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A white elephant or a silver bullet?

What (not) to do with online higher education

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1. Introduction: Transcending emergency remote teaching

The 21st century thus begins with a paradigm shift in attitudes towards online education. So far the signs are subtle, but the changes will ultimately be profound. Our new understanding of the very nature of learning has affected the definition, design, and delivery of education. It will alter global civilization as educators and learners worldwide adopt and adapt networked collaborative learning. (Harasim, 2000, p. 42)

1.1. Research background

An interesting opportunity arose when higher education (HE) institutions transitioned to online education during the COVID-19 pandemic. Before the pandemic, educational experts around the globe had already identified potential benefits of online forms of education but also warned that a dearth of empirical evidence prevented many HE institutions from integrating online education in an effective way (Palvia et al., 2018; Pei & Wu, 2019; Van Baalen et al., 2015). In a strange turn of events, the online transition during the pandemic provided a unique opportunity to acquire more knowledge about online teaching and learning strategies, and how they can meaningfully complement existing (on-site) practices. This dissertation sets out to learn from teachers' and students' experiences with online education during the pandemic and how their experiences can help to develop more sustainable online teaching and learning strategies. In other words, to provide a perspective on how to transcend *emergency remote teaching* (ERT; Hodges et al., 2020). In this introductory chapter, I will offer some theoretical background, describe the studies that were conducted for this dissertation, and provide a brief discussion on the definition of online education.

1.2. Online education beyond emergency remote teaching

While a shift to online education had long been anticipated, no one had expected that a global health crisis in early 2020 would precipitate a sudden world-wide transition to online education. The COVID-19 pandemic pushed the educational world into a global natural experiment in which HE institutions had to resort to ERT. ERT is a temporary, rapid shift to alternate modes of education in response to crises such as natural disasters (Ayebi-Arthur, 2017; Dabner, 2012) or violent conflicts (Rajab, 2018). ERT was necessary to continue teaching, but is almost by definition inferior to regular teaching in non-disruptive times. Most teachers and students had little to no experience with online teaching and learning prior to the pandemic, yet had to transition overnight. While ERT may be suboptimal at best, online education as such does have the potential to meaningfully complement on-site education practices. Proponents of online education have argued that online education can foster high quality learning through active learner engagement and interactive collaboration (Hamdan & Amorri, 2022; Harasim, 2000).

It has been found that online education can lead to positive student outcomes. Stevens et al. (2021) reviewed 91 studies in which students' performance and satisfaction were compared in online and face-to-face education. They found that 41% favored online learning, 18% favored face-to-face learning, and 41% found no statistical difference. One of the main reasons why online education could lead to better student outcomes is that it allows students to better align their learning progress with their own needs by offering more opportunities to determine the learning pace, time, and location themselves, or at least to a larger extent than conventional (on-site) education does (Mikić et al., 2022; O'Donnell et al., 2015). However, such freedom can also result in negative outcomes. For example, open online courses tend to have high dropout rates as students feel less committed to complete the courses (Greenland & Moore, 2022).

Further, technological innovations offer new opportunities to widen access to high-quality education around the globe. Thanks to the internet, many students gained access to educational channels that had previously been unavailable to them (Bastedo & Vargas, 2015; Lee, 2017). Online education thus presents major opportunities to substantially scale up HE (Moloney & Oakley, 2010), and also bears promise to do so in a financially efficient manner (Brescia, 2017; Deming et al., 2015). Using adaptive

software, students' learning processes can be made more efficient, as well as more effective by creating personalized (online) learning trajectories (Meeter, 2021; O'Donnell et al., 2015).

Lastly, online education becomes important as current jobs increasingly take place in online environments as well. For example, general practitioners offer online consultations (Zanaboni & Fagerlund, 2020), legal practitioners offer online dispute resolutions (Ebner & Zeleznikow, 2016), politicians convey their messages through online communication (Duncombe, 2019), and teachers supervise theses remotely (Zaheer & Munir, 2020). It seems evident that online education helps students to prepare for a (professional) future that will partially take place online (Sundquist, 2020). The increase in online professional tasks arguably has shifted the central question of *whether* to implement online education to *how* institutions should do so.

1.3. Main research question

Even though the online transition occurred ad hoc, ERT has resulted in steep learning curves and numerous first-hand experiences with online teaching and learning (Adedoyin & Soykan, 2020; Mushtaha et al., 2022). The deployed online teaching and learning strategies may have been suboptimal, but teachers' and students' experiences can still aid to optimize those strategies—and knowing what does not work is often just as valuable as knowing what does. Teachers' perspectives in particular need more examination (Jones, 2022; Mittal et al., 2022). Therefore the following research question guided this dissertation: *How did teachers and students experience emergency remote teaching during the COVID-19 pandemic and which online teaching strategies did they identify as advantageous or inauspicious?*

The diverse range of experiences with online teaching during the COVID-19 pandemic have already been described extensively (e.g., Saha et al., 2022), but many studies lack a robust theoretical foundation (Theelen & van Breukelen, 2022) and few studies systematically evaluated *why* teachers experienced online teaching in a certain way (Striepe & Cunningham, 2022; Struyf et al., 2023). Most pre-COVID studies have targeted specific audiences such as life-long learners following Massive Open Online Courses (MOOCs; Buhl & Andreasen, 2018) or students who are unable to follow regular education (Gunawardena & Mclsaac, 2004). Such studies were not concerned with how the increase in online education will impact the general student population. Online education has (or will soon) become an integral part of *all* HE curricula and it is thus important to gain more insight into online teaching and learning strategies. Importantly, online education in the Netherlands is still very much in its infancy. To make evidence-informed policy decisions about how to integrate online education post-pandemic, more insights concerning the specific Dutch context are needed since the vast majority of studies on online education have been conducted in an Anglo-Saxon or South-East Asian context (Chen et al., 2020; Djeki et al., 2022). Previous research has demonstrated how cultural differences impact learning preferences, where, for example, Dutch students tend to be less competitive than American students (Ryckman et al., 1992) and Western students generally have different preferences than Chinese students (Heffernan et al., 2010). Similarly, the willingness to adopt online teaching has been related to cultural background (Howard et al., 2021; Zhu et al., 2010).

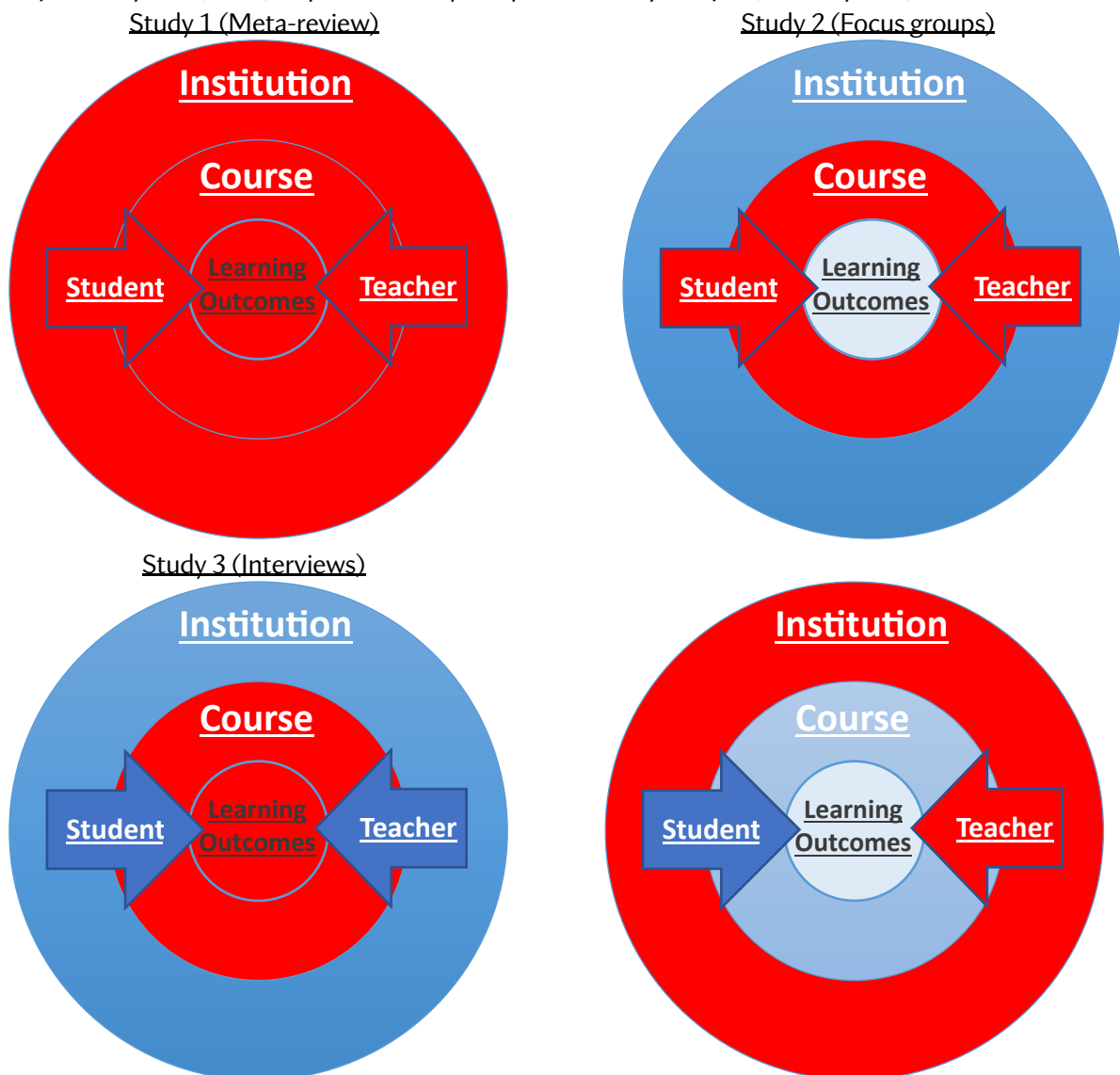
1.4. Overview of the studies

Four studies were conducted for this dissertation: a systematic review, a focus group study, an interview study, and a survey study. The systematic (meta-)review provided the overall framework for

the dissertation, by analyzing which factors according to the literature contribute to effective online higher education. In this review, we examined factors at the course-, student-, teacher-, and institutional level, and how those contribute to achieving affective, behavioral, and cognitive outcomes in online education (cf. Bloom et al., 1956). The focus group study then zoomed in on how teachers (re)designed online courses during the online transition, and how the deployed online teaching strategies were experienced by teachers and students. The interview study had a stronger focus on the learning outcomes and whether those can be achieved through online learning activities. More specifically, this study focused on experiential learning, a form of learning that many considered to be unsuited for online education. We examined how teachers experienced the online transition in light of the experiential learning goals. The survey study aimed to get a better understanding of how teachers experienced the online transition by focusing on teacher resilience, where teacher resilience follows from interactions between personal attributes and contextual influences. The three empirical studies each also focused on specific dimensions of the meta-review's framework. See Figure 1.1 for a visual representation and Table 1.1 for a schematic overview.

FIGURE 1.1

Study's main focus (in red) as per the conceptual framework of Study 1 (see Chapter 2)



All studies were conducted at the University of Amsterdam (UvA), with the exception of Study 3, which was also partially conducted at the Amsterdam University of Applied Sciences and the Training and Study Centre for the Judiciary (SSR). These are all Dutch institutions that provide education at a university level and all resorted to online teaching and learning following the COVID-19 regulations. Data for these studies were collected about a year into the online transition. At this stage, teachers and students had developed a basic understanding of what online education encompasses regarding, for example, technology use, remote student monitoring, and online assessment. The vast majority of participants had little to no experience with online education prior to the pandemic; in a survey that we distributed, teachers on average rated their experience with online teaching prior to the pandemic with a 2.97 on a 10-point scale.

TABLE 1.1
Schematic overview of four studies conducted for the dissertation

Research question	Study	Main topic	Sample	Method
What course-related, student-related, teacher-related and institution-related factors contribute to affective, behavioral, and cognitive outcomes in online higher education?	Study 1	Factors that contribute to effective online higher education	47 reviews and meta-analyses on effective online education	Systematic review
How was online learning facilitated during the online transition, and how did teachers (and students) experience the transition?	Study 2	Online teaching strategies to facilitate social and cognitive processes	52 teachers and 44 students from the University of Amsterdam	Focus groups
How did teachers facilitate online experiential legal education during the COVID-19 pandemic, and how do they reflect on this?	Study 3	Online experiential legal education	17 legal teachers from the UvA ¹ , AUAS ¹ , and SSR ¹	Interviews
How does teacher resilience relate to differences in their sentiment towards online teaching?	Study 4	Emergency remote teaching as an act of teacher resilience	1,044 teachers from the University of Amsterdam	Survey

¹ UvA = University of Amsterdam, AUAS = Amsterdam University of Applied Sciences, SSR = Stichting Studiecentrum Rechtspleging (Training and Study Centre for the Judiciary)

Chapter 2 describes a systematic review (study 1) that aimed to identify what was already known about (effective) online education prior to the pandemic. Review studies and meta-analyses were analyzed (i.e., a meta-review) to identify factors that contribute to effective online higher education. Most online education research (e.g., Post et al., 2019; Wei et al., 2021) defines effectiveness in line with Bloom's taxonomy (Bloom et al., 1956), meaning that online education is considered effective to the extent that it positively influences affective outcomes (e.g., motivation), behavioral outcomes (e.g., retention), or cognitive outcomes (e.g., performance). 47 literature reviews and meta-analyses (published between 2010 and 2023¹) were analyzed to identify factors at the course, student, teacher, and institutional level that according to the literature contribute to affective, behavioral, and cognitive outcomes in online higher education. While in recent years dozens of reviews and meta-analyses have been published on this topic, those were limited to specific subjects (e.g., technology use or online assessment), domains (e.g., medical), outcomes (e.g., performance), or levels (e.g., students). To provide a more comprehensive overview of what effective online higher education entails, this study simultaneously addresses the factors at four levels (i.e., course, student, teacher, and institution) and explicitly relates these factors to multiple types of learning outcomes (i.e., affective, behavioral, and cognitive).

Chapter 3 presents a focus group study (study 2) where about a hundred teachers and students from all faculties of the University of Amsterdam were asked to reflect on the online teaching strategies that were employed during the transition to online education following the COVID-19 pandemic. The goals of this study were to 1) get an overview of the online teaching strategies that teachers used to promote teaching presence and 2) examine how teachers and students experienced those strategies. For this study, the *Community of Inquiry* (CoI) framework (Garrison et al., 1999) was used as a theoretical lens. The CoI is a widely acclaimed framework that attempts to provide a comprehensive view on how learning occurs in online settings. One of the main elements of the framework is *teaching presence*, which refers to the strategies that teachers deploy before and during online courses to orchestrate social and cognitive processes in order to realize learning outcomes (Anderson et al., 2001). Strategies that promote teaching presence have been proven to result in positive learning outcomes (e.g., Caskurlu et al., 2021; Fiock, 2020; Lowenthal & Dunlap, 2018), and the focus group study aimed to gain more knowledge about the underlying mechanisms by examining teachers' and students' experiences with the deployed teaching strategies. Further, research has suggested that the perspectives of teachers on what are considered effective online teaching strategies may differ from the perspectives of students (Caskurlu et al., 2020).

Chapter 4 discusses an interview study where legal educators were interviewed on how they facilitated experiential legal education during the period of online teaching following the COVID-19 pandemic, and how they reflect on students' online learning experiences in light of the intended (experiential) learning goals. Experiential learning—i.e., learning by experiencing and reflecting on experience—is an important part of legal education and the shift to online education raised the question whether it can be attained through online learning activities. This question is also relevant, because legal processes are increasingly taking place in online settings, making it necessary that students experience what it is like to fulfill their professional duties in online settings as well. Kolb's four-staged experiential learning cycle (Kolb, 2015) was used to identify what learning activities seemed to work well online and where teachers struggled to achieve the intended learning goals through alternative online activities.

¹ Studies with a COVID-specific focus (i.e., related only to emergency remote education) were excluded, but many studies on online education conducted pre-COVID were published during the pandemic.

Chapter 5 used data from a large-scale survey study where we analyzed whether teachers' experiences with online teaching could be associated with teacher resilience. Resilience refers to anticipating, coping, and adapting when facing adversity (Williams et al., 2017) and is often propagated as an important factor to effectively cope with educational disruptions (Schelvis et al., 2014). In a survey that we distributed at the University of Amsterdam during the pandemic, we found that teachers showed a wide range of sentiments when looking back upon online teaching, as was also found in other research (e.g., Saha et al., 2022). Given the importance that resilience played during the pandemic (Struyf et al., 2023), we hypothesized that the sentiment differences could be associated with teacher resilience. To further explore this idea, we analyzed whether the resilience demonstrated in teachers' responses differed between teachers who voiced a positive sentiment towards online teaching and teachers with a negative sentiment towards online teaching. More specifically, we compared the two groups by identifying the three key mechanisms that shape resilience: a cognitive response, a behavioral response, and a contextual reinforcement of these responses (Williams et al., 2017).

Chapter 6 contains a general discussion on the studies conducted and on online education in general, as well as recommendations on how to build upon the insights from this dissertation to help cultivate the advantages of online education.

1.5. Defining online education

In the final section of this introduction, I will explain how the term *online education* is understood in this dissertation. This is important because throughout the process of writing this dissertation it became apparent that the term is used quite ambiguously in the literature and by practitioners. It is not defined unequivocally and used interchangeably with many terms including distance education, internet-based education, web-based education, e-education, computer-assisted education, technology-enhanced education, digital education, blended education, hybrid education, computer-based education, remote education, virtual education, and cyber education (Singh & Thurman, 2019). Those terms may refer to identical educational settings in certain contexts, but more often than not refer to related yet different modes of education (Guri-Rosenblit, 2005). To further complicate matters, connectives like -enhanced (e.g., technology-enhanced education), -based, -mediated, -enriched are also used interchangeably, even though those terms refer to different kinds of technology use (Anohina, 2005; Wilson, 2012). Even a search confined to explicit uses of the terms *online learning* and *online education* revealed a plethora of (often conflicting) definitions (Moore et al., 2011; Singh & Thurman, 2019). For example, Mayer (2019) adopted a definition of e-learning (Clark & Mayer, 2016) as a definition of online learning, even though other sources clearly distinguish online learning from e-learning; e-learning (i.e., *electronic* learning) is generally used as a more comprehensive term that encompasses online learning but refers to a wider set of learning settings that are enhanced by technology including content delivery via CD-ROM (Goyal, 2012; Wilson, 2012). Table 1.2 provides a selective list of definitions of online learning and online education that were collected during this PhD trajectory. Some definitions are short, others are lengthy. Some emphasize its link to distance learning, others contrast online learning with learning in brick-and-mortar settings. Some (highly cited) studies even leave the concept of online learning undefined altogether (e.g., Joosten & Cusatis, 2020; Panigrahi et al., 2018). It is also clear from older definitions that conceptions of online learning have changed over time as a result of technological innovations.

TABLE 1.2

Selection of definitions of online learning and online education

Simply put, *online learning* refers to learning and other supportive resources that are available through a computer. (Carliner, 2004, p. 1, emphasis in original)

Online learning is a form of distance education where technology mediates the learning process, teaching is delivered completely using the Internet, and students and instructors are not required to be available at the same time and place. It does not include more traditional distance education instruction methods, such as print-based correspondence education, broadcast television or radio, videoconferencing in its traditional form, videocassettes/DVDs and stand-alone educational software programs. (Siemens et al., 2015, p. 100)

'Distance education' will be used here to encompass formal education in which the teacher and students are physically separated, including both online and offline formats. 'Online education' will be used to mean classes that are offered entirely online. (Wallace, 2003)

[T]he use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience. (Ally, 2008, p. 17)

Online learning is associated with content readily accessible on a computer. The content may be on the Web or the Internet, or simply installed on a CD-ROM or the computer hard disk. (Tsai & Machado, 2002, p. 4)

Online learning described here is taken to be a form of distance education mediated by technological tools where learners are geographically separated from the instructor and the main institution. (Hartnett, 2016, p. 7)

Online learning (which also has been called e-learning, digital learning, or computer-based learning) can be defined as instruction delivered on a digital device that is intended to support learning. (Mayer, 2019, p. 152)

For the purpose of this literature review, both hybrid or blended learning and purely online learning are considered to be online learning as much of the literature compares these two formats against the traditional face-to-face. Purely online courses are courses delivered entirely over the Internet, and hybrid or blended learning combines traditional face-to-face. classes, learning over the Internet, and learning supported by other technologies. (Nguyen, 2015, pp. 309–310)

Online education, as it is understood in this dissertation, pertains to education that occurs 'in' an online environment. In other words, online education does not apply to on-site classrooms that are enriched by online tools. For example, using an online content management system in and of itself does not suffice to constitute *online* education according to this definition. Education only becomes online education once the online components are primarily used for pedagogical purposes by, for example, using it as a videoconferencing platform or by offering knowledge clips. Said differently, in online education most of the learning occurs through online activities. While this offers a more intuitive understanding of what online education is (not), a more precise definition is still warranted. Some authors adopt the rule of thumb proposed by Allen and Seaman (2008), who suggested that online education constitutes "at least 80 percent of the course content [being] delivered online" (p. 4). One problem with such a definition, however, is that it remains unclear what constitutes 'course content'. Does sending all course material over the internet suffice to qualify as online education? Does the adjective *online* refer to the remoteness between teachers and students and would that make online learning and distance learning synonyms? Does it refer to the space in which learners are mostly located and would that exclude using offline text editors to write essays from online learning? Such questions illustrate how difficult it is to capture online education in a single all-embracing definition, but, all things considered, some rough characteristics of online education contexts can be identified according to the literature:

- The vast majority of the learning activities take place in an online environment, where a minimum of 80% seems feasible as a rule of thumb to distinguish online education from concepts like blended education;
- Students and teachers are not in the same physical space and primarily interact through online communication channels, thereby separating online education from technology-rich on-site education;
- Offline learning resources (e.g., hardcopy books) may be used, but only subordinately to support online learning activities.

These three guidelines were used in this dissertation to determine whether educational settings can be classified as online education, as opposed to other forms of education that include online components or heavy use of technology.