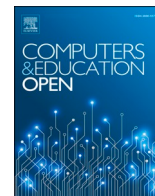




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Exploring university teachers' online education during COVID-19: Tensions between enthusiasm and stress

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ABSTRACT

Due to the COVID-19 pandemic, universities across the world radically shifted to emergency remote teaching. Since then, many universities have moved forward considerably and many lessons were learned in the area of online education. The aim of this qualitative study is to investigate how university teachers in a Belgian university experienced online education since the start of the pandemic and what exactly influences their experiences with online education. Six online focus groups (with thirty-two lecturers) revealed both enthusiasm and stress, and six tension fields that influenced their experiences with online education during COVID-19: (1) connection with students, (2) connection with colleagues, (3) digital opportunities and threats for students' learning processes (online student feedback, online interaction, structured learning materials, flexibility in time and space), (4) changing teacher roles, (5) tension due to time pressure and (6) support issues. Every tension field contains both opportunities and threats for online education, which can inform practitioners of online education in the future of university education.

1. Introduction

We should remember, when things go back to normal, people will not remember the educational content delivered, but they will remember how they felt, how we cared for them, and how we supported them. [6, p. iii]

Due to the outbreak of the Coronavirus disease (COVID-19), higher education institutions in more than sixty countries radically shifted from a considerate online and blended learning approach/policy to emergency remote teaching [4,7,45]. Emergency remote teaching is “a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances” [21]. The main difference between online education (i.e., a combination of online working, online teaching and learning) and emergency remote teaching is the absence of prior careful design in most cases of emergency remote teaching [21]. Ideally, all online teaching and learning involve prior careful design, but given the circumstances, not all emergency remote teaching originated from a thoughtful design process [43]. The participants in this study outlived a first period of emergency remote teaching during the first lockdown (March–June 2020) and received faculty support for the redesign of

their courses of the academic year 2020–2021. Yet, teachers have different levels of readiness for online teaching and learning, and different subgroups of teachers require different approaches for support [39].

Since adopting new innovative learning methods such as online learning collides with internal (e.g., pedagogical teacher beliefs and attitudes towards technology) and external barriers (e.g. cultural and contextual influences), effective change in teachers' practice is a difficult endeavor [51,52]. Moreover, when people are confronted with new challenges, they tend to avoid challenges and rely on their current beliefs and thoughts, especially in stressful situations [24,25].

The research base about online education during and after COVID-19 is growing. Researchers have been focusing on emergency remote teaching (e.g. [6]), on students' experiences with online education (e.g. [18,35]), on technological facilitators or barriers for online education (e.g. [11]), or on challenges for university teachers (e.g. [1]). The review of Zhang et al. [50] showed that researchers have been focusing on various technologies and strategies, the redesign of curriculum, student perceptions and psychological barriers of online learning during the pandemic. Generally, the shift to online education has induced high

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levels of stress and uncertainty among students and educators, especially during the first period of the COVID-19 pandemic [11,46]. On the other hand, higher education teachers showed slightly positive readiness to convert their classes to online education [31]. Yet, what mechanisms influence university teachers' experiences with online education during COVID-19 is a less researched area.

1.1. Considering

- The massive challenges for teachers during the pandemic for delivering online education (remote working, online teaching and learning).
- That teachers' decisions are influenced by many factors such as knowledge, beliefs, emotions, or motivation.
- That people often confirm their hypotheses instead of challenging them, especially in stressful situations where people lack systematic consideration of relevant alternatives.

The general aim of this qualitative case study is to gain insight in university teachers' experiences with online education and what influences those experiences since the start of the COVID-19 pandemic in the particular case of a Belgian university.

2. Conceptual background

Over the past thirty years, various terms related to online education have been used in educational research such as online learning, e-learning, online education, or distance learning [41]. The confusion on the term is understandable since the field of educational technology is growing fast [41]. Online learning is often used simultaneously with e-learning and distance learning, and focuses on the learner and the learning process [13]. Online education and distance education, on the other hand, extend online learning by including delivery mechanisms, instructor workload, or support for the administrative processes in education [13,41]. The COVID-19 pandemic brutally disrupted higher education institutions at the beginning of 2020 when educational institutions shifted to emergency remote teaching. Emergency remote teaching is "a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances" [21, p. 7]. Higher education institutions faced many technological challenges (e.g. unreliable internet and students' lack of necessary electronic devices), social challenges (e.g. maintaining sustainable communication within communities of inquiry) and pedagogical challenges (e.g. teachers' and learners' lack of digital skills or learners' lack of interactivity) when shifting to emergency remote teaching [14,29,40]. Alvarez [2] identified the following main problems during emergency remote teaching: poor to no internet access, financial constraints, lack of technological devices, and the need for affective support. In particular, during the first period of the pandemic, teachers suffered from fatigue, experienced feelings of loss, sadness, even trauma, and were juggling with the various responsibilities induced by the pandemic [46,47]. While at the beginning of the pandemic emergency remote teaching lacked careful design of online teaching and learning [21], many higher education institutions have moved forward considerably in the area of online teaching and learning [31,50]. Although teachers experienced a wide range of positive and negative feelings, they learned to adapt to students' needs and realized the need for good planning [31,40]. Moreover, the review of Turnbull et al. [44] revealed three lessons learned by higher education institutions when moving forward: (1) institutional support was key during the transition to online education and should include technical issues related to online learning and the development of various multimedia learning materials, suitable for the online learning environment; (2) paying attention to faculty and student training needs was highly associated with a successful transition to online education; and (3), despite the forced shift to entirely online education, a preference for some kind of face-to-face classroom instruction

was perceived as evident. On the other hand, Doyumğaç et al. [11] found that communication, interaction, and inequality in student opportunities were the main obstacles for online education during the pandemic. Moreover, the pandemic triggered teachers to change their vision on a traditional teaching paradigm towards new teaching methods [27]. Lapitan et al. [27] present a strategy to transform face-to-face teaching to entirely online modes. The authors developed a five-component strategy for online learning based on discovery, learning, practice, collaboration, and assessment [27]. Yet, delivering and designing educational content is not the only challenge, providing emotional support for students who experienced anxiety is vital [6,17].

The current growing body of research on the impact of COVID-19 on higher education has been focusing primarily on the shift to emergency remote teaching (e.g. [21]), on students' experiences during the pandemic (e.g. [2,46]), on technological, pedagogical challenges and teacher professional development, or on support issues when ensuring qualitative online education (e.g. [1,44]). The review of Zhang et al. [50] showed that scholars around the globe investigated a wide array of topics about online education, such as "use of various technologies and strategies, redesigned curriculum, student perceptions and psychological impacts of the pandemic-imposed online learning" (p. 637). Moreover, teachers experienced more obligations and lacked technical support, which resulted in higher levels of psychological pressure [29]. Teacher characteristics play an important role when implementing blended learning or applying online teaching [53,54] and stress is caused by a collection of work aspects, work content and work situations that influence teachers' experiences at cognitive, motivational or emotional level [20]. Since paying attention to psychological barriers is an important condition for an efficient transition to online education [1] and teachers remains at the heart of any educational change process [55], this study investigates underlying mechanisms behind both positive and less pleasant experiences of university teachers with online education during the pandemic.

3. Purpose of the study

Since the radical shift to remote emergency teaching in March 2020, stakeholders in higher education have learned many lessons about online education and teachers have moved forward considerably in the area of online education [31,50]. The main purpose of this qualitative study is to explore university teachers' experiences with online education in a Belgian university at cognitive, motivational or emotional level [20] and gaining insight into what influences their experiences with online education since the first lockdown of March 2020. Through a focus group approach, this qualitative study seeks to develop more understanding of university teachers' experiences with online education since the start of the pandemic. The following research questions are formulated:

- (1) How do university teachers experience online education during COVID-19?
- (2) What influences university teachers' experiences with online education during COVID-19?

4. Method

Since this study attempts to shed light on university teachers' choices and the underlying interpretations, the nature of this study is qualitative [32]. A case study investigates contemporary phenomena in-depth and within its real-world context [49]. While individual interviews are ideal for idea generation and surveys are effective in determining the prevalence of an experience, the main purpose of a focus group is not simply exploring what people say but providing insights into sources of complex behavior, opinions, or attitudes [34]. Focus groups are essentially social in form and produce "emic" data - data from within the group, data from the perspective of the subjects [10]. Interaction is an essential

source of data in focus groups and an essential component is the active role of the researcher in moderating the discussion [12,34].

4.1. Participants and data collection

A qualitative inquiry that focuses on an in-depth understanding of the questions under study makes use of relatively small samples [37]. Purposeful sampling in particular is a strategy to select information-rich cases [37]. The participants in this case study were selected from four different faculties in a Belgian university, based on their experience and active innovative role in their faculties. General inquiry of the faculties showed that all four faculties already had experience with the implementation and application of blended learning, varying from early implementation (three faculties) to mature application (one faculty, namely faculty 2, see Table 1.). In total, six online focus groups were organized with thirty-two university teachers (18 female and 14 male participants). According to Guest et al. 90% of the emerging themes are discoverable within three to six focus groups [19]. The focus group recordings varied between 56 and 81 min ($SD = 10,56$). Table 1 provides an overview of participants' background and their pseudonyms. The research data in this study are drawn from three sources: (1) a survey, before the focus group, collecting descriptive qualitative input for the focus group, participants' orientation to online and blended learning, and participants' opinions on contextual issues (see Appendix A). Analysis of participants' orientation in the survey towards technology integration in education showed that all participants have a positive attitude towards the added value of technology for online or blended learning. (2) A photovoice methodology (see Fig. 1) was used in the focus groups that allows participants to document and share aspects of their COVID-19 experiences and promotes critical consciousness within participants [28]. And (3) the video recordings and chat commentaries of the actual online focus groups. All quotes were translated from Dutch.

Table 1
Overview participants in six focus groups.

Participant	Focus group	Gender	Age	Faculty	Areas of study*	Educational role
Grace	FG1	F	Between 18 and 24	1	1	Assistant Professor
Louisa	FG1	F	Between 25 and 34	1	1	Associate Professor
Jessica	FG1	F	Between 25 and 34	1	1	Associate Professor
Deborah	FG1	F	Between 25 and 34	1	1	Associate Professor
Jack	FG1	M	Between 35 and 44	1	1	Associate Professor
Ann	FG1	F	Between 55 and 64	1	1	Professor
Ben	FG2	M	Between 45 and 54	1	2	Professor
Donna	FG2	F	Between 35 and 44	1	2	Professor
Marc	FG2	M	Between 35 and 44	1	2	Associate Professor
Sophie	FG2	F	Between 25 and 34	1	2	Assistant Professor
Paul	FG2	M	Between 55 and 64	1	1,2	Professor
Agatha	FG3	F	Between 25 and 34	2		Associate Professor
Walter	FG3	M	Between 35 and 44	2		Associate Professor
Emma	FG3	F	Between 25 and 34	2		Associate Professor
Chris	FG3	M	Between 35 and 44	2		Instructor
Oscar	FG4	M	Between 25 and 34	1	1	Assistant Professor
Helen	FG4	F	Between 45 and 54	1	1	Professor
Catherine	FG4	F	Between 45 and 54	1	1	Professor
Tony	FG4	M	Between 45 and 54	1	3	Professor
Jenna	FG4	F	Between 55 and 64	1	1	Professor
Guy	FG4	M	Between 55 and 64	1	1,4	Professor
Lisa	FG5	F	Between 35 and 44	2		Instructor
Alice	FG5	F	Between 35 and 44	2		Assistant Professor
Fiona	FG5	F	Between 45 and 54	2		Assistant Professor
Charles	FG5	M	Between 45 and 54	2		Associate Professor
Patricia	FG5	F	Between 45 and 54	2		Instructor
George	FG5	M	Between 45 and 54	2		Instructor
Carla	FG6	F	Between 35 and 44	3		Associate Professor
Luke	FG6	M	Between 45 and 54	4		Associate Professor
Ronald	FG6	M	Between 35 and 44	4		Associate Professor
Novak	FG6	M	Between 35 and 44	3		Associate Professor
Scarlet	FG6	F	Between 25 and 34	3		Instructor

* Where a faculty consists of different areas of study, such as faculty subject groups or research groups, a corresponding number is mentioned. Where a faculty consists of only one area of study, this column is left blank.

4.1.1. Online focus groups

The context of the COVID-19 pandemic pushed the focus group methodology entirely online. Online synchronous focus groups have the potential to offer realistic alternatives for face-to-face focus groups but need careful attention, such as avoiding technical problems and stimulating sufficient discussion [26]. Microsoft Teams was used to conduct the online synchronous focus groups. The participants experienced no technical difficulties with Microsoft Teams. Conducting online synchronous focus groups has several implications, which were carefully addressed by the first author [26,42]. Observation during the online focus groups is more difficult [26] and the active role and skills of the moderator is more relevant than in face-to-face focus groups [42]. An assistant researcher attended the focus groups, followed the chat, and took notes so that the main moderator could focus on guiding the interaction. The first author has expertise in coaching and technological innovations, causing no difficulties in conducting the online focus groups. Moreover, an online environment can provide additional tools such as the feature of raising hands for participating in the discussion, or a chat function parallel to the live discussion. Both extra features were actively used in the MS Teams environment. Finally, the synchronous online focus groups in Microsoft Teams were recorded and stored on a secure university cloud storage, shared only with necessary researchers. Appendix B contains a guideline that was communicated beforehand to the participants, together with informed consent.

4.2. Data analysis and trustworthiness

Analyzing qualitative data and focus groups data, in particular, is not off-the-shelf. Rather, the process of data analysis is custom-built and originates from close investigation of the data in different phases, which can be represented as a spiral [9,36]. First, the data was converted to manageable pieces of digital information. Second, a phase of open

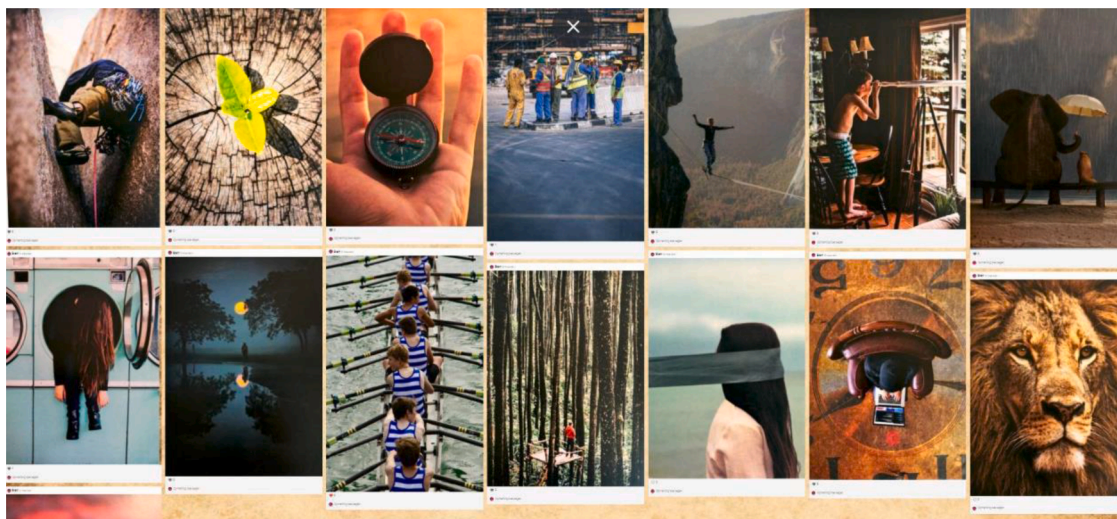


Fig. 1. Photo voicing in Padlet: 15 positive psychology pictures [38].

coding [36] induced the rich data into small units. The first version of emerging themes resulted in a coding scheme and was discussed with the research team. After interpreting refinements of the emerging themes, the first author went again through all the data and discussed the next version with an independent researcher, who temporarily joined the research team as assistant moderator and inter-rater. The moderator and the assistant moderator must be part of the analysis process, from first emerging themes to transcript analysis and coding in NVivo 12 [30]. During this phase, the first author made transcripts of all recorded videos. Next, a final coding scheme was developed (see Appendix C) in creative interchange with the independent researcher. Based on the final coding scheme, the third phase of thematic coding in NVivo 12 was systematically performed. Group interaction data reflects the patterns in the focus groups and it is important to investigate interaction as a data source when analyzing focus groups [12]. One possible approach is to analyze group interaction separately [12]. The recorded videos were analyzed separately in NVivo 12 to integrate group interaction in the emerging results. Finally, to ensure trustworthiness, the assistant moderator coded two focus groups parallel to the first author and inter-rater reliability of 93% was calculated in NVivo 12 [8,33].

5. Results

The results section is divided into two sections, relating to the research questions. The first section describes participants' overall experiences with online education during the COVID-19 pandemic. Analysis from the data revealed that participants experience both positive feelings about online education, and at the same time experience stress or struggle to find balance in various aspects of online education. Six tension fields relating to digital opportunities and threats emerged from the data that influence participants' experiences. Each of these tension fields is described and illustrated in the second section. The summarizing figures of the tension fields contain a lightning symbol to illustrate discrepancies between positive and more unpleasant teacher experiences with online education.

5.1. Effect on personal being: from enthusiasm to stress

"I have never put so much time into my teaching as I have in the past period, and I have never had as much stress about my teaching as in the past period." Ann (FG1)

Participants' reactions range from feelings of enthusiasm and belief in the digital opportunities to strong feelings of solitude and (techno)

stress. Fig. 2 summarizes the tension in perceived experiences. On the one hand, all participants stated that they took huge steps forward in the use of digital technology. About half of the participants consciously expressed positive feelings about online education. As Grace put it: "Generally, I feel that all the digital we are working with now are great seeds planted for the future. I love figuring out digital ways of coaching my students." George agreed that "it is wonderful to see all the digital possibilities, it is fascinating". And Charles stated enthusiastically:

The crisis forced us to investigate how we should proceed best. What is interesting about online teaching? Why do we still want to see our students face-to-face? And how are we going to shape our education in the future? I'm already working on this for my next semester.

Furthermore, Donna expressed feelings of gratitude for creatively collaborating with colleagues: "We have a collegial interchange, my colleague is my critical friend. That is a great added value in these times. I am very happy that we opted for co-teaching and that we can create our concept together."

On the other hand, all participants in the focus groups described feelings of stress, uncertainty, and experiencing difficulty keeping balance. For example, Ann stated: "I feel helpless and often very stupid because things do not work the way you think they are supposed to do." And Patricia described feelings of uncertainty and continuous search: "I feel so much like a seeker right now. You are confronted with things that are not going well, you try to find solutions, and then you notice they are not ideal, either." George confirmed: "Indeed, it is an uncertain quest. So, I no longer recognize the trodden paths." And Alice is "constantly concerned about 'Will the technology work?'. That technostress is sometimes really paralyzing.". Luke and Marc mainly feel disconnected from the students, while Scarlet feels frustrated when students do not interact in online sessions.

5.2. Tension fields: digital opportunities and threats

Thematic inductive analysis of the focus group data revealed several tension fields that influence participants' experiences with online education during the pandemic. Generally, tension is caused by discrepancies in elements that are structurally connected, and six tension fields emerged from the data, containing both opportunities and threats.

5.2.1. Connection with students

Participants in all focus groups discussed the issue of distance and the connection with the students during the COVID-19 pandemic. Fig. 3 summarizes this tension field. On the one hand, participants expressed a

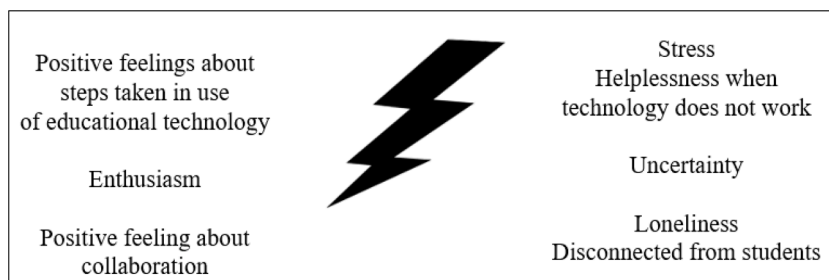


Fig. 2. Summary effect on personal being.

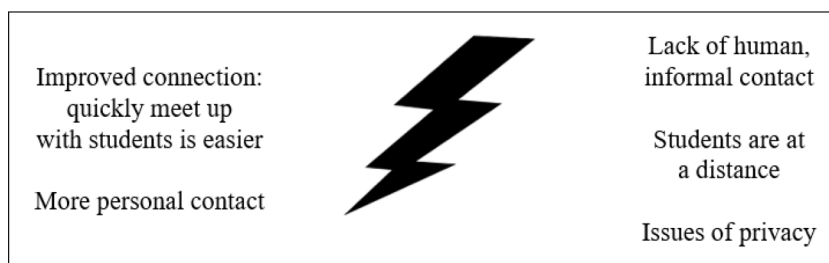


Fig. 3. Summary of the digital opportunities and threats for the connection with the students.

closer digital connection with the students. For example, in focus group five, participants discussed the benefits of Microsoft Teams (MS Teams) to facilitate easier connection with the students. As Patricia put it:

Yes, I mainly use MS Teams to quickly meet up with a student if there is something I want to know or when they have questions. We quickly meet up through MS Teams instead of emailing all the time, as it used to be, before the crisis.

And Alice stated: “Indeed, you enter someone’s home. But this also creates a very personal contact. For example, a student who has just given birth with a baby in the room, that is a very different, more personal contact than in the classroom.” Yet, Alice gave nuance to this personal connection with students: “Not everyone feels comfortable with this situation, as a teacher you have to pay extra attention to this personal digital connection.”

On the other hand, Lisa countered the closer connection with the students by stating that “Yes, I agree. But I experience a big lack of informal human contact and connection with the students.” An argument confirmed in the focus group chat by Fiona and Charles. Catherine stated: “I miss the contact with the students enormously, the balance between online and face-to-face contact is gone”. And Marc agreed: “Generally, it is a distance communication between the teacher from behind his desk and an audience that is somewhere fuzzy far away.” Moreover, some participants gave nuance to the impact of digitally connecting to students and issues of privacy: “By entering the student’s personal space, I also sometimes get information that I would rather not want to see. Or I ask a student to put on the webcam but he/she responds, ‘I am not well dressed’.” (Tony) An argument that led to a discussion in focus group four about the issue of privacy and the lack of a university policy in that area: “It amazes me that we still do not have a policy about privacy issues.” (Jenna). Tony confirms: “That should indeed be regulated in a policy framework. e.g., that there are guidelines on how to deal with privacy in MS Teams, e.g. how we deal with webcam background images etcetera.”

So, on the one hand, most of the participants expressed an improved connection with the students, but on the other hand, the radical shift to online education also invoked loss of connection with the students by most participants.

5.2.2. Connection with colleagues: together and alone

Most of the participants expressed how the radical shift to online education affected their connection with colleagues. Fig. 4 summarizes both perspectives on the digital connection with colleagues. On the one hand, the crisis invoked a closer connection between direct colleagues and stimulated reflection on practice. As Jessica put it: “We help each other a lot. We dare to ask for help from each other and thus reflect on our education while looking at all the digital possibilities that are coming our way.” Ann agreed:

I have never collaborated with colleagues as much as during this period. That creates a kind of sharing and comparing atmosphere. It has become a kind of online learning community, at the level of faculty, but also at the university level with various webinars and support channels.

And in focus groups two, five, and six, participants discussed the power of designing in a team and co-creation. In the words of George: “Working in design teams is so powerful. I can no longer imagine that we would still be working otherwise.” Fiona agreed but also gave nuance to collegial collaboration: “I notice that the connection with my closest colleagues has become even stronger. And that we do indeed collaborate more than ever. But the connection with other colleagues is gone.”

But on the other hand, participants also discussed how the shift to online education negatively affected the connection with colleagues and how the shift to online working affected personal boundaries. George described how he/she missed personal contact in real life:

Those co-creation moments would normally take place face-to-face on campus, where we would actually get around a whiteboard and start drawing and so on. And wipe the board to start over again. That’s something I miss, that does not work online.

And Agatha talked about a shared concern of loneliness behind the computer: “I do notice that I am very often tired of sitting in front of my computer, always being alone behind my computer.” Lisa said: “It is indeed a very lonely situation now. You no longer have that informal contact with colleagues, informal conversations, and such. The physical connection is missing.” And Tony raised the issue of personal boundaries and work/life balance: “You have the feeling that you are always accessible, always available online. My online status is available in MS Teams? That does not necessarily mean I’m available for a meeting or a

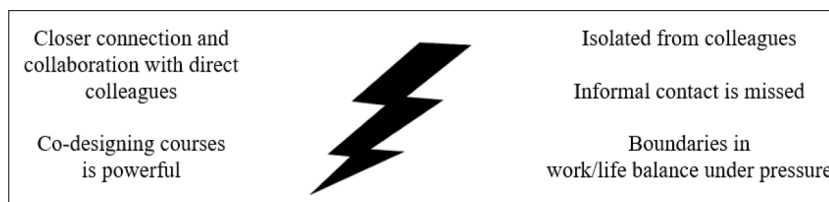


Fig. 4. Summary connection with colleagues.

video call.”

5.2.3. The digital learning process

All focus group members indicated that the radical shift to online education provided many digital opportunities and pitfalls for students’ learning processes. Fig. 5 summarizes the digital opportunities and threats concerning students’ learning process.

5.3. Student feedback

Most of the participants were positive about providing easier feedback to students, e.g., via MS Teams. For example, Ann stated that:

The individual 1-on-1 meetings with students offer many more options than in the past. You also create more punctuality, they are on time, they must not travel, and you can also stop on time. So, I think that is an enormous added value.

An argument that was confirmed in focus group four: “You can supervise the master’s thesis much more online than in real life, it is simply much easier to organize, you have more control over time and can respond much more quickly. The quality of the guidance is better.” (Tony)

At the same time, the brutal shift to online education invoked threats when reaching out to all students for feedback. In focus group six, participants discussed Q&A sessions:

The problem with the Q&A feedback sessions was that the majority of students do not show up. Students are wise enough to decide for themselves whether they should come to a Q&A session or not, but I lost feeling with their learning process. (Luke)

Novak agreed:

Precisely. The students whom we can motivate in face-to-face sessions, now drop out. They see everything appear online and think ‘Gosh, I’ll check that out later’, but then it becomes more and more difficult to catch up. We lose those students, it is a kind of vicious cycle.

5.4. Interaction

Secondly, according to more than half of the participants, the shift to online education provided opportunities to bring more interaction into courses. For example, Guy stated that: “In my online courses, students indicated that they greatly appreciated online interaction through questions in the chat, and online assignments.” Jack agreed:

I am teaching a live lesson, and there are many more questions during the online lesson. For example, halfway through a session, I stop, I watch the entire chat, and there are a lot of questions during the lesson itself, and that was much less the case in the past.

And George experienced an added value in the online variant when organizing a debate:

We organized an online interactive debate. I thought that was a great added value. I think when we should have just given those sessions in the auditorium and asked the students to ask their questions in real life, that we would never have had so much interaction in the debate.

On the other hand, participants indicated that interaction was problematic for certain groups of students. For example, Catherine experienced problematic interaction with first-year bachelor students: “But I noticed that the first bachelor year students do not dare to ask questions, they are not very active, while they were more active in face-to-face classes.” Which was confirmed by Oscar: “I confirm what Catherine mentions about the first bachelor years. It is very difficult to start the interaction, get them to interact during online sessions.” And Walter also experienced technical difficulties when managing online interaction:

Also, in BigBlueButton breakout rooms, I did not have any interaction, I just sat there talking to my own face, and when I was lucky, some of my students turned on their cameras, so I at least had some feeling of interaction with my students. Managing interaction in those breakout rooms was almost impossible, I could not anticipate on questions.

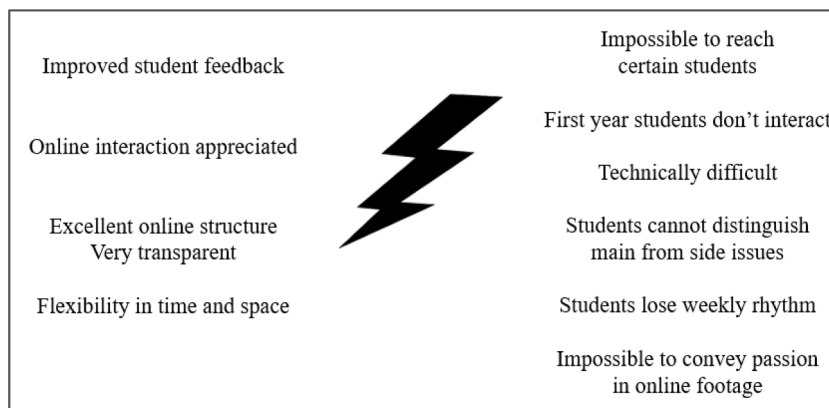


Fig. 5. Summary of the digital threats and opportunities for students’ learning process.

5.5. Structure in the online learning environment

Thirdly, more than half of the participants stipulated the advantages of a structured and transparent online learning environment. According to most of the participants, the radical online shift forced them to be very clear and transparent in their online content. Fiona enthusiastically stated:

Our online learning environment rules the world! That is an excellent online tool that connects everything. And we should not underestimate how important structure is for the students, how everything is put together transparently so that the students can keep an overview.

Charles agreed: "By going extremely online you always put everything on sharp. I love that. Your goals have to be clear, your communication has to be clear, your evaluation has to be online beforehand, etc." According to Jack: "Because everything is online now and that the students have become more self-reliant, that takes away a lot of stress when you have to communicate. Everything is online, no more discussion."

Yet, on the other hand, the radical shift to online education invoked threats for students concerning the online learning content. For example, Carla and Novak indicated that due to the increase in the availability of online materials, students experienced difficulties in distinguishing the main from side issues: "Students can rewatch the footage often, and they do, I can monitor that. But it is more difficult for them to distinguish the details from the main things. Students drown in details, they no longer find the balance." (Carla) Novak: "I recognize that. Several students told me that it was difficult for them to distinguish the main from the side issues."

5.6. Flexibility in time and space

Fourthly, according to most of the participants, the shift to online education provided many opportunities to increase flexibility in time and space for students to engage independently with online learning materials. Agatha declared:

When I notice that students are struggling, I allow the students to revise content through online learning paths, to make sure they're on board again. The fact that learning paths are asynchronous makes it easy for them to rewatch lectures whenever they want. They can go through the footage several times, they've got retakes and opportunities to redo exercises.

Luke and Marc agreed and emphasized the role of short, recorded videos for increased flexibility:

Students can listen to and review concepts in the recorded videos by themselves. My students prefer the more difficult parts explained in the video and the easier parts in a live lecture or text files. Because then they can listen to and review more difficult concepts in asynchronous videos. (Luke)

On the other hand, some of the participants experienced that students have difficulties with flexibility and keeping their weekly study rhythm. According to members in focus group six: "A big disadvantage is that students lose their rhythm because everything is available online. I need another tool to make sure they do not lose their tempo during the week." (Luke) Which was confirmed by Ann: "Some of the first-year students missed the digital boat completely. They get lost in everything available online. Even if you tell them to check the learning environment ten times, they still get lost." And finally, participants in focus group six declared that it is quite impossible to convey passion for the subject in online video footage: "When creating online video content, at some point it gets very monotonous. I write out everything technically, so the videos are complete and clear. But I cannot convey that same passion as in a physical face-to-face lecture." (Carla)

5.6.1. Balancing educational roles

About half of the participants in the focus groups discussed how the radical shift to online education raised pressure in maintaining different educational roles. University teachers are expected to teach, do research, and are confronted with new roles such as designing courses, communicating fully online, or solving technical problems. Balancing these roles was perceived as difficult and stressful. As Tony put it: "The question here is: what is our role? There seems to be a redefinition of the classic teacher role going on." Fig. 6 summarizes the tension in educational roles.

On the one hand, the communicative role was perceived as an opportunity to increase transparency towards the students. In the words of Jack:

I feel like there's just more communication now. That makes it possible to respond very quickly as a teacher. Makes it easier to respond to 'what have I not explained well?', 'what is perhaps insufficiently clear?' and I enjoy that.

Some participants emphasized the importance of communicating more openly and explicitly. "I've been explicit about my expectations towards the use of web cameras and so on. Otherwise, there's no point in trying to interact online" (Agatha).

On the other hand, about half of the participants expressed experiencing difficulties in regard to their research role, their role as designers of online courses, and technical issues when shifting to online education. For example, Oscar said: "I'm also a researcher and I've been unable to research during this period. That will resume later, but that balance is difficult to find." While Jenna emphasized that his/her role was not designing a course: "We are not trained in the design and full potential of all those online platforms and tools." And Louisa described a shared concern that teachers are not trained to provide technical support:

I followed all the webinars that were offered and that helped me for education, but I am not trained to solve very technical ICT matters during live events, for example. That gives a lot of stress because you want to do it right, but I was unable to help.

In the words of Agatha: "But then you suddenly no longer feel like a teacher in subject X, but a kind of technical helpdesk engineer."

5.6.2. Tension from time pressure

All participants in the focus groups discussed the issue of time, mainly from a negative perspective, as in "online education takes more time, much more than before" (Oscar). Fig. 7 summarizes tension from time pressure. Only a few participants stated that in time they will benefit from the current efforts. For example, Grace stated: "I am convinced that the work I am doing now will save me a lot of time in the long run. It is very time-consuming now, but I hope that in the future I will benefit from it." And Emma saw the potential of shifting quickly to online education at the level of implementation processes:

At the same time, I think that the crisis has forced us to implement some new pedagogies and tools where we might otherwise have waited until all administrative procedures, and such were fulfilled. This crisis has opened up many possibilities in a short time, such as MS Teams, which I really love.

On the other hand, most participants expressed problematic issues due to time pressure and lack of time. Louisa shared a common concern:

We simply have too little time to thoroughly design our courses. How do we want to redesign? Based on what principles? That is sometimes oppressive because we do not have time enough to work on that thoroughly.

Agatha confirmed: "We have many ideas but are absolutely short in design time. And also, students seem to find it normal that you can schedule meetings both at 9 am and 9 pm." In the words of Jenna: "I would like to redesign my courses in a more fundamental, structural

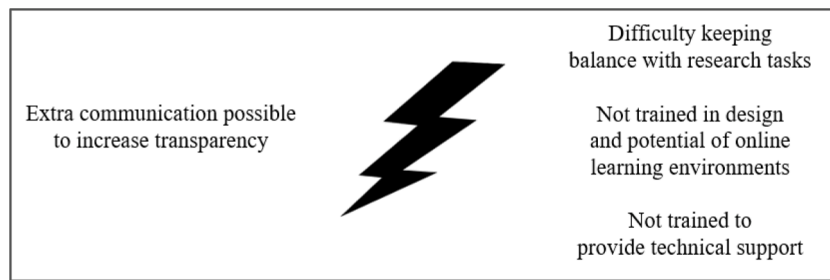


Fig. 6. Tension in educational roles.

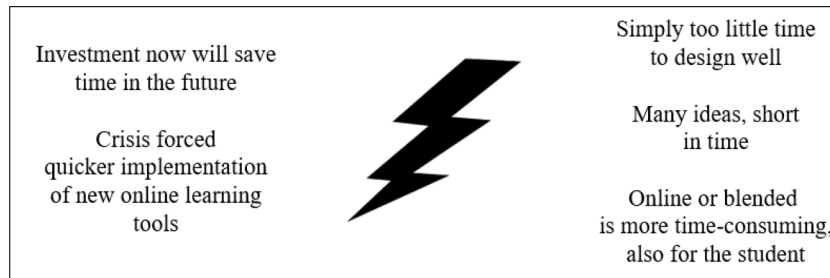


Fig. 7. Tension from time pressure.

way, and then I come up with a cliché: I do not have time for that.” Oscar summarized:

We have to keep an eye on the time, also for the student. It all takes much more time now, much more than it used to. So, students need more time for online learning, but also for teachers: think things through, answer follow-up emails, record those videos, edit videos, make practice exams available etc. This takes a lot of time.

5.6.3. Tension from support issues

In every focus group, the issue of support was discussed. The university in this case study provided various types of support, ranging from a centralized ICT helpdesk, tutorials, or live webinars, to specific faculty employees who support teachers with questions about online or blended learning. Fig. 8 summarizes what participants discussed about support.

On the one hand, participants indicated that the general idea of online learning was widely accepted in the university. For example, Scarlet stated: “I have the impression that the general idea of online or blended learning was already widely accepted in advance. So, it was clear to me that it was going to be online or blended anyway in the university.” Secondly, faculty support staff that has experience with online and blended learning was greatly appreciated. More than half of the participants expressed the added value of “innovative faculty sparing partners” (Jack) during the transition to online education. For example, in the words of Scarlet:

I appreciated that we were supported by a faculty employee on online learning. That employee was very skilled and accessible. Many

kudos to him/her! Very helpful. Without that support, I would not have been able to implement some new things.

On the other hand, about half of the participants declared that a more practical translation of how to apply online learning was missing. As Catherine said: “The actual pedagogical consequences of that general vision are missing. There is indeed no elaborate vision on what that means, how you realize that in practice.” Louisa agreed: “We miss a concrete, structural policy. It is more ad hoc now.” Jenna mentioned: “That’s what I said as well. I’m surprised that the university has not developed a policy. In that sense, a practical vision must be rolled out, right?”

Finally, in focus group four, participants elaborated on the technical support, which is perceived as problematic. Oscar voiced a shared problem about the ICT-helpdesk service which operates with a ticketing system:

Yes, Helen points to a problem there, because sometimes you just need help very quickly. We experienced this recently, we had an online exam going, and something went wrong. Then you just want immediate help. But at that moment, you have to submit a ticket, you get a number and you have to wait. You cannot say to the students ‘Sorry, we are waiting for the helpdesk, a ticket is submitted.’”

Helen agreed: “The support should take a kind of car breakdown assistance, you know, if you’re standing still on the road, you do not want to submit a ticket to a helpdesk somewhere and then wait for an answer, you want help immediately.”

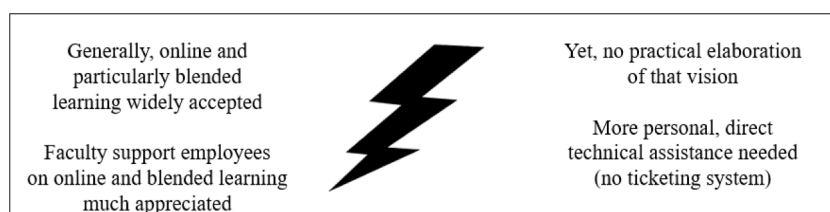


Fig. 8. Summary of reported support issues.

6. Discussion

This study set out with the aim of investigating university teachers' experiences with online education since the start of the COVID-19 pandemic in March 2020. Teachers experienced many psychological, technical or pedagogical challenges when shifting to online education during the pandemic [1]. This qualitative study used a focus group approach to explore university teachers' experiences with online education and revealed six tension fields that influence their experiences, ranging from connection with students and colleagues to tension from support issues. Surprisingly, every tension field contains both opportunities and challenges, which causes tension and creates a gap that unbalances university teachers. Tension is caused by discrepancies in structurally connected elements [15] and stress is caused by a collection of work elements that influence the teacher [20]. Since people have a natural tendency to filter new information to what is already in their minds and therefore often avoid challenge [24], offering insights into both sides of a coin - positive and negative experiences - is useful to transform educational practices at the level of online education. The results in this study show that the radical shift to online education during the pandemic has led to varying profound new experiences and has caused both enthusiasm and (techno)stress. The participants in this study described changes in instructional mechanisms, tasks, and in their social-affective personal lives, which is in line with Almazova et al. [1] who found that teachers' methodological work in an environment of online education differs from conventional teaching methods. The changes in teachers' daily lives jeopardize the jobs of university teachers and cause feelings of uncertainty, which is in line with the findings of Marek et al. [31] who conveyed a worldwide survey on online teaching during COVID-19 and found that most respondents experienced high levels of stress during this period. Yet, the results in this study extend the findings of Almazova et al. [1] and Marek et al. [31] by adding understanding to the underlying mechanisms that invoke enthusiasm or stress: tension fields between different work aspects that influence the teacher at cognitive, motivational or emotional level [20]. The results of this study align with researchers such as Shrestha et al. [40] who found that university teachers mainly experienced external barriers such as poor wireless network or lack of technological institutional support. But participants also experienced internal barriers, such as coping with complex changing professional roles, which can lead to a decline in teacher satisfaction [29]. The results in this study add insight to both external and internal barriers when applying online education. Moreover, teachers' and students' readiness for online learning hinder efficient implementation of online education [1], which supports the conclusion of Scherer et al. [39] that teachers' readiness for online education has both an individual and contextual perspective and that an approach at the organizational level is paramount to implement online learning.

The tension fields as described in Section 5.2 cannot be seen separately. For example, the tension fields "connection with students" and "interaction" or "student feedback" relate to one another: respondents indicated that they could keep in touch and give feedback synchronously via online learning technologies such as Microsoft Teams, which provided a caring and flexible connection with the students [23]. The role of the online learning environment in this feedback process was evaluated positively by most respondents, which is acknowledged by Chen et al. [7] who emphasized the ease of use of the online learning platform and the importance of a variety of student feedback forms. Secondly, there is a connection between the tension field "connection with colleagues" and "support" because most of the participants in this study experienced spontaneous collaboration and collegial inspiration or reshaped their practice through design teams and co-teaching. During the COVID-19 crisis, all respondents had an active role in how they dealt with the crisis. This is in line with Westbroek et al. [48] who found that a critical factor for successful design teams is that teachers explicitly are learners. Moreover, the authors state that the extent to which teams are supported

by a directive external support is needed for teachers to broaden their perspectives [48], which is in line with the results of the tension field "support". The supportive and accessible faculty employees were evaluated positively and can be seen as a concretization of what Westbroek et al. mean by directive external support (2019). The tension fields "time pressure" and "support" could also be linked to one another since the participants indicated that they cannot make optimal use of the provided professional support due to a lack of time. Lack of time is an often-heard problem for teachers, for example, Baran et al. [3, p. 5] already stated before COVID-19 that "the process of adapting to online teaching environments also requires a time investment on the part of the teachers concerning the design and development of learning resources." Finally, most of the participants positively evaluated the flexibility in time and space of online learning materials but saw pitfalls for students who are unable to manage their own time, which is in line with Bettinger et al. [5] who acknowledged the students' challenge to manage their (online) time. Yet, the results in this study refine the flexibility in time and space between first-year bachelor students who need more attention to digitally connect and more experienced master students who have better self-regulating skills.

7. Limitations and future research

A first limitation of this study concerns the applicability [16] of the results. The sample in this study is limited to four faculties in a Belgian university. Although the researchers paid careful attention to the reliability of the coding [16] and the faculties differ in structure, leadership, and culture, caution must be made when generalizing the results to other universities or contexts in higher education. Follow-up research could address a broader sample in other universities to make the results in this study more generalizable. Secondly, the teachers involved in this study already had (some) experience with online or blended learning, or at least have positive perceptions about online education or blended learning. Future research could investigate how resistant or risk-averting [22] university teachers are affected by the COVID-19 shift to online education, and how their perceptions relate to the results in this study. Finally, future research could also focus on the practical implications of these research results and how they relate to a practical elaboration on organizations' vision about online learning, resulting in policy recommendations for universities.

8. Implications

The insights of this qualitative study have several implications for practitioners in university education, especially those who are concerned with online education. Firstly, concerning facilitating the learning process in online learning, practitioners could:

- Consider online student feedback through video conferencing tools, yet pay attention that all students are reached out for.
- Provide more face to face moments for first-year bachelor students to increase social cohesion.
- Include tips and tricks in courses for students on how to deal with the digital connection with the teacher and fellow students.
- Consider making use of planning tools to schedule available time slots when coaching students or collaborating with colleagues, respecting personal boundaries in the available time.
- Consider structuring in the online learning environment highly transparent: clear learning goals, distinguishing main and side issues in the learning materials etcetera.
- Communicate clear expectations on the use of webcams in online teaching (e.g. making use of tools to pick random names for online discussion such as Wheel of names – an online tool to pick random names).

- Consider techniques to keep attention from students in the online learning materials, such as writing/marking on digital presentations or including facial expressions through the webcam.

Secondly, since participants in this study strongly emphasized the role of support and the importance of a (practical) vision on online learning (including privacy issues), a key policy priority should be to provide skilled ICT pedagogical trainers to support teachers and faculties and to construct a shared practical institutional vision on online learning. Moreover, it can be recommended to structurally embed design time in the practice of teachers whenever possible.

9. Conclusion

This qualitative study investigated university teachers' experiences with online education at cognitive, motivational or emotional level during the COVID-19 pandemic in an Belgian university. Since teachers encountered massive challenges for delivering online education (remote working, online teaching and learning); since teachers' decisions are influenced by both internal (knowledge, beliefs or motivation) as external factors (leadership or culture); and since the fact that people lack systematic consideration of relevant alternatives in stressful situations, this qualitative study sought to increase fine-grained understanding of complex experiences with online education since the first lockdown of March 2020. Six focus groups with thirty-two university teachers revealed both positive and negative experiences with online education. Participants were enthusiastic about the digital opportunities for online education and at the same time experienced (techno)stress, feelings of loneliness, or struggle to find balance in various aspects of online education. Six tension fields emerged from the data that

influenced participants' experience. (1) The connection with the students was easier to facilitate and was more personal. Yet, a lack of informal contact, students being "at a distance" and privacy issues were perceived as problematic. (2) The connection with colleagues was both collaborative and inspiring, as well as "in isolation" and difficult to maintain personal boundaries. (3) Digital opportunities and threats for the digital learning process at the level of student feedback, online interaction, transparency and structure in the online learning environment, and flexibility in time and space. (4) Participants experienced difficulty in balancing various educational roles. On the one hand, online communication was perceived positively. On the other hand, keeping the balance between providing education and doing research was problematic, and teachers are not trained to provide technical support. (5) Tension from time pressure: on the one hand, the investments will save time in the future, and the crisis allowed for quicker implementation of innovations. On the other hand, there is too little design time and online education is more time-consuming, also for the students. And finally, (6) tension from support issues. Generally, online learning is accepted as a concept and faculty support employees are much appreciated. Yet, there is no practical elaboration of the vision on online education, and more personal technical support is needed. Investigating both sides of the "online education coin" contributes to understanding the impact of the pandemic on university online education and a desirable return to blended learning in the future.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendices

Appendix A. Survey, before the focus group

- (1) Introduction and informed consent.
- (2) 2. Age: 18 - 24 (1) 25 - 34 (2) 35 - 44 (3) 45 - 54 (4) 55 - 64 (5) 65 - 75 (6) > 75 (7).
- (3) University Faculty?
- (4) Educational position?
- (5) During the past period, education went brutally digital. Which new learning technologies / ICT did you learn to work with? Eg. Panopto lectures in combination with Canvas Tests, or MS Teams etc.

[Free entry field]

- (1) During the past period, education went brutally digital. Which online or blended teaching methods have you applied? (E.g. interactive online seminar with breakout rooms, fully online lecture via web streaming, online videos / knowledge clips and group work in a contact lesson, etc.) Describe briefly.

[Free entry field]

- (1) 7. Teacher attributes [54]

To what extent do the following statements apply to you? [5 point Likert scale Not applicable ... Totally applicable]

New forms of online or blended learning help me to meet specific pedagogical needs (such as meeting diverse groups of students, or within class differentiation) (1)

I find it difficult to invest in new forms of online or blended learning because I give priority to projects and research. (2)

Blended learning: it is still unclear to me what exactly is meant by that. (3)

In general, I think teaching and education are important. Online or blended learning helps me to strengthen my education. (4)

I find it very interesting to (dare to) experiment with new forms of online or blended learning. (5)

I think teaching is mainly a matter of transferring knowledge (eg through lectures, or distributing course content via the online learning environment). (6)

I find it fascinating / easy / interesting to connect learning technologies to the learning processes of students. (7)

Through new forms of online or blended learning, I can focus more on the student (and his learning process). (8)

I feel insecure about the many new online technologies / tools and new forms of online or blended learning. (9)

The new forms of online and blended learning stimulate me to think critically about my own education. (10)

The various new forms of working and teaching online help me to consult with colleagues and discuss our education with each other. (11)

8. Contextual factors: [5 point Likert scale Completely disagree ... Completely agree]

In our team / department / faculty ...

there is a clear vision of online and blended learning. (1)

there is a supportive environment for professional development in the field of online and blended learning. (2)

there are clear objectives with regard to online and blended learning. (3)

the necessary ICT possibilities and infrastructure, necessary for online and blended learning, are taken into account. (4)

attention is paid to the change processes of teachers, inherent to the switch to online or blended learning. (5)

Disclosure

Appendix B. Guideline to the online focus group

Date focus group:

Location/link to Microsoft Teams meeting

Present:

Excused:

Introduction:

Welcome by the moderator. The moderator situates the following matters:

- Defining the subject and central research questions in the focus interview
- Define the term “online or blended practice”+ give some examples
- Explain the concept of a focus group

Practical progress

This focus call is being recorded - start recording

1. Photovoicing

Participants introduce each other briefly: name and background (faculty, teaching assignment). And 1 question that everyone answers: How did you experience this past period of fully online education? Choose a photo on this padlet that reflects your experience and briefly note an explanation of the photo. Link: ...

Link is shared in the chat.

Discussion/elaboration of participants' choice.

2. Preparing the stage for discussion

Participants take 7 "the time to prepare individually:

- What was the added value of this new online or blended practice? What did you find success factors in this?
- What did you find difficult? What obstacles did you encounter?

3. Group discussion

Stimulating / clarifying questions:

- Can you say something more about why you are withholding a particular practice? Why not?
- What was just difficult or easy about [X] or [Y]?
- Can you build on the point that [Name] just made?
- Who can identify with this situation?
- Who has had an experience similar to [name]?
- Who has had a different experience than [name]?
- If the situation returned to normal, what would you keep in a blended environment? How would you use blended learning in a more normal situation?

Disclosure

Is there anything we have not discussed yet? Things you would like to add or emphasize?

Thank participants.

Notices from the moderator on privacy:

- This online focus group was recorded. This means that this recording can be viewed by everyone present here. To respect privacy, we will adjust the sharing settings, so that only the researchers have access.
- The recording can be reviewed/deleted on request.

Thank the participants and stop recording.

Appendix C. Final coding scheme

Main category	Code	Description
Tension 1: Digital opportunities and threats: Connection with the students	TE1_CONN_ONESIDE TE1_CONN_ONTHEOTHERHAND	The connection with the students is crucial. Participants describe how online teaching affected the connection and communication with the students, both advantages and disadvantages.
Tension 2: Digital opportunities and threats: The learning process	TE2_LP_ONESIDE TE2_LP_ONTHEOTHERHAND	Participants talk about the opportunities and threats of digital learning for supporting the students' learning processes, or for particular groups of students such as bachelor or master students. And why these are relevant for the learning process.
Tension 3: traditional teacher roles and new expectations/teacher roles	TE3_ONESIDE TE3_ONTHEOTHERHAND	The online teaching experience during the COVID-19 pandemic affected the role of the teacher and what is expected from teachers. Participants describe how their roles as teachers are challenged and triggered.
Tension 4 Time: "Just do it" and "I need more time"	TE4_ONESIDE TE4_ONTHEOTHERHAND	An important tension concerns the aspect of time. The pandemic brutally forced everyone to go online and this has accelerated innovations, yet, participants struggle with time e.g. to design courses or the rapid pace of the technological changes.
Tension 5: Together and alone	TE5_ONESIDE TE5_ONTHEOTHERHAND	Participants talk about experiences of online collaboration with colleagues, yet experience solitude when working remotely.
Tension 6: Support and "do it yourself"	TE6_ONESIDE TE6_ONTHEOTHERHAND	The role of different layers of support is very important. Participants describe how they experienced and appreciated support, yet, often had to rely on their own.
Effect on teachers as a person	EFFECT_PERSON	Tension is produced by the discrepancy between two elements that are connected. The tensions above have an impact on participants's being. Participants describe feelings of enthusiasm, energy, stress, anxiety, concern, loneliness etc. E.g. by using the expression "I have the feeling that ...".

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