transitions of the *before*, *upon*, and *during* of the stay at the host institution, and helps with their integration on campus. I begin by addressing the *before*, progressing to the other phases in the following sections.

The idea of providing information and practical support before arrival is common throughout the partial sample dealing with the physical mobility of international students. *Social media and virtual communities* are discussed as common measures to reach this aim: One contribution presents an “online community for newly admitted international and exchange students” which aspires to “enhance students’ selection and pre-departure phases, disseminate information, interactively address questions, introduce local and academic cultures, and foster interaction in a safe environment before students even arrive” [353]. Another “social network incorporates students, staff, faculty, and peer mentors, leading to a vibrant exchange of information” [353]. An Austrian university presents Facebook as a “community building tool” for preparing international students for the stay at their host institution: It “helps the future incoming students become part of a community” [411].

Other forms of *online media and e-learning* that facilitate (pre-)orientation before arrival include E-BUTLER, “an IT-based solution that helps foreign students prepare culturally for Erasmus + and other mobility programs” [340]. A similar approach involves tutoring and educating Erasmus + students with “innovative technical methods” and e-learning [383]. E-learning platforms are also employed to “aid international students through the admission funnel and beyond” [324]. Preparatory online language courses are another option described in the sample to prepare students for their stay [492].

The *website and online presence* has been used for pre-departure information for quite a while. It was therefore predictable that few contributions care to address this topic (see Chapter 5.7.3.2). Just one abstract talks about a *non-social* website offering content for “online pre-departure inductions for international students” [468].

5.7.2.2 Upon arrival: standardized admissions and data transfer

“Inventing the future for international admissions” [434]: This contribution uses strong words regarding endeavors of standardizing and enhancing data transmissions between institutions. Several presenters regard these as important facilitators which help smoothen arrival at the host institution, be it in degree or in credit mobility, as this section will elaborate. The hypothesis that presenters put forward is as follows: If students know they are enrolled on day one of arriving on campus, that prior

credentials are recognized, and that they do not need to overcome numerous administrative hurdles, their transition to the host institution becomes easier.

A diversity of approaches falls under this category, which have been coded with the PRACTICE TYPE *ICT in standardizing (quality, accreditation, recognition, data portability)*.

Paperless processes are a recurring topic in contributions [189, 359, 434, 446, 469]. They are introduced to ease the administrative hurdles which international applicants have to take. Among the solutions offered by HEIs are the “ERASMUS without paper” platform [359, 469] facilitating data transfer between institutions. A similar example presented is EMREX, a “highly scalable and easily implemented platform that supports the digital exchange of student achievement records” [423]. The Groningen Declaration is an attempt to bundle initiatives facilitating data portability between HEIs, and to create technological and organizational standards for data security for “a generation empowered to actively control their online footprint” [152, see also 362, 392].

Automated assessment and admissions constitute one point in which ICT is discussed as an enabler to help streamline processes for students (and staff): “The automation of much of the admissions cycle” [424] is evaluated as still holding some challenges and limitations, but also opportunities with regard to the effectiveness of admissions [424]. Another contribution praises such “paperless assessment covering almost all aspects of admissions criteria” as having “user-friendly prompts dynamically adapting to the unique requirements of the individual application” [434]. Partnerships in which HEIs collaborate with relevant institutions at the national or sector level are regarded as particularly helpful for attaining such aims: in the concrete case described in said contribution, a partnership with the South Australian Tertiary Admissions Center (SATAC) is the basis of facilitating automated admissions expected to “reduce turnaround times for international applications without compromising academic standards” [434].

Such lean, smooth, streamlined, and easy-to-use online procedures can be a competitive advantage, so another contribution argues: “Having an effective admissions team – with efficient online systems in place – can be a source of competitive advantage, particularly at a time when students consider multiple providers and study destinations before making their final choice” [446]. A number of other processes in the admissions and transfer process are also described in the sample; not only the automatization of enrollment and admissions. In particular, standardized online language tests for admission are discussed: “Digital capture of spoken responses allows for a standard experience for each test taker, enables centralized scoring by multiple raters and provides ongoing real-time monitoring of quality.” [352] This example shows that not only can VI support students in their mobility, but that it can also assist institutions in enhancing the quality of assessment of which students to admit. This is also true for a last example in this section: a contribution dealing with academic credit and the attempt “to develop a user-friendly web-based tool to convert grades without cultural bias” [399].

5.7.2.3 During the stay: diverse forms of support for a variety of needs

For the period directly after the arrival of international students, many institutions offer orientation programs to familiarize students with the institution, with administrative steps to follow, and with some of their host country's cultural particularities. In the realm of VI, supplementing *offline* orientations on campus with virtual elements is the topic of some contributions: Presenters of one HEI describe a customizable app introduced for complementing physical orientations. Summing up their experience with this service, presenters note that it “transformed connection and communication with students and orientation procedures and reduced many common queries and difficulties throughout program delivery” [250]. A second contribution focused on the orientations phase discusses “the use of technology, student mentors, and online models” for creating “comprehensive orientations” [178] that can be adapted to varied student needs and leverage limited institutional resources.

Continuing within the logic of the international student experience cycle, the orientations phase gradually transitions into the “actual stay” at the host institution. Several of the subsequent examples can also be integrated in the orientations phase, but may also occur at a later date.

Potentials to virtually enhance the experience of international students are identified in ways to accommodate their needs. Accommodations provided by online technology (*online media and e-learning*) in this realm are the topic of one contribution: “International students have unique prior-learning-experiences and expectations. Online technology provides teaching strategies, accommodations, and learning environments that foster such needs” [7]. A second contribution details the importance – and difficulty – of accommodating international students’ perspective: “Everyone is interested in the ‘international perspective’, but there are challenges that prevent institutions and the international education sector from engaging in meaningful discussion on student issues” [235]. The authors recommend countering these challenges and provide a valuable experience to international students by starting to listen to them. “Boosting international student voices in a hybrid course” [37] is the topic of a third contribution on using *online media and e-learning* to support international students. By introducing “a variety of audio assignments, video presentations, oral peer reviews, and impromptu speaking tasks” to language learners, its authors attempt to mitigate the fact that communication anxiety can be at elevated levels online “because the social cues found in facial expressions, gestures, and tones of voice are missing” [37]. Yet another describes the usage of Google apps and Chrome to engage students in multilingual classes [87]. And the Bazaar project focuses on embedding learning in everyday contexts to create “life-relevant learning” [273] and foster international students’ social inclusion.

E-portfolios are also among the tools to provide learner-centered instruction, following the line of argumentation that “knowing and assessing students’ culturally based learning preferences can aid in the design of instructional tasks” [478]. And an ICT-supported, partially flipped doctoral class with students from nine different countries is intended to provide doctoral students the opportunity to work in their

own style and at their own pace [481]. The evaluation of said program found that due to the virtual parts of the program, “participants appreciated the ownership and autonomy in learning and found the follow-up to learning (in the classroom) more meaningful as they received support from peers and the instructor” [481]. Fostering achievement and motivation is also the declared aim in another abstract, in which e-textbooks (*m-learning*⁹⁶) are found to provide “improved accessibility of learning materials” [515] among international students within the host country as well as with domestic students overseas.

Using *social media and virtual communities* – and “the power of social connection” [236] – is the approach followed by an Australian university attempting to support and connect international students. The quiz “What’s Your Melbourne Style” and student testimonials “MyStory” on social media are intended to serve this aim.

A second contribution on *social media and virtual communities* aims at understanding international students and their ways of communicating to help them feel better connected to a particular institution and community: HEIs are encouraged to “discover how international students really use [social media] to help them connect with their institution, teachers, peers and friends” [239].

Some contributions highlight the potential of interculturality as a *resource* rather than an impediment that can help students in their transition to a new country (here: via *online media and e-learning*):

Higher education today is in need of an educational approach which encourages and makes diversity and cultural and individual resources visible. We believe that E-learning can contribute to making this possible. . . . ICT was used as a means to widen the range of situations where the students could communicate, and had to communicate. [313]

One *MOOC/open course* discussed in the sample has a similar aim, “personalizing cultural narratives in small, collaborative, multicultural student groups” [267]:

Many immigrant and minority students feel alienated from the culture in which they live and very little literature is taught in the schools and colleges that gives prominence to those students’ native cultural backgrounds. The MOOC setting that we have developed exposes students to diverse multicultural literature and leads them to respond to and share ideas regarding the literature and in particular cultural issues. [267]

The abstracts in the sample indicate that accommodating international students’ needs is not the only way to enhance their experience. In fact, more contributions stress the aspect of integration in the sense of adapting to local realities, and one contribution even uses the term “academic and cultural *assimilation* [emphasis added]” [7]. Its authors, however, transcend the dichotomic perspectives of assimilation and accommodation by arguing that a globalized and interculturally sensitive learning environment can best serve the needs of international students: “Promoting

⁹⁶ E-textbooks are coded *m-learning* instead of *OER/open content* in this case, because materials are not open in the sense of freely available, just electronically accessible anytime anywhere with mobile devices (such as e-book readers and tablets)

academic and cultural cohesiveness for international students creating a globalized learning environment . . . caters to the needs and expectations of international students” [7].

Among the ICT-supported measures supposed to help students integrate into their new environment are offerings that help navigate its cultural characteristics. One contribution portrays *online media and e-learning* as a central tool to counter the “collision of cultures” [166] which, according to its line of argumentation, is an inevitable by-product of the temporary or permanent migration of citizens:

Collision of cultures is the common theme in our ever growing world of temporary, circular, or permanent migration of global peoples. Sparking creativity and collaboration, Cynthia English will discuss how technology is the driving means used by innovative youth to mitigate the pressures of segregation and ignite positive integration on and off campus. [166]

In the same spirit, a web-based course for intercultural learning is targeted at “fostering intercultural understanding” [467] in international students. Augmented reality solutions are also proposed, in one contribution, to complement existing *online media and e-learning* solutions for “online cultural integration” [384]. A further contribution discusses *social media and virtual communities* in the form of “an online intervention model that connects U.S. students studying abroad with international students studying in the USA” [403]. This approach is insightful because both domestic and international students are supposed to benefit from a such fully-virtual reciprocal system for mutual integration support.

Within the cultural integration idea, language learning plays an important role in many contributions. In fact, one in four (17 of 67) contributions in the “international student support” subsegment includes the string **language**, more than in the overall sample (16 %).⁹⁷ Language learning and broader intercultural learning are often intertwined in the sample, for example in one EU LLP online language learning project:

Language acquisition, skills and confidence are critical components of participatory citizenship. . . . Language is a key element, but part of a wider learning trajectory. Apart from the purely linguistic knowledge, LANGO addresses levels of cultural awareness. This is designed to embed cultural information about the countries where the target languages are spoken. [301]

In other contributions, speaking the language of the host country is regarded as having an impact not only on international students’ academic performances, but also on their ability to partake in everyday life (“participatory citizenship” [301]) and on their self-esteem [7]. The ICT-based means and practices for language learning in the

97 With the majority of abstracts coming from English-speaking countries, we might include the strings **English**, **ESL** and **EFL**. Here also, the sub-sample yields a higher percentage with 21 out of 67 (31 %) than the overall sample with 146 (27 %). However, the topic of language is obviously not restricted to supporting international students, with just four percentage points difference between the two – and with other languages entering the field in the curricular category in particular (as foreign languages to English-speaking students, for instance) (Table A 7).

partial sample under investigation include *MOOCs/open courses* [187, 267, 52], *online media and e-learning* in the forms of general online language courses [52], language courses with a work-based focus [313], or academic writing courses [321]. Contributions also address *m-learning* for informal language acquisition [273, 301]. One exemplary program, Erasmus+ Online Linguistic Support (OLS), is acclaimed to have “already benefited hundreds of thousands of Erasmus + students who have used it to assess and improve their language skills” [465]. Presenters of said contribution argue that this form of online support is a “contribution in making Erasmus + exchanges an even better experience” [465].

Besides online offers, contributions also discuss blending *online media and e-learning* with the face-to-face classroom, where ICT is used “as a means to widen the range of situations where the students could communicate” [313] or to enrich international students’ linguistic and broader intercultural learning experiences [87, 37]. For example, one abstract advocates for collaborative technology tools and e-journals in English as a Second Language classrooms [112]:

In the physical classroom, students can easily engage in collaborative learning activities. However, adding digital content makes the learning environment even more robust and interactive, and allows students to work at their own pace while maintaining a spirit of teamwork. [112]

It can be noted that the diversity of approaches towards using ICT for supporting international degree-seeking and exchange students are manifold.

5.7.2.4 Special requirements for migrants and refugees

Presenters at conferences in the sample acknowledge that migrants and refugees are “target groups” with particular needs and requirements. One contribution from Germany lists a few of the additional barriers that may exist for refugees regarding access to higher education: “lack of documents or qualifications, an unexplained residence status as well as general legal uncertainty and capacity bottlenecks at universities, but also low levels of German language skills and mobility restrictions for refugees” [52]. Due to large refugee numbers arriving in Europe during the time period in which the sample was collected, topics revolving around refugees, including their educational needs, were omnipresent in the broader public discourse (e.g., Bundesamt für Migration und Flüchtlinge, 2016; European Students’ Union, 2017; Hellmann, 2017). However, the sample does not present the topic in detail: While the search for the word field of migration (*migr^a*) yielded nine abstracts, just two⁹⁹ discuss refugees (*refuge*) (see Table A 7). Possible explanations include that a) refugees are not frequently discussed at conferences in the sampling frame, or b) they are just not frequently discussed in connection with ICT and digital offerings.

Both contributions on refugees in the sample discuss *online media and e-learning*. The first of them asks: “What possibilities does digitalization offer with regard to

⁹⁸ to identify terms such as migrant, migrate, immigrant, emigrated, etc.

⁹⁹ in the total sample, both of which are categorized in this partial sample

helping refugees transition to the [German] higher education system?” [52] and finds digitalization to provide a suitable basis for flexible integration offers: On the one hand, online courses are identified as providing opportunities to study independent of location and time; on the other hand, virtual platforms are valued for their ability to provide orientation about studying in Germany [52]. The other contribution explores possibilities of preparing refugees for enrollment and integration in conventional universities, and about the roles that online education platforms like Kiron University or the University of the People can play:

While many refugees have digital transcripts and documentation that would allow them to study in countries of resettlement, there is a lack of courses to prepare them for the steep competition required to get an official enrollment in conventional universities. In this session we'll discuss the role of free online education from platforms like University for the People and Kiron University for the integration process of refugees at universities in Europe with a special focus on recognition. [470]

Recognition of prior learning and of alternative credentials is a central topic concerning migrants and refugees alike (coded: *ICT in standardizing (quality, accreditation, recognition, data portability)*): One abstract establishes that there are “challenges in recognizing educational attainment against the backdrop of changeable economies, contracting labor markets” [323]. Its authors hypothesize that alternative credentials such as open badges have potential to further academic and labor market mobility for migrants through their ability to recognize non-formal learning: “Mozilla’s Open Badges software, which offers digital credentials that are interoperable, portable and shareable, may be the solution” [323]. Beyond, unspecified “innovative ICT language tool[s]” [301] (*online media and e-learning*) are presented as participatory instruments to “engage teachers, families, communities, employers and migrants, all as learners, in an enterprise of enjoyable discovery around difference and diversity” [301]. In a similar fashion, a *MOOC/open course* that was set up in response to the observation that “many immigrant and minority students feel alienated from the culture in which they live” [267] aims to mitigate this effect.

Flexibility is another asset attributed to *online media and e-learning*: Contributors argue that asynchronous offerings provide advantages regarding “flexible temporality” [326] and “flexible integration offers” [52]. Providing flexibility for migrants is also attempted with *m-learning*: the LingoBee app is targeted at advanced learners currently in the target language country, including migrant workers [314].

Applications of VI that address the broader integration of migrants include the Bazaar project which attempts to make language learning learner-centered and life-relevant [273] with the help of *online media and e-learning*. Another contribution argues that via video games, African immigrant “players can enhance their educational experiences by acquiring skills that are important for their academic success” [218]. Finally, after having weighed the pros and cons of a project involving the use of ICT for the integration of immigrants, a last contribution concludes: “I say yes. ICT should be used when the aim is to improve adult immigrants’ possibilities to be inte-

grated and successful in their student lives and their professional lives” [313]. This evaluation resonates with the assessments made in the other contributions on immigrants and refugees, but is not elaborated on in the abstract. Further research would be necessary to uncover concrete ways in which ICT can be used to help migrants and refugees integrate.

5.7.2.5 Seamless transitions

Transitioning to the host institution is not always conceived as a step-by-step process that should (or even: could) be split into easily discernible, distinct entities. Several abstracts describe comprehensive virtual offerings that do not differentiate between separate phases, but instead, allow seamless transitions, *anytime, anywhere*. For instance, one contribution proposes the use of *online media and e-learning* for a “seamless orientation experience” [240] which can be begun prior to arrival on campus, and which is intended to continue delivering a personalized connection to the host institution after students arrive [240]. Following a similar approach, one contribution suggests using the LMS Moodle “to establish a social community and centralized knowledge library for incoming international students to use before and during their stay” [324]. A third contribution discusses online content for aiding the process of transition which international students experience [468]. These examples are insightful because they demonstrate the virtual disintegration of borders between the “before” and the “during”: While previously, it may only have been possible to start orientations the moment students arrived on campus, the virtual space provides the possibility of an orientation experience independent of physical location.

Contributions discussing applications of *social media and virtual communities* follow a similar approach to those just discussed, but expand the perspective to alumni – by taking into account the entire “social media life cycle . . . from prospective student to alumnus” [409]. Contributions recommend the improvement of connectivity with and between prospective and current international students with a peer-to-peer community [241], or the utilization of international alumni to mentor current international students on a digital platform in some kind of connectivist advising (cf. e. g., Downes, 2016): “With this program, alumni can offer advice in matters concerning future career possibilities, orientation in the labor market, choices for further education – the possibilities are endless” [333].

Utilizing alumni to support current international students brings the dimension of the *after* into play: While none of the abstracts mention re-entry support for international students (a task which is bestowed to the institution students transfer to next), the *after* reaches students through the backdoor: as alumni whose knowledge and experiences are valued to support current or prospective students.

5.7.3 Supporting education abroad

Sixty-eight contributions have the support of domestic physical student mobility with ICT at their focus – by coincidence, this is approximately the same number as contributions which focus on “international student support” (67). This research has

therefore assumed that the data base is just as rich as the one covered by the previous section.

This section includes the FUNCTION TYPE codes *enhancing the experience abroad* (34), *enhancing the experience of mobile domestic and international students*¹⁰⁰ (16), *promoting international exchange programs* (7), *enhancing general advising* (5), and *access to an international experience* (5).¹⁰¹ There is significant overlap between the measures targeting the support of mobile international and domestic students, but different accentuations can be identified, as follows.

5.7.3.1 Promoting international exchange programs and general advising

Where international students are particularly targeted with marketing and recruitment measures, for domestic students, the promotion of international exchange programs take the functional place regarding internationalization. By analogy, this aspect could be called “marketing and recruitment” for international programs [cf., e.g., 149]. I have combined the codes *promoting international exchange programs* and *enhancing general advising* in this section because the two are generally two sides of the same coin: Because international programs are commonly competitive, i.e., not all students who are interested can participate, it is often not so much a question of *winning over* students for particular programs than *advising* them if a particular international program is right for them.

The *website and online presence* is evaluated as central for promoting international exchange programs and for providing prospective program participants with information: This “domination of the digital” [229] can be traced in one contribution on an online platform developed by the Erasmus Student Network (ESN), which was set up “for matching the offer and demand for international traineeships” [355]. Others propose the use of campaigns in *social media and virtual communities* “to inspire students to study abroad” [228], whereas, as another abstract notes, these need to be set up in order for HEI representatives to be able to determine “how to best leverage advertising tools across social media platforms” [159]. *Virtual mobility (other)* in the form of collaborative projects with K-12 classrooms in other countries is used for “recruiting” [149] more students into study abroad, and *games/gamification* are incorporated in the advertising of international programs [143], in addition to a *MOOC/open course* created by the U. S. Department of State which provides information on grants and initiatives [159].

As was the case for international students, ICT is used for domestic students to provide personalized advising. Approaches include the use of *social media and virtual communities* to “assist students in making informed decisions when engaging in an international education experience” [172], or the setup of online chat options “to im-

¹⁰⁰ This code was exclusively attributed to abstracts which refer to both domestic and international students, and is therefore reported for both international education abroad (this chapter) and for international student support (Chapter 5.7.2).

¹⁰¹ These are the same abstracts as in the *international student support* category: The code *enhancing the experience of mobile domestic and international students* is identical because it addresses domestic and international students alike. Additional overlap exists in the code *enhancing general advising* (3 contributions overlap).

prove communication and engagement with a high volume of students” [183]. A last contribution describes the potential of mobile messaging platforms to “deliver situation and context-relevant communication to students through a variety of channels that traditional electronic communication is unable to do” [249].

5.7.3.2 Before departure: pre-departure support and complementary virtual mobility

Once students have been selected for a particular program, support is offered to prepare them for their experience abroad. The *website and online presence* is one well-established go-to for this aim. I presume because such measures are *old hats* in the practices of IO staff¹⁰², just one contribution in the sample discusses such an application: a “customized online student portal” [181] which contains important documents.

Using *social media and virtual communities* for pre-departure support for domestic students is not frequent in the sample either: They are more often applied in later stages, or as a comprehensive way of engaging students throughout their experience (before, during, after) (see below). Just one contribution explores how “international educators can make use of already existing social media tools [for students] to learn and prepare for their mobility experience” [454].

Online media and e-learning is used more in the sample: in one contribution on an online predeparture training program preparing students for a “responsible and valuable volunteer abroad experience” [176], and in another which reports on integrating online media and e-learning into study abroad preparation – “tech-enhanced pre-departure orientations” – for “maximizing time, increasing interactiveness, and gauging comprehension” [196]. A third abstract suggests offering a pre-departure orientation via blended learning prior to an internship abroad [262]. Such “online, web-based, audiovisual resources and blended learning” programs are also evaluated as cost-effective [356]. In addition, online language courses are offered to help domestic students prepare for their experience abroad [465].

Combining physical and virtual mobility (*virtual mobility (COIL/virtual exchange)* and *virtual mobility (other)*) is another frequently discussed topic: One session invites to a discussion regarding “how COIL . . . can be linked to study abroad” [132], and another proposes offering a “virtual mobility pre-departure module” [389]. The title “deepening study abroad and amplifying impact through virtual exchange” [230] is similarly directed. One abstract that gets more concrete demonstrates how one HEI combines a physical field trip with a virtual one, exploring “new ways to bring the experience of traveling to German cities to your students” [59]. These involve “interactive online activities for developing students’ language skills in the context of a trip to Germany’s Rhineland” [59]. Another discusses how “cultural immersion and project based blended learning can be combined, creating additional learning value” [36].

102 I take this from my personal experience working at an International Office, from 2008 through 2011.

Among the topics addressed less for the predeparture phase are *games/gamification* and *virtual reality/augmented reality*. In one contribution, gamified online training is proposed for the pre-departure phase to foster “more responsible and valuable volunteer abroad experiences” [177], and in another, virtual reality and augmented reality are used to provide historical background about the host country and equip learners with intercultural competencies “that enhance[] their on-ground experiences and cultural sensitivities” [20]. Knowledge about a country and competencies for intercultural encounters are the intended outcomes of these measures.

5.7.3.3 Upon arrival

The step involving *ICT in standardizing (quality, accreditation, recognition, data portability)* exhibits significant overlap for domestic and international students, and I therefore do not repeat findings already reported on (see Chapter 5.7.2). Abstracts involving support for domestic students abroad deal with aspects of further enhancing processes, in particular with data portability (including, for example, the Groningen Declaration and the EAIE Task Force Digital Student Data Portability [e.g., 414, 329, 362, 423, 152]), the paperless office/paperless study abroad/Erasmus without paper [189, 359, 434, 446, 469], and enhancing admissions processes (automated admissions, etc., [e.g., 390, 424]).

5.7.3.4 During the stay abroad

Most abstracts dealing with supporting domestic students while they are abroad involve *social media and virtual communities*, which are used in a wide variety of ways to assist IO staff in supervising and helping students abroad [385]. More often, however, social media are used to create a community of (internationalized) learners among themselves—without the particular involvement of administrative staff. As one abstract puts it, “critical reflection (in class and online) helps build a supportive community of ‘globally-minded explorers’” [379].

One abstract describes an innovative approach which propagates online collaborative learning involving students in study abroad programs who are dispersed over the planet. Its presenters expect that “the development of a global, cosmopolitan perspective can be further enhanced by connecting students in different study locations around the world in collaborative learning” [431]:

American students studying abroad in Sydney and Florence in an innovative, internationalized learning activity that spans both cities. Students consider the differences between a city of the ‘new world’ and a city of the ‘old world’ and how the cultural sites within these two places contribute to their sense of place. They collaborate online through a variety of activities including blogging, a shared group Facebook page, and a Google mapping exercise in the field. [431]

Another session portrays how the use of Facebook, the LMS Blackboard, and e-portfolios within the Tech Trip social media project “allows students the opportunity to engage in learned discussion about cultural experiences” [77] while they are abroad.

Even Instagram, a photo sharing tool, is invoked to “support language learning and student mobility” [357] (without going into detail how this is implemented).

A variant of *MOOCs/open courses*, *SPOCs* are used, according to one contribution, as a flexible option to “replace the reality courses, e.g., for students who are studying abroad” [268], whereby students can take classes at their home institution even while abroad. Learning is thus made more flexible, opening windows of mobility to students who would not have been able to go abroad otherwise because of a certain course they needed to take at their home institution.

M-learning is invoked by one contribution presenting an app for language learners already in the target language country (in-situ language learning):

The app will enable learners to capture multimedia representations of linguistic and/or cultural items in the L2 setting and to annotate, tag and share them with like-minded learners. It aims to tap into learners’ enthusiasm for Web 2.0 social networking via features such as tagging, profiles and favorites. The app’s main target user is the advanced learner who is currently in the target language country: examples would be Erasmus students, migrant workers or students undertaking a vocational placement abroad. For these learners, the app is intended to act as a personal learning tool, encouraging them to attend more fully to the language and culture around them and to continue to improve their language skills, even when they are functionally competent and possibly no longer involved in formal language education. [314]

Said app encourages collaborative knowledge generation and connectivist learning within the student community.

While a positive view of ICT dominates the discourse in the sample, some contributions view the value of technology more critically. One classifies it as a potential “impediment to personal and intercultural growth abroad” [140] because it binds students to their friends and family at home, inhibiting an immersive intercultural experience while abroad. Other abstracts present contact to the home country as an asset, for instance, if it allows students to keep track of developments at home and in the world with e-journals. A U.S.-American HEI has therefore partnered with the New York Times to provide students with news from home while in the host country. The authors of the respective contribution argue that “the Times’s digital content fosters a deeper understanding of the cultural, social, historical and political circumstances of the countries that student’s [*sic*] visit – while allowing them to stay connected to news from home” [147].¹⁰³

Online media and e-learning are also utilized to support stays abroad. Digital storytelling, for instance, is presented as one way to generate intercultural reflection while in another country [120]. Using blogs, vlogs, and other forms of online media to reflect on one’s experiences is heralded as another way for “capturing the impact of international education” [171]. And one contribution calls on “promot[ing] self-reflection and cultural humility” [141] via digital storytelling to make students reflect on

103 It may be questioned whether a medium from students’ home country is the best outlet for students to get informed about other countries in the world – those countries’ respective media may be better suited in practice.

their perceptions and experiences and to take postcolonial narratives into consideration (cf. e. g., Stalder, 2016, p. 40).

5.7.3.5 After the stay abroad: re-entry support

ICT is also used for re-entry support: One institution has developed an online portal (*website and online presence*) called “Study Abroad Anonymous” for students “that prepares them for the reentry transition back to the United States” [188]. Another proposes *virtual mobility (COIL/virtual exchange)* to “deepen[] study abroad and amplify[] impact” [230] in the re-entry phase.

Re-entry support for domestic students is however seldom addressed as a singular topic. Most abstracts in the sample discuss it in combination with other phases of the study abroad experience. I will discuss those combined approaches in the next section.

5.7.3.6 Seamless transitions

Many abstracts emphasize the triad *before, during and after*. Contrary to the seamless transitions that could be traced for international students, the dimension of the *after* does not have to come in through the backdoor of engaging alumni (see Chapter 5.7.2.5), but is addressed as a central topic in several contributions.

Among the most employed means for seamless transitions of domestic students are *online media and e-learning* which are employed, for instance, in an online multimedia program that supports students while they are “preparing, being there, and coming back” [238]. The presenters of the respective contribution argue that a multimedia online program can help students to advance personally and professionally, regardless of their geographic location, and regardless of the phase of their outbound mobility experience [238]. A second contribution reports on online offerings and language courses taken by students, lecturers, study advisors, and other staff at any point of the experience – again, “before, during and after” [317]. A third posits that it would be desirable to “provide students with a quality continuum of pre, during, and post intercultural training” to frame their physical experience abroad [197].

Social media and virtual communities are also reported on. The importance of “creating a community of learners as students observe and comprehend cultural dimensions before, during and after studying abroad” [71] is highlighted in one contribution, and another recommends “online discussion-board activities to encourage learning communities and critical thinking” [138] for any stage of the process. A third contribution goes as far as to posit that “the use of social media is no longer optional” but that it should be employed “throughout the student life cycle, from recruitment and enrollment to engaging with them on study abroad opportunities to maintaining alumni relationships” [339]. However, as a last contribution concludes: “Many have yet to harness the full potential of social media by using it to connect their students globally and locally” [454].

5.7.3.7 Access to an international experience

ICT is not only employed to increase access to an international experience in the *virtual* sense (as addressed in Chapter 5.5), but also in the *physical* sense. Several contributions discuss the *website and online presence* as a place where access to a mobility experience can be fostered: One contribution addresses accessible websites as removing “technological barriers” for study abroad students with disabilities [145]. Students with disabilities are also the topic in a contribution on MapABILITY, a study abroad online source for this target group [343]. Not only students with disabilities, but also undocumented immigrants are addressed as target groups to benefit from study abroad experiences in one contribution – and technology is acknowledged to play “key roles” in this endeavor [146], while the abstract does not specify in what ways.

It has to be noted that none of the contributions address the potential of ICT to expand access to an international mobility experience to students of lower income classes. A logical explanation would be that ICT does not lower costs for study abroad and, therefore, the potential for this group is seen more in expanding access via *virtual* than *physical* mobility (see Chapter 5.5.1). While the group of nontraditional students from lower income classes is not in the focus; part-time and lifelong learners are, but only in one contribution: By proposing to shorten time spent abroad, and instead to introduce an element of *virtual mobility* (*COIL/virtual exchange*) in the format of a “virtual mobility pre-departure module” [389], it attempts to make study abroad accessible for students who may not have the (temporal rather than financial) capacity to leave their home for an extended period. Such an initiative may be interpreted as one step in the direction of broadening access to study abroad for lower-income students as well. It also appears to answer the question posed by another abstract in the affirmative: “Can virtual exchange expand access and participation in study abroad?” [231]. One contribution concludes:

As we seek to reinvent study abroad for the 21st century, a more meaningful use of digital learning, including online courses, is a logical approach. From predeparture to re-entry, online instruction has great potential to deeply inform and even transform the study abroad experience on multiple levels. [138]

5.7.4 Broader aims of combining ICT and physical student mobility

The category of ICT use in physical student mobility has identified two broader aims: providing students with *broadier skills, competencies, knowledge* (5 contributions) and enhancing *access to higher education* (2). Four of these contributions are targeted at domestic students only, one at international students, and two at both (see Table A 15).

Study abroad is portrayed not only as a way for students to gain linguistic and further cultural skills, but also to develop *broadier skills, competencies, knowledge*. The sample focuses on employability, however, by very different means and practices: One contribution discusses “integrating learning abroad and career skills” [195] with e-portfolios. Another explores how internationalization impacts on students’ employability [360]. A third addresses the use of social media such as LinkedIn for career

development, and describes how to advise domestic and international students accordingly [368]. *Games/gamification* also play a role: “Game design elements . . . that create connections to the global job market” and “bridge education and the world of work” are alleged to “boost the employability of international students” [422], i.e., to provide them with the skills and confidence to venture in the domestic job market. A second contribution that reports on *games/gamification* discusses “teaching business ethics to an evolving international and highly technical student cohort” with a virtual game [471].

On the topic of providing *access to higher education*, one contribution reports on parallel instruction as a flexible, hybrid model for students to combine on-campus learning with distance learning, enabling them to go and live (or continue to live) abroad. The declared aim is to “break down distances and barriers that prevented students to get the education they wanted” – worldwide [265].

A different target group is addressed in a last contribution in this section: military learners. By offering them “online, hybrid, or face-to-face classrooms” [509], the “diverse, dispersed audience of learners” [509] receives the opportunity to pursue their education flexibly – which is often the only feasible way for this population. For military learners, providing education *despite* their mobility, is the challenge addressed with ICT-supported education. In fact, presenters attribute ICT-supported military education strong disruptive potential for HEIs, calling their presentation “Teaching Military Learners in a Global Context: A Case Study in Institutional Innovation” [509].

5.8 Collaboration and partnerships

Sixty contributions (11% of the abstracts) in the sample pertain to the category of collaboration and partnerships. It encompasses contributions which discuss partnerships and other international activities at the institutional, as opposed to the classroom or program level.

The FUNCTION TYPES most addressed in this section are *access to higher education* (14) and *exporting higher education* (11). Next are *pedagogical innovation* (8), *developing multipliers* (7), and *fostering partnerships* (6). Less frequent are *capacity building* (5), *access to an international experience* (5), and *enhancing the experience of TNE students* (4) (see Table A 13).

This list of very diverse aims demonstrates that collaboration and partnerships are pursued for a variety of reasons, including institutional expansion (*exporting higher education*) and altruistic reasons of increasing access and capacity in other countries (*access to higher education*, *capacity building*, *developing multipliers*). Broader aims that go beyond the facilitation of international ties are pursued in the combination of ICT and international collaboration and partnerships: *pedagogical innovation*, *access to an international experience*, or *enhancing the experience of TNE students*. Partnerships as an aim in themselves are also discussed (*fostering partnerships*).

It therefore appears promising to investigate the diversity of aspects and to identify the role VI plays in collaboration and partnerships.

The most frequent means employed are *virtual TNE in general* (13), *online media and e-learning* (12), and *MOOCs/open courses* (11). In fact, for the first time, MOOCs have a prominent role in the discourse as represented by the sample. Less employed are *OER/open content* (5), *ICT in interculturally diverse courses* (5), and *m-learning* (4) (see Table A 14).¹⁰⁴

5.8.1 ICT fostering institutional partnerships

Even though only six contributions in the sample focus on *fostering partnerships*, these few encompass a broad spectrum of practices using ICT to support them – from OER to virtual mobility, MOOCs, social media, and e-mentoring (see Table A 13). One of them discusses strategies to establish and maintain sustainable collaborations via the video platform Mediasite, in addition to the role of *OER/open content* in collaborative efforts to distribute “free educational materials on a global scale” [30]. A second abstract argues that an ongoing “Open Education revolution” [269] is changing how international collaboration in the higher education sector is implemented. Subsequently, in the presenters’ view, OER, MOOCs and virtual mobility can help implement long-term and “transformative partnerships” [269]. *MOOCs/open courses* and their impact “on future global partnerships” [375] are also mentioned in another contribution, which argues that MOOCs “alter the way higher education is delivered in the future” [375]. According to said contribution, MOOCs will serve as game changers to global partnerships in a variety of ways (which are unspecified in the abstract). A fourth contribution discusses approaches to leveraging *social media and virtual communities* to foster international collaboration among universities, alumni and employers [395]. A program focused on an institutional collaboration with alumni and industry partners, “Griffith Global e-Mentoring”, uses *e-tutoring/e-mentoring* to foster such strategic partnerships [430]. A last way in which ICT is discussed in the sample regarding their capacity for fostering institutional partnerships is an international blended summer school expected to help tie “closer and more strategic partnerships” [348] to counter increased competition.

5.8.2 ICT facilitating institutional presence abroad and TNE

The use of ICT in a physical institutional presence abroad is discussed for three reasons in particular. The broadest and most obvious rationale is to enhance the possibilities of *exporting higher education* (11). With ICT-supported institutional presence abroad, an increased *access to an international experience* (5) is another topic discussed. Finally, using ICT for *enhancing the experience of TNE students* (4) is also mentioned (see Table A 13). All three are detailed in the following sections.

¹⁰⁴ Least frequent are *e-mentoring/e-tutoring* (3), *virtual mobility (other)* (3), *virtual mobility (COIL/virtual exchange)* (1), *ICT in standardizing (quality, accreditation, recognition, data portability)* (1), *social media and virtual communities* (1), and *virtual collaboration among staff/faculty* (1).

5.8.2.1 Exporting higher education

Examining the FUNCTION TYPE *exporting higher education*, this research found that ICT is used in a variety of ways to support institutional expansion beyond national borders. Note that fully-online TNE is not reported in this chapter, but categorized under “Online and distance education” (see the upcoming Chapter 5.9). This said, technology and online learning are also blended with (branch-)campus based TNE, as per the following analysis.

Contributions attribute ICT a central role in the diversification of TNE [455]. One example for this diversification is Kaplan, which, according to one contribution, follows a “collaborative approach to transnational education”. Kaplan not only delivers its own programs, but also collaborates with universities wishing to establish their activities abroad, providing them with the necessary on-the-ground infrastructure. It thus provides blended learning and MOOC infrastructure to help universities “successfully engag[e] in collaborative offshore networks” [212]. Another contribution registers a “changing face of Australian transnational education” that involves web- and app-based m-learning [202]. A second Australian contribution regards MOOCs and other forms of online learning as developments that challenge traditional flows of physical mobility, and asks: “Will MOOCs save our international education market?” [444]. It posits that MOOCs and other evolving technologies “may help arrest the forecast decline in Australia’s international student market share” [444]. A third contribution from the same country concludes:

Australian education institutions deliver transnational education (TNE) through a wide variety of academic engagement models. Traditionally, these models have relied heavily on face-to-face delivery of curricula by Australian-based or locally engaged staff. As learning management systems evolve and online delivery technologies are increasingly being used in teaching within Australian institutions, they are finding new application in the provision of curricula and new delivery models in TNE operations. [420]

In this contribution, presenters demonstrate how to leverage ICT to develop new models of TNE, outline how to adapt these to the affordances of particular partner countries and institutions, and discuss the benefits and challenges of blended learning in comparison with other forms of TNE delivery [420].

The sample provides some indication that blended forms of TNE appear to be a dominant topic in the discourse in Australia in particular.¹⁰⁵ Similar considerations and practices are also identifiable in other countries. A contribution from the UK, for instance, discusses possibilities of becoming one of the world’s leading universities through strategic partnerships with foreign universities, industry and governments; whereas TNE, MOOCs, and collaborations with new private providers are presented as valuable tools for engaging with the changing global environment of higher education [211]. A U.S. institution reports how an online course was added to the TNE

¹⁰⁵ The impression that Australia is more prominently represented in this section on collaboration and partnerships than in others is correct, but the margin is not as large as it may appear here: 17% (10 of 60) in this partial sample have their first author from Australia, while the representation of Australian presenters in the overall sample is 13%.

curriculum for students in Australia and Rwanda to support education export in a cost-effective way [2]. In a panel at a U. S. conference, participants are invited to ponder potential future(s) of branch campuses: “to morph, blend, specialize, innovate, virtualize or close?” [513]. The discussion includes consideration of the role of online and blended learning in the future TNE mix – as part of a potential solution to current challenges which branch campuses face.

5.8.2.2 Enhancing the experience of TNE students

Contributions in the sample do not stop at describing possibilities of using ICT to help export higher education, they also discuss the capacity of technology to ensure that TNE offerings are effective and of high quality – thus *enhancing the experience of TNE students*. This research identified two different PRACTICE TYPES in the sample that relate to this topic: *ICT in interculturally diverse courses* and *e-mentoring/e-tutoring*.

First, addressing contributions on e-mentoring, Victoria University is portrayed as making use of the platform WeChat to address its TNE students in China: Students from the home campus in Australia provide their TNE peers with “non-traditional learning support” [198] at low cost. Presenters from Victoria University’s Melbourne neighbor RMIT go one step further in their contribution by highlighting that in addition to international TNE students, domestic students benefit from their peer-to-peer mentoring program: It “actively integrates local and international students in a common cause: assisting students in learning how to learn” [200]. Both Australian contributions rely on connecting onshore and offshore students virtually to enhance the experience of TNE students [198, 200].

Other contributions focus on the capacity of ICT to provide *interculturally sensitive courses* in TNE. Presenters of SUNY Empire State College in the USA address cultural difficulties encountered on branch campuses in South America, discussing the usefulness of Web 2.0 tools to create a sense of community in high context cultures (Hofstede, 2001), such as the South American. According to the presenters, people from high context cultures tend to be skeptical of the potential of online formats to create a “natural and easy flow of communication, sharing of ideas, and creation of a community of learners” [516]. They are not alone in acknowledging the necessity of addressing the complexities of teaching multicultural online classes and of providing interculturally sensitive courses [110].

While approaches of accommodating international students’ needs are found in the TNE discourse, so are mentions of “assimilating students to new and different educational demands” [525]. The presenters of said contribution report on TNE curriculum design that is supposed to support students in learning the working styles of their host institution and country (here: the USA) to prepare them for an American-

style education, whether in campus-based or in online TNE [525]. It is generally seen as a challenge to introduce TNE in “well-established cultures” [33].¹⁰⁶

5.8.2.3 Increasing access to an international experience

Five contributions highlight the combination of ICT and TNE as a means of fostering *access to an international experience*. One of these argues that technology can help overcome distances and enhance communication and education across borders [209]. Another contribution depicts how “international student mobility through TNE and MOOCs” [201] can be achieved.¹⁰⁷ A third contribution focusing on said topic argues that in order for students to gain access to a truly international experience, it is not sufficient that their awarding institution be located in another country. Instead, they argue, it is necessary to also internationalize their curricula: “Making course delivery a transnational teaching and learning undertaking . . . has necessitated internationalization of the curriculum to address English language issues, cultural differences, and teaching and learning styles” [458]. *Social media and online communities* (here e.g., Skype) are presented as useful means to reach this aim.

A fourth contribution reports a very different topic: cultural preservation. In physical language centers (and supported by online elements), students across Europe are expected to gain access to the international experience of learning other European languages (French, Greek, Italian, Slovene, and Spanish). This is intended to both provide students with an international experience and to preserve European cultural heritage and multilingualism [279]. This contribution demonstrates that international collaboration at institutional levels does not need to mean “classic” TNE, but that it can take on other forms that are less attached to a particular HEI, and instead, focus on the “common good” only.

A final very different contribution – although also in the context of the “common good” theme – describes the UN development project NapoNet in which institutions from the U.S. and from Peru collaborate to provide an “educational experience for all involved” [109]: While the Peruvian NapoNet participants (coming from different professional and academic institutions) are expected to benefit from the thematic collaboration on technology and environmental subjects (e.g., rainforest ecology), both U.S.-American and Peruvian participants are targeted for the acquisition of “cultural awareness” and “global competencies” [109].

5.8.3 Broader aims of ICT in international collaboration and partnerships

Broader aims of including ICT in institutional international partnerships and collaboration addressed in the sample include increasing *access to higher education* (14),

¹⁰⁶ I coded contributions number 33 and 525 *exporting higher education* because of their main focus on that topic. They are deliberately also referenced here because they provide a counterweight to the other contributions in this section: Whereas contributions focused on *enhancing the experience of TNE students* in the sample emphasize the accommodation to TNE students' needs, contributions on *exporting higher education* were found to stress assimilation and integration (also see Chapter 5.7.2). The sub-sample being very small, this observation does not indicate a stable pattern; however, I chose to reference abstracts with a different perspective to complement the picture on supporting TNE students.

¹⁰⁷ The abstract does not however provide more detail about how this statement should be understood.

pedagogical innovation (8) *developing multipliers* in the areas involved (7), and *capacity building* (5) (see Table A 13).

5.8.3.1 Access and capacity building

This section considers *access to higher education* and *capacity building* simultaneously because of their similar direction. The means and practices discussed in abstracts to reach both these aims are varied and do not offer a clear *winner* regarding the question of the most popular ones, with *OER/open content*, *virtual TNE in general*, and *m-learning* frequently employed (3–4 times each); whereas *online media and e-learning*, *virtual mobility (other)*, and *ICT in interculturally diverse courses* are also represented (1–2 times). The most frequent means in the sample are *MOOCs/open courses* (5 times) (see Table A 13).

Often, but not always, developing and emerging economies and their social and economic development are in the focus [this applies to contributions 41, 53, 169, 186, 206, 220, 319, 372, 499, 517, 548]. Another general observation is that access and capacity often involve mention of *quality education* [in 186, 213, 220, 277, 500, 517].

Addressing *MOOCs/open courses*, one contribution acknowledges their “ability to revolutionize education” [213] in emerging markets: Partnerships to develop MOOCs between Western universities and partners in India and other emerging economies are regarded as fruitful for providing capacity for quality education. A related argumentation is found in a contribution on “MOOCs for Africa” [319], which discusses the opportunities and challenges of applying European MOOCs for capacity building on the African continent. A World Café session addresses a similar topic: “MOOCs in the developing world” [206]. One contribution, however, critically remarks that it takes more than just the provision of MOOCs for students in developing countries to learn from and succeed in them, and that assistance – for example, via a supporting “MOOC group” – is needed [548]. Finally, a project from France uses existing OER to develop MOOCs with the aim to increase access to quality materials in other French-speaking countries. The courses thus developed are intended for use in international co-diplomas [284]. The discussion around MOOCs shows that open courses appear to have gained a prominent place in the discourse about increasing access and capacity in developing and emerging economies, while the topic appears to remain controversial.

Usage of *OER/open content* for increasing access and capacity building is also reported in the sample. For instance, the “Gender in Agriculture” joint project of the World Bank and Michigan State University (MSU) provides OER for developing countries in the form of an OER sourcebook and an accompanying online training resource:

Working with storyboards adapted directly from the modules in the Gender in Agriculture Sourcebook, MSUglobal is transferring these documents into an innovative Open Educational Resource (OER). Using cutting edge e-learning software and authoring tools, MSUglobal has transformed a content rich, yet slightly cumbersome document into a concise, interactive, and globally accessible knowledge base. [517]

The Open Content for Development (OC4D) project [53] takes a similar approach: With the aim of increasing literacy in countries and regions with high illiteracy numbers, it provides materials in a variety of languages. Eleven years after its inception in 2006, in its international partnerships, OC4D attempts to “improve mobile responsiveness and user-friendliness for peoples across the globe” [53] and to also include localized tools and applications in open access.

Demonstrating an application beyond developing countries, the Nordic-Baltic transnational cooperation also attempts to increase access to high quality education, this time, within regions of low population density [277]. An additional goal of the “Boldic – open learning resources online” network is to increase cooperation among the countries concerned and thus, to create synergies.

M-learning is another option discussed for access and capacity enhancement: One contribution regards mobile phones as “technology with enormous potentials” [49] – here, to provide women with equal access to higher education and to lifelong learning in international partnerships. Another project involving *m-learning* discusses “mobile studio technology” and mobile laboratories to “allow universities in Africa to teach STEM subjects with hands-on activities at a fraction of the cost” of traditional classes [107]. Access, capacity and quality are the explicit aims of these collaborations with institutions in developing nations. In a similar collaborative project, mobile phones are used for training and certifying community health workers in Africa [499]. The abstract explicates the means and rationales as follows:

It will then be possible to keep community-based workers relatively up to date on progress in their field and to give them a background which will make it easier for them to communicate with more highly trained health professionals. In relation to training, mobile phones can be used for training community health workers and the communities that they serve without having to move the CHWs around. Further, the data-based phones can allow for productivity assessment through internationally accessible data bases like DHIS . . . which targets sub-Saharan Africa and allow [sic] district health officers and others to rather rapidly pull up monthly activity reports, thereby addressing one of the major challenges in terms of capacity building assessment. Additionally, Twitter and other rapid communication technologies can allow for the tracking of health-related needs for resupplying and for care access. [499]

According to this contribution, the advantage of using mobile technology lies in the rapidity of information transfer and in the ability to deliver training materials on current health-related topics – including in times of crisis, such as the Ebola outbreak in Kongo of 2018 [499].

One contribution discusses virtual labs (coded: *virtual mobility (other)*) to be found in a “global cloud of cyber physical laboratories” [100] creating and disseminating resources for teaching and learning in developing countries. This transnational collaborative effort is intended to serve several purposes:

Students can access remote laboratories from any place at any time. This flexibility is important for education and further education and for lifelong learning. . . . But conventional labs are becoming increasingly expensive, have complex logistics and can't be

easily shared. Using Online Laboratories has the potential of significantly reducing obstacles related of [sic] cost, time-inefficient use of facilities, inadequate technical support and limited access to laboratories. This is especially important for Engineering Education in developing nations. [100]

This contribution regards virtual labs as a way of reducing cost and providing flexibility to students in developing countries who do not have access to conventional labs. A similar approach is followed in a collaboration between an educational technology company and HEIs, which provides globally available distance labs to promote anytime, anywhere learning [500].

Online media and e-learning are addressed in one abstract on a collaborative effort originating from Belgium. The HEI in question has set up “Education-Research-Innovation centers” in Africa which make use of web conferencing and distance learning to maintain development initiatives [372]. International collaborations focused on learning outcomes are also discussed in the TUNING global initiatives [344].

Virtual TNE in general is portrayed as complementing on-the-ground TNE to increase access and capacity in developing countries. One contribution reports on the Inter-American Development Bank using virtual TNE in the form of e-learning in its international collaborations, “supporting social and economic development in a variety of countries” [41]. Another contribution presents technology as “international education’s silent partner”: as a tool enabling a more flexible and quality student experience in TNE delivery [199].

5.8.3.2 Developing multipliers

One way that is approached in transnational collaborative efforts is *developing multipliers*, often teachers, to “help people help themselves” (German: “Hilfe zur Selbsthilfe”) in their own countries and regions. One project with partners from European and African countries involves both teachers and students in the process of promoting educational materials for development [310]. In this project, teachers are trained in using new technologies in their classes, based on the observation that a lack in usage is often not a problem of access to computers and relevant technology, but rather, “a problem of how to do it” [310]. Interactive learning materials for teacher training are the topic in another contribution which also focuses on teacher professional education in developing regions. A USAID-funded program focuses on improving curricula and strengthening human and institutional capacity by developing STEM teachers in developing countries with both ODE- and place-based methods [476]. Others report on providing an e-course and OER (creative commons) for teachers in developing countries [308]. OER forming a global resource base for STEM teachers are addressed in another contribution [512]. In fact, even in countries with little or no nationwide broadband infrastructure, ICT is harnessed for teacher development: In Malawi, an SMS text messaging program for in-service primary school teachers is identified as a valuable tool, in conjunction with on-the-ground training, for “extending the efficacy and lifespan of training and outreach programs” [48]. In a

further collaborative project on the institutional level, health care workers in “resource limited settings” are trained with cross-border collaborative e-learning, helping counter the challenge that these professionals in the field are often isolated and cut off from current developments in research [169]. Finally, a Japanese and a Mongolian university are found to collaborate to produce interactive teacher training materials to further teacher professional education in developing regions [54].

5.8.3.3 Pedagogical innovation

Stepping away from aspects of increasing access and capacity, ICT in international collaborations and partnerships is also discussed more broadly for *pedagogical innovation*. The impact of *MOOCs/open courses*, as in other fields of application in *collaboration and partnerships*, is a frequent topic. For instance, the English-Hindi MOOC “Engaging India” developed by the Australian National University strives to “find out how MOOCs transcend the formal and informal learning space, as well as examin[e] the impact on our evolving understanding of pedagogy through this new medium of learning” [445].

A collaborative project by a U. S. HEI with an African partner university develops *MOOCs/open courses* and hybrid courses involving innovative videography, learner engagement, and online assessments intended to appeal to international students in developing countries. In this project, video lectures filmed on the home campus in the U.S. and other forms of pedagogical innovation are anticipated to “give students the feeling of being on Duke’s campus” [29]. The potentials of MOOCs for innovating pedagogy in partnerships and collaborations, however, are contested in the sample and left open for discussion in some abstracts [205, 207].

Besides MOOCs, a variety of other means and practices for pedagogical innovation in collaborations and partnerships is discussed in the sample. Duke University not only develops MOOCs, but also an “inter-institutional consulting model for innovative online course redesign” [16] (*online media and e-learning*). This program is set up to make sure pedagogical innovation trickles down to the HEI’s branch campuses. Another abstract argues that online learning can help overcome the challenges of diverse curricula in international joint degrees, thus facilitating the transfer between systems – and innovating curricula at all institutions involved [358]. Beyond this, in a transnational project funded by the European Commission, educational reform is facilitated via *online media and e-learning* [125]:

The ARMAZEG - Developing tools for lifelong learning in Transcaucasus region e-Learning project (financed by the European Commission within the TEMPUS program) aims to stimulate educational reform in Armenian and Georgian universities by developing lifelong learning methodologies, implementation strategy, teacher training and setting up of e-learning centers. The project involves twelve partners from Europe and Transcaucasia with a clear vision to establish new links in the educational sphere between the two regions. [125]

In this project, ICT is employed for a variety of goals, including enhanced lifelong learning and teacher training, and in the establishment of e-learning centers.

Finally, a contribution on *virtual mobility (COIL/virtual exchange)* in institutional collaborations argues that virtual mobility and networked curricula are suitable to contribute to modernizing HEIs, with presenters stating that such virtual exchange programs can help achieve “high-quality, state-of-the-art, internationalization and innovative knowledge” [307]. The term “innovative knowledge”, if not only an empty phrase¹⁰⁸, suggests that virtual mobility does not only imply a new pedagogy, but rather, a new form of knowledge.

5.9 Online and distance education

This research stated in the literature review (Chapter 3.2.6) that it would be beneficial to consider online and distance education (ODE) as a category of its own for the model of VI, a step which I implemented in Chapter 5.2. The analysis of the sample has substantiated this assessment: 58 contributions (11%) of the sample have online and distance education and learning fully at their center.

Note that I have ranked contributions that *appear* to refer to a fully online or distance learning environment (without being embedded in a larger campus-based curriculum) in this category. My judgment of separating fully online to partially online courses may not be accurate in some cases because abstracts do not provide the entire context of the learning scenarios in which measures are embedded. However, I argue, if an abstract creates the impression that the practice or measure which it discusses was employed in fully ODE, it *may well be* that it can inform the model of VI. I have included small educational entities such as *OER/open content*, *MOOCs/open courses* in this category only if they were combined to a curriculum to lead to some kind of a degree (formal or non-formal) – for example, in the form of a Micro-Masters (Straumsheim, 2016).

Most abstracts in this category address international students (37 of 58, i.e., 64%), only 6 (10%) domestic, and 15 (26%) both domestic and international students (see Table A 15).

The aim most often pursued by the combination of an international dimension and ICT in ODE is *enhancing the experience of international online students* (21). With some distance follow *exporting higher education* (9), *access to higher education* (8), *capacity building* (6), and *pedagogical innovation* (6) (see Table A 13).¹⁰⁹

The most frequent means and practices are *virtual TNE in general* (15), *ICT in interculturally diverse courses* (14), and *online media and e-learning* (12). Again at some distance follow *MOOCs/open courses* (5) (as included in an ODE program), *ICT in*

¹⁰⁸ it is not possible to tell from the abstract text

¹⁰⁹ Rarer FUNCTION TYPES are *quality enhancement* (3), *intercultural, international, and global competencies* (3), *internationalizing online education* (2), *regionalization* (2), *access to an international experience* (1), and *recruiting international students* (1).

*standardizing (quality, accreditation, recognition, data portability) (4), and virtual mobility (other) (3) (see Table A 14).*¹¹⁰

5.9.1 Internationalizing domestic online and distance education (ODE)

As this research identified in Chapter 2.2.2, ICT has a strength in its potential to provide learners in domestic distance education with international experiences, and some contributions address this aspect. Presenters from Boston University, for instance, observe that internationalization has occurred in its ODE offerings without outside influence – due to the inherent internationality of ODE: Its “virtual global classroom” has 10 % of enrollments in students from other countries which, in the presenters’ eyes, ensures that “all students receive the benefit of studying with international classmates” [406]. Another contribution that addresses the “internationalization of online education” [506] argues that international experiences do not occur naturally, but that international partnerships and strategic planning are crucial for providing meaningful international experiences to students. If successfully implemented, the authors argue, ODE allows the enhancement of “global knowledge”, “effective workforce skill training”, and opportunities of pursuing dual and joint degrees [506].

One contribution describes the widening of access to an international mobility experience for distance education students (*access to an international experience*), thereby making international learning more inclusive [456]. A closer look at the contribution, however, reveals that this case is not in fact an example of VI, but that the aim pursued is physical mobility for distance education students.

One further contribution calls on HEI leaders to extend their existing program portfolios by ODE elements in order to “contribute to European education” [400]. With the help of a trans-European study choice portal, students are supposed to obtain extended choices – and transparency of offerings – of studying at a distance anywhere in Europe. This contribution regards ODE as not only an institutional or national endeavor, but as a regionalized, internationalized one – promoting the Europeanization of higher education.

A last contribution in this section addresses the internationalization of domestic ODE by collaborating with online classes from abroad: In a course with American and German students, role-playing simulations are set up to train all participants involved in intercultural skills [105]. Except for the five examples presented in this section¹¹¹, at the analyzed conferences, the internationalization of domestic ODE is not often in focus.

5.9.2 ODE facilitating institutional expansion

More often than providing international experiences to domestic students, ODE is described as opening new markets for HEIs, and as providing possibilities for *export-*

110 Rarer PRACTICE TYPEs are *website and online presence* (2), *games/gamification* (1), *social media and virtual communities* (1), and *OER/open content* (1).

111 Contribution number 456 is not counted because it does not ultimately address VI.

ing higher education. One abstract identifies TNE as “the next leap in distance learning” [524] – as a logical step for the ODE field, fueled by advances in educational technology. Opportunities and risks of such expansion are localized in issues of governmental and accreditation regulations, competitors, and partnerships [524].

One abstract describes the business model of Laureate, an American private provider of higher education managing other universities’ entire online programs (among which are the University of Liverpool and University of Roehampton, both from the UK) [203]. This collaboration itself being an international partnership, it can also foster partner institutions’ international expansion, as another contribution with a representative from the University of Liverpool confirms: “The partnership between the University of Liverpool and Laureate Online Education enables delivery of 100% online degrees” [388]. One U.S.-American HEI ranges such expansion of online programs under “academic entrepreneurship” [28].

The case of the University of Illinois shows, however, that such endeavors are not always successful. The HEI’s “global campus” had to be discontinued, the abstract argues, because of “strategic, political and cultural dimensions undermining efforts to build a virtual campus” [32], which led to its failure. The necessity of maintaining a critical view of the “online exodus” [341], and at the question whether HEIs should join it given “what is already on offer in Europe” [341] is also discussed in other abstracts. One of the issues, as analyzed by one of the contributions, is that “institutions of higher learning face a complex and unnecessarily prolonged regulatory accreditation and certification process in expanding distributed learning beyond state and national jurisdictional boundaries” [42].

Another contribution covers quality assurance when exporting higher education: “Now that students from anywhere can study online on programs offered around the world, what are the implications for the acquisition and assurance of qualifications in UK higher education?” [210]. Questions of “transferability, learning hours, outcomes-based assessment, equivalence between awards across international boundaries and the end-logic of the MOOC phenomenon” [210] are addressed. Another abstract discusses the issue of measuring institutional effectiveness when degrees are not offered entirely domestically:

As institutions of higher education increasingly offer online programs that are available to students worldwide, they find that their current approaches to measuring institutional effectiveness no longer accurately capture the full spectrum of variables that impact their success. Outdated surveys that were designed for brick-and-mortar operations; new terminology that is incompatible with current policies and procedures; narratives that assume a particular cultural context - these are examples of challenges institutions face in transitioning to a global student population. [496]

The contributors argue that it is time to reform the terminology and approaches to measuring successful programs. In the sample, optimistic and critical voices both shape the discourse on international expansion with ODE.

5.9.3 Supporting international distance students in virtual TNE (and domestic/international mixed programs)

Beyond its use for internationalizing domestic distance education, as sparsely reported in the sample, ICT is also reportedly used to support international students in online distance education – whether they are enrolled in designated online TNE, or in ODE with a domestic focus (FUNCTION TYPE: *enhancing the experience of international online students*).

Presenters of one contribution perceive a gap in the literature on cultural differences among online learners:

In face-to-face instruction, there is a large body of literature on the impact of cultural differences on teaching and learning. The accommodation of cultural differences in face-to-face instruction is a high priority in teacher education as in multicultural education in higher education. Yet, the instructional implications of visual display designs and pedagogical features of online instruction employed in the delivery of instruction via the monitor have not been researched from the perspective of cultural differences among online learners. [501]

The same presenters also warn that many HEIs venture into international online markets without sufficient knowledge of the cultural backgrounds of the target audiences [501], and they evaluate the accommodation of cultural differences in online learners as far more complex than in face-to-face instruction, which complicates the issue [501]. Other presenters report a similar observation: “Although there has been a significant amount of literature published regarding special design considerations for international students in face-to-face courses, relatively little has been said about instructional design considerations for international students in online and/or blended courses” [503].

Not only is “culturally responsive online learning” [123] evaluated as a poorly researched field, online teaching is also acknowledged as challenging regarding the development of cultural understanding because it lacks direct human interaction [123]. Addressing this perceived gap, one abstract “provides tips on how to implement cultural awareness in teaching practices in online international postgraduate and multicultural classrooms” [286]. Another contribution highlights the “multifaceted challenge” of providing culture-appropriate online learning, which, if not properly addressed, is feared to lead to a “clash of cultures” [482]. The presenters regard it as necessary to adapt content, language, media, technology, in addition to instructional methods to accommodate the cultural preferences and needs of students from other countries. This way, all students should be able to invest the same amount of effort and time to successfully pass a course (“equitable learning outcomes” [482]). A last contribution describes an attempt to give “faceless online students” back their “racial identities that must be considered as online instructors develop a rhetorically effective pedagogy” [514]. This contribution does not address international diversity, but ethnical diversity within one particular country – here, African Americans.

The accommodation to different cultures is not only regarded as a challenge in the partial sample on ODE. One contribution, on the contrary, highlights potentials

that lie in accommodating diversity in virtual cross-cultural teams, including enhanced team decision-making outcomes and performance, and global leadership skills [103]:

We hypothesize that we can improve team performance if students learn to appreciate the ways in which the culture and worldviews of the team members affect the team's decision-making and performance. This means students must first understand their own cultural orientation and worldview and how representative it is of their home country, then achieve a similar understanding of the other team members. In this way, students recognize when virtual cross-cultural teams require cultural and personal accommodation and integration in order to accomplish the tasks at hand. This is a global leadership skill, and developing this skill requires culture and worldview metrics. [103]

Elsewhere, authors argue in favor of a “humanized pedagogy” [542] in culturally diverse ODL settings. In particular, enhancing the relationship of students in virtual TNE with their advisors is portrayed as crucial for student persistence and retention [530].

Acknowledging that ODE is borderless *per definitionem*, one contribution argues that understanding and catering to the demands of international online students is without alternative [31]. The internationalization of online education, in the presenters' view, impacts on course design and pedagogy, including on “design choices to ensure every student can thrive, regardless of background” [31]. One such approach described in another contribution is to adopt constructivist pedagogy to “adapt the curriculum for overseas learners” [327]. Another contribution argues that ODE offers opportunities for all to obtain not only intercultural, but “multicultural competencies” [128]. Authors who report on “cultural gaps and solutions for education in international settings” [227] view the necessity of implementing “culture-sensitive education” to reduce unintended cultural conflicts and to keep international students' motivation high [227], while others aim at achieving “a better understanding of culture-related factors that could jeopardize the learners' motivation in international e-learning scenarios” [296], taking account of different cultural learning and motivational styles.

A different way of supporting international online students is to help them via Prior Learning Assessment and Recognition (PLAR): One contribution observes that the effect of implementing PLAR in distance learning scenarios in different socio-cultural contexts has not been explored to date [303], and criticizes this fact.

Addressing the challenge of creating engaging online content for learners from diverse backgrounds [432], a consortium of HEIs from Queensland reports on MOOCs as a playground to test practices for institutionalized ODE in Australian online learning – and for English learners worldwide [432]. Besides exploring the potentials of digital media for engaging national and international students, the HEIs in the consortium also reportedly provide open learning resources for learners worldwide.

Two other contributions discuss employing MOOCs for assimilating/integrating rather than accommodating international students, preparing them for domestic

online learning with MOOCs [156, 25]. One of the two abstract asks: “How can international e-learners successfully adapt to American online environments?”, based on the observation that “without sufficient preparation, international learners face serious barriers to online learning in U.S. virtual environments” [25] and that, as a result, attrition is often an issue. Indication that international students in online courses, in effect, face particular challenges, is found in one abstract that quotes a Nigerian student enrolled in a UK online international postgraduate program asking “Can school actually be more difficult than this?” [295]. The necessity of taking the expectations of international students from developing countries in virtual TNE into account is addressed in this contribution, as well as in another that focuses on female students from Saudi Arabia, and on their perception that “I am different from other women in the world” [122]. The latter contribution also reports the finding of a study stating that these female students generally pursue online studies from an institution in another country in order to learn how to “communicate with male and female students from different cultures” [122], i. e., to gain global competency.

One contribution focuses on Asian students in Australia in particular, and observes that “these students are uncomfortable with learning in online mode, despite their familiarity with computers and information technology” [459]. A last contribution reports on a literature review of international students’ learning experiences in ODE [304]. The fact that a such academic contribution is among the presentations of an internationalization conference (EAIE Annual Conference 2016) shows that interest in better understanding the particular needs of international ODE students has entered the discussion.

5.9.4 Broader aims of an international dimension in ODE

Broader aims of combining ODE and an international dimension have a large overlap with topics already touched on in the chapter on collaboration and partnerships in the sample: creating *access to higher education* (8) and *capacity building* (6), especially in developing countries, and *pedagogical innovation* (6). A code that has not emerged for collaboration and partnerships is *quality enhancement* (3) (see Table A 13). This code in particular, but also the field of *pedagogical innovation*, add several aspects unseen in previous chapters.

5.9.4.1 Access and capacity building

Enhancing access and capacity has been one of the big promises of ICT in higher education from the beginning. While some experts have lowered expectations set in ODE to solve the world’s educational disparities (see Chapter 2.2), contributors in the sample uphold high hopes:

[Online] distance education is a form of borderless education that represents an area of vast potential for higher education systems around the world struggling to meet the needs of growing and changing student populations. It offers any student who has access to a computer and the Internet admittance to a broad range of academic programs.

[45]

For some HEIs, statements such as the following appear to now be normal: “Berkeley College Online serves a global population” [275]. Florida International University enrolls 1,200 online students in China in addition to its 2,000 students on the main campus [275]. And Brigham Young University asserts that with virtual TNE, it has not only “extend[ed] educational opportunities to students in various international locations”, but also reduced the cost and increased the quality of education [508]. On the other side of the Atlantic, University of London has also committed itself to operating a model of distance and flexible learning that provides “worldwide access to internationally-renowned programs and rewards” [532].

Beyond such general approaches to access, one abstract highlights the potential of ODE to increase access to non-traditional international students – especially those who have family or job commitments – to an education from abroad [114]. Going yet another step further than addressing non-traditional students, one contribution deals with employing OER for *non-students*: in non-formal education [549]. This move is reportedly intended to further increase access to higher education in developing countries. Authors of said contribution identify potentials of ICT (including radio, TV, online and m-learning, OER, and MOOCs) for applications as diverse as:

- Literacy, post-literacy, numeracy and English language;
- Out-of-school children and youth;
- Gender equality;
- Marginalized, disabled and other disadvantaged learners;
- Healthcare, childcare, water, sanitation and hygiene;
- Agricultural development;
- Sustainable development;
- Micro, small and medium enterprises. [549]

Despite these broad fields of application, the authors identify a gap in research and practical applications of ODE in non-formal education in developing countries [549].

In a transnational collaboration, three HEIs (from the U.S., Australia, and the UK) report on bundling their capacities to provide an online degree available to people around the world, with a particular focus on developing countries. Their “truly international” program is, according to the abstract, “recognized across the world” [522]. Another contribution discusses “ODL and related new kinds of education for securing enough capacities for a sustainable development” in emerging economies. International networks and associations sharing their capacities to facilitate this aim are invoked, “applying new methods and architectures in education” [534]. And representatives of the National University of Nigeria (NOUN) state that:

The emergence of ICTs has challenged the way we teach and learn in contemporary age [sic]. The digital age has stimulated massive interest in the open movement while emerging issues like open data, open access, Open Educational Resources (OER) are gradually changing the way we share knowledge. [536]

They present their approach of “OERization” in terms of course materials, making education available beyond borders, and “contributing to OER by sharing [the university’s] body of courseware with the global world” [536]. A unique case within the sample, the Nigerian HEI is not presented as a receiver of charity from abroad, but as a potent actor on the international stage, contributing to the international accessibility of knowledge. This indicates that the potential of ICT to create capacity and access does not need to be a North-South relationship, but can well take other paths.

While the potential of ODE for increasing access and capacity appears uncontested within the sample, presenters warn that it does not suffice to create online opportunities to “provide real access and openness for many learners” [258]. They criticize the Open University UK (OUUK)’s decision to close regional offices “because it is thought that learners can more effectively be supported from fewer locations and mainly online” [258]. Another contribution highlights the need to expand ICT infrastructure in a sustainable manner to ensure institutional capacities in order to “meet the global demand for education” [539].

Another factor that is assessed in the sample is access to contents. While online courses and MOOCs require an Internet connection with high bandwidth, one contribution addresses the “lingering digital barrier to global education” [540] and recommends the use of digital textbooks instead of video content. A contribution dealing with virtual TNE in Nigeria draws an even more critical picture: It argues that Nigeria loses over 70 % of its youth to education abroad, with about 40 % moving abroad and 30 % enrolling in ODE (or virtual TNE) from other countries. The contribution argues that limited capacity and physical space at Nigerian tertiary institutions should better be addressed with a potent domestic distance learning system dissolving the “constraints of physical location and infrastructure” [497] than with (virtual) TNE from abroad. The authors identify a “great demand for distance learning to allow more students access to in-country education” [497].

5.9.4.2 Pedagogical innovation

Reflecting on *pedagogical innovation*, one contribution describes how a U.S. HEI (Washington State University) makes use of co-curricular offerings in ODE: While “on-campus students can tour museums, attend guest lectures and cultural events, or participate in a research showcase”, online campuses “begin with a great advantage: They are not limited by geography, they can tap into experts across the world and bring their knowledge into a central and easily accessible location” [511]. This way, the presenters argue, the disadvantages of a placeless education can be weighed up by its borderlessness, creating a “global campus” with access to a broader knowledge base than traditional education [511]. Another example of pedagogical innovation is a contribution introducing the “Ubuntu” concept into ODE. The concept from southern Africa is included in U.S.-American domestic higher education – not to bring in intercultural, international, and global competencies, but to enhance teaching and learning. The Ubuntu concept, as understood in the abstract, encompasses a “vision of humanist education . . . which inspires a multiplicity of worldviews, indig-

enous epistemologies and ideological schools of thought in a world that is inclusive while fostering autonomy and humanity” [533]. This practice can be interpreted as a form of accommodating diverse cultures – again, with the aim of enhancing education, not with that of internationalizing higher education.

One abstract with yet another focus describes how ODE is being “unbundled”, meaning that the traditional degree is split up into smaller units. It argues that this development has a positive and a negative side for the globalized higher education market:

Arguably, many of the drivers for unbundling promote laissez-faire principles of individual freedom, education as a personal commodity, and the ultimate goal of the creation of a global higher education market. At the same time unbundling opens up many interesting possibilities for new models of teaching and learning and related student support services. In many respects the current language of crisis, disruption, democratization and re-imagination in the age of unbundling requires a type of double vision—dystopia and utopia. [546]

While the process of unbundling is often seen as a development which has a negative effect on HEIs, the contribution adds a positive take on it, arguing that it can help HEIs develop, modernize, and reform their teaching on the national and global scales. Therefore, the authors argue, “institutional leaders really need to take this [unbundling] movement seriously in their thinking about modernization, policy development and the future design and delivery of open, online and distance learning” [546].

Another contribution sees the necessity to include insight from other countries when determining success factors of online learning: “An online course has a global platform/classroom and we must consider global insights into online learning” [547]. In the authors’ view, because of the global reach of online programs, it is not sufficient anymore to relate to domestic studies on student engagement, but necessary to also consider studies from abroad to better support “bonding and building community in cyberspace” [547].

Finally, one contribution focuses on the MOOC platform Open2Study, launched by Open Universities Australia. It argues that MOOCs are used to remain visible on the global student market, in addition to testing and learning new pedagogical methods and technological options “such as personalization/adaptive learning, social learning communities, gamification, simulation and badges” for for-pay online degrees, thereby developing “the future of learning” [436].

5.9.4.3 Quality assurance and enhancement

Concluding the results section of this research, I examine the aim of enhancing the quality of ODE via the combination of ICT and an international dimension. This aim is at the focus of three contributions. The first of these discusses quality assurance in ODE with a normed OLC Quality Scorecard. Developed in the U.S., the contributors discuss its use for Mexico and South America and its potential for China [26]. They argue that quality “foundational principles apply to all of types of online education,

both in the U. S. and internationally”, but that for its international use, the quality scorecard needs to be adapted to its “specific geo and cultural context” [26].

The Nigerian National Open University (NOUN), for its OER project, also focuses on quality assurance: it adopts an international quality assurance standard “to ensure provision of education for all with quality” [529]. The third contribution in this section discusses ways of improving the quality of distance education involving students with diverse backgrounds, while at the same time “building mutual trust and gaining mutual understanding” [531]. An educational partnership between one Norwegian and seven Russian HEIs addresses this issue by developing shared institutional practices.

The bridging of gaps between academic, cultural and institutional differences, according to contributions in this section, can lead to a broader change process of educational and organizational practices across countries.

6 Discussion of the results

In this chapter, I discuss the findings of this research and present the resulting model of VI. I proceed by reviewing the research questions Q1 through Q4, considering themes and concepts (Chapter 6.1), means and practices (6.2), and finally, aims and functions, which constitute the foundation of the conceptual model of VI (6.3). I also review the methodology (6.4) and its appropriateness for answering the research questions.

6.1 Concepts and themes revisited (Q1)

Chapter 5.1 found that the discourse in the corpus is anchored in the higher education context, with *student*, *learning*, *course*, *education*, and *university* among its most frequent lemmas. In addition, a strong focus on both international (*international*, *global*, *cultural*) and virtual (*online*, *technology*, *(social) media*, *virtual*, *digital*) aspects is evident, with both word fields represented in the most employed lemmas of the corpus. This confirms that the sampling method was successful in compiling a data base suitable to inform the researcher about connections between the international and the virtual in higher education. This result, while reassuring, did not yet provide information on the variety of themes within the corpus. It was therefore crucial to determine if the sample covers information about a diversity of aspects, and in particular, on all components of the model of VI. The analysis of the 100 most frequent lemmas and of the top 50 n-grams (length: 2–6 words) offered insight regarding this question. Topics extracted from both analyses have been grouped as follows:

- a) Strategic action
- b) Faculty/staff
- c) Curricular aspects
- d) Support
- e) Openness
- f) Different loci of higher education
- g) Skills and competencies
- h) Groups and collaboration
- i) [Broader social aspects¹¹²]

The CATA stage thus revealed that the corpus addresses a broad variety of topics. The subsequent coding stage opened a different perspective on the data, considering the diversity of topics through the lens of the model of CI. At this concluding point in this research, the results from the coding are contrasted with those of the concor-

112 This topic was identified by the lemma analysis, but not by the n-gram analysis.

dancing tasks at the CATA stage to examine how the concepts and themes identified are reflected in the categories of VI.

The coding stage identified **strategic action** (a) as transversal to the sample: Instead of being addressed by abstracts as an independent topic, it is discussed in contexts of internationalization strategies, marketing and recruitment strategies, international collaboration strategies, articulated faculty and staff policies, strategies for innovation and future readiness, and in the assessment of the success of strategic action (Chapter 5.3).

Regarding **faculty/staff** (b), two categories reflect this theme identified by CATA: *faculty policies and practices* and *administrative leadership, structure, and staffing*. In both categories, the central topic discussed is professional development (Chapters 5.4 and 5.6). In addition to informing a VI category of its own, the concept of faculty is of transversal importance to the sample – with related terms occurring in one in three abstracts (5.6), demonstrating the importance of academic and teaching staff for all categories and dimensions of VI. Administrative leadership, on the other hand, is reported as a key facilitator of VI (5.4). It can therefore be concluded that both strategic action on the administrative level and faculty commitment are central to VI.

Curricular aspects (c) constitute a strong component of VI of its own, addressed in combination with a broad variety of means and practices (Chapter 5.5), while **support** (d) was revealed as another prolific transversal concept, with applications not only for mobile international (5.7.2) and domestic (5.7.3) students, but also for international online students (5.9.3), administrative staff (5.4.2), and faculty (5.6.1).

Openness (e) occurs in many facets throughout the sample – most prominently, in forms of MOOCs, OER, OEP, and open access. The idea of openness is reflected both in the at-home curriculum (Chapter 5.5) and in collaboration and partnerships (5.8).

The sample is also characterized by **different loci of higher education** (f): in the dichotomy of at home vs. abroad in the curriculum (Chapter 5.5), but also in “seamless transitions” in physical mobility (5.7), and in the placelessness of ODE (5.9).

Skills and competencies (g) occur in almost every category of VI, and they are not limited to *intercultural, international, and global* kinds, as the definition of internationalization may lead to believe. While those were in fact identified as the leading FUNCTION TYPE in the sample (20 % total), this research found *broader skills, competencies, and knowledge* to be the dominant aims and functions in 5 % of the abstracts (Chapter 5.1.7).

The theme of **groups and collaboration** (h) dominates not only the VI category of *collaboration and partnerships* (Chapter 5.8), but is also detected in collaborative aspects of internationalized curricula (5.5), in addition to the collaboration of faculty (5.6) and administrative staff (5.4).

The analysis of concepts and themes thus helped identify represented key components to inform the model of VI (a, b, c, h), while also detecting transversal themes (a, b, d, e, f, g, h). Beyond this, it also lay the foundation for establishing the second dimension to the model of VI – “**broader aims**” (i).

An examination of the occurrence of the search terms that had guided this research provided further insight into the thematic diversity within the corpus: Of these, **international** and **online** are the most widely distributed character strings in the sample, each occurring in just over half of abstracts. Beyond this, a diversity of topics is covered, ranging from **transnational*/*offshore*/*branch** to **language** and **global**, and from **MOOC** and **OER** to **gamif** and **hybrid**. The string **virtual** occurs in one in five abstracts, demonstrating that the concept of virtuality is widespread in the sample, which supports the integrability (*Anschlussfähigkeit*, Luhmann, 1995) of the decision to name the underlying concept of this research “Virtual Internationalization”.

To further explore the diversity of concepts and themes covered, n-gram, cluster, and KWIC analyses (Chapter 5.1) provided valuable insight into the underlying conceptualizations of internationalization represented in the sample. At the coding stage, which reduced the complexity of contents by assigning generalized codes, the diversity of concepts behind *intercultural*, *international* and *global competencies*, *internationalizing the institution as a whole*, or *internationalizing online education* could not be represented. N-gram, cluster, and KWIC analyses demonstrated that conceptualizations of internationalization are, in fact, broad in the corpus, including the three aspects identified by Knight (2003b) as the core dimensions of internationalization: *international*, *intercultural*, and *global* (Chapter 5.1.5):

- **International:** A high frequency of the bigrams “international students” and “international education” in particular suggested a focus on both international and domestic students.
- **Global:** The frequent occurrence of the bigram “global health” indicated broader (social) aspects, while the occurrence of “global campus”, “global learning”, “global education” and “global classroom” represented the idea of borderless education. Finally, “global citizenship”, “global awareness” and “global competencies” suggested a discourse on a broadened mindset of participants in virtually internationalized higher education.
- **Intercultural:** The string **cultur** suggested three different conceptual contexts of intercultural issues: cultural difference and diversity, competences (and challenges) in dealing with these, and opportunities that lie in interculturality and diversity.

After I explored concepts and themes that were prevalent in the sample, coding allowed the assignment of relevant metadata to the abstracts – including the VI category in question, domestic or international target group addressed, means and practices employed, and aims and functions pursued. The combination of CATA and coding methods has proven insightful in gaining different perspectives on the data, zooming in on different aspects depending on the research question asked. The next chapter revisits the means and practices thus identified, before aims and functions – and the conceptual model of VI – come into focus (Chapter 6.3).

6.2 Means and practices revisited (Q2)

In this research, means and practices have been analyzed from the perspective of the category of VI for which they were employed. *Figure 19* displays the five most frequent means and practices per category, based on *Table A 14*.

As elaborated in more detail in Chapter 5, the six categories have very different priority applications of the combination of ICT and an international dimension in the sample. The two categories **administrative leadership, structure, and staffing** and **faculty policies and practices** both display *ICT in staff/faculty development* as the most frequent practice. In **collaboration and partnerships** just like in **online and distance education**, *virtual TNE* is a prominent practice – in a blended mode for the former, and in a fully-online mode for the latter. In the **curriculum, co-curriculum, and learning outcomes**, this research detected a broad diversity of *online media and e-learning* at the top; and in **physical student mobility**, *social media and virtual communities* rank first place.

Beyond this, the diversity of approaches pursued also includes *social media and virtual communities* for administrative staff, numerous *virtual mobility* approaches (COIL, virtual internships, etc.) in curricula, *games/gamification* in physical student mobility, *MOOCs/open courses* in collaborations and ODE, and *OER/open content* in collaborations.

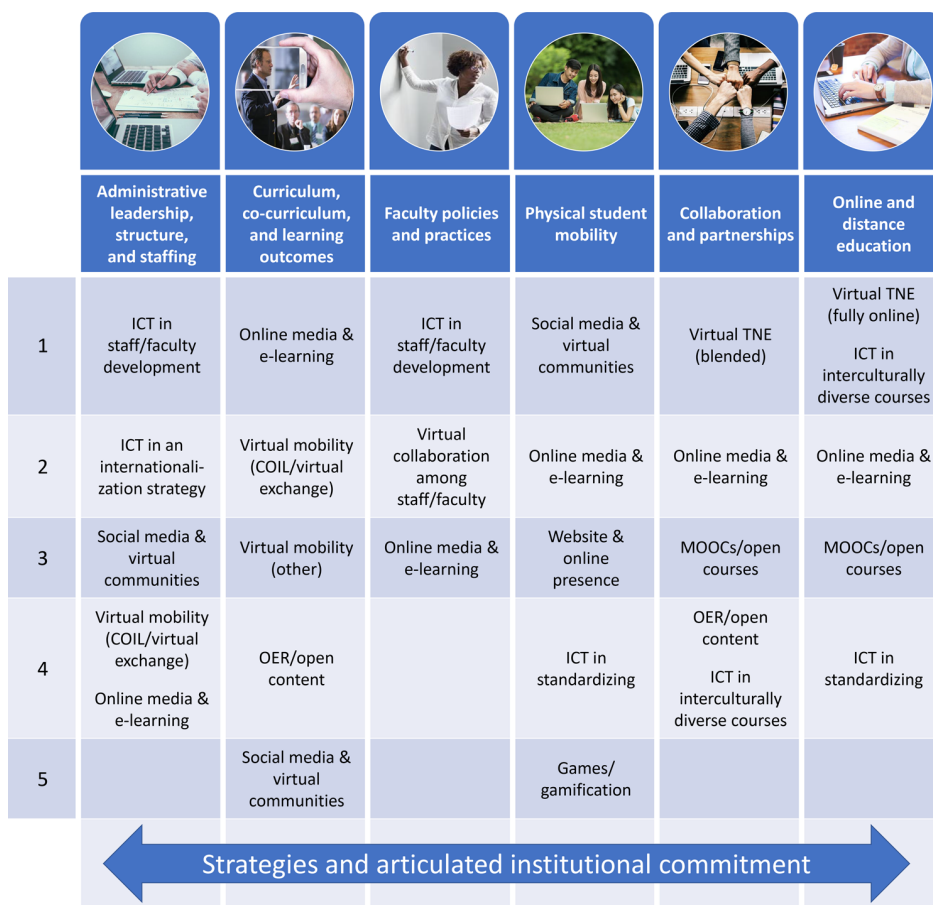


Figure 19: Means and practices (PRACTICE TYPE), by VI category, sorted by their frequency (1–5)

Note that code names from the PRACTICE TYPE category have been modified for this representation. Codes with occurrences of two or less were not listed. Codes with the same number of occurrences were ranked the same place.

To provide practitioners and future scholars with further insight into fields of application of ICT for internationalization-related and for broader aims, I introduced a new coding category named VI DIMENSION. It records whether ICT is used for

- A: Internationalization, respectively, for addressing challenges of internationalized environments (“ICT and internationalization”); or
- B: Broader aims (“ICT and an international dimension for broader aims”).

This classification is one of the results of this research (Chapter 5.2). Table A 16 in the appendix showcases the numbers of abstracts by VI category, VI dimension, function type, and practice type. Providing a visual representation, Figure 20 displays the most used means and practices (PRACTICE TYPE) by dimension and VI category.

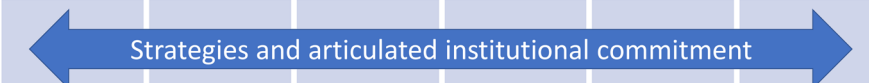
						
	Administrative leadership, structure, and staffing	Curriculum, co-curriculum, and learning outcomes	Faculty policies and practices	Physical student mobility	Collaboration and partnerships	Online and distance education
ICT and internationalization	ICT in an internationalization strategy Virtual mobility (COIL/virtual exchange)	Online media and e-learning Virtual mobility (COIL/virtual exchange) Virtual mobility (other)	ICT in staff/faculty development Virtual collaboration among staff/faculty	Social media and virtual communities Online media and e-learning Website and online presence	Virtual TNE (blended) ICT in interculturally diverse courses E-mentoring/e-tutoring Online media and e-learning	ICT in interculturally diverse courses Virtual TNE (fully online) Online media and e-learning
ICT and an international dimension for broader aims	ICT in staff/faculty development	Online media and e-learning MOOCs/open courses OER/open content	ICT in staff/faculty development	Social media and virtual communities Online media and e-learning Games/gamification	MOOCs/open courses Online media and e-learning M-learning Virtual TNE (blended)	Online media and e-learning Virtual TNE (fully online)
						

Figure 20: Most frequent means and practices (PRACTICE TYPE), by VI category and dimension

Figure 20 shows that in the sample, ICT is used in similar ways, whether aimed at internationalization or at broader aims, especially in the curriculum, co-curriculum, or learning outcomes, the faculty policies and practices, and physical student mobility categories. In these three, the most frequent means/practice is identical in both dimensions, while with some disparities in the subsequent ranks. The other categories (administrative leadership, collaboration and partnerships, ODE) differ more strongly between the two dimensions.

Virtual mobility (COIL/virtual exchange) is not the only means of combining ICT and an international dimension in HEIs in the sample, nor is it the most frequent one. *Online media and e-learning* are discussed in a diversity of other ways in the **curriculum, co-curriculum, and learning outcomes** category. Other forms of virtual mobility (*virtual mobility (other)*) are considered as further internationalization tools, while MOOCs and OER are predominantly used for reaching broader aims in the curriculum and co-curriculum.

For **faculty**, *ICT in staff/faculty development* is the central tool in the sample for both internationalizing and reaching broader aims, complemented by international *virtual collaboration among staff/faculty* in the dimension of internationalization.

For supporting **physical student mobility**, most frequent in the sample are *social media and virtual communities*, followed by *online media and e-learning*. Additional frequent practices are the *website and online presence* for internationalization and *games/gamification* (for example, serious games to teach workplace-relevant skills) for broader aims.

Larger differences exist in the other three categories: In **administrative leadership, structure, and staffing**, *ICT in staff/faculty development* is reported on for broader aims (for example, to enhance training and development opportunities, see Chapter 5.4.2), while the combination of ICT and internationalization is retraceable in *virtual mobility (COIL/virtual exchange)*, i.e., in virtual collaborations of administrative staff cross-nationally. First place here is taken by *ICT in an internationalization strategy*. This aspect may appear misplaced because it relates to the transversal category of *strategies and articulated institutional commitment*. While it is true that this research interprets internationalization strategies as key for that transversal category, they are, in addition, regarded as an expression of leadership for VI – and thus, a structural aspect in the *administrative leadership, structure, and staffing* category as well (see Chapter 5.4).

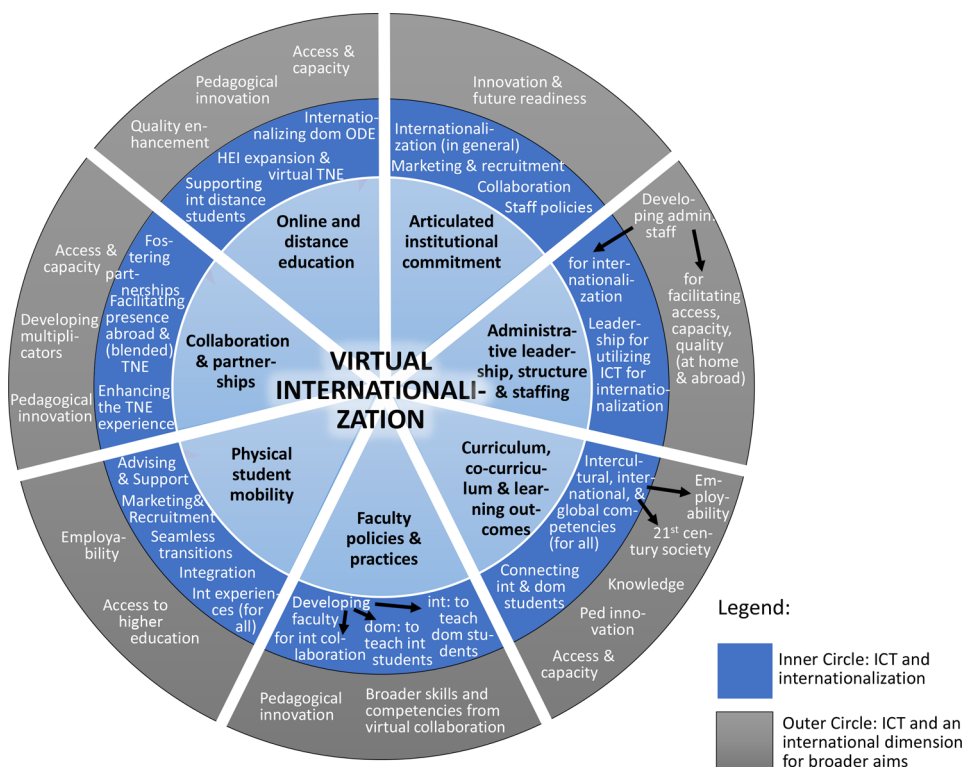
In the category of **online and distance education**, *virtual TNE (fully online)* and *online media and e-learning* frequently occur in both dimensions, while the practice of utilizing *ICT in interculturally diverse courses* only occurs in the internationalization dimension.

In **collaboration and partnerships**, the dimensions of internationalization and broader aims diverge most in the sample: For the former, *virtual TNE (blended)*, *ICT in interculturally diverse courses*, and *e-mentoring/e-tutoring* are the top three means/practices. For the latter, the most highly ranked are *MOOCs/open courses*, *online media and e-learning*, and *m-learning*.

The PRACTICE TYPE *virtual reality/augmented reality* is the only one which did not earn a place in the most frequent usages in the sample. This does not, however, mean that virtual and augmented reality are necessarily irrelevant, nor that they will be limited to niche applications in the future. Beyond the fact that the sample on which this research is based is not exhaustive, as applies to all means and practices discussed, their role in the future discourse and practice is yet to be defined. As George Veletsianos (2010) put it: “Some of today’s emerging technologies (and ideas) will become staples, while others will fade into the background” (p. 15).

6.3 Aims and functions revisited – the conceptual model of VI (Q3 to Q4)

To achieve the objective of providing practitioners and future scholars with a conceptual model of VI, this research extracted the key aims and functions for each of the seven categories and two dimensions and combined them in a visual representation. *Figure 21* displays the resulting model of VI, which is explicated in the following sections of this chapter.



Abbreviations used: int = international, dom = domestic, ped = pedagogical

Figure 21: The conceptual model of Virtual Internationalization

6.3.1 Articulated institutional commitment

In Chapter 5.2, I identified articulated institutional commitment as a transversal topic. However, in the conceptual model of VI, I decided to represent it as an egalitarian piece of the metaphorical pie of VI, alongside the other categories, because this visualization allowed the demonstration of the fact that the principle of two-dimensionality (internationalization and broader aims) applies to articulated institutional commitment just as it does to the other categories of VI. It also permitted the depiction

tion of key aspects of articulated institutional commitment addressed in the sample alongside key aspects of the other categories for a comparison.

The analysis of this VI category (Chapter 5.3) identified six fields of articulated institutional commitment addressed in the sample. Among these were four strategic commitments that addressed internationalization: **internationalization (in general)** (as in traditional internationalization strategies), international **marketing and recruitment**, international **collaboration**, and articulated faculty and **staff policies**. *Figure 21* represents these four strategic fields in the inner circle of “ICT and internationalization”. The fifth aspect discussed, i. e., strategic commitment towards **innovation and future readiness**, is represented in the outer circle of “ICT and an international dimension for broader aims”. The sixth aspect, assessment of the success of strategic action, is itself transversal to all dimensions of VI. Note that the fields of strategic action addressed in the corpus touch on only a few of the aspects of comprehensive internationalization, focusing on inbound physical student mobility (marketing and recruitment), collaboration and partnerships, and (albeit to a minor extent, see Chapter 5.3.4), faculty and staff policies. It can be concluded that fields of application for articulating an institutional commitment in the realm of VI are potentially much broader.

6.3.2 Administrative leadership, structure, and staffing

One aspect that characterizes the category of administrative leadership, structure, and staffing (Chapter 5.4) is **leadership for using ICT for internationalization**, i. e., for internationalizing the institution. Such *enabling* leadership may include an articulated commitment in terms of written strategies (as discussed in the previous section), but can also manifest itself in tangible actions which are not set in written documentation, such as, for instance, the financial or structural support of virtual exchange.

The second prominent aspect in this category is training and **developing administrative staff**. I identified two distinct phenomena: first, the use of ICT-supported staff development to support **internationalization**. This includes formalized training for staff to “become their own Senior International Officer” [217] and self-help tools (“technology hacks” [153]) to enhance administrative processes in International Offices. Second, ICT-supported staff development and an international dimension are combined for broader aims of **access, capacity, or quality (at home and abroad)**, for instance, by developing global standards for widening access to higher education.

In view of the fact that there are two sides to administrative staff training and development in the sample – one in the internationalization sphere, the other, for broader aims –, I included the concept of “developing administrative staff” in both dimensions of *Figure 21*. Note that the sample did not contemplate hiring policies at all, and that additional research would be required to identify their role for VI.

6.3.3 Curriculum, co-curriculum, and learning outcomes

The most addressed aim in the category of the curriculum, co-curriculum, and learning outcomes is *intercultural, international, and global competencies*. I added the annex “(for all)” to the visualization in *Figure 21*, because according to the results of this research (Chapter 5.5), increased access to obtaining such competencies beyond the “mobile few” is often (though not always – thus the brackets) the main rationale underlying measures such as virtual exchange, virtual field trips, virtual expert mobility, etc.

An aspect that infrequently appears in the sample, but which remains key nonetheless, are efforts regarding **connecting international and domestic students**: By creating “active online discussions among the national and international student population” [376], both domestic and international students were expected by authors in the sample to benefit from virtual learning environments.

A number of broader aims are also pursued in this category, as conveyed by the sample: Sometimes, the combination of ICT and an international dimension is used for pedagogical innovation; at other times, for broader skills, competencies, knowledge, or for enhancing access to – and capacity of – higher education. Among the most addressed broader skills are those that lead to employability, and to preparing students for the workplace and society of the 21st century. I created links between **intercultural, international, and global competencies (for all)** in the inner circle and **employability** in addition to **21st century society** in the outer circle to indicate that in many cases in the sample, I identified a causal connection between the aspects in question: Intercultural competencies are not always pursued as aims in themselves, but often, for the broader aims of enhancing students’ employability or their readiness for the society of the future. Other broader aims include **knowledge**, i.e., the enhancement of discipline-specific knowledge by accessing international resources, and **pedagogical innovation**, i.e., the development of pedagogical models and practices via the use of ICT in international contexts. The last aspect mentioned is an increased **access and capacity** of higher education: As one abstract argues, a virtually enriched curriculum “provides equity in access for programs and expanded services while increasing professional development opportunities” [302].

6.3.4 Faculty policies and practices

This research focused on hiring, tenure and recognition, in addition to the professional development of faculty and teaching staff. It thus excluded the role of ICT in international research collaborations, centering on the *education* aspect of higher education, not on its *research* side (see Chapter 3.2.4).

Just as in the category concerned with administrative staff, ICT in training and staff development is a key aspect in the category of faculty policies and practices (see Chapter 5.6). Using ICT, faculty is developed or trained for two distinct purposes: to teach international students (online or on campus), or – for international faculty – to teach domestic students. Beyond, ICT is mentioned in contexts of training faculty for

international collaborations and exchanges. The model thus includes the triad of **developing faculty**:

- **international: to teach domestic students**
- **domestic: to teach international students**
- **all: for international collaboration**

As mentioned above, this research only contemplates the preparation of staff for virtual collaborations or exchanges, not the effects thereof.

Concerning the outer circle of a combination of ICT and an international dimension for broader aims, **pedagogical innovation** is one key goal of professional development that is not targeted at internationalization. Faculty collaborating internationally for obtaining new ideas to “enrich student learning” [131] are presented in the sample. Furthermore, in addition to obtaining intercultural skills and competencies, faculty are expected to gain **broader skills and competencies from virtual collaboration**. These are also at the focus of faculty development measures with an international outlook in the sample.

While the corpus does not offer a large quantity of abstracts combining a virtual and an international dimension in the area of faculty policies and practices (21 abstracts in total), the few which exist display a broad variety of approaches, and it can be assumed that the research potential of this component offers a range of opportunities for future research. In particular, hiring policies have not been addressed in the sample.

It can be assumed that it is possible to develop faculty and teaching staff in order to be proficient in any of the areas the other categories touch on – curricula, mobility, online learning, collaborations, etc. As people in these functions have been identified as key actors for VI, the role of faculty being of transversal importance to the abstracts, it may be useful to deepen the discussion on their hiring and development.

6.3.5 Physical student mobility

The category of physical student mobility represents a diverse range of aims pursued. Domestic and international students are both addressed with measures in this area, with different foci in some aspects (see Chapter 5.7).

This research found that the support of international students (5.72) and that of domestic students abroad (5.73) resemble each other in many aspects: ICT is used for enhancing advising and the overall experience before, during, and after the stay. In particular, I found that contributors view ICT as an enabler of *anytime, anywhere* support, even at stages where students cannot easily be reached with other means – including the *before* (pre-departure) and *after* (alumni) phases for international students, and the *during* (study abroad) phase for domestic students. This leads to one particular phenomenon: the dissolving of borders between the before, during, and after. As a seamless orientation experience becomes possible, transitions themselves

become seamless. I therefore included the keyword **seamless transitions** in the model of VI.

A second term which I included is **integration**: Beyond facilitating seamless transitions, integration means more than just orientation or academic success. In the interplay between accommodation and assimilation to the new institution, country or culture, ICT can come into play at several stages and points in time – not only while students are on campus. As discussed in Chapter 5.7.2, the two main processes here are the institution accommodating to international students' needs, and international students being integrated ("assimilated"). Two groups that are regarded as particular beneficiaries of VI in this realm are refugees and migrants (see Chapter 5.7.2.4).

For the target group of international students, **marketing and recruitment** was identified as a key component of VI (Chapter 5.7.1). One recurring theme is identified by presenters as a particular strength of ICT vis-à-vis other means of recruitment and marketing: its capacity to provide personalized content and advising options. This personalization is also reflected in the practice of delegating marketing into the hands of students themselves: social media marketing, in particular, is reported to include alumni testimonials, social campaigns, selfies, vlogs, and other forms of customer relationship marketing.

Personalization is also often at the focus of **advising and support** (Chapters 5.7.2 and 5.7.3) – in fact, this is the case more often than the discussion of cultural appropriateness, which I have interpreted as an attempt to use ICT for *skipping* the concept of culture and addressing each individual.

ICT is also mentioned in the sample to facilitate **international experiences (for all)**, which I included as an item of its own in the model of VI. In particular, the capacity of ICT to better inform students about mobility options is highlighted in the sample. Another aspect mentioned is the possibility to blend physical with virtual mobility. This, according to the abstracts, may lower the barriers for physical mobility by reducing time spent abroad for nontraditional student groups. Students with a disability, lower income, a migrant background, or family commitments are invoked as potential beneficiaries.

Only a few contributions in this category address broader aims. The major part of those which address international experiences as a vehicle for something broader focus on **employability**: the integration of career skills into learning abroad is pursued, for example, with e-portfolios [195] or games to "boost the employability of international students" [422]. Others argue that **access to higher education** can be enhanced with the combination of ICT and physical mobility – for instance, if students can choose education options from different providers (on campus and at a distance), irrespective of where they reside. An unusual example concerns military learners: with ICT, they can get access to higher education, no matter where they are – *despite* their mobility.

6.3.6 Collaboration and partnerships

Concerning collaboration and partnerships, the sample equally reflects a variety of applications of ICT (see Chapter 5.8). Internationalization-related aims pursued include **fostering partnerships** on the institutional level through ICT-facilitated communication channels, for example, with inter-institutional MOOC or OER platforms. A second application discussed uses ICT for **facilitating HEIs' presence abroad**: It helps export higher education by diversifying the modes of delivery for TNE, adding blended learning options to TNE. It is therefore regarded as a tool to support institutional expansion in international markets and subsequently, to increase access to an international experience in the respective countries.

ICT is also used for **enhancing the TNE experience**. One argument raised is flexible provision of educational offers; another, the possibility of countering intercultural difficulties between the awarding institution and the branch – for example, with interculturally sensitive online elements or e-mentoring from abroad.

In the broader aims, **access and capacity** are the main aspects discussed. This was not unexpected given the fact that the rationale for offering TNE is often to increase access and capacity in developing or emerging economies. However, industrialized countries are also addressed by international collaborations and partnerships for increasing access and capacity – for example, to counter regional disparities.

One other aspect discussed is **developing multipliers** (often, teachers) abroad, in particular, to provide *help for self-help* – and thus, indirectly, fostering access and capacity building. This aspect applies to abstracts discussing developing countries in particular, for instance, in the “Gender in Agriculture” OER project offered by the World Bank [517].

The last aspect in this category is **pedagogical innovation**. As an example, authors of one contribution describe what they strive to achieve by employing MOOCs in TNE: finding out “how MOOCs transcend the formal and informal learning space, in addition to examining the impact on our evolving understanding of pedagogy through this new medium of learning” [445].

6.3.7 Online and distance education

Supporting international distance students is one of the key aspects of the inner circle of “ICT and internationalization” in ODE (see Chapter 5.9). Whether international students are enrolled in *foreign-only* virtual TNE or in programs with *mixed* enrollments from domestic and international peers, ICT is used to help them navigate their educational programs – with “culturally responsive online learning” [123], engaging materials, self-help MOOCs, etc.

Another key aspect in this category is **HEI expansion and virtual TNE/ODE**: Without the need to build a branch campus or even to collaborate with partners abroad, HEIs can simply “put education out there” for everyone to enroll in a “geographically agnostic” (Woolf University, 2018, p. 2) manner. Practice has shown that institutional pipe dreams concerning the automatism of “if we build it, they will come” have not always turned out to be realistic [32], but that, in fact, the potentiality

has been recognized by contributors in the sample, and is what differentiates fully-virtual TNE from collaboration-based, on-campus or blended forms.

Finally, the capacity of VI for **internationalizing domestic ODE** was identified as a key aspect (a “unique selling proposition”, even): Since the major part of ODE students will not have studied abroad by the time they graduate, VI may be the only option many of them have to obtain a study-related international experience. This aspect is, however, rarely addressed in the sample. The discrepancy between the potentiality of providing ODE students with international experiences and the low frequency of it being discussed indicates room for further research.

In the broader aims –as in the category of collaboration and partnerships, and with similar means and practices – **access and capacity**, especially for developing and emerging economies, and **pedagogical innovation** are discussed for ODE. One aspect that is discussed for ODE, but not for collaboration and partnerships, is **quality enhancement**: There is an expectation of a higher quality product (of ODE) resulting from collaborative ODE projects with partners abroad – for instance, by adopting shared institutional practices. This said, it can be assumed that quality is a key aspect of collaborations and partnerships as well – just none that presenters at conferences in the sample addressed with ICT. Further research into this topic would be required.

6.4 Retrospective on the methodology

In this chapter, I re-evaluate the assumptions I made in the methodology section (Chapter 4). I scrutinize the data base obtained with the sampling method, in addition to the analyses at the CATA and coding stages. After that, I discuss the adequacy of the methodology for answering the research question.

6.4.1 The data base

Conference proceedings were revealed to be a rich source of information for developing the model of VI. Including the approaches from both internationalization and digitalization/ODE conferences, in addition to general higher education and discipline-specific conferences, resulted in a comprehensive perspective on the phenomenon of VI. The conference proceedings presented a pool of innovating ideas, both top-down and bottom-up. They featured projects, models and theories in all stages of their realization or manifestation, including those in very early stages (pilot projects) that had not yet been elaborated in any publicly available documentation, thus making them visible. The abstracts offered first-hand information on topics discussed in a multitude of countries, in several fields, and in different years. The sample extracted from these diverse conferences reflected a broad variance of the phenomenon of VI, covering all of the areas of Comprehensive Internationalization (CI).

The variance *within* these categories of CI proved of varied depth: I identified a complex picture regarding curricular VI and VI in physical student mobility, and the yield for practices concerning collaborations and partnerships and fully ODE was

also identified as broad enough to inform the conceptual model. VI in administrative leadership, structure, and staffing, as well as VI in faculty policies and practices were least discussed in the sample, but nonetheless yielded a substantial depth of means and practices to inform the model. Future scholars may find it useful to carry out further research into these fields to substantiate and enrich findings of the research at hand.¹¹³

In addition to being rich in information, the sample was also practical in its handling: The dataset consisting of abstracts from 74 conferences, resulting in a sample size of 549 abstracts, was large enough to allow CATA, while remaining manageable for individual interpretation and manual coding. The data base was rich, but still controllable in the sense that it could be read reliably, without relevant details being lost in the analysis process.

Regarding limitations of the data base, I expected some bias regarding matters discussed due to the orientations of conferences and their specific calls for contributions. Nevertheless, I obtained a data base covering all areas of interest, i. e., all of the categories of VI, and perspectives on domestic as well as an international clientele; therefore, this concern was revealed as negligible.

One could furthermore argue that a weakness of the data base consists in conferences establishing a second-level discourse on phenomena only, which does not allow an observation of phenomena themselves. A related objection might be that contributors portray an idealized representation of projects and programs because they may wish to present their products in a more favorable light. These are justifiable apprehensions. However, I argue that for this research, neither of them constituted a drawback: Whether the narrators of the abstracts can be trusted to provide faithful accounts of the success of their projects and programs, is irrelevant for the research questions raised. Regarding the impossibility of observing phenomena themselves, in the logic of this research, it would not even matter if none of their programs even existed. This research required *ideas* to be presented, which practitioners and scholars from HEIs can *imagine* for their institutions. This dimension of potentiality alone qualified the ideas as worthy of figuring in the conceptual model of VI, making it essentially a model of potentialities. Their actual occurrence in the contexts of their use, just as the success of VI programs, is secondary for the purpose of the research at hand and would need to be the topic of future research.

A genuine limitation, however, is the fact that the sampling had to rely, to some extent, on availability, which limited the richness of the sample in terms of geography and timeframe covered: Conference proceedings of recent years were more available than older ones, and Western countries dominated the available information on conferences and their proceedings in relevant disciplines. I strove to counter these external constraints by contacting relevant organizations and requesting conference abstracts, but this quest was not always successful. Therefore, the results represented

113 A good additional source of information might either involve senior management (in individual interviews or focus groups (Jarvis & Barberena, 2008)), or other kinds of documents (for example, the texts of job offers, professional development programs, etc.).

in this dissertation retain some emphasis on the most recent years within the time period of data collection (2012–2017) and on discourses in North America, Europe, and Australia.

Also, I found that the data volume and quality differed from one conference to another: While some provided longer abstract texts of 300 + words; for others, only titles were available. For this reason alone, statistical assertions on the occurrences of terms only have restricted value, the length of a text increasing the probability that certain terms or concepts are explicated, whereas short texts may simply not have provided enough room to express ideas in full.

In addition, this research exposed that conference abstracts as a text form often work differently to abstracts in academic journals: While the latter involve the authors preempting the results of their research, the former often work as *teasers*, i. e., as advertisements for a particular session or presentation. Therefore, authors may withhold the result or even the core idea of their presentation to attract delegates to their session. As a result, it was not always possible to identify what authors were alluding to. Abstracts may read “Within today's global marketplace universities must understand and cater to the demands of international students – learn NYU's international approach from marketing and enrollment to graduation” [31] – but the concrete approach would not be made explicit in the abstract. For this reason, this research was not always able to seize “how it is done”. This did not represent a major setback, the aim of this research being to abstract from concrete measures and to draw a more general picture of ways of combining ICT and an international dimension. However, it bore the risk of delivering opaque results at times, and of leaving the reader with the desire for more substantiated information on the concrete measures discussed.

The main limitation of conference proceedings as the data base for this research was the fact that ideas and concepts that were not presented at any conference (despite being used in practice) would not figure in my model. There would be no way of retrieving them within the methodology employed. I argue, in response, that given the topicality of the combination of digitalization and internationalization at conferences,¹¹⁴ it is probable that most novel ideas in these two fields would be discussed – as long as their practitioners and scholars assumed them to entail potential. Ideas that have slipped through the net of the methodology employed are those that have existed for some time and to professionals did not seem worthy of mention at conferences in recent years. This applies, in particular, to forms of well-established ICT: I would not have expected to find a conference paper of 2017 hailing the great potential of television or of the radio, even though both technologies may still be used for some purposes. Similarly, I found few abstracts discussing the website as a medium to attract international students: it simply appears to be *old hat*. Yet, including conferences from the 1990s or 2000s, when the website was still a *hot topic*,

114 conference titles including “Expanding Horizons in Open & Distance Learning”, “The New Landscape of Higher Education”, “Internationalization through Difference: Transcending Boundaries”, “The Reinvention of Study Abroad”, or “Digitalisierung der Hochschulen: Forschung, Lehre und Administration” [digitalization of higher education: research, teaching, and administration]

would have also brought up practices that have long been replaced by others and become obsolete (cf. e.g., Wachtler et al., 2016, p. 11). In addition, I alleged that the aims and functions which were pursued with television, radio, or website have not disappeared, but have been complemented by other media serving the same functions: The Internet today distributes podcasts, whereby it fulfils a function previously satisfied only by the radio, and it also provides videos, whereby it fulfils a function previously satisfied only by television or video cassette (see Chapter 4.2).

Still, this study is based on a temporary snapshot: Technology being subject to trends, several of the concrete ICT tools discussed (especially on the PRACTICE level) may be obsolete a few years from now. I also recognize that technologies with little or no current relevance in the discourse such as blockchain, virtual and augmented reality, artificial intelligence, and technologies and tools not yet imagined will emerge in years to come and each gain their own relevance. I assume, however, that many of the technological innovations of future years will still fit into the analytical categories developed in this dissertation, especially on the PRACTICE TYPE level: *Online media and e-learning, social media and virtual communities, OER/open content, ICT in standardizing (quality, accreditation, recognition, data portability)*. . . all of these serve specific functions in higher education today and are likely to maintain their importance unless radical technological change causes a revolutionary shift.

Beyond this, I assume that FUNCTIONS and FUNCTION TYPEs will remain more stable than PRACTICEs and PRACTICE TYPEs: As argued above, the functions of media of the past have not disappeared in higher education, they have merely been supplanted by other media which serve the same purposes. Accordingly, I do not expect the functions that the combination of the virtual and the international fulfill to change much, as long as generally accepted paradigms of internationalization – i.e., how it is defined and conceptualized, and what aims can or should be pursued – remain stable.

6.4.2 The text mining & software aids (CATA)

A first step towards analyzing and interpreting the sample was CATA. I opted for Microsoft Excel for manual text searches and character string counts, which allowed me to probe for specific content across the sample. Disadvantages in handling of MS Excel as opposed to specialized CAQDAS (MAXQDA, Atlas.ti, etc.) could be offset with ease to filter, cluster, pivot, and calculate string occurrences, codes, and metadata, in one comprehensive, clearly arranged database. In addition to this simple but powerful tool, I used the linguistic software AntConc, which allowed the extraction of lemma lists and the performance of KWIC searches, in addition to n-gram and cluster identification. Taken together, all of these individual methods allowed not only the identification of words and concepts that appeared central to the sample, but also the contextualization in their textual environments. The software tools selected proved fit for this purpose.

It was appealing to utilize a software package such as R, Leximancer, or QDA Miner that relies on algorithms and (unsupervised) “machine learning” (Leximancer,

2018, p. 56; Provalis Research, 2018b, p. 241; Silge & Robinson, 2018, Chapter 6) to automatically extract concepts and themes emerging from the data, helping answer the research question on concepts and themes in the field of VI. The QDA Miner handbook, for instance, reads:

This machine-learning approach of classification has been known to achieve comparable if not superior accuracy to classification performed by human coders, yet at a very low manpower cost. It has been used to automatically classify documents into proper categories or to find relevant keywords describing the content and nature of a document. (Provalis Research, 2018b, p. 241)

While the quoted text is evidently biased (written by the provider of said software), such enthusiastic accounts appeared appealing. However, it was revealed to be a good decision not to run automatized, inductive, machine-learned algorithms in case of the research at hand. The reason is that the research question was not “What is the content and nature of the sample?” (see quote above), but “What are common concepts and themes in the discourse when ICT and an international dimension are combined?” (Chapter 1.2). While this question may appear as a simple reformulation and contextualization of the first, it is in fact of a very different nature: The question for “content and nature” of the sample asks for a representation of everything that the sample discusses, no matter the subject. The question for “concepts and themes . . . when ICT and an international dimension are combined”, on the other hand, asks for only those topics that relate to the combination of ICT and an international dimension. Other issues are not considered. It was, in effect, not important to identify all existing patterns within the dataset (as machine-learning processes in Leximancer or QDA Miner would have done), but to identify those of relevance to the research questions. Beyond this, my interpretation of concept differed from the word-level understanding that is inherent to the question raised in the quote above: A concept, in my understanding, could be expressed by an indeterminate number of words or word combinations – and include, for example, 37 + ways for expressing the idea of “virtual mobility” (see Chapter 5.5.1) – without necessarily displaying any “relevant keywords” that a software algorithm would be able to detect for “describing the content and nature of a document” (Provalis Research, 2018b, p. 241) (see also Chapter 4.7 for a more profound discussion of this issue). Human interpretation was thus necessary to decide which terms were used synonymously, and which terms referred to different issues each time they were used. It would not have sufficed to let an algorithm define contexts and meaningful correlations.

6.4.3 The coding

Coding proved to be a powerful tool for the reduction of sample complexity, while permitting me to focus on the different perspectives asked of the sample by the research questions. It allowed the reading of the texts for the purposes prescribed by the research questions, not for what the texts’ authors may have wanted the reader to think (cf. Krippendorff, 2013, pp. 37–38). The coding scaffold I created was helpful

for clustering, filtering, and calculating occurrences of abstracts pertaining to different categories and metadata collected. For example, it was possible to extract only abstracts that focused on *MOOCs/open courses*, which also had the purpose of *increasing access to an international experience*, in only the VI category of *physical student mobility* – and then, to further drill down into target groups (international/domestic), etc. Such near-endless possibilities of filtering abstracts for means/practices and aims/functions according to the research questions revealed themselves as convenient and practical, and allowed a coherent approach to the data.

The researcher coding texts with a particular coding scheme in mind was thus able to dismiss irrelevant context and focus on those aspects that were important for the topic at hand. Software, no matter how advanced, would not have been able to analyze the abstracts in a similarly constructive way. It is possible that future developments will provide finetuned, artificially intelligent algorithms that can substitute the researcher in more ways than it can now. However, and most importantly, this research is not less reliable for having relied on the researcher's interpretation of the data – especially as its aim was the *development of ideas and concepts* from a purposefully selected, nonprobability sample; not on determining probabilities or general textual patterns.

6.4.4 The fit of the methodology for the research question

To conclude this methodology review, it can be noted that the sampling strategy yielded a thematically broad, information-rich source, while remaining sufficiently manageable for a researcher to read. On the basis of this sample, at the CATA stage I was able to identify relevant concepts and themes as transmitted via words and n-grams, while the coding stage permitted me to ask specific questions of the data. In the interplay of both, I was able to answer the research questions, and to obtain reliable and valid results for each of them. Limitations that transcend those raised in the methods section (Chapter 4.9) have been discussed in Chapter 6.4.1.

7 Conclusion

The final chapter of this dissertation contrasts key findings with the literature reviewed (Chapter 7.1) and discusses implications of this research for the broader internationalization discourse (7.2). It poses the question of the relevance of the concept of VI (7.3), before concluding with recommendations for practice and future research (7.4).

7.1 Key findings vs. literature review

This chapter reviews the key findings of this research (Chapter 5) and contrasts them with the pre-existing literature on VI (Chapter 3). I proceed according to the components of the model of VI.

The literature review provided some indication that institutional practices of integrating VI in **articulated institutional commitment** exist, but suggested that these were sparse and not generally embedded in broader institutional strategies (cf. de Wit, Hunter, et al., 2015; Egron-Polak & Hudson, 2014; Zawacki-Richter & Bedenlier, 2015). This research has not contradicted this observation, but has identified several areas of strategic VI in higher education flying *below the radar* of high-level institutional commitment. Strategic action integrating ICT in international activities was found in particular in marketing and recruitment activities, collaboration and partnerships, and faculty and staff policies. Curricular aspects, ODE, and outbound physical student mobility, however, were not frequently addressed as areas in which ICT found a strategic application.

Literature furthermore suggested that leadership for (virtual) internationalization is a key success factor for introducing VI into **administrative leadership, structure, and staffing**. This assessment was confirmed by the analysis of the sample. Concerning the link between staff development and ICT, literature had only provided some anecdotal indication, which the research at hand complemented, allowing a more inclusive picture to be drawn. I found in particular that ICT has expanded training and development options for IO staff – some of them internationalization-related (e.g., “technology hacks” for the international office [153]), others with broader aims (e.g., developing standards for student transfer).

The literature reviewed further suggested that internationalization should not be limited to international office staff, but rather embedded in all of higher education administration (cf. Laitinen, 2012). For the realm of VI, the sample included some instances involving staff that are not responsible for international affairs as their main occupation – such as the “director of engaged learning” with competencies in study abroad [117] – but these were sparse. Beyond this, because the sample did not

address hiring policies and practices, and because little information on those could be found in the literature, future scholars may deem it opportune to conduct further research to determine whether – and in what ways – digital and international competencies are reflected in hiring policies and practices for IO staff and beyond.

For **curricula, co-curricula, and learning outcomes**, the literature review indicated a strong connection between ICT and an international dimension, suggesting an expansion of the possibilities to internationalize higher education with the help of ICT. This research has confirmed this impression, and broadened the understanding of curricular internationalization with the help of ICT: While literature with references to virtual mobility is abound, particularly in its collaborative aspect of COIL/virtual exchange, the sample allowed the collection of a broad range of other forms of virtual mobility and of *non-mobility*, including the integration of diverse *online media and e-learning* practices, *MOOCs/open courses*, and *OER/open content*. Curricular VI, thus, is an extensive field that may have been underestimated by previous research.

I did not differentiate between curriculum and co-curriculum in this research, because it would not have been feasible to judge from the data base if measures belonged to the “core” or to the “co-curriculum”. As such practices diverge from one HEI to another, the distinction was also evaluated as irrelevant for drafting the model of VI, which is intended to apply beyond individual institutional contexts. I recognize that this distinction will have to be re-introduced by practitioners in the field wishing to apply the model of VI to their concrete contexts.

It should also be noted that virtual mobility and its various manifestations are inconsistently designated and defined in the contributions reviewed: Besides “virtual mobility”, “collaborative online international learning”/“COIL” and “virtual exchange”, this research found 34 further terms designating some kind of virtual international experience – in a sample of only 549 abstracts (Chapter 5.5.1). It seems that the battle for the universally accepted term – if any should ever exist – has not been decided yet.

Regarding **faculty policies and practices**, literature suggested that digitalization and internationalization are addressed independently in higher education, but prior research provided only little evidence about ways in which the two aspects are combined in practice. This research complemented this picture by identifying ways in which ICT is used to develop domestic staff to teach international students, or international staff to teach domestic students. It identified faculty as key “transversal” actors for internationalization, implying the keyness of their involvement as stakeholders in VI.

Just as for administrative staff, hiring was not in the focus of contributions in the sample, suggesting that further research in this direction is required.

For **physical student mobility**, the literature review had already identified the general lines along which the individual aspects discussed in the sample could be clustered: Marketing and recruitment, in addition to the support of domestic and international mobile students were core aspects of VI in this category. Literature thus

demonstrated that matters of ICT use have entered the discourse on physical student mobility on a variety of levels.

This research has substantiated these observations and provided additional facets. One key addition results from the observation that the before, during and after of international mobility dissolve when ICT is implemented. This development allows seamless transitions and blended mobility – inbound and outbound alike. The abundance of examples in this realm demonstrates that what was a potentiality around the turn of the millennium has become a widespread reality:

Virtual means can complement activities in the field of internationalization. Virtual contact can help to prepare a study abroad phase, and to stay in touch after returning home. Virtual classrooms of learners scattered across the globe become possible. (Wächter, 2002, p. 13)

The sample has found ICT to also help adapt recruitment, marketing, and advising to diverse cultures – and to provide personalized solutions in these areas.

One aspect that I had assumed to find out more about – because the literature review indicated it as an emerging topic – was the use of blockchain technology, in particular, for supporting data and credit transfer. It is not mentioned in the sample, while I presume that it will be a topic at conferences held by organizations in the sample in years to come.¹¹⁵

Regarding **collaborations and partnerships**, the literature review detected some evidence of practices utilizing ICT, in particular in the facilitation of international partnerships, in collaborative degree programs, and in (blended) TNE. Individual case studies could be discovered for some of these areas, but often, literature was revealed as only covering ICT use as a minor aspect of broader research questions in the contexts of TNE and joint/dual degree research.

This research has uncovered more ways in which international collaborations are supported with ICT, among which is by assisting students involved. The aspects of capacity building and increasing access in developing countries was also strong in the sample. This research thus complemented the picture of practices employed and aims pursued in international collaborations and partnerships. One facet that the literature review did not detect is the potential of VI for pedagogical innovation and quality enhancement in these contexts.

Once again, it can be noted that blockchain technology is not an issue discussed in relation to collaboration and partnerships at the conferences in the sample, contrary to what could have been expected from the literature.

With VI, fully **online and distance education** (ODE) receives a prominent place in a conceptual model of internationalization. As previously, none of the more well-established internationalization models had accorded ODE a dimension of its own (cf. e.g., Helms & Brajkovic, 2017; Kehm & Teichler, 2007; Knight, 2012, 2016b; von

¹¹⁵ The example of blockchain technology shows that practice (practitioner-centric conferences) does not always precede theory (peer-reviewed literature), and demonstrates the necessity of a solid literature review in combination with the “actual” research.

Foskett & Maringe, 2012), in the literature review, I discussed it in the two chapters on the *curriculum, co-curriculum, and learning outcomes* for learning-related issues, and on *collaborations and partnerships* for TNE-related issues. Having analyzed the sample, ODE has received its own category in the model of VI. The main benefit of this decision was that the particular affordances of fully distance students (and distance institutions) could be taken into account: If students never set foot on a physical campus, many practices of campus-based education (e. g., in an inverted-classroom model) do not work, at least not in the same way. On the other hand, as this research has shown, ODE also presents chances for internationalization: Regardless of their physical location, students can enroll and obtain multicultural competencies just by working with their global classmates; or they can take a “virtual Erasmus+” semester at a distance university abroad. All sorts of electronic learning materials from all over the world can be incorporated – in many languages – and experts can be invited at any time to present in front of students via virtual means.

7.2 Implications of the insights from the concept of VI for the broader internationalization discourse

The broad integration of ICT into the internationalization discourse, which was already ongoing prior to this research, has raised some questions about the theoretical underpinnings of conceptualizations of internationalization. In the virtual space, some of the well-established discursive realities of internationalization do not apply: In particular, the dichotomy of “at home” vs. “abroad” loses its coerciveness “when virtual becomes reality” (OECD, 2019, p.98) and students, as hybrids, seamlessly transfer from their physical to their virtual lives, effortlessly mixing domestic with international experiences wherever they reside. Boundaries between “at home” and “abroad” also blur when study-abroad orientations begin long before arrival on campus, MOOCs and OER from other countries are incorporated in domestic education, and credentials for joint degrees can be obtained entirely online. Taking the hybridity of higher education to extremes, scholars draft future scenarios for internationalization as in the following:

Imagine developing a world cultures curriculum that spans the globe with students and faculty participating from virtual reality labs on their home campuses. There are mind-machine interfaces, wearable technologies, and intelligence amplification devices all in current production. How can we not imagine a world where these combine to produce experiences for students that would outshine any current semester abroad? (Kinser, 2014, p. 3)

The concept of internationalization is expected to undergo transformations in response to new developments in society; and the advent of concepts such as IaH, IoC, and CI attest to its flux. VI, I would argue, is an intrinsic component of today’s internationalization mix at HEIs, as digitalization has permeated all of its functions and

delivery. The conceptualization of VI enriches the internationalization discourse by offering an analytic approach towards the integration of the virtual into international activities of HEIs. Thus, the contributions from this research – including the conceptual model of VI – can inform further conceptualizations of internationalization.

The concept of VI also accords ODE a prominent place in the internationalization discourse for the first time: By making it an equitable pillar of internationalization, educational programs which take place entirely online or at a distance (and which are increasing around the world) are taken out of the *blind spot* of internationalization. As calls for “comprehensive internationalization” to encompass all of the institutional functions, purposes, and forms of delivery mount, it appears only consequential to accord ODE – as a key sector of higher education – increased weight.

Not all ideas discussed for internationalizing ODE may be equally apt to provide an international experience for students: Selwyn (2011) found that distance students often do not engage as much in online forums and with electronic materials as technology enthusiasts may expect them to. Among the testimonials which Selwyn (2011) collected from these students are statements including: “I’m in work all day looking at a computer. I don’t want to come home and look at a computer again, I think I’ve paid enough for this course that it should be printed out and sent to me” (p. 92), and those evaluating that online forums are “a waste of time” (p. 94). It therefore appears advisable to follow Selwyn (2011) in his conclusion that it is necessary to critically examine digital media within distance education contexts, “mov[ing] on from how digital technology will inevitably make distance learning better toward what forms of technology usage best fit with the often compromised and restricted needs, predicaments, and concerns of learners and their institutions” (p. 98).

Despite such limitations, it should be noted that for students who are enrolled in ODE, VI may be the only form of internationalization they can access – because they may not be able to travel abroad for an extended period of time. Due to the enrollment structure inherent to distance education (i. e., learners tend to be older and have family and/or job commitments, cf. e. g., Dolch and Zawacki-Richter (2018)) and to the virtuality of offerings, for these students, VI may often be the only accessible form of internationalization – instead of an alternative to other forms of internationalization, such as is the case in campus-based internationalization.

While including ODE as a category apart made sense to me early on in this research, introducing a second dimension of broader aims into the model of VI did not suit me at first: I had long pondered dismissing these occurrences altogether, or dealing with them in a separate chapter, disconnected from “actual” internationalization. However, I concluded that internationalization and its broader aims are inextricably connected, which is why I deemed the introduction of two dimensions of the combination of ICT and an international dimension inevitable. I gave the resulting construct the title “the model of virtual internationalization”, attesting to the fact that broader aims resulting from the combination of ICT and an international dimension enrich the items at the core of internationalization, and that it has become customary not to pursue internationalization as an aim in and of itself: As noted in Chapter

2.3.1, the internationalization discourse has recently seen an upsurge of the idea that internationalization should always (*per definitionem*, even, cf. de Wit, Egron-Polak, et al., 2015, p. 29) serve broader aims. However, I argue, both dimensions should be kept separate. Internationalization and its broader aims are often two sides of the same coin – but they are not however identical, nor does the one (internationalization) inevitably lead to the other (broader aims). Aims that are not directly internationalization-related should therefore not be incorporated in the definition of internationalization.

7.3 Is VI a good thing?

The definition of internationalization has been supplemented by the higher-level purpose “to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society” (de Wit, Egron-Polak, et al., 2015, p. 29). Having examined internationalization’s particular subset of VI, I would like to ask: Is this necessarily so? The dogmatic view that internationalization is good *per definitionem* may lead to the deduction that everything that this dissertation has found is beneficial in all circumstances, because ICT adds more options to internationalizing higher education.

However, this approach bears the danger of obscuring detrimental aspects of internationalization, virtual or other. In fact, some aspects of internationalization have been noted which do not necessarily make such positive contributions to society, but which, above all else, have benefits for their own institution – such as expanding into new markets or recruiting the brightest minds – on the agenda. This may lead to brain drain and other detrimental effects in other countries, and to a reduced access to a quality higher education in the home country. By including the imperative of a “meaningful contribution to society”, de Wit, Egron-Polak, et al. (2015) and the International Association of Universities (n.d.) define detrimental practices as not ranging under the internationalization definition (cf. also Castiello-Gutiérrez, 2019). But then, what should they be called? And where should the line be drawn? What could the concrete criteria be for the exclusion of “bad” practices from the internationalization realm?

Often, practices are double-edged swords: being well-intended and increasing access in developing countries, for example, but still commodifying and commercializing education, sharing benefits of internationalization in an unequal manner, increasing gaps between HEIs within a country, fostering low-quality providers, fueling brain drain and a loss of cultural identity and linguistic diversity, or perpetuating a post-colonial impetus by fostering “cyber-imperialism” (Márquez-Ramos & Mourelle, 2018, p. 29; cf. Bruhn, 2018; Egron-Polak & Hudson, 2014, p. 64). As early as 2001, Tony Bates warned of “cultural and ethical issues” of Internet-facilitated international distance education (Bates, 2001).

It appears advisable not to define an *a priori* positive outcome in order not to become blind towards negative consequences – even of the noblest aims. A focus on a such analytic perspective instead of a dogmatic *a priori* supports a differentiated and self-critical discourse, which is also prepared for countering critiques which challenge the notion that internationalization has positive outcomes *at all* – critiques which, in many countries today, appear to achieve broader political and societal acceptance.

The rationale behind the idea of introducing broader aims into the definition of internationalization is however understandable and honorable: I presume that the anchorage of higher-level aims in all considerations related to internationalization is constructive and valuable to furthering practices in the direction of the effects of internationalization on society, instead of sticking with circular reasoning in which *we need to internationalize because we need to internationalize*. In fact, the view that internationalization cannot be separated from its broader aims is among the observations made in this research. However, neither internationalization nor its virtual variant (VI) are *per definitionem* beneficial.

7.4 Where to go from here? Recommendations for practice and future research

In previous research, I described how VI can enhance access to an international experience (Bruhn, 2018). In this dissertation, I have demonstrated that it can also be used to achieve many other aims, thus also expanding on my considerations of intercultural, international, and global dimensions to VI (Bruhn, 2017). Yet, it would be a logical fallacy to deduct, from the potentiality of employing VI in all areas of internationalization, the necessity to use it *in all cases* and *under all circumstances*. As Selwyn (2014) notes for the higher education context, “digital technology – in and of itself – is not likely to change anything solely for the better” (p. 125).

The conceptual model of VI does not encompass the entire potentiality of VI: It can only trace its manifestations within HEIs in the period under investigation, as represented by the sample drawn from conference proceedings. This sample is not representative of the discourse in the entirety of higher education in the world, therefore it is possible that other applications are already underway somewhere in the higher education universe. However, I expect that the purposefully selected sample has covered a large part of the current conversation on VI in higher education, indicating areas which are already well-served and conceptualized – the curricular and physical student mobility aspects in particular – and areas which might be expanded in future – institutional commitment, policies regarding the hiring and training of administrative and teaching staff, etc. The conceptual model of VI invites researchers and internationalization professionals alike to adopt a comprehensive approach towards VI, and to accept virtual internationalization as an inherent part of internationalization in general.

On the basis of this research, I suggest that HEI leaders and practitioners, in particular those in charge of internationalization-related issues, consider the emerging opportunities that lie in VI along the lines established in its conceptual model. This research can provide a stepping stone for practitioners striving to broaden and/or optimize their internationalization efforts, allowing them to adopt (and adapt) emerging means and practices for their own HEIs' affordances and goals. The practices listed in the analysis can serve as resources to learn from and to build upon, but neither means/practices nor aims/functions identified are set in stone. Aims and functions are manifestations of certain ideas and purposes within the internationalization paradigm, and they may well be operationalized with different means and practices, including technologies yet to emerge.

Still, practitioners should not stop at considering the potentials of VI, but also weigh them against other forms of internationalization. VI can be used for reaching manifold goals, as this dissertation has shown, but it should not be understood as a metaphorical *swiss army knife*, or as an all-purpose utility that makes sense in every situation. Practitioners should also assess the consequences of (virtual) internationalization: Do the measures adopted lead to a desired, meaningful contribution to society – including that in other countries? Or might negative side effects outweigh positive intentions? There is reason to criticize VI, and to question the positive value of at least some of its manifestations: If ODE institutions close their regional offices or if funding for physical exchanges is cut because, supposedly, everything can more efficiently be done online, then caution is advised.

Much like practitioners, scholars should not stop at identifying positive outcomes of (virtual) internationalization, but instead assess its capacities and limitations, including aspects which may prove detrimental. This way, they can advance well-grounded approaches towards internationalization and provide guidance to practitioners in designing successful and useful measures and programs. Scholars may wish to turn to less-explored aspects of VI, including strategies, administrative staff, and faculty, to further knowledge on the effects of ICT on internationalization in the comprehensive sense. In particular, the effect of VI on ODE appears to be a fruitful area for further research.

Kinser (2014) offers fitting closing remarks for this research:

Just as they always have, technological innovations will reveal new ways to be a globally engaged university. The tools will change, and new goals will move to the forefront, but the case for internationalization of the university is not diminished. (p. 3)

In this spirit, I envision this dissertation has provided both an analytic stepping stone for further research on the combination of ICT and an international dimension, and a useful basis for practitioners who aim at integrating an international dimension into the purpose, function, and delivery of higher education. Taking into account the seamlessness of transitions between countries and the hybridity of the virtual and the physical space, I would like to end by predicting: The future of internationalization is hybrid.

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Appendix

Table A1: Conceptual foundations of the model of comprehensive internationalization (Based on *Mapping Internationalization on U. S. Campuses* (p. 3), by R. M. Helms and L. Brajkovic, 2017, Washington, DC: ACE)

Articulated Institutional Commitment

Strategic planning involving key stakeholders articulates an institution's commitment to internationalization and provides a roadmap for implementation. Formal assessment mechanisms reinforce this commitment by framing explicit goals and holding the institution accountable for accomplishing them.

Strategic planning. Internationalization is prioritized in mission statements and institution-wide strategic plans and through explicit internationalization plans.

Internationalization committee. A steering committee comprised of representatives from across the campus is designated to oversee implementation of internationalization initiatives.

Campus stakeholders. Focus groups, surveys and open discussions convey priorities, address concerns and gain buy-in by students, faculty, staff and other stakeholders.

Assessment. Following from articulated goals, progress and outcomes of internationalization are formally measured and assessed.

Administrative Leadership, Structure, and Staffing

The involvement of top leaders, and appropriate administrative and reporting structures form an essential framework for implementing internationalization.

Senior leadership. The president and CAO are committed to internationalization and are engaged in the process from the start.

International office. An office or offices is/are designated to coordinate campus-wide internationalization activities. The faculty or staff member primarily responsible for internationalization reports to the CAO or president.

Curriculum, Co-curriculum, and Learning Outcomes

As a core purpose of higher education, student learning is a critical element of internationalization. An internationalized curriculum and co-curriculum ensure that all students are exposed to international perspectives and build global competence. Globally-focused student learning outcomes articulate specific knowledge and skills to be addressed in courses and programs.

General education requirements. Courses that focus on foreign language, regional studies and global issues are included in undergraduate general education requirements.

Internationalized courses in the disciplines. Courses within each major incorporate international perspectives and highlight global issues in the field.

Co-curriculum. Programs and activities address global issues, reinforce international elements of the curriculum, facilitate discussion and interaction among students of different backgrounds, and support the integration and success of international students on campus.

(Continuing table A1)

Student learning outcomes. Internationally-focused competencies are included in campus-wide student learning outcome goals and assessments.

Technology. Technology is used in innovative ways to enhance global learning, e.g. through joint coursework and interactions with students and faculty abroad.

Faculty Policies and Practices

As the primary drivers of teaching and research, faculty play a pivotal role in campus internationalization. Institutional policies and support mechanisms ensure that faculty have opportunities to develop international competence and are able to maximize the impact of these experiences on student learning.

Tenure and promotion policies. Tenure codes state explicitly that international work and experience should be considered in tenure and promotion decisions.

Hiring guidelines. International background, experience and interests are among the criteria upon which faculty candidates are evaluated.

Faculty mobility. Faculty have opportunities to teach, conduct research and attend conferences abroad. Administrative and funding mechanisms support faculty participation in outside programs (e.g. Fulbright).

On-campus professional development. Workshops, seminars and other programs help faculty build international competence and incorporate international perspectives into their teaching.

Student Mobility

Student mobility, which refers both to the outward flow of domestic students to other countries to engage in an education abroad experience and the inward flow of international students to study at U.S. campuses, is often a focus of internationalization efforts. Orientations, re-entry programs and other support structures and activities help facilitate student adjustment and maximize learning.

Credit transfer policies. Students can easily earn credit for study abroad through approved programs.

Financial aid and funding. Student financial aid is applied to approved study abroad programs, and resources are available to help students locate additional funding. Scholarships and other funding are available for international students.

Orientation and re-entry programs. Orientation and re-entry programs help students maximize learning during study abroad, and integrate knowledge gained into their overall program of study. Academic and cultural orientation sessions are provided to all incoming international students.

Ongoing support and programs for international students. Academic and social support structures and programs facilitate international students' full integration into campus life.

Collaboration and Partnerships

Establishing and managing successful collaborations and partnerships abroad is a key aspect of internationalization for many institutions. Such relationships can provide international experiences for students and faculty, enhance the curriculum, generate revenue, and raise the visibility of institutions at home and around the world. ACE recommends a **4-step approach for creating and managing international partnerships**:

(Continuing table A1)

Step 1: Strategic planning. Partnerships and collaborations should be based on a careful planning process that clarifies international goals and objectives, particularly with respect to student learning outcomes. International collaborations should align with overall institutional mission and priorities, and should take into account availability of financial and personnel resources.

Step 2: Review possible structures. International collaboration can take many forms, and institutions should become familiar with a variety of options before talking to potential partners. Some modes of engagement will likely emerge as a better institutional fit than others; some may be rejected outright, and others may only be appropriate for partners that meet certain criteria.

Step 3: Identify potential partners. It is important to analyze the higher education context in target countries, including policies, priorities, structure, and operations. A careful analysis can eliminate certain types of institutions as potential partners and make others a higher priority. Peer institutions in the U.S. can provide useful information on potential partners abroad, and conferences often include opportunities for direct networking with institutional representatives from other countries.

Step 4: On-going management. As partnerships proliferate, institutions may find themselves with too many MOUs – often of varying scope and effectiveness. Another common situation is for partnerships based on a personal connection to dissipate once that connection is no longer active. Centralized coordination, engaging a broader base of faculty support, and designating certain relationships as “strategic” can help mitigate these issues.

Table A2: Abbreviations of organizations hosting conferences in the sample

ABBREVIATION (BY FIELD)	FULL NAME
DISTANCE/ONLINE EDUCATION	
EDEN	European Distance Education Network
EDUCAUSE	EDUCAUSE
ICDE	International Council for Open and Distance Education
ODLAA	Open and Distance Learning Association of Australia
OLC	Online Learning Consortium
USDLA	United States Distance Learning Association
EDUCATIONAL DISCIPLINE	
AACTE	American Association of Colleges for Teacher Education
ACTFL	American Council on the Teaching of Foreign Languages
ASEE	American Society for Engineering Education
GENERAL EDUCATION	
AASCU	American Association of State Colleges and Universities
ACE	American Council of Education
AERA	American Educational Research Association
CIDER	Center for Instructional Development and Educational Research
GFHF	Gesellschaft für Hochschulforschung
League	The League for Innovation in the Community College
INTERNATIONALIZATION	
AIEA	Association of International Education Administrators
AIEC	Australian International Education Conference
CAIE	Conference of the Americas on International Education
CIEE	Council on International Education
CIES	Comparative and International Education Society
Diversity Abroad	Diversity Abroad
EAIE	European Association for International Education
IEAA	International Education Association of Australia
IIE	Institute of International Education
NAFSA	National Association of Foreign Student Affairs – Association of International Educators
OBHE	Observatory on Borderless Higher Education
The Forum	The Forum on Education Abroad

Table A3: Number of conferences and of contributions, by field, name of organization, and name of conference

FIELD, NAME OF ORGANIZATION, NAME OF CONFERENCE	# OF CONFERENCES	# OF CONTRIBUTIONS
ONLINE/DISTANCE ED & ED TECH	23	168
EDEN	5	64
EDEN Annual Conference	5	64
EDUCAUSE	5	4
EDUCAUSE Annual Conference	1	4
ELI Annual Meeting	2	0
EDUCAUSE Connect	2	0
ICDE	2	15
ICDE International Conference	1	0
ICDE World Conference	1	15
ODLAA	1	5
ODLAA	1	5
OLC	8	73
OLC Accelerate/International Conference (SLOAN Consortium)	5	64
OLC Annual Emerging Technologies for Online Learning	1	2
OLC Blended Learning Conference	1	2
OLC Innovate	1	5
USDLA	2	7
USDLA Annual Conference	2	7
EDUCATIONAL DISCIPLINE	10	53
AACTE	1	0
AACTE Annual Meeting	1	0
ACTFL	1	36
ACTFL Annual Convention	1	36
ASEE	8	17
ASEE Annual Conference & Exposition	4	12
ASEE International Forum	4	5
GENERAL EDUCATION	13	38
AASCU	3	0
AASCU Annual Meeting	3	0
ACE	1	1
ACE Annual Meeting	1	1
AERA	1	0
AERA Annual Meeting	1	0
CIDER	6	32
CIDER Conference on Higher Education	6	32
GFHF	1	2
GFHF Jahrestagung	1	2

(Continuing table A3)

FIELD, NAME OF ORGANIZATION, NAME OF CONFERENCE	# OF CONFERENCES	# OF CONTRIBUTIONS
League	1	3
League Innovations Conference	1	3
INTERNATIONALIZATION	28	290
AIEA	2	9
AIEA Annual Conference	2	9
AIEC	5	64
AIEC Annual Conference	5	64
CAIE	1	1
CAIE Conference of the Americas on International Education	1	1
CIEE	2	8
CIEE Annual Conference	2	8
CIES	1	15
CIES Annual Conference	1	15
Diversity Abroad	1	1
Diversity Abroad Annual Conference	1	1
EAIE	5	122
EAIE	5	122
IEAA	1	3
IEAA Transnational Education Forum	1	3
IIE	2	7
IIE Generation Study Abroad	2	7
NAFSA	1	44
NAFSA Annual Conference	1	44
OBHE	6	13
OBHE Global Forum	1	2
OBHE International Higher Ed Revolution	1	7
OBHE MOOCs: What we have learned	1	1
OBHE The Future of Public-Private Partnerships	2	1
OBHE The New Landscape of Higher Ed	1	2
The Forum	1	3
The Forum Annual Conference	1	3
Total	74	549

Table A4: Number of contributions, by world region, sub-region, and country of the presenter

WORLD REGION, SUB-REGION, AND COUNTRY OF PRESENTER'S AFFILIATION	# OF CONTRIBUTIONS	% OF ALL CONTRIBUTIONS
AFRICA	18	2.6
Northern Africa	1	0.1
Egypt	1	
Sub-Saharan Africa	17	2.4
Benin	1	
Ethiopia	1	
Mozambique	1	
Nigeria	3	
South Africa	11	
AMERICAS	300	42.6
Latin America and the Caribbean	14	2.0
Bolivia	1	
Brazil	2	
Chile	1	
Colombia	1	
Ecuador	1	
Jamaica	1	
Mexico	5	
Peru	2	
Northern America	286	40.6
Canada	12	
USA	274	
ASIA	45	6.4
Eastern Asia	22	3.1
China	11	
Hong Kong	3	
Japan	6	
South Korea	1	
Taiwan	1	
South-Eastern Asia	6	0.9
Indonesia	1	
Malaysia	1	
Philippines	1	
Singapore	3	
Southern Asia	3	0.4
India	1	
Nepal	1	
Pakistan	1	
Western Asia	14	2.0

(Continuing table A4)

WORLD REGION, SUB-REGION, AND COUNTRY OF PRESENTER'S AFFILIATION	# OF CONTRIBUTIONS	% OF ALL CONTRIBUTIONS
Armenia	1	
Georgia	1	
Israel	7	
Palestine	1	
Saudi Arabia	1	
Turkey	3	
EUROPE	265	37.6
Eastern Europe	16	2.3
Czech Republic	2	
Hungary	3	
Poland	6	
Romania	2	
Russia	3	
Northern Europe	39	5.5
Denmark	6	
Finland	4	
Ireland	10	
Lithuania	3	
Norway	5	
Sweden	11	
Southern Europe	45	6.4
Croatia	2	
Greece	2	
Italy	14	
Portugal	7	
Slovenia	4	
Spain	16	
Western Europe	165	23.4
Austria	3	
Belgium	22	
France	9	
Germany	26	
Netherlands	54	
Switzerland	8	
UK	43	
OCEANIA	77	10.9
Australia and New Zealand	77	10.9
Australia	74	
New Zealand	3	
Total	705	

Table A5: Number of contributions, by country of the conference, world region, and sub-region of the presenter

COUNTRY OF THE CONFERENCE, WORLD REGION AND SUB-REGION OF THE PRESENTER	# OF CONTRIBUTIONS
AUSTRALIA	83
Americas	8
Northern America	8
Asia	3
Eastern Asia	1
South-Eastern Asia	2
Europe	12
Northern Europe	2
Southern Europe	2
Western Europe	8
Oceania	60
Australia and New Zealand	60
CANADA	7
Americas	6
Northern America	6
Asia	1
Eastern Asia	1
CROATIA	18
Americas	1
Northern America	1
Asia	1
Western Asia	1
Europe	16
Northern Europe	4
Southern Europe	5
Western Europe	7
CZECH REPUBLIC	54
Americas	5
Northern America	5
Asia	2
Eastern Asia	1
South-Eastern Asia	1
Europe	45
Eastern Europe	4
Northern Europe	7
Southern Europe	4
Western Europe	30
Oceania	2
Australia and New Zealand	2
ECUADOR	4
Americas	4
Latin America and the Caribbean	4

(Continuing table A5)

COUNTRY OF THE CONFERENCE, WORLD REGION AND SUB-REGION OF THE PRESENTER	# OF CONTRIBUTIONS
GERMANY	7
Americas	4
Northern America	4
Europe	3
Western Europe	3
HUNGARY	21
Africa	1
Sub-Saharan Africa	1
Americas	1
Latin America and the Caribbean	1
Asia	3
Eastern Asia	1
Western Asia	2
Europe	16
Northern Europe	5
Southern Europe	5
Western Europe	6
IRELAND	33
Africa	1
Sub-Saharan Africa	1
Americas	6
Northern America	6
Asia	2
Eastern Asia	1
Western Asia	1
Europe	23
Eastern Europe	1
Northern Europe	1
Southern Europe	4
Western Europe	17
Oceania	1
Australia and New Zealand	1
MALAYSIA	2
Asia	1
Eastern Asia	1
Oceania	1
Australia and New Zealand	1
NORWAY	16
Americas	2
Northern America	2
Asia	3
Eastern Asia	1
Western Asia	2

(Continuing table A5)

COUNTRY OF THE CONFERENCE, WORLD REGION AND SUB-REGION OF THE PRESENTER	# OF CONTRIBUTIONS
Europe	11
Northern Europe	2
Southern Europe	3
Western Europe	6
PORTUGAL	14
Americas	1
Latin America and the Caribbean	1
Asia	1
Western Asia	1
Europe	12
Eastern Europe	1
Northern Europe	3
Southern Europe	4
Western Europe	4
SOUTH AFRICA	16
Africa	10
Sub-Saharan Africa	10
Americas	2
Northern America	2
Asia	1
Eastern Asia	1
Europe	3
Northern Europe	1
Western Europe	2
SPAIN	25
Americas	5
Latin America and the Caribbean	1
Northern America	4
Asia	4
Western Asia	4
Europe	16
Eastern Europe	3
Northern Europe	2
Southern Europe	3
Western Europe	8
TURKEY	48
Americas	5
Latin America and the Caribbean	1
Northern America	4
Asia	4
Eastern Asia	2
South-Eastern Asia	1
Western Asia	1

(Continuing table A5)

COUNTRY OF THE CONFERENCE, WORLD REGION AND SUB-REGION OF THE PRESENTER	# OF CONTRIBUTIONS
Europe	35
Eastern Europe	2
Northern Europe	4
Southern Europe	5
Western Europe	24
Oceania	4
Australia and New Zealand	4
UK	82
Africa	3
Sub-Saharan Africa	3
Americas	13
Latin America and the Caribbean	1
Northern America	12
Asia	3
Eastern Asia	2
South-Eastern Asia	1
Europe	59
Eastern Europe	4
Northern Europe	5
Southern Europe	9
Western Europe	41
Oceania	4
Australia and New Zealand	4
USA	275
Africa	4
Northern Africa	1
Sub-Saharan Africa	3
Americas	237
Latin America and the Caribbean	5
Northern America	232
Asia	14
Eastern Asia	9
South-Eastern Asia	1
Southern Asia	3
Western Asia	1
Europe	15
Eastern Europe	1
Northern Europe	3
Southern Europe	1
Western Europe	10
Oceania	5
Australia and New Zealand	5
Total	705

Table A6: 100 most frequent lemmas

Lemma Types: 7829			Lemma Tokens: 71698	Search Hits: 0
Rank	Freq	Word	Lemmas Word Form(s)	
1	1859	student	student students studenting	
2	1220	learning	learning learnings	
3	1003	online	online	
4	832	course	course courses coursing coursed	
5	771	education	education educations	
6	697	international	international internationals	
7	549	university	university universities	
8	450	technology	technology technologies	
9	449	global	global	
10	444	program	program programs programming	
11	444	study	study studied studies studying	
12	364	experience	experience experienced experiences experiencing	
13	360	social	social socials	
14	292	institution	institution institutions	
15	281	media	media medias	
16	265	virtual	virtual	
17	264	development	development developments	
18	262	teaching	teaching teachings	
19	253	project	project projects projected projecting	
20	252	educational	educational educationals	
21	247	teacher	teacher teachers	
22	241	digital	digital	
23	240	research	research researched researches researching	
24	238	cultural	cultural	
25	225	faculty	faculty faculties	
26	224	open	open opened opening opens	
27	223	-	-	
28	221	higher	higher higher	
29	220	tool	tool tools tooling tooled	
30	219	learner	learner learners	
31	218	participant	participant participants	
32	213	challenge	challenge challenged challenging challenges	
33	212	need	need needed needs needing	
34	211	group	group groups grouped grouping	
35	208	skill	skill skills skilling	
36	206	provide	provide providing provided provides	
37	196	different	different	
38	193	community	community communities	
39	193	support	support supported supporting supports	
40	192	country	country countries countrys	
41	192	practice	practice practices practicing practiced	
42	188	activity	activity activities	
43	185	collaboration	collaboration collaborations	
44	184	opportunity	opportunity opportunities	
45	179	classroom	classroom classrooms	
46	179	model	model modelled models modelling	
47	178	knowledge	knowledge knowledges	
48	177	design	design designed designs designing	
49	176	used	used	
50	176	work	work working worked works wrought	

(Continuing table A6)

Lemma Types: 7829			Lemma Tokens: 71698	Search Hits: 0
Rank	Freq	Word	Lemmas Word Form(s)	
51	176	world	world worlds worlded	
52	175	abroad	abroad	
53	174	content	content contents contented contenting	
54	170	environment	environment environments	
55	167	strategy	strategy strategies	
56	164	result	result resulting resulted results	
57	163	communication	communication communications	
58	162	time	time times timed timing timeing	
59	154	access	access accessed accessing accesses	
60	153	distance	distance distances distancing distanced	
61	153	mobility	mobility mobilities	
62	152	process	process processing processes processed	
63	151	culture	culture cultures cultured culturing	
64	148	approach	approach approaches approached approaching	
65	148	resources	resources	
66	144	information	information informations	
67	143	base	base based basing baser bases basest	
68	143	discussion	discussion discussions	
69	139	context	context contexts	
70	138	academic	academic academics	
71	138	team	team teams teamed teaming	
72	136	learn	learn learned learning learnt learns	
73	134	train	train trained training trains	
74	132	mobile	mobile mobiles	
75	131	mooc		
76	129	developed	developed	
77	129	video	video videos videoing	
78	128	developing	developing	
79	127	data	data datum datas	
80	127	moocs		
81	125	students'		
82	122	impact	impact impacts impacted impacting	
83	122	issues	issues	
84	122	platform	platform platforms platforming	
85	122	professional	professional professionals	
86	120	markete	markete marketing	
87	119	curriculum	curriculum curricula curriculums	
88	118	develop	develop developing developed develops	
89	116	engagement	engagement engagements	
90	116	level	level levels levelling levelled	
91	116	material	material materials	
92	113	understanding	understanding understandings	
93	112	engage	engage engaged engages engaging	
94	110	case	case cases cased casing	
95	110	collaborative	collaborative	
96	108	network	network networks networking networked	
97	107	focus	focus focussed focusing focuses focused focussing foci	
98	106	college	college colleges	
99	106	future	future futures	
100	105	example	example examples exemplified	

Table A7: Occurrences of selected search strings across contributions

	A	B	C	D
1	SEARCH STRING	# OF OCCURRENCES	% OF OCCURRENCES	FORMULA TEXT
2	student	405	74%	=WENN(ISTFEHLER(SUCHEN("student";TITLE&ABSTRACT));0;1)
3	international	289	53%	=WENN(ISTIONAL(SUCHEN("international";TITLE&ABSTRACT));0;1)
4	global	187	34%	=WENN(ISTFEHLER(SUCHEN("global";TITLE&ABSTRACT));0;1)
5	cultur	193	35%	=WENN(ISTFEHLER(SUCHEN("cultur";TITLE&ABSTRACT));0;1)
6	transnational	14	3%	=WENN(ISTFEHLER(SUCHEN("transnational";TITLE&ABSTRACT));0;1)
7	abroad	85	15%	=WENN(ISTFEHLER(SUCHEN("abroad";TITLE&ABSTRACT));0;1)
8	mobility	60	11%	=WENN(ISTFEHLER(SUCHEN("mobility";TITLE&ABSTRACT));0;1)
9	language	88	16%	=WENN(ISTFEHLER(SUCHEN("language";TITLE&ABSTRACT));0;1)
10	offshore	5	1%	=WENN(ISTFEHLER(SUCHEN("offshore";TITLE&ABSTRACT));0;1)
11	branch	6	1%	=WENN(ISTFEHLER(SUCHEN("branch";TITLE&ABSTRACT));0;1)
12	foreign	21	4%	=WENN(ISTFEHLER(SUCHEN("foreign";TITLE&ABSTRACT));0;1)
13	distance	63	11%	=WENN(ISTFEHLER(SUCHEN("distance";TITLE&ABSTRACT));0;1)
14	online	293	53%	=WENN(ISTFEHLER(SUCHEN("online";TITLE&ABSTRACT));0;1)
15	virtual	112	20%	=WENN(ISTFEHLER(SUCHEN("virtual";TITLE&ABSTRACT));0;1)
16	digital	120	22%	=WENN(ISTFEHLER(SUCHEN("digital";TITLE&ABSTRACT));0;1)
17	flexib	42	8%	=WENN(ISTFEHLER(SUCHEN("flexib";TITLE&ABSTRACT));0;1)
18	technolog	227	41%	=WENN(ISTFEHLER(SUCHEN("technolog";TITLE&ABSTRACT));0;1)
19	open	108	20%	=WENN(ISTFEHLER(SUCHEN("open";TITLE&ABSTRACT));0;1)
20	3OER, open education resource, open educational resource	22	4%	=WENN(ISTFEHLER(SUCHEN("OER";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("open educational resource";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("open education resource";TITLE&ABSTRACT));0;1);1);1)
21	2MOOC, massive open online course	57	10%	=WENN(ISTFEHLER(SUCHEN("MOOC";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("massive open online course";TITLE&ABSTRACT));0;1);1)
22	blend	37	7%	=WENN(ISTFEHLER(SUCHEN("blend";TITLE&ABSTRACT));0;1)
23	hybrid	13	2%	=WENN(ISTFEHLER(SUCHEN("hybrid";TITLE&ABSTRACT));0;1)
24	reality	19	3%	=WENN(ISTFEHLER(SUCHEN("reality";TITLE&ABSTRACT));0;1)
25	game	17	3%	=WENN(ISTFEHLER(SUCHEN("game";TITLE&ABSTRACT));0;1)
26	gamif	15	3%	=WENN(ISTFEHLER(SUCHEN("gamif";TITLE&ABSTRACT));0;1)
27	media	142	26%	=WENN(ISTFEHLER(SUCHEN("media";TITLE&ABSTRACT));0;1)

(Continuing table A7)

	A	B	C	D
	SEARCH STRING	# OF OCCURRENCES	% OF OCCURRENCES	FORMULA TEXT
44	assess	72	13%	=WENN(ISTFEHLER(SUCHEN("assess";TITLE&ABSTRACT));0;1)
45	goal	66	12%	=WENN(ISTFEHLER(SUCHEN("goal";TITLE&ABSTRACT));0;1)
46	mission	38	7%	=WENN(ISTFEHLER(SUCHEN("mission";TITLE&ABSTRACT));0;1)
47	overs	22	4%	=WENN(ISTFEHLER(SUCHEN("overs";TITLE&ABSTRACT));0;1)
48	priorit	10	2%	=WENN(ISTFEHLER(SUCHEN("priorit";TITLE&ABSTRACT));0;1)
49	buy-in	2	0%	=WENN(ISTFEHLER(SUCHEN("buy-in";TITLE&ABSTRACT));0;1)
50	progress	23	4%	=WENN(ISTFEHLER(SUCHEN("progress";TITLE&ABSTRACT));0;1)
51	outcome	79	14%	=WENN(ISTFEHLER(SUCHEN("outcome";TITLE&ABSTRACT));0;1)
52	measure	33	6%	=WENN(ISTFEHLER(SUCHEN("measure";TITLE&ABSTRACT));0;1)
53	future	81	15%	=WENN(ISTFEHLER(SUCHEN("future";TITLE&ABSTRACT));0;1)
54	direction	6	1%	=WENN(ISTFEHLER(SUCHEN("direction";TITLE&ABSTRACT));0;1)
55	schem	4	1%	=WENN(ISTFEHLER(SUCHEN("schem";TITLE&ABSTRACT));0;1)
56	course of action	0	0%	=WENN(ISTFEHLER(SUCHEN("course of action";TITLE&ABSTRACT));0;1)
57	polic	31	6%	=WENN(ISTFEHLER(SUCHEN("polic";TITLE&ABSTRACT));0;1)
58	objective	37	7%	=WENN(ISTFEHLER(SUCHEN("objective";TITLE&ABSTRACT));0;1)
59	at least one of the strategic terms (A39-A58)	349	64%	=WENN(ODER(A39=1;A40=1;A41=1;A42=1;A43=1;A44=1;A45=1;A46=1;A47=1;A48=1;A49=1;A50=1;A51=1;A52=1;A53=1;A54=1;A55=1;A56=1;A57=1;A58=1);1;)
60	internationaliz	53	10%	=WENN(ISTFEHLER(SUCHEN("internationaliz";TITLE&ABSTRACT));0;1)
61	7faculty, instructional designer, teacher, professor, lecturer, instructor, academic staff	158	29%	=WENN(ISTFEHLER(SUCHEN("faculty";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("instructional designer";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("teacher";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("professor";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("lecturer";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("instructor";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("academic staff";TITLE&ABSTRACT));0;1);1;1;1;1;1;1;1)
62	3researcher, scholar, teaching staff	39	7%	=WENN(ISTFEHLER(SUCHEN("researcher";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("scholar";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("teaching staff";TITLE&ABSTRACT));0;1);1;1)
63	at least one of the faculty terms (A61-A62)	176	32%	=WENN(ODER(A61=1;A62=1);1;)

(Continuing table A7)

	A	B	C	D
	SEARCH STRING	# OF OCCURRENCES	% OF OCCURRENCES	FORMULA TEXT
75	5app_, app, app., application, apps	8	13%	[FILTER APPLIED TO VI CATEGORY 5, FUNCTION TYPE “recruiting international students” OR “promoting the institution”] =WENN(ISTFEHLER(SUCHEN("app";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("app, ";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("app.";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("application";TITLE&ABSTRACT));WENN(ISTFEHLER(SUCHEN("apps";TITLE&ABSTRACT));0;1);1);1);1)
76	refuge	2	0%	=WENN(ISTFEHLER(SUCHEN("refuge";TITLE&ABSTRACT));0;1)
78	migra	9	13%	[FILTER APPLIED TO VI CATEGORY 5, FUNCTION TYPE “enhancing general advising” OR “enhancing the experience of international students” OR “enhancing the experience of mobile domestic or international students” OR “intercultural, international, or global competencies”, TARGET GROUP 2 OR 3] =WENN(ISTFEHLER(SUCHEN("migra";TITLE&ABSTRACT));0;1)

Note. The formula texts have been simplified for this representation. TITLE&ABSTRACT substitutes for the reference to the actual text of the title and abstract, while the formula needed to be applied to each TITLE&ABSTRACT separately before the numbers in column B and the percentages in column C could be calculated (see Chapter 4.7.2). Also, prior filtering of the spreadsheet could not be visually represented here, and is therefore textually transliterated as “FILTER APPLIED TO . . .”

Table A8: Selected n-grams

COUNT	2-GRAM	COUNT	3-GRAM
203	social media	72	face to face
187	higher education	64	teaching and learning
140	international students	36	around the world
101	online learning	26	massive open online
91	study abroad	23	higher education institutions
75	online courses	23	open educational resources
71	distance learning	22	in the classroom
61	virtual mobility	21	open online courses
58	international education	16	transnational distance learning
52	international student	15	knowledge and skills
46	best practices	14	across the globe
41	learning environment	13	challenges and opportunities
39	distance education	12	international student recruitment
37	case study	12	study abroad programs
37	online education	12	teachers and students
36	united states	11	education and training
35	open online	11	formal and informal
33	learning outcomes	11	online faculty development
32	blended learning	11	students and faculty
31	case studies	10	open and distance

(Continuing table A8)

COUNT 4-GRAM

- 20 massive open online courses
- 16 through the use of
- 11 from around the world
- 10 face to face classroom
- 10 teaching and learning commons
- 9 virtual teaching and learning
- 8 collaborative online international learning
- 7 e service distance education
- 7 motivation and learning strategies
- 7 open educational resources oer
- 7 working with military learners
- 6 institutions of higher education
- 6 internationalization of higher education
- 6 online and blended learning
- 6 open and distance learning
- 5 face to face instruction
- 5 formal and informal communication
- 5 impact of cultural differences

COUNT 5-GRAM

- 14 massive open online courses moocs
- 9 virtual teaching and learning commons
- 8 open research and open education
- 6 online and face to face
- 5 collaborative online international learning coil
- 5 from all over the world
- 4 alternative to traditional study abroad
- 4 cultural diversity in online learning learning motivation and learning strategies
- 4 practices for working with military access to international learning opportunities
- 3 arenas with an open culture

COUNT 6-GRAM

- 4 best practices for working with military
- 4 students from all over the world
- 4 students who are unable to travel
- 4 the unique needs of international students

Table A9: Clusters of word “international”, 2–4 word length, search term left or right

#	COUNT	CLUSTER
1	140	international students
2	58	international education
3	51	international student
4	18	international students in
5	16	international learning
6	14	international online
7	13	international collaboration
8	12	international and
9	12	international student recruitment
10	9	international educational
11	9	international partners
12	8	international collaborative
13	8	international experience
14	8	international partnerships
15	8	international programs
16	8	international recruitment
17	7	international educators
18	7	international experiences
19	6	international admissions
20	6	international markets
21	6	international study
22	6	international virtual
23	5	international audience
24	5	international collaborations
25	5	international experts
26	5	international internships
27	5	international learning (coil
28	5	international mobility
29	5	international opportunities
30	5	international project
31	5	international students in online
32	5	international students to
33	4	international alumni
34	4	international business
35	4	international community
36	4	international degree

(Continuing table A9)

#	COUNT	CLUSTER
37	4	international market
38	4	international online learners
39	4	international perspective
40	4	international postgraduate
41	4	international program
42	4	international student mobility
43	4	international students. this
44	4	international studies
45	4	international university
46	3	international development
47	3	international e-learners
48	3	international education's
49	3	international engagement
50	3	international engineering

Table A10: Clusters of word “global”, 2–4 word length, search term left

#	COUNT	CLUSTER
1	27	global health
2	26	global campus
3	25	global citizenship
4	18	global learning
5	17	global education
6	14	global online
7	13	global classroom
8	9	global awareness
9	9	global citizens
10	9	global competency
11	9	global issues
12	9	global virtual
13	7	global educational
14	6	global citizen
15	6	global partners
16	6	global perspectives
17	5	global and
18	5	global community
19	5	global competencies
20	5	global competency skills
21	5	global economy
22	5	global experience
23	5	global health institute
24	5	global impact
25	5	global online courses
26	5	global partnerships
27	4	global citizenship and
28	4	global competence
29	4	global context
30	4	global higher
31	4	global higher education
32	4	global learners
33	4	global learning ecosystem
34	4	global market
35	4	global marketplace
36	4	global network
37	4	global student

(Continuing table A10)

#	COUNT	CLUSTER
38	4	global trends
39	3	global audiences
40	3	global business
41	3	global campus network
42	3	global campus students
43	3	global citizenship education
44	3	global connections
45	3	global education module
46	3	global engagement
47	3	global environment
48	3	global experiences
49	3	global initiatives
50	3	global landscape

Table A11: Clusters of string *cultur*, 2–4 word length, search term left or right

#	COUNT	CLUSTER 2-4, R + L
1	37	of cultural
2	34	and cultural
3	29	cultural differences
4	20	culture and
5	18	intercultural competence
6	16	cultural diversity
7	16	the cultural
8	15	cultural and
9	10	intercultural learning
10	9	cultural diversity in
11	9	culture of
12	8	cultures and
13	8	and intercultural
14	8	different cultures
15	8	other cultures
16	7	cultural awareness
17	7	cultural issues
18	7	culturally diverse
19	7	across cultures
20	7	learning culture
21	7	of intercultural
22	7	the culture
23	6	cultural backgrounds
24	6	cultural context
25	6	cultural heritage
26	6	intercultural communication
27	6	and cross-cultural
28	6	and culture
29	6	developing intercultural
30	6	different cultural
31	6	impact of cultural
32	6	openness to multiculturalism
33	6	to multiculturalism
34	6	understanding of cultural
35	5	cross-cultural learning
36	5	cultural differences on

(Continuing table A11)

#	COUNT	CLUSTER 2-4, R + L
37	5	cultural dimensions
38	5	cultural diversity in online
39	5	cultural heritage preservation
40	5	cultural immersion
41	5	cultural values
42	5	culturally based
43	5	culturally based learning
44	5	culturally based learning preferences
45	5	intercultural understanding
46	5	and multicultural
47	5	context cultures
48	5	from different cultures
49	5	military culture
50	5	of cultures

Table A12: Citations of aspects of articulated institutional commitment, by strategic field

Internationalization strategies (in general)

"design a **policy for global travel**" [1]

"re-evaluating university policies that hinder online expansion to international markets and advocating policy change"/"strategies for expanding programs to **overseas audiences**"/"common obstacles and strategies for moving existing programs into international markets"/"initiate and implement an **international strategy**" [28]

"resisting the **global campus**: strategic, political and cultural dimensions undermining efforts to build a virtual campus"/"initiation, implementation, and decision to discontinue the University of Illinois' Global Campus for Online Learning"/"the implementation of large scale organizational change" [32]

"**institutionalizing COIL**: a global approach to internationalizing the curriculum" [134]

"**comprehensive internationalization** is an increasingly important strategic goal" [144]

"practices and policies implemented in order to **advise through tutorial** and/or video" [150]

"assist with your own institution's **internationalization and study abroad targets**" [155]

"**COIL is part of their internationalization strategies**"/"utilizing COIL courses to **advance campus internationalization**"/"develop a plan for implementing COIL on the home campus" [157]

"analyze the uses of learning technologies for **comprehensive internationalization**" [165]

"the [**internationalization**] **strategies** and activities that we have seen in the past are likely to experience some transformation"/"**emerging economies**"/"**diverse approaches** to internationalization" [208]

"now the interest in internationalization focus more and more on the mobility of education to individuals in terms of **transnational education (TNE)**" [209]

"solutions for **strategic partnerships**, interactive technology and innovative approaches that support **comprehensive internationalization**" [215]

"developing **internationalization plans** which are informed by key trends to help an institution achieve strategic goals"/"aligning their strategic plans with the **emerging trends**" [216]

"the **paradigms of internationalization**" [232]

"**internationalization of international education**"/"**comprehensive internationalization**" [234]

"the evolution and importance of these three trends related to international student mobility and their **implications for institutional strategies**" [252]

"internationalization in higher education is increasingly a mix of physical and **virtual mobility** . . . and concepts such as virtual mobility and **internationalization at home** are already well-known and implemented in many universities" [264]

"**sustainable strategy** . . . sensible and appropriate approach to technology and involve continuing evaluation" [277]

"**business plan**" [280]

"a successful **modernization** of the universities . . . as well as the provision of high-quality, **state-of-the-art, internationalization**" [307]

"**virtual internationalization**: overcoming barriers to integration"/"support the internationalization process at their institutions" [349]

"expand your **internationalization toolkit**" [350]

"enhancing the internationalization of higher education involves a better understanding of the **impact of cultural differences** on global business practices" [398]

"10 simple ideas **to internationalize using the Internet**"/"beyond . . . strategic alliances" [408]

(Continuing table A12)

"global and virtual university networks"/"topic of strategic importance to all universities . . . internationalization of higher education" [452]

"**mobility 2.0**: the future of student mobility"/"virtual mobility"/"strategic direction of these programs and incorporating them into the greater international mobility mix"/"how such initiatives can contribute to institutional strategy" [453]

"strategies for **inclusion in student mobility**"/"implementing a range of strategies to target these students" [456]

"internationalization is an important goal for universities in the US and other countries"/"China is . . . the principal partner country for the US in internationalization"/"institutional policies outlining general and **English language** learning goals" [492]

"**new terminology** that is incompatible with current policies and procedures" [496]

"respond to **stakeholder demands**" [504]

"planning and development strategies used to pursue the **internationalization of online education**"/"inclusion of internationalization efforts in **campus long-term strategic planning**" [506]

"the University of Maryland University College has had a strong, idealistic commitment to bringing the **highest quality education** to the US military community" [509]

"**branch campuses** reinvented: . . . **virtualize** or close?"/"appropriate decisions about the direction of these physical campuses" [513]

"**policies** to minimize **cross-institutional conflict** in online international collaboration" [522]

"consider whether TDL [**transnational distance learning**] fits with your institutional mission" [524]

"internationalization is creating a set of **cross-national shared institutional practices**" [531]

"deliver its mission 'to **provide worldwide access to internationally-renowned programs and awards**'" [532]

International marketing and recruitment strategies

"**marketing** strategy/strategies" ([31, 151, 252, 347, 376, 441, 442, 456, 464])

"**recruitment** strategy/strategies" ([179, 332, 351, 397, 410, 419, 433])

"**social media** strategy/strategies" ([159, 347, 397, 409, 421, 442, 447, 464])

"a plan to increase the **public awareness** of your organization" [30]

"an effective **Instagram** content and posting strategy" [55]

"practical strategies that can be applied to international student **recruitment** and engagement, often at a very low financial cost" [135]

"creating an effective technology-based communication plan to boost **recruiting** tour conversions" [149]

"**align social media strategies** with marketing goals" [159]

"best-practice student **attraction and conversion** strategies in a diversified digital world" [163]

"building a robust **online recruitment strategy**"/"strategies for engaging prospective international students online" [179]

"plan for the **skills, tools and resources required** for implementation at your institution" [233]

"**content marketing** . . . strategy"/"content marketing plan" [248]

"strategy and **management**" [253]

"**outreach strategy** . . . utilizing a common web-based **webinar** platform" [270]

"**Instagram** as part of your office's or institution's larger social media communications strategy"/"best practices and strategies" [325]

(Continuing table A12)

-
- "strategies and examples of **multichannel marketing**" [331]
- "apply **viral and 'gamification'** techniques to their strategies for attracting, engaging and converting prospective students"/"the value and practical aspects of incorporating them into the recruitment strategy at your institution" [332]
- "**content marketing** strategy" [337]
- "**digital marketing** strategy"/"social media and digital marketing have radically changed the global landscape of student recruitment" [347]
- "face-to-face or cyberspace? Strategies to **recruit** international students" [351]
- "implement changes [in international student **recruitment**] with limited time or budget" [370]
- "institutions must explore fundamental strategies to stay ahead of trends in **social media**, implementing social media in their communication and marketing strategies" [376]
- "improving your social media strategy . . . for **recruitment**" [397]
- "TV and online media strategies for the Euro-Asia region"/"marketing and **recruitment** strategies" [410]
- "proven strategies for using social media in international student **recruitment**" [419]
- "**content strategy**"/ the digital landscape of key markets"/"regional **digital marketing** plans" [421]
- "digital body language . . . as part of a new international **recruitment** strategy"/"new tools in the international marketers' tool box . . . how can we use them effectively? Why should we implement them as part of a new international **recruitment** strategy?" [433]
- "**digital advertising** to students – planning for the future"/"explore what the future of digital advertising might look like and how to plan for it" [439]
- "**social media** . . . platforms, strategies and audiences" [447]
- "implementation and sustainability of marketing through **social media**" [464]
- "benchmark of the world top 500 universities' **recruitment** process"/"how are other institutes, countries implementing the above?" [491]
-

International collaboration strategies

- "strategies to develop complex **international online courses** with cross-institutional teams"/"develop and implement" [11]
- "effective implementation strategies working with **global partners** to develop online courses" [29]
- "strategy employed . . . for achieving **sustainable collaborations** using Mediasite" [30]
- "strategies to establish and sustain a successful **Korean dual immersion** program"/"effective strategies incorporating technology devices such as iPad and Chromebooks" [63]
- "implementing a **COIL** program requires new forms of institutional engagement and **partnerships**" [134]
- "the value of strategic international **research partnerships**" [211]
- "**strategic partnerships**, interactive technology and innovative approaches that support **comprehensive internationalization**" [215]
- "strategic partnership [for **virtual exchange**]" [253]
- "implementing '**transformative partnerships**' by using open education solutions" [269]
- "**strategic partners**: Euro-China international cooperation"/"in order to embrace the challenges of increased competition and new online learning methods, there is a trend towards closer and more strategic partnerships" [348]
-

(Continuing table A12)

“the impact of MOOCs on future global partnerships”/ “will alter the way higher education is delivered in the future”/ **game changer to bring to the future of global partnerships**” [375]

“**magic triangle**: partnerships between universities, employers and alumni . . . the role of **social media** in maintaining these relations . . . guidelines for careers services, international relations offices and general strategies for institutions” [395]

“**strategic alliances**” [408]

“developing **strategic international partnerships**”/“in the strategic areas of relationship and capacity building, resource sharing, and reciprocal learning” [490]

“strategies for developing online ESL composition courses . . . and **strengthen international partnerships**” [492]

“pursuing **international academic partnerships**”/“the planning and development strategies used to pursue the **internationalization of online education**” [506]

“**branch campuses** as a significant strategic asset . . . as a source for newly discovered value” [513]

Articulated faculty and staff policies

“the continued study and implementation of **online faculty development** training and experiences to improve effectiveness with online international students” [24]

“implementing and adhering to foundational principles and standards outlined by the **OLC Quality Scorecard** such as ongoing **faculty training**” [26]

“improving **online faculty preparedness** through international educational collaboration”/“implementation of new strategies for community colleges” [129]

“the practices and policies implemented in order to **advise through tutorial** and/or video” [150]

“policies to **enhance technological capabilities**, technology transfer and the development of skills, including on-the-job training, are essential” [256]

“the full **internationalization of university staff development**, both for teachers and administrators” [264]

“implementing **defined job performance**” [281]

Strategies for innovation and future readiness

“our world is characterized by steadily increasing **globalization**, **ubiquitous technology**, and an escalating rate of **change**. SEU has developed a **global learning ecosystem** that prepares students to be lifelong learners, provides our community with a flexible, well-supported, technologically rich learning environment, and builds **organizational capacity** to adapt gracefully to change. . . . implement this methodology in your organization” [3]

“strategies for **motivating staff**” [5]

“strategies to **harness this open education resource (OER)**” [15]

“achievement of **minority** undergraduate students in online and blended learning is of **paramount strategic interest**”/ “online learning has emerged as an alternative strategy for expanding **access**” [21]

“working with global partners, and planning for **innovation**”/for both an international audience and for the developing world” [29]

“a mission to provide **free educational materials**” [30]

“the mission of delivering high quality, accessible and affordable online college education but with a more **decentralized** approach”/“the mission [of the university] of delivering high quality, accessible and **affordable** online college education” [32]

(Continuing table A12)

"best practices and proactive strategies for accelerating degree/certificate licensing and accreditation requirements governing registration, marketing, and delivery of distant programs" [42] "technology, innovations and glocalized educational futures: panacea for sustained social change?" / "inclusion and exclusion of technology and innovation and its subsequent impact on glocalized educational processes" / "possible futures of technologically immersed educational processes" [50] refugees: "to what extent universities use generalized results in the implementation of their compulsory procedures" / "what support measures should be prioritized and developed further from the specifics of the group of refugees for digital services" [52] "education master plan, ICT vision 2021 in education emphasized the use of ICT for teacher development" / "evidence for the future implementation and design of distance learning programs that utilize interactive learning programs" [54] "strategies and best practices" [69] "global engagement through interactive videoconferencing and social media" / "quality enhancement plan" [116] "a living strategic plan based on a shared vision of the philosophy and outcomes of engaged learning" [117] "implementation of new strategies for community colleges in the U.S." / "improving online faculty preparedness through international educational collaboration" [129] "the future of digital student data portability" [152] "a planning structure to determine whether it is right or wrong for your brand to react to the latest trend" [164] "the future of global learning will be explored" [165] "JISC's mission is to empower education providers to embrace the possibilities of digital technology" [199] "given the rapidly developing landscape of MOOC provision we ask how this might inform the strategies of both public and private higher education providers" [212] "getting future ready: aligning institutional strategies with emerging trends" / "developing internationalization plans which are informed by key trends to help an institution achieve strategic goals" [216] "conflict sensitivity in ICT for education in crisis and conflict programming" / "education programs and policies (development, planning, and delivery) [223] "strategy, structure and information technology for the open educational approach" [254] "open the dialogue on the future of formal education and the scenarios than may (not) be intentionally designed to preserve and revive cultures" [260] "content repository strategy" [270] "their thinking has changed relevant to their future growth" [272] "the integration of virtual mobility in higher education innovation and modernization strategies" [283] "special adaptation of services has to be planned/implemented in the future to meet the challenges of an older population who is living longer and with every expectation of active participation" / "equality of access to hospitality/tourism services by sharing the learning across generations" [311] "verification across borders: looking to the digital future" / "verification policy" [318] "three megatrends shaping the future of international student mobility" / "mission impossible" [352]

(Continuing table A12)

"University of the new era: employability, internationalization and technology"/"Globalization and new technology have had significant impacts on higher education. Universities are **forced to review strategies**" [360]

"A MOOC revolution? Strategic considerations" [366]

"students have changed, can we change too?"/"management of their expectations, and program planning" [391] "building an effective OER strategy and developing sustainable pedagogical and business models"/"institutional strategy for **open educational resources**"/"open educational resources (OER) can contribute to widening **access**, increasing attractiveness, profiling, reinforcing internationalization and worldwide collaboration for HEIs" [415]

"a highly scalable and easily implemented platform that supports the **digital exchange of student achievement** records . . . across the European Higher Education Area" [423]

"the implementation of an **automated admissions system**"/"international **admissions of the future**" [424]

"inventing the future in international admissions" [434]

"implementing AGILE methodologies, predictive modelling and big data was an effective part of the Open2Study **business strategy** for OUA"/"the **future of learning** . . . business strategy" [436]

"gamification: strategies and visions for the **future**"/" consumer loyalty and engagement strategies" [440]

"is it possible to **adapt old strategies** to better suit the online space?" [449]

"strategies are put forward that might help universities to **ride out the storm**" [450]

"implementation of the **e-service distance education** systems and **independent learning**" [479]

"OER services for institutional success in the US and internationally"/"implementing at least one strategic initiative to achieve its critical goals for its success" [504]

"increasing the **quality** of the student learning experience has been the highest priority of the university's online learning initiative" [508]

"obstacles to implementing **online learning** programs in Latin America" [516]

"understanding the principles of **sustainable development** . . . the rapidly changing tools available . . . and making them a part of their mission" [523]

"advising strategies that increase online and **post-traditional** student persistence" [530]

"well-defined **OER** policy is needed to guide processes of OERization" [536]

"integrated procurement strategies"/"the strategic importance of ODL institutions in **capacity development**"/ "capacity development initiatives be implemented for the institution to curb procurement inefficiencies and realize a sustainable competitive advantage" [537]

"how do institutional leaders ensure they are around the right decision-making tables in order to **shape the future of higher education**? How can they map and navigate their own pathways to help **re-bundle traditional models of open and distance** for a better future?"/"**unbundling** of higher education"/"institutional leaders really need to take this movement seriously in their thinking about **modernization**, policy development and the **future design and delivery** of open, online and distance learning" [546]

Assessment of the success of strategic action

"assess **faculty understanding**" [24]

"assessing the extent to which **content is open**" [53]

"how to measure the **effectiveness of a director of engaged learning** at a college or university" [117]

"measuring the **outcomes [of digital international marketing]**"/"establishing goals for measurement"/"measure success by channel" [233]

(Continuing table A12)

"too early to assess the **impact of this decision**" . . . "the Open University is closing eight of its 10 English regional centers . . . because it is thought that learners can more effectively be supported from fewer locations and mainly online" [258]

"the way how **quality and success factors** are presented and measured are still under the same umbrella, as in the so-called traditional paradigm"/"quality dimensions and ways on how to measure and how to work with **quality enhancement**" [288]

"assess the **challenges** to making this format of internationalization at home **sustainable**" [322]

"approaches to measuring internationalization"/"mapping internationalization"/"develop an indicator based system to **measure and assess internationalization**" [404]

"sustained and meaningful engagement from prospective student to alumnus"/"techniques to **measure levels of engagement and success**" [409]

"how best to measure the **usage and efficacy** of this new wave of **social media** platforms" [438]

"execute a successful **social media strategy**: resources, goals, integration, execution and **assessment**" [442]

"**online versus offline campaigns**"/"how can we **measure the effectiveness** of each?" [449]

"technology and innovative thinking: assessing **effective pedagogical practices**" [484]

"assessing the teaching and learning **utility of the iPad**" [487]

"assessing the **role of each international partner**"/"carefully conducted **needs assessment**" [492]

"assessing **institutional effectiveness** of online programs in a global marketplace"/"participants will be encouraged to reflect on their current assessment practices and apply the proposed model to the context of their institution"/ "design and implement a **comprehensive assessment** strategy that will give their institutions a critical edge in a competitive global marketplace for online higher education" [496]

"**capacity building** assessment" [499]

"assess opportunities and issues involved in **cross-national education**, understand implications of transnational **distance learning**" [524]

Table A13: Number of abstracts, by VI category, function type, and practice type

VI CATEGORY, FUNCTION TYPE, PRACTICE TYPE	# OF ABSTRACTS
ADMINISTRATIVE LEADERSHIP, STRUCTURE, AND STAFFING	24
internationalizing the institution as a whole	12
ICT in an internationalization strategy	5
virtual mobility (COIL/virtual exchange)	3
ICT in standardizing (quality, accreditation, recognition, data portability)	1
social media and virtual communities	1
online media and e-learning	1
OER/open content	1
enhancing staff and faculty training/development	11
ICT in staff/faculty development	6
social media and virtual communities	3
online media and e-learning	2
access to higher education	1
OER/open content	1
CURRICULUM, CO-CURRICULUM, AND LEARNING OUTCOMES	203
intercultural, international, and global competencies	108
online media and e-learning	39
virtual mobility (COIL/virtual exchange)	28
virtual mobility (other)	13
ICT in interculturally diverse courses	7
games/gamification	6
OER/open content	4
m-learning	3
social media and virtual communities	3
e-mentoring/e-tutoring	2
virtual reality/augmented reality	2
MOOCs/open courses	1
pedagogical innovation	33
online media and e-learning	8
OER/open content	6
virtual mobility (COIL/virtual exchange)	6
MOOCs/open courses	5
virtual mobility (other)	4
social media and virtual communities	3
m-learning	1
broader skills, competencies, knowledge	21
online media and e-learning	9
virtual mobility (COIL/virtual exchange)	4
virtual mobility (other)	3
social media and virtual communities	3
MOOCs/open courses	1
m-learning	1

(Continuing table A13)

VI CATEGORY, FUNCTION TYPE, PRACTICE TYPE	# OF ABSTRACTS
access to higher education	15
MOOCs/open courses	6
OER/open content	5
virtual mobility (other)	1
social media and virtual communities	1
games/gamification	1
online media and e-learning	1
access to an international experience	14
virtual mobility (other)	7
virtual mobility (COIL/virtual exchange)	3
OER/open content	2
e-mentoring/e-tutoring	1
online media and e-learning	1
connecting international and domestic students (within the same HEI or	5
social media and virtual communities	4
ICT in interculturally diverse courses	1
developing multipliers	4
virtual mobility (other)	1
social media and virtual communities	1
OER/open content	1
online media and e-learning	1
capacity building	3
online media and e-learning	1
virtual reality/augmented reality	1
virtual mobility (other)	1
FACULTY POLICIES AND PRACTICES	21
enhancing staff and faculty training/development	14
ICT in staff/faculty development	7
virtual collaboration among staff/faculty	2
online media and e-learning	2
MOOCs/open courses	1
virtual TNE in general	1
virtual mobility (COIL/virtual exchange)	1
pedagogical innovation	4
virtual collaboration among staff/faculty	1
social media and virtual communities	1
ICT in staff/faculty development	1
online media and e-learning	1
developing interculturally sensitive staff/faculty	3
ICT in staff/faculty development	2
virtual collaboration among staff/faculty	1

(Continuing table A13)

VI CATEGORY, FUNCTION TYPE, PRACTICE TYPE	# OF ABSTRACTS
PHYSICAL STUDENT MOBILITY	183
enhancing the experience of international students	41
online media and e-learning	15
ICT in standardizing (quality, accreditation, recognition, data portability)	9
social media and virtual communities	8
m-learning	3
e-mentoring/e-tutoring	2
MOOCs/open courses	2
website and online presence	1
games/gamification	1
enhancing the experience abroad	34
online media and e-learning	15
virtual mobility (other)	6
social media and virtual communities	5
website and online presence	2
virtual mobility (COIL/virtual exchange)	2
games/gamification	1
virtual reality/augmented reality	1
ICT in standardizing (quality, accreditation, recognition, data portability)	1
MOOCs/open courses	1
recruiting international students	31
website and online presence	15
social media and virtual communities	12
virtual reality/augmented reality	1
ICT in an internationalization strategy	1
games/gamification	1
online media and e-learning	1
promoting the institution	30
social media and virtual communities	16
website and online presence	12
games/gamification	2
enhancing the experience of mobile domestic and international students	16
ICT in standardizing (quality, accreditation, recognition, data portability)	8
online media and e-learning	5
m-learning	2
social media and virtual communities	1
enhancing general advising	8
website and online presence	3
social media and virtual communities	3
games/gamification	1
online media and e-learning	1

(Continuing table A13)

VI CATEGORY, FUNCTION TYPE, PRACTICE TYPE	# OF ABSTRACTS
promoting international exchange programs	7
website and online presence	2
social media and virtual communities	2
games/gamification	1
MOOCs/open courses	1
virtual mobility (other)	1
access to an international experience	5
website and online presence	3
virtual mobility (COIL/virtual exchange)	1
virtual mobility (other)	1
broader skills, competencies, knowledge	5
games/gamification	2
social media and virtual communities	2
online media and e-learning	1
intercultural, international, and global competencies	4
online media and e-learning	3
social media and virtual communities	1
access to higher education	2
virtual TNE in general	1
online media and e-learning	1
COLLABORATION AND PARTNERSHIPS	60
access to higher education	14
MOOCs/open courses	3
OER/open content	3
m-learning	2
virtual mobility (other)	2
online media and e-learning	2
virtual TNE in general	1
ICT in interculturally diverse courses	1
exporting higher education	11
virtual TNE in general	7
ICT in interculturally diverse courses	2
MOOCs/open courses	1
ICT in standardizing (quality, accreditation, recognition, data portability)	1
pedagogical innovation	8
MOOCs/open courses	4
virtual mobility (COIL/virtual exchange)	1
virtual TNE in general	1
online media and e-learning	1
virtual collaboration among staff/faculty	1
developing multipliers	7
online media and e-learning	6
m-learning	1

(Continuing table A13)

VI CATEGORY, FUNCTION TYPE, PRACTICE TYPE	# OF ABSTRACTS
fostering partnerships	6
OER/open content	2
virtual mobility (other)	1
social media and virtual communities	1
MOOCs/open courses	1
e-mentoring/e-tutoring	1
access to an international experience	5
online media and e-learning	3
virtual TNE in general	2
capacity building	5
virtual TNE in general	2
MOOCs/open courses	2
m-learning	1
enhancing the experience of TNE students	4
ICT in interculturally diverse courses	2
e-mentoring/e-tutoring	2
ONLINE AND DISTANCE EDUCATION	58
enhancing the experience of international online students	21
ICT in interculturally diverse courses	13
MOOCs/open courses	3
online media and e-learning	3
website and online presence	1
virtual TNE in general	1
exporting higher education	9
virtual TNE in general	6
ICT in standardizing (quality, accreditation, recognition, data portability)	2
online media and e-learning	1
access to higher education	8
online media and e-learning	4
virtual TNE in general	3
MOOCs/open courses	1
capacity building	6
virtual TNE in general	3
online media and e-learning	2
OER/open content	1
pedagogical innovation	6
virtual mobility (other)	2
online media and e-learning	2
virtual TNE in general	1
MOOCs/open courses	1

(Continuing table A13)

VI CATEGORY, FUNCTION TYPE, PRACTICE TYPE	# OF ABSTRACTS
internationalizing online education	4
website and online presence	1
virtual TNE in general	1
games/gamification	1
ICT in interculturally diverse courses	1
quality enhancement	3
ICT in standardizing (quality, accreditation, recognition, data portability)	2
social media and virtual communities	1
access to an international experience	1
virtual mobility (other)	1
Total	549

Table A14: Number of abstracts, by VI category, practice type, and function type

VI CATEGORY, PRACTICE TYPE, FUNCTION TYPE	# OF ABSTRACTS
ADMINISTRATIVE LEAERSHIP, STRUCTURE, AND STAFFING	24
ICT in staff/faculty development	6
enhancing staff and faculty training/development	6
ICT in an internationalization strategy	5
internationalizing the institution as a whole	5
social media and virtual communities	4
enhancing staff and faculty training/development	3
internationalizing the institution as a whole	1
virtual mobility (COIL/virtual exchange)	3
internationalizing the institution as a whole	3
online media and e-learning	3
enhancing staff and faculty training/development	2
internationalizing the institution as a whole	1
OER/open content	2
access to higher education	1
internationalizing the institution as a whole	1
ICT in standardizing (quality, accreditation, recognition, data)	1
internationalizing the institution as a whole	1
CURRICULUM, CO-CURRICULUM, AND LEARNING OUTCOMES	203
online media and e-learning	60
intercultural, international, and global competencies	39
broader skills, competencies, knowledge	9
pedagogical innovation	8
access to higher education	1
access to an international experience	1
developing multipliers	1
capacity building	1
virtual mobility (COIL/virtual exchange)	41
intercultural, international, and global competencies	28
pedagogical innovation	6
broader skills, competencies, knowledge	4
access to an international experience	3
virtual mobility (other)	30
intercultural, international, and global competencies	13
access to an international experience	7
pedagogical innovation	4
broader skills, competencies, knowledge	3
access to higher education	1
developing multipliers	1
capacity building	1

(Continuing table A14)

VI CATEGORY, PRACTICE TYPE, FUNCTION TYPE	# OF ABSTRACTS
OER/open content	18
pedagogical innovation	6
access to higher education	5
intercultural, international, and global competencies	4
access to an international experience	2
developing multipliers	1
social media and virtual communities	15
connecting international and domestic students (within the same	4
broader skills, competencies, knowledge	3
intercultural, international, and global competencies	3
pedagogical innovation	3
access to higher education	1
developing multipliers	1
MOOCs/open courses	13
access to higher education	6
pedagogical innovation	5
broader skills, competencies, knowledge	1
intercultural, international, and global competencies	1
ICT in intercultural diverse courses	8
intercultural, international, and global competencies	7
connecting international and domestic students (within the same	1
games/gamification	7
intercultural, international, and global competencies	6
access to higher education	1
m-learning	5
intercultural, international, and global competencies	3
broader skills, competencies, knowledge	1
pedagogical innovation	1
virtual reality/augmented reality	3
intercultural, international, and global competencies	2
capacity building	1
e-mentoring/e-tutoring	3
intercultural, international, and global competencies	2
access to an international experience	1
FACULTY POLICIES AND PRACTICES	21
ICT in staff/faculty development	10
enhancing staff and faculty training/development	7
developing intercultural sensitive staff/faculty	2
pedagogical innovation	1

(Continuing table A14)

VI CATEGORY, PRACTICE TYPE, FUNCTION TYPE	# OF ABSTRACTS
virtual collaboration among staff/faculty	4
enhancing staff and faculty training/development	2
developing interculturally sensitive staff/faculty	1
pedagogical innovation	1
online media and e-learning	3
enhancing staff and faculty training/development	2
pedagogical innovation	1
MOOCs/open courses	1
enhancing staff and faculty training/development	1
virtual mobility (COIL/virtual exchange)	1
enhancing staff and faculty training/development	1
virtual TNE in general	1
enhancing staff and faculty training/development	1
social media and virtual communities	1
pedagogical innovation	1
PHYSICAL STUDENT MOBILITY	183
social media and virtual communities	50
promoting the institution	16
recruiting international students	12
enhancing the experience of international students	8
enhancing the experience abroad	5
enhancing general advising	3
promoting international exchange programs	2
broader skills, competencies, knowledge	2
intercultural, international, and global competencies	1
enhancing the experience of mobile domestic and international	1
online media and e-learning	42
enhancing the experience abroad	15
enhancing the experience of international students	15
enhancing the experience of mobile domestic and international	5
intercultural, international, and global competencies	3
access to higher education	1
broader skills, competencies, knowledge	1
recruiting international students	1
enhancing general advising	1
website and online presence	38
recruiting international students	15
promoting the institution	12
enhancing general advising	3
access to an international experience	3
enhancing the experience abroad	2

(Continuing table A14)

VI CATEGORY, PRACTICE TYPE, FUNCTION TYPE	# OF ABSTRACTS
promoting international exchange programs	2
enhancing the experience of international students	1
ICT in standardizing (quality, accreditation, recognition, data)	18
enhancing the experience of international students	9
enhancing the experience of mobile domestic and international	8
enhancing the experience abroad	1
games/gamification	9
promoting the institution	2
broader skills, competencies, knowledge	2
enhancing general advising	1
enhancing the experience abroad	1
recruiting international students	1
promoting international exchange programs	1
enhancing the experience of international students	1
virtual mobility (other)	8
enhancing the experience abroad	6
access to an international experience	1
promoting international exchange programs	1
m-learning	5
enhancing the experience of international students	3
enhancing the experience of mobile domestic and international	2
MOOCs/open courses	4
enhancing the experience of international students	2
enhancing the experience abroad	1
promoting international exchange programs	1
virtual mobility (COIL/virtual exchange)	3
enhancing the experience abroad	2
access to an international experience	1
e-mentoring/e-tutoring	2
enhancing the experience of international students	2
virtual reality/augmented reality	2
enhancing the experience abroad	1
recruiting international students	1
ICT in an internationalization strategy	1
recruiting international students	1
virtual TNE in general	1
access to higher education	1
COLLABORATION AND PARTNERSHIPS	60
virtual TNE in general	13
exporting higher education	7
access to an international experience	2

(Continuing table A14)

VI CATEGORY, PRACTICE TYPE, FUNCTION TYPE	# OF ABSTRACTS
capacity building	2
pedagogical innovation	1
access to higher education	1
online media and e-learning	12
developing multipliers	6
access to an international experience	3
access to higher education	2
pedagogical innovation	1
MOOCs/open courses	11
pedagogical innovation	4
access to higher education	3
capacity building	2
fostering partnerships	1
exporting higher education	1
ICT in intercultural diverse courses	5
exporting higher education	2
enhancing the experience of TNE students	2
access to higher education	1
OER/open content	5
access to higher education	3
fostering partnerships	2
m-learning	4
access to higher education	2
developing multipliers	1
capacity building	1
e-mentoring/e-tutoring	3
enhancing the experience of TNE students	2
fostering partnerships	1
virtual mobility (other)	3
access to higher education	2
fostering partnerships	1
virtual mobility (COIL/virtual exchange)	1
pedagogical innovation	1
ICT in standardizing (quality, accreditation, recognition, data)	1
exporting higher education	1
social media and virtual communities	1
fostering partnerships	1
virtual collaboration among staff/faculty	1
pedagogical innovation	1

(Continuing table A14)

VI CATEGORY, PRACTICE TYPE, FUNCTION TYPE	# OF ABSTRACTS
ONLINE AND DISTANCE EDUCATION	58
virtual TNE in general	15
exporting higher education	6
access to higher education	3
capacity building	3
internationalizing online education	1
pedagogical innovation	1
enhancing the experience of international online students	1
ICT in interculturally diverse courses	14
enhancing the experience of international online students	13
internationalizing online education	1
online media and e-learning	12
access to higher education	4
enhancing the experience of international online students	3
pedagogical innovation	2
capacity building	2
regionalization	1
MOOCs/open courses	5
enhancing the experience of international online students	3
access to higher education	1
pedagogical innovation	1
ICT in standardizing (quality, accreditation, recognition, data	4
exporting higher education	2
quality enhancement	2
virtual mobility (other)	3
pedagogical innovation	2
access to an international experience	1
website and online presence	2
enhancing the experience of international online students	1
regionalization	1
games/gamification	1
internationalizing online education	1
social media and virtual communities	1
quality enhancement	1
OER/open content	1
capacity building	1
Total	549

Table A15: Number of abstracts, by VI category, target group, and function type

FUNCTION TYPE, BY TARGET GROUP AND VI CATEGORY	# OF ABSTRACTS
ARTICULATED INSTITUTIONAL COMMITMENT	24
domestic	8
internationalizing the institution as a whole	6
access to higher education	1
enhancing staff and faculty training/development	1
international	3
enhancing staff and faculty training/development	3
international & domestic	13
enhancing staff and faculty training/development	7
internationalizing the institution as a whole	6
CURRICULUM, CO-CURRICULUM, AND LEARNING OUTCOMES	203
domestic	148
intercultural, international, and global competencies	90
pedagogical innovation	22
broader skills, competencies, knowledge	16
access to an international experience	11
access to higher education	4
developing multipliers	2
capacity building	2
connecting international and domestic students (within the same HEI or program)	1
international	11
access to higher education	4
pedagogical innovation	4
access to an international experience	1
developing multipliers	1
connecting international and domestic students (within the same HEI or program)	1
international & domestic	44
intercultural, international, and global competencies	18
access to higher education	7
pedagogical innovation	7
broader skills, competencies, knowledge	5
connecting international and domestic students (within the same HEI or program)	3
access to an international experience	2
developing multipliers	1
capacity building	1
FACULTY POLICIES AND PRACTICES	21
domestic	9
enhancing staff and faculty training/development	6
pedagogical innovation	2
developing interculturally sensitive staff/faculty	1

(Continuing table A15)

FUNCTION TYPE, BY TARGET GROUP AND VI CATEGORY	# OF ABSTRACTS
international	3
enhancing staff and faculty training/development	2
developing interculturally sensitive staff/faculty	1
international & domestic	9
enhancing staff and faculty training/development	6
pedagogical innovation	2
developing interculturally sensitive staff/faculty	1
PHYSICAL STUDENT MOBILITY	183
domestic	52
enhancing the experience abroad	34
promoting international exchange programs	7
access to an international experience	5
access to higher education	2
broader skills, competencies, knowledge	2
enhancing general advising	2
international	80
enhancing the experience of international students	41
recruiting international students	31
intercultural, international, and global competencies	4
enhancing general advising	3
broader skills, competencies, knowledge	1
international & domestic	51
promoting the institution	30
enhancing the experience of mobile domestic and international students	16
enhancing general advising	3
broader skills, competencies, knowledge	2
COLLABORATIONS AND PARTNERSHIPS	60
domestic	4
access to an international experience	1
access to higher education	1
pedagogical innovation	1
fostering partnerships	1
international	38
access to higher education	11
exporting higher education	8
developing multipliers	7
capacity building	5
access to an international experience	3
pedagogical innovation	2
enhancing the experience of TNE students	2

(Continuing table A15)

FUNCTION TYPE, BY TARGET GROUP AND VI CATEGORY	# OF ABSTRACTS
international & domestic	18
fostering partnerships	5
pedagogical innovation	5
exporting higher education	3
enhancing the experience of TNE students	2
access to higher education	2
access to an international experience	1
ONLINE AND DISTANCE EDUCATION	58
domestic	6
capacity building	2
regionalization	1
access to an international experience	1
quality enhancement	1
pedagogical innovation	1
international	37
enhancing the experience of international online students	20
exporting higher education	7
access to higher education	5
capacity building	3
quality enhancement	1
pedagogical innovation	1
international & domestic	15
pedagogical innovation	4
access to higher education	3
internationalizing online education	3
capacity building	1
regionalization	1
quality enhancement	1
exporting higher education	1
enhancing the experience of international online students	1
Total	549

Table A16: Number of abstracts, by VI category, VI dimension, function type, and practice type

PRACTICE TYPE, BY FUNCTION TYPE, VI DIMENSION, AND VI CATEGORY	# OF ABSTRACTS
ADMINISTRATIVE LEADERSHIP, STRUCTURE, AND STAFFING	24
A: ICT and internationalization	15
internationalizing the institution as a whole	12
ICT in an internationalization strategy	5
ICT in standardizing (quality, accreditation, recognition, data portability)	1
OER/open content	1
online media and e-learning	1
social media and virtual communities	1
virtual mobility (COIL/virtual exchange)	3
enhancing staff and faculty training/development	3
ICT in staff/faculty development	2
social media and virtual communities	1
B: ICT and internationalization for broader aims	9
enhancing staff and faculty training/development	8
ICT in staff/faculty development	4
online media and e-learning	2
social media and virtual communities	2
access to higher education	1
OER/open content	1
CURRICULUM, CO-CURRICULUM, AND LEARNING OUTCOMES	203
A: ICT and internationalization	130
intercultural, international, and global competencies	108
e-mentoring/e-tutoring	2
games/gamification	6
ICT in interculturally diverse courses	7
m-learning	3
MOOCs/open courses	1
OER/open content	4
online media and e-learning	39
social media and virtual communities	3
virtual mobility (COIL/virtual exchange)	28
virtual mobility (other)	13
virtual reality/augmented reality	2
developing multipliers	3
online media and e-learning	1
social media and virtual communities	1
virtual mobility (other)	1
connecting international and domestic students (within the same HEI or program)	5
ICT in interculturally diverse courses	1
social media and virtual communities	4

(Continuing table A16)

PRACTICE TYPE, BY FUNCTION TYPE, VI DIMENSION, AND VI CATEGORY	# OF ABSTRACTS
access to an international experience	14
e-mentoring/e-tutoring	1
OER/open content	2
online media and e-learning	1
virtual mobility (COIL/virtual exchange)	3
virtual mobility (other)	7
B: ICT and internationalization for broader aims	73
pedagogical innovation	33
m-learning	1
MOOCs/open courses	5
OER/open content	6
online media and e-learning	8
social media and virtual communities	3
virtual mobility (COIL/virtual exchange)	6
virtual mobility (other)	4
developing multipliers	1
OER/open content	1
capacity building	3
online media and e-learning	1
virtual mobility (other)	1
virtual reality/augmented reality	1
broader skills, competencies, knowledge	21
m-learning	1
MOOCs/open courses	1
online media and e-learning	9
social media and virtual communities	3
virtual mobility (COIL/virtual exchange)	4
virtual mobility (other)	3
access to higher education	15
games/gamification	1
MOOCs/open courses	6
OER/open content	5
online media and e-learning	1
social media and virtual communities	1
virtual mobility (other)	1
FACULTY POLICIES AND PRACTICES	21
A: ICT and internationalization	16
enhancing staff and faculty training/development	13
ICT in staff/faculty development	6
MOOCs/open courses	1
online media and e-learning	2

(Continuing table A16)

PRACTICE TYPE, BY FUNCTION TYPE, VI DIMENSION, AND VI CATEGORY	# OF ABSTRACTS
virtual collaboration among staff/faculty	2
virtual mobility (COIL/virtual exchange)	1
virtual TNE in general	1
developing interculturally sensitive staff/faculty	3
ICT in staff/faculty development	2
virtual collaboration among staff/faculty	1
B: ICT and internationalization for broader aims	5
pedagogical innovation	4
ICT in staff/faculty development	1
online media and e-learning	1
social media and virtual communities	1
virtual collaboration among staff/faculty	1
enhancing staff and faculty training/development	1
ICT in staff/faculty development	1
PHYSICAL STUDENT MOBILITY	183
A: ICT and internationalization	176
recruiting international students	31
games/gamification	1
ICT in an internationalization strategy	1
online media and e-learning	1
social media and virtual communities	12
virtual reality/augmented reality	1
website and online presence	15
promoting the institution	30
games/gamification	2
social media and virtual communities	16
website and online presence	12
promoting international exchange programs	7
games/gamification	1
MOOCs/open courses	1
social media and virtual communities	2
virtual mobility (other)	1
website and online presence	2
intercultural, international, and global competencies	4
online media and e-learning	3
social media and virtual communities	1
enhancing the experience of mobile domestic and international students	16
ICT in standardizing (quality, accreditation, recognition, data portability)	8
m-learning	2
online media and e-learning	5
social media and virtual communities	1

(Continuing table A16)

PRACTICE TYPE, BY FUNCTION TYPE, VI DIMENSION, AND VI CATEGORY	# OF ABSTRACTS
enhancing the experience of international students	41
e-mentoring/e-tutoring	2
games/gamification	1
ICT in standardizing (quality, accreditation, recognition, data portability)	9
m-learning	3
MOOCs/open courses	2
online media and e-learning	15
social media and virtual communities	8
website and online presence	1
enhancing the experience abroad	34
games/gamification	1
ICT in standardizing (quality, accreditation, recognition, data portability)	1
MOOCs/open courses	1
online media and e-learning	15
social media and virtual communities	5
virtual mobility (COIL/virtual exchange)	2
virtual mobility (other)	6
virtual reality/augmented reality	1
website and online presence	2
enhancing general advising	8
games/gamification	1
online media and e-learning	1
social media and virtual communities	3
website and online presence	3
access to an international experience	5
virtual mobility (COIL/virtual exchange)	1
virtual mobility (other)	1
website and online presence	3
B: ICT and internationalization for broader aims	7
broader skills, competencies, knowledge	5
games/gamification	2
online media and e-learning	1
social media and virtual communities	2
access to higher education	2
online media and e-learning	1
virtual TNE in general	1
COLLABORATION AND PARTNERSHIPS	60
A: ICT and internationalization	26
fostering partnerships	6
e-mentoring/e-tutoring	1
MOOCs/open courses	1
OER/open content	2

(Continuing table A16)

PRACTICE TYPE, BY FUNCTION TYPE, VI DIMENSION, AND VI CATEGORY	# OF ABSTRACTS
social media and virtual communities	1
virtual mobility (other)	1
exporting higher education	11
ICT in interculturally diverse courses	2
ICT in standardizing (quality, accreditation, recognition, data portability)	1
MOOCs/open courses	1
virtual TNE in general	7
enhancing the experience of TNE students	4
e-mentoring/e-tutoring	2
ICT in interculturally diverse courses	2
access to an international experience	5
online media and e-learning	3
virtual TNE in general	2
A: ICT and internationalization	34
pedagogical innovation	8
MOOCs/open courses	4
online media and e-learning	1
virtual collaboration among staff/faculty	1
virtual mobility (COIL/virtual exchange)	1
virtual TNE in general	1
developing multipliers	7
m-learning	1
online media and e-learning	6
capacity building	5
m-learning	1
MOOCs/open courses	2
virtual TNE in general	2
access to higher education	14
ICT in interculturally diverse courses	1
m-learning	2
MOOCs/open courses	3
OER/open content	3
online media and e-learning	2
virtual mobility (other)	2
virtual TNE in general	1
ONLINE AND DISTANCE EDUCATION	58
A: ICT and internationalization	35
internationalizing online education	4
games/gamification	1
ICT in interculturally diverse courses	1
virtual TNE in general	1
website and online presence	1

(Continuing table A16)

PRACTICE TYPE, BY FUNCTION TYPE, VI DIMENSION, AND VI CATEGORY	# OF ABSTRACTS
exporting higher education	9
ICT in standardizing (quality, accreditation, recognition, data portability)	2
online media and e-learning	1
virtual TNE in general	6
enhancing the experience of international online students	21
ICT in interculturally diverse courses	13
MOOCs/open courses	3
online media and e-learning	3
virtual TNE in general	1
website and online presence	1
access to an international experience	1
virtual mobility (other)	1
B: ICT and internationalization for broader aims	23
quality enhancement	3
ICT in standardizing (quality, accreditation, recognition, data portability)	2
social media and virtual communities	1
pedagogical innovation	6
MOOCs/open courses	1
online media and e-learning	2
virtual mobility (other)	2
virtual TNE in general	1
capacity building	6
OER/open content	1
online media and e-learning	2
virtual TNE in general	3
access to higher education	8
MOOCs/open courses	1
online media and e-learning	4
virtual TNE in general	3
Total	549

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Digitalization and internationalization are central trends in higher education today. Accordingly, digital media and information and communications technology (ICT) are widely used in international contexts across institutions – spanning from curricular “virtual mobility” to the facilitation of international cooperation and transnational education (TNE). However, a comprehensive picture of the varied forms in which the virtual and the international intersect in higher education has not been drawn to date.

In this work, the term “Virtual Internationalization” is introduced and conceptualized for the entire spectrum of ICT use in international contexts at higher education institutions. The study draws on – and expands upon – the concept of Comprehensive Internationalization and concludes with a conceptual model of Virtual Internationalization.

This book offers scholars an analytic foundation from which they can further investigate the connections between digitalization, ICT, and internationalization in higher education. It also helps practitioners in administration and teaching harness the possibilities enabled by ICT for internationalizing their own contexts.



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