Effect of COVID-19 on digitalisation of higher education. A tale of one business school

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Abstract

The COVID-19 pandemic pushed higher education institutions across the globe to switch from face-to-face teaching to remote teaching. This study explores how emergency remote teaching during the COVID-19 pandemic affected university teachers' perception of online teaching and discusses the future of e-learning after the pandemic. The analysis is based on the interview responses collected from twelve business school teachers at one Sino-foreign university in China. The results show that the perception of e-learning improved after a semester of involuntary remote teaching. We also discuss the factors that may act as barriers to the adoption of e-learning, such as poor quality of the Internet, high workload, and lack of proper online pedagogy training, and show that teachers tend to implement elements of online teaching even despite these barriers as long as they find the usage of the online contents beneficial for their practice. Finally, our findings suggest that the COVID-19 pandemic contributed to the digitalisation of higher education and created new opportunities for the provision of online education.

Practitioner Notes

1. Emergency remote teaching positively affected teachers' willingness to use available technology.
2. The transition to online teaching can be smoother and quicker if an institution provides sufficient technical support.
3. Despite technological problems, teachers tend to implement elements of online learning as long as they find the usage beneficial for their teaching.
4. Universities should provide proper pedagogical training to academic staff before involving them in designing and delivering online courses.
5. The COVID-19 pandemic created new opportunities for transition to online education as teachers formed a strong belief that online education, or at least its elements, may increase the efficiency of teaching and learning.

Introduction

During the last few decades, higher education has been experiencing notable changes towards the digitalisation of teaching and learning technology and practices (Seaman et al., 2018). Besides the usage of new technology, such as interactive boards, augmented reality, mobile phones, etc., in the classroom, higher education started to organize more online courses and blended courses that combine traditional face-to-face teaching with elements of online learning (Kumar et al., 2017; Garrison & Vaughan, 2008). Such courses have many advantages, inter alia, they allow universities to enhance their reputation, develop information technology (IT) skills, support disabled students, and increase the flexibility of both students and staff (MacKeogh and Fox, 2009; Muir et al., 2022). However, the number of online courses provided by universities is still limited, which could be explained by some barriers that prevent the adoption of online education by institutions, one of which is the refusal of teachers to use new technology and their unawareness of online (blended) teaching practices (Muilenburg & Berge, 2005; Rogers, 2003; Ertmer & Ottenbreit-Leftwich, 2010).

Studies on technology adoption reveal that there are both external and internal factors influencing effective technology implementation in education (Rogers, 2000). External factors include the availability and accessibility of software and hardware, technical support, training, and institutional culture, while internal factors refer to the teacher's attitude towards technology and teaching. Since teachers are the ultimate decision-makers over classroom practices, they must accept online teaching and be willing to integrate technology into their teaching to reap the benefits of online education. Thus, teachers' unwillingness or inability to utilise technology could be one of the main barriers to adopting online teaching in higher education (HE) (Rogers, 2000; Hu et al., 2003). Teachers are the key agents driving innovations in education; therefore, understanding teachers' perceptions of technology is essential for universities to draft digital education strategies.

This research studies university teachers' acceptance of online education after a semester of involuntary involvement in online teaching during the COVID-19 pandemic. Our aim is to answer a set of important questions. How does the COVID-19 pandemic affect educators' perception of e-learning? Do teachers intend to integrate more elements of remote teaching into their practices after involuntary involvement in online teaching? What factors determine this intention and act as barriers/drivers to online teaching?

Literature

Previous studies show that teachers consider digital teaching contexts more changeable than face-to-face ones due to technology development, students' participation and teachers' influence (Jensen et al., 2020). New opportunities offered by technology, different degree of interaction with students and adaptation to unfamiliar technology might determine the teacher's attitude towards teaching in digital contexts. Similarly, Trigwell and

Prosser (2004) distinguish between intrinsic and extrinsic factors determining teachers' practices. Intrinsic factors include pedagogical beliefs and perception of teaching, but they are, in turn, affected by extrinsic factors such as teaching contexts (e.g. teacher's workload, individual pedagogical approach, student-teacher interaction, and physical environment). Earlier studies suggest that individual beliefs, sociocultural characteristics and previous exposure to technology are the most significant factors affecting teachers' adoption of technology (Rogers, 2000; González, 2010). Finally, according to Sherer et al. (2021), teachers' profiles are not homogeneous and vary by degree of readiness for online teaching, and thus personal characteristics and motivation play an important role in effective remote teaching.

This study focuses on the online teaching experience faced by faculties at a business school of one sino-foreign university in China during the spring semester of 2020. Since education institutes in China adopted online teaching in March 2020, teachers could gain experience in using technology and form an opinion about online teaching and its perspectives. Interviewing teachers in China is especially interesting as China is experiencing rapid technological development and has the largest online community. Over the past decade, the online education market has grown significantly in China. According to Textor (2021), the number of online education users rose from 107 million in 2016 to 331 million in 2020. As HE institutions in China continue to experience an increase in enrolment, the country may not be able to keep up with the demand for education in the long run (Marginson, 2004). Therefore, online education in China has enormous potential to meet educational needs.

The literature on the effect of COVID-19 on higher education mainly focuses on the experience of students (e.g., Stevanović et al., 2021; Bao, 2020; Rizun and Strzelecki, 2020) or the general transition of universities to remote teaching (e.g., Dhawan, 2020; Bichler et al., 2021; Khalil and Alharbi, 2022; Daumiller et al., 2021). Yet, a limited number of researchers explored teachers' experiences during COVID-19. Muir et al. (2022) examined the experience of eleven university teachers in Australia in the context of the community of inquiry framework and showed that the online experience could be similar to the offline experience. Giovannella and Passarelli (2020) surveyed university teachers in Italy and found that they were more pessimistic about online education than school teachers and unwilling to adopt new technology. Watermeyer et al. (2020) explored the experience of academics in the UK and recorded that involuntary transition to an online environment during COVID-19 led to dysfunctionality and disturbance to pedagogical roles and teachers' personal lives. Finally, Damcşa et al. (2021) studied teachers' responses to the emergency of online education and identified three teacher profiles - active users of new technology, less optimistic teachers with moderate use of new methods, and pessimistic teachers unwilling to adjust to a new online environment. Our paper contributes to the existing literature by further exploring whether emergency remote teaching allowed university teachers to experience the benefits of online education and whether this caused a change in attitude toward online contexts.

Theoretical Background

A stream of research on technology acceptance emerged in the 1970s to improve technology design through understanding user behaviour, including several theories and models. The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh et al. (2003)

in order to combine the main theories into a comprehensive model explaining user acceptance of technology. The authors found that individuals decide to use technology once they form an intention and if they believe that sufficient support and infrastructure are available (*facilitating conditions*). Their intention is, in turn, affected by their perception of whether using the system will improve their job performance (*performance expectancy*), the perceived effort required to use the system (*effort expectancy*), and their perception of whether significant others believe they should use the system (*social influence*). In addition, the study shows that gender, age, experience, and voluntariness of use moderate these effects. Figure 1 presents the UTAUT model.

Figure 1

Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003)
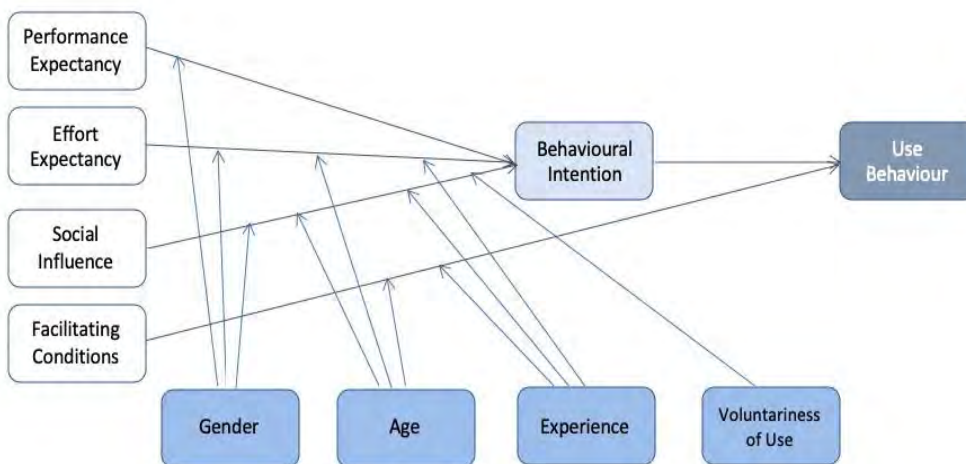
UTAUT model was extensively used to explore the factors affecting the adoption of e-learning technology. According to previous literature, performance expectancy is the most vital driver of intention to use technology (Gruzd et al., 2012; Jung and Lee, 2015; Oye et al., 2014; Pynoo et al., 2011). Another key factor is the easiness of using the system, as acquiring the necessary skills to use new technology may be time-consuming and cause stress (Gruzd et al., 2012; Oye et al., 2014). The literature provides mixed evidence on the role of social influence and facilitating conditions for adopting online education. Pynoo et al. (2011) show that social influence may affect the intention to use digital learning platforms, while Jung and Lee (2015) find no effect of social influence on teachers' intention to use online educational resources. Similarly, some studies show that the existence of facilitating conditions, such as IT support and the provision of necessary training and assistance, can affect teachers' acceptance of technology (see, e.g., Buchanan et al., 2013; Ifenthaler and Schweinbenz, 2013; Pynoo et al., 2011). However, in other studies, this factor is found to play no role in the adoption of e-learning (e.g., Gruzd et al., 2012; Jung and Lee, 2015).

In our study, we focus on three primary constructs of the UTAUT model, namely performance expectancy, effort expectancy, and facilitating conditions, and explore how these factors affect the acceptance of e-learning by university teachers during emergency remote teaching due to the COVID-19 pandemic. The context of this research is unique to the extent that it studies teachers'

involuntary acceptance of remote education during the COVID-19 pandemic when the usage of technology was necessary for the universities to perform their work. We aim to get new insights into the teachers' experience of emergency remote teaching and understand the role different factors played in this process.

Method

We employed a qualitative research design to gain insights into the teachers' experience of delivering courses online. This approach was chosen because it allows for the exploration of individual perspectives and the gathering of rich data through the use of participants' own words (Gephart, 2004; Smith, 1995). In-depth semi-structured interviews were used to investigate the factors affecting technology acceptance. This approach helps to surface elements external to existing theories, providing a deeper understanding of participants' beliefs and opinions (Boelens et al., 2018).

This project was approved by the Business School's Ethics Committee at the University of Nottingham Ningbo China. After obtaining the ethical approval, we contacted 61 academics involved in planning and designing of teaching activities for their courses, of which 12 agreed to be interviewed. Participants were informed about the purpose of the study, their rights, and the way their responses would be used before signing an informed consent form.

Data were collected by conducting online interviews with 12 faculty members involved in online teaching during the spring semester of 2020. All respondents were engaged in planning and designing teaching activities for their courses, such as lecture, seminars, online office hours, etc. The interviews were conducted using video conference software Zoom and lasted approximately 60 minutes. The interviews were transcribed and coded using Microsoft Word and NVivo software.

The interview guide was prepared around UTAUT constructs. The deductive approach was used for the first cycle of coding to create themes from the interviews, which guarantees the theoretical relevance of the study (Linneberg and Korsgaard, 2019). An inductive approach was employed in the second cycle of coding that involved reviewing transcripts to identify sub-theme patterns. The main themes and sub-themes from the interviews are summarised in Table 1.

During the interviews, participants provided their biographical data, such as their current position at the university, their previous experience of teaching online and offline, and their experience of using computer technology. They were also asked to describe the process of switching to online teaching during the spring semester, comment on the difficulties encountered, and think of the benefits and problems of e-learning. Finally, participants commented on their plans to deliver online or blended courses in the future.

Table 2 presents a summary of the participant's demographic information. The sample consists of nine male and three female teachers of various nationalities, with six teachers belonging to the Finance, Accounting and Economics (FAE) department, four teachers belonging to the International Business and Management (IBM) department, and one teacher from the Entrepreneurship, Marketing and Management Systems (EMM) department. The teaching experience of respondents is divided into ranges of 0-5 years, 6-10 years, 11-15 years, and over 20 years.

Table 1

Summary of themes and sub-themes from interviews

UTAUT themes	Sub-themes
Performance Expectancy	Flexibility of teaching Easier monitoring of students' progress Facilitating learning Access to people all over the world Lack of interaction Lack of control over students' engagement
Effort Expectancy	Software/systems: Initial learning effort User-friendliness of the platforms Remote working: Increased workload Easiness to learn/adjust
Facilitating Conditions	Infrastructure: Internet quality Restricted access to the resources Equipment Insufficient software licenses Organizational support: Colleagues IT support & training Self-efficacy: Learning-by-doing High confidence Confidence conditional on the availability of the proper equipment
Behavioural Intention	Integrate online activities Invite online guest speakers Virtual cooperation with colleagues Provision of recorded lectures Reluctance to use online teaching
Use Behaviour	Online quizzes and guided activities Online office hours Synchronous and asynchronous teaching - Use of technology in teaching (tablets and smartboards) - Online forums

Source: Constructed by authors

We checked whether respondents had any previous experience of teaching or learning online, as such experience may affect their intention to use the technology. All the participants had never been involved in the online teaching, yet, two of the respondents had an experience of teaching blended modules before COVID-19.

Online learning experience varied across the participants; half of the sample had previously attended some online courses, e.g. via online learning platforms such as Coursera, while the

other half did not have any e-learning experience. Finally, since the quality of the Internet connection and accessibility of online resources may vary significantly across countries, which may affect the online teaching experience, we also controlled for the location of the respondents during the semester. As Table 2 illustrates, the majority of teachers delivered courses from China, while only two respondents were teaching from abroad.

Table 2

Descriptive statistics of respondents' characteristics

ID	Gender	Depart.	Location	Experience		
				Teaching	**Online teach.**	**Online learn.**
P1	F	FAE	CHN	6-10	Blended	Yes
P2	M	FAE	CHN	0-5	None	Yes
P3	F	IBM	CHN	6-10	None	None
P4	M	FAE	CHN	11-15	None	None
P5	M	IBM	CHN	11-15	None	None
P6	F	FAE	CHN	6-10	Blended	Yes
P7	M	EMM	CHN	>20	None	Yes
P8	M	FAE	EU	6-10	None	Yes
P9	M	FAE	EU	>20	None	Yes
P11	M	IBM	CHN	>20	None	None
P12	M	FAE	CHN	0-5	None	None

Source: Constructed by authors

Findings and Analysis

Impact of COVID-19 on the Adoption of Online Teaching

As presented in Figure 2, teachers used the technology differently during the spring semester of 2020. The common practice was combining asynchronous recorded lectures with synchronous seminar discussions. The university recommended that teaching staff use Zoom, MS Teams or Panopto for online teaching and recording of the lectures. As Zoom and MS Teams were introduced early in the semester, most faculty used one of these programs.

Some teachers were keen to utilise advanced functions of the technology provided; for instance, they used Moodle (a learning management system (LMS) employed by the university) to track students' engagement with the online contents (P1 and P10) or assess students' contribution to Moodle forums as a way of grading active class participation (P10). One participant (P1) explained that he used Moodle to provide weekly before- and after-class activities for students to increase the effectiveness of online teaching, as students could self-check their understanding of the topic.

Figure 2

Adoption of Online Teaching during COVID-19
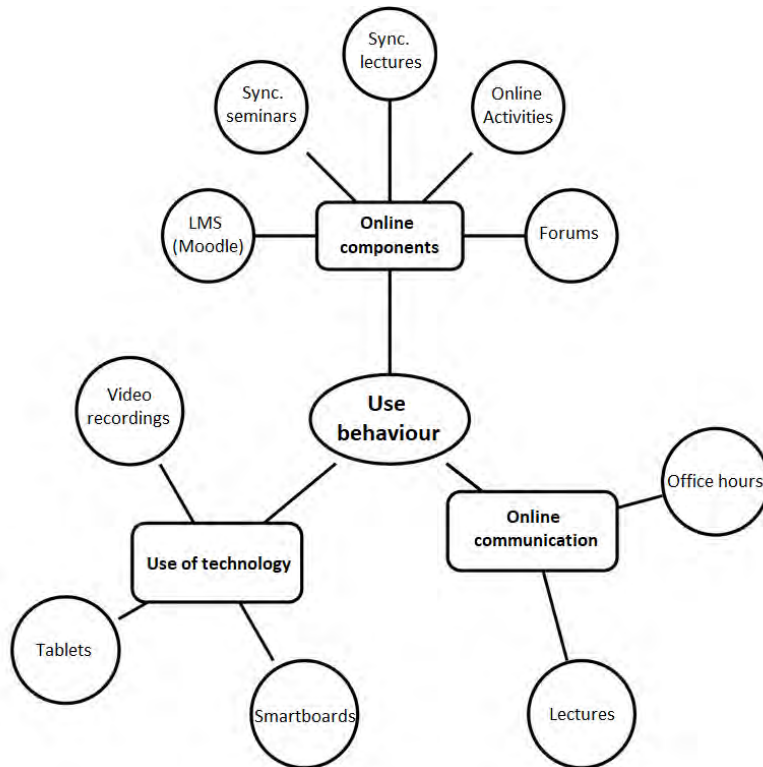
Overall, the efficiency of using the e-learning platform, such as Moodle, increased significantly during the semester: before COVID-19, teachers considered Moodle only as a platform to share announcements and lecture content with students, then in spring 2020, Moodle was widely used to organize interactive activities with students, to record students' participation in online courses and to assess student performance. Moreover, two participants (P4 and P8) who taught quantitative subjects employed smart boards and tablets to improve the quality of their online lectures. These results uncover an additional element that affects teachers' use of technology - tutors' conception of teaching, suggesting that besides the UTAUT factors, the individual teaching approach affects the adoption of technology by tutors when switching to online contexts.

Performance Expectancy

We asked the participants to comment on the advantages and disadvantages of online teaching. The summary of responses is presented in Figure 3. Many participants (P1, P2, P3, P4, P6, P7, and P9) agreed that online teaching provided flexibility to the instructors and had a positive effect on daily work routine:

> *[With online teaching] it is not necessary to stay at the university. You can travel and at the same time deliver your classes; you can attend a conference and have class at the same time. (P1)*

Respondents noticed that technology erases physical barriers between people; academics feel there is a great potential for collaboration with colleagues from other universities and external professionals (P7, P9, and P11). Furthermore, online teaching can be beneficial for both a teacher

and a school as it allows one to "invite famous professors to give an online speech at the university at a meagre cost" (P9).

Yet, nearly all tutors mentioned limited interaction with students as the most significant drawback of online teaching (P1, P2, P3, P4, P5, P6, P7, and P9):

> *You do not get instant feedback from students since you do not really know if they are picking up on things or not (P2).*

Figure 3

Performance Expectancy of Online Education
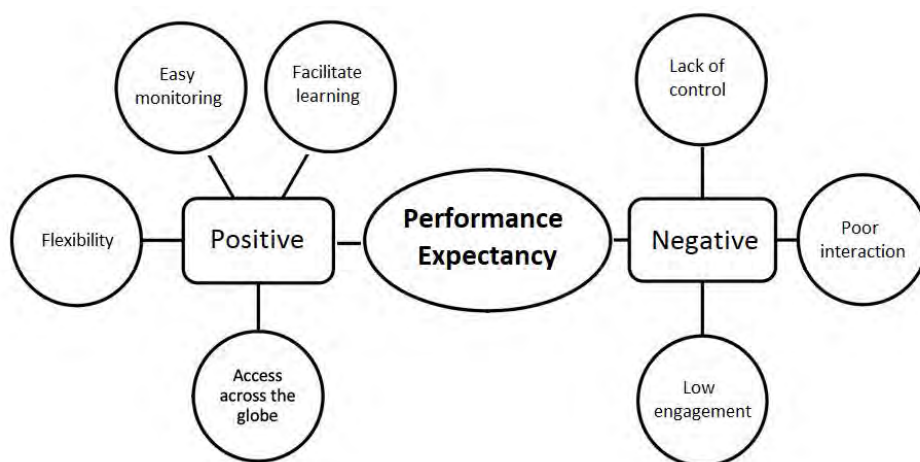
Online teaching may be more challenging to engage students in classroom activities, especially for shy and passive students who require additional teacher encouragement (P6). The problem of passive students also appears in face-to-face teaching; however, it becomes more profound due to the increased 'distance' between teachers and students in the online environment.

Finally, two participants indicated that online teaching was not suitable for their subjects (P5 and P12). Another participant (P1) also mentioned that online teaching might be more challenging for quantitative subjects than for more discursive courses. This is in line with the results of Muir et al. (2022), who found that the transition to online teaching was more challenging for mathematics teachers.

We further noticed that opinion about online teaching depends on digital pedagogy skills, e.g., related to the design and moderation of online courses. As Table 1 shows, none of the participants had previous online teaching experience before the COVID-19 pandemic. The lack of prior experience indicates that the teachers may not have the proper training and skills to effectively design and moderate online courses. The university support team mainly focused on covering the gap in the technology-related skills of teachers, e.g., the e-learning team organized a series of seminars on how to use MS Teams and Zoom, while providing very little training in the field of digital pedagogy. For instance, teachers had an opportunity to take the course "Online Facilitation and Designing for Engagement." Still, the number of places in the module was limited, and only one of the respondents had a chance to attend it. The participant commented that they learned

much in this course about engaging students in the online teaching environment, organizing online activities, and motivating students to participate (P1).

As we can see from the responses, the participant who had proper training tended to have a more positive attitude toward online teaching and intensively used various online contents for student engagement. This result suggests that the negative opinion about online teaching may be associated with the lack of proper pedagogical skills in the online environment. Many teachers were frustrated with the new online contexts and applied traditional teaching methods that did not work as expected in the online delivery mode. Yet, remote teaching is not equivalent to moving from the "chalkboard to a Zoom call" (Soler and Dadlani, 2020), and it implies "rethinking and reshaping the way we teach" (van der Merwe & Levigne-Lang, 2023). Similarly, Zhang and Yu (2021) showed that digital pedagogy plays an important role in providing efficient online education during COVID-19. Therefore, applying traditional teaching materials and practices in the online environment may result in the formation of an opinion that online teaching is inefficient and unsuitable for students' engagement.

Barriers to Online Teaching

In order to explore the barriers that teachers experienced in implementing online teaching, we asked them questions about the degree of ease associated with using the system and facilitating conditions as suggested by the UTAUT model.

Effort Expectancy

In this research, effort expectancy referred to using new software (e.g. Panopto, MS Office Teams, or Zoom) and switching to remote work. As Figure 4 illustrates, the new software was relatively easy to use. Teachers mentioned that learning the new software required extra effort, but most teachers found the process straightforward; for instance, Participant 7 said: "They are definitely user-friendly programs and easy to set up."

Figure 4

Effort Expectancy of Online Education
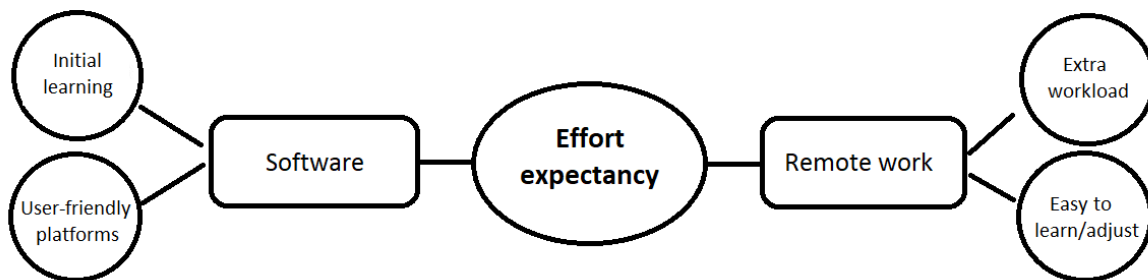
Most participants mentioned the extra time required to record and edit lectures, which highly depends on the teachers' familiarity with the technology. In addition, teachers struggled with preparing recorded lectures, as they felt that "this is going to be recorded; therefore it has to be perfect" (P8). This attitude forced tutors to "spend hours for recording and editing their lecture videos" (P1).

> *I spend like 10 hours [to record the lecture], and then I edit it. I cut and delete. Crazy, that was crazy!* (P8)

The workload also increased due to "receiving more individual emails" (P1) and "a higher rate of student participation in office hours" (P2), which required teachers to spend more time addressing individual requests. This is in line with Jensen et al. (2020), who showed that online education increases the number of contact hours with students as teachers cannot respond to queries instantly after a lecture.

One participant mentioned that the increase in workload appeared simply due to the remote work setting, which assumes that the faculty must be more flexible than in a normal setting: "I go from one Zoom meeting to another immediately, whereas in real life [...] you can say: 'I cannot be there'" (P9).

Facilitating Conditions

In discussing the facilitating conditions available to teachers, three elements emerged, namely infrastructure, organizational support and confidence with online teaching (or self-efficacy), as illustrated in Figure 5. Regarding the infrastructure, most participants mentioned low Internet quality as the primary barrier to adopting e-learning.

> *The most challenging thing and most problematic thing was the Internet in China. Many resources, even university resources, were not accessible, like posting a video on Moodle using UK server was almost impossible; it took a few hours to download a video [...], so it was very difficult.* (P1)

Similarly, Das and Meredith (2021) found that poor infrastructure facilities, such as slow internet speed or insufficient devices and software, act as barriers to the successful adoption of remote teaching. Nevertheless, our study shows that participants felt confident about using the technology after an initial learning period (P2, P4, P8, and P11). Two teachers (P7, P9) recalled feeling frustrated and insecure by relying on an external system.

> *I would not say I felt confident, because everything was probabilistic. I would say 90% confidence. There was always the possibility that something goes wrong.* (P9)

The participants mentioned technological limitations as the major drawbacks of online education. For instance, two respondents (P3, P11) noticed that the institution could not rely entirely on an external system as any problems may result in the collapse of online teaching. This suggests that teachers' self-efficacy is affected by the perceived reliability of the infrastructure and technology. There is additional uncertainty even for the most confident IT users, as their teaching cannot occur should the system fail. This is in line with findings of van der Merwe & Levigne-Lang (2023), who showed that the unexpected transition to remote teaching caused a lot of anxiety about access to online resources.

The interviews show that the faculty were satisfied with the support and training provided by the university, rating it as "sufficient" (P1, P2) and "good and timely" (P3, P4, P6, P8, P10, P11, P12). A few teachers admitted not attending the training provided by the university, which forced them to search for additional information about online teaching on the Internet and ask for help from colleagues. Finally, one participant noticed that the university did not prepare well for online

teaching as it purchased an "insufficient number of licenses for Zoom and e-book access", creating problems for teachers and students (P5). Respondents agreed that their experience could be improved if the university had solved technical and logistical issues timely. This is in line with the results of Ifenthaler and Schweinbenz (2013), who found that adequate infrastructure is necessary for smooth technology adoption.

Figure 5

Facilitating conditions for online teaching
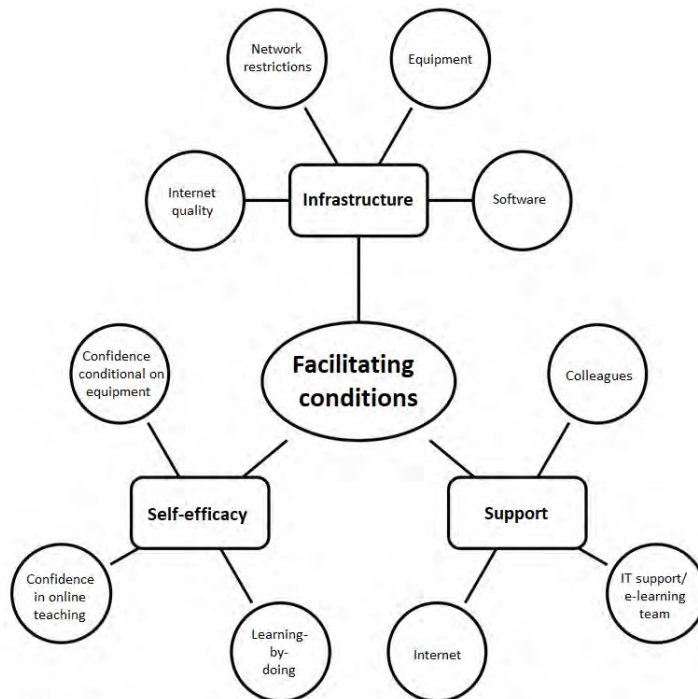
Despite the technical issues, some teachers made significant efforts to employ advanced software functions and implement more innovative online teaching practices (P1, P5). Again, this finding suggests that facilitating conditions do not entirely determine use behaviour as predicted by the UTAUT model; instead, teachers' beliefs about how their teaching should be organized determine their use behaviour. For instance, Participant 1 mentioned that regardless of the technical barriers (such as slow Internet speed or restricted access to online resources), they continued intensively using the technology and tried to find alternative solutions (e.g. using a Chinese video platform such as Youku instead of YouTube, which is blocked in China) because that would help them achieve teaching goals. Therefore, the resources and infrastructure available at the university affected the use of online content only to a certain extent. Overall, the effect of infrastructure is moderated by personal teaching philosophy and teachers' prior experience.

Future of Online Teaching

Finally, we asked participants about their plans to incorporate the technology they used during spring 2020 in their future work and their opinion on the provision of online courses by the university.

No participants had taught online courses before COVID-19, and most respondents did not consider using it for their subjects. The study shows that even after experiencing online teaching, some respondents still believe that traditional education is superior and cannot be replaced by online teaching (P3, P5, and P9), even though after teaching online for one semester, the teachers realized some advantages of online education. Other tutors noticed that online education and traditional education are "different products" (P8) rather than substitutes, and online teaching can only augment traditional teaching (P1, P4, and P5).

Although the consensus is that traditional face-to-face education is irreplaceable, the majority of participants believe that technology will determine a future trend in higher education (P1, P2, P4, P6, P7, P10, P11, and P12). Some of those sceptical about online teaching before COVID-19 changed their opinion about technology adoption.

> *Previously I wouldn't be very favourable to online teaching. I thought there were significant limitations, and right now, my feelings are mixed. [...] For some kinds of training programs, maybe online is a better tool, a better approach.* (P7)

Most participants plan to continue using the technology in their teaching in the future, as the spring 2020 semester experience helped them realize the advantages of online teaching. For instance, tutors want to provide pre-recorded lectures (seminars) in their modules in addition to face-to-face sessions, as this may facilitate notes-taking and a better understanding of the topic (P2 and P4). Some teachers plan to incorporate online activities that students can complete independently (P1 and P10) to enhance independent learning and provide summative feedback to students. In other words, teachers tend to switch to the blended teaching approach, which combines face-to-face teaching with online education elements. Similarly, van der Merwe & Levigne-Lang (2023) found that pre-service teachers consider designing learning materials for both online and offline environments after the period of involuntary remote teaching during the COVID-19 pandemic.

Furthermore, several participants stated that they would like to use the technology to invite guest speakers to their lectures, establish virtual talks with professionals (P9 and P11) and collaborate with colleagues from other campuses of the university (P11).

> *[After the experience] I actually feel more comfortable inviting guest speakers just to talk online when I am still teaching in the classroom. It is also very possible for me to work together with my colleagues in the UK and Malaysia [online].* (P11)

Two participants who teach quantitative subjects (P4 and P8) noted that specific equipment, such as smart boards, is necessary to effectively teach their subjects online, which involves drawing and writing equations. They would feel comfortable teaching online only if more equipment is available at the university.

Overall, the participants agreed that providing online courses could give the school a competitive advantage, enhance its reputation, and increase enrolment. Some respondents noted that the university could enter new markets thanks to online teaching and cover the demands of a wider range of consumers. Online teaching can help design global programs for students from different campuses, and then some of that could be arranged online (P10). Moreover, providing online programs/courses could have "a good impact on building the reputation of the university" (P12). Finally, since the university has already acquired the necessary technology for online teaching

and has trained teachers to use the technology, further provision of online courses would be an "interesting experiment" and "rational next step" (P1) for the school.

Discussion

This study aimed to better understand the COVID-19 impact on teachers' perception of online education. The following questions guided our analysis: 1) How did the COVID-19 pandemic impact educators' perception of online teaching? 2) Do teachers intend to integrate more elements of e-learning in their practices after involuntary involvement in online teaching? 3) What factors determine this intention and act as barriers/drivers to online teaching? We interviewed twelve faculty members involved in online teaching at a Sino-foreign university in China during the spring semester of 2020 to answer these questions.

After remote teaching for a semester, most of the participants believed that e-learning can enhance traditional education and better satisfy different learning needs. Contrary to Giovannella and Passarelli (2020), our study found that the involuntary online teaching experience during the COVID-19 pandemic positively affected the faculty's perception of online education. The emergency use of the technology improved teachers' awareness of the possibilities that online tools provide, equipped teachers with necessary IT skills, and familiarised them with online teaching practices. The participants agreed that traditional teaching would be different after the semester of involuntary use of digital education tools, as teachers realized the advantages of e-learning and became more optimistic about the further use of the technology. These results emphasize the positive role of COVID-19 in facilitating the transition to digital education.

Our analysis indicates that teachers tend to integrate more digital learning tools in their teaching practices even after the pandemic, as this can enhance students' learning experience. However, some tutors are hesitant to do so because they lack the proper equipment, such as smartboards, which can limit their ability to teach online. Therefore, teachers' intention to use remote teaching is determined by an interaction of performance expectancy, such as increasing efficiency of teaching, and facilitating conditions, such as IT support and availability of necessary equipment.

The paper further explores the factors that may hinder teachers' adoption of online education. We found that the increased workload was one of the most significant challenges for teachers in the online teaching environment. The high workload is one of the most-cited problems related to the online delivery of lectures (e.g., Jensen et al., 2020; Trigwell and Prosser, 2004), and, no doubt, it must be taken into account when considering the transition to an online learning environment. Similar to Kavaric et al. (2023), we find that the adoption of online learning can be smooth and quick if an institution provides sufficient technical support. Technological limitations such as the quality of the Internet, access to external online resources, and reliability of the system can affect teachers' confidence and willingness to adopt the technology. However, tutors tend to implement elements of online learning even when they face technological problems as long as they find online contexts beneficial for their teaching. Our results are in line with Mahdizadeh et al. (2008) and Sherer et al. (2021), who showed that the perception of the added value of online materials, teachers' personal characteristics, and their motivation play an essential role in the teacher's attitude toward using online teaching contents.

Another challenge with the adoption of online teaching is students' poor engagement. Online courses are more passive and less engaging for students than traditional education, which may be due to the lack of specific online teaching skills. As observed in our study, basic IT skills might be sufficient to switch to passive online teaching, e.g., providing recorded lectures or posting online assignments. However, an efficient interactive online activity design requires digital pedagogy awareness (van der Merwe & Levigne-Lang, 2023). Therefore, teachers need proper training not only in IT skills but also in digital pedagogy.

Finally, most respondents intend to continue integrating elements of online teaching even in the traditional face-to-face teaching environment. They support the idea of providing online courses at the university, which can enhance institutional reputation, increase enrolment and establish global study programs. Our findings imply that it might be easier for the HE institutions to introduce more online (or blended) courses in the future as the necessary IT training of teaching staff and instalment of necessary equipment/software has been already performed, and teachers' perception of online education improved after the period of involuntary online teaching. Overall, the study finds a positive impact of the pandemic on university teachers' attitudes toward adopting new technology, suggesting that the higher education industry will not be the same after the end of the pandemic, with more universities offering online and blended courses.

Implications for Practice

First, this study provides empirical evidence that compulsory online teaching experience positively impacts teachers' willingness to use available technology and implement the elements of e-learning in their practice. We find that many teachers became more optimistic about online education after experiencing involuntary remote teaching. The results suggest that the COVID-19 pandemic created new opportunities for transition to online education. Thus, institutions should consider integrating more elements of online teaching into traditional practices.

Second, we uncover factors that act as barriers to the adoption of e-learning by university teachers. Removing these barriers will contribute to the quick and smooth adoption of e-learning. Specifically, institutions should ensure that teachers have the necessary technical support and equipment to effectively teach online. This includes providing access to a stable internet connection, IT support, and teaching tools. Without proper equipment, tutors may feel anxious about remote teaching, which could hinder their adoption of online education. At the same time, teachers may face an increased workload when transitioning to online teaching. Institutions should take this into account and provide support to help manage workload.

Third, our study shows that one of the key problems in switching to online education is the lack of proper pedagogical training in online teaching and course design. While basic IT skills are important, teachers also need training in digital pedagogy to design and deliver online courses effectively. This training should include strategies for creating engaging and interactive online activities that cater to different learning needs.

Finally, teachers tend to implement elements of online learning even when they face technological problems and a higher workload as long as they find the usage of online content beneficial for their teaching. Therefore, providing the right incentives to teachers can promote the adoption of online education. Institutions should foster a positive perception of online education by

highlighting its benefits and encouraging its adoption. This can help to facilitate the transition to digital education and improve the quality of education.

Limitations of the Study

Three limitations of this study need to be acknowledged here. First, as the study focuses on business school teachers only, the results may not be applicable to other disciplines. Future research can be conducted to validate our findings for other fields of education. Second, our study explores the experience of university teachers working in China, and the choice of location may determine the results. Thus, the generalization of our findings requires caution. Finally, our qualitative results provide new insights into educators' transition from traditional face-to-face teaching to remote teaching during the COVID-19 pandemic and identify factors affecting this process. Nevertheless, we do not estimate the importance of various factors from the UTAUT model in this process. A follow-up quantitative analysis is required to examine more precisely the effects of COVID-19 on the digitalisation of higher education.

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Conflict of Interest

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