Teachers' Attitude Towards and Experiences with e-learning Tools at Two Universities in Different Phases of e-learning Implementation

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Article Info

Abstract

The current paper focusses on the teachers' attitude towards and experiences with e-learning tools at two universities in different phases of e-learning implementation. The study population comprises teachers at university level and a simple random sampling method was used. A total of 45 teachers in bachelor programmes from the Faculty of Agriculture of Kabul University (KU) in Afghanistan filled out the survey. For this study, secondary data on Wageningen University and Research (WUR) in the Netherlands was also used from a survey which was recently conducted by Banihashem et al., (2023) in which 307 teachers participated. Data were analysed through descriptive statistics and the two settings were compared in general terms. The results showed that the majority of the respondents at KU and WUR had a favourable attitude towards e-learning tools and that this attitude is an important enabling or disabling factor in the adoption of technology. The findings also indicated respondents' access and facilities, e.g., at KU for interaction with students mainly among teachers HELMS during COVID-19 and for assessment, individual assignments and quizzes were used. Meanwhile, at WUR and mainly among teachers, for interactive purposes Brightspace assignments (and, for assessment, group assignments), Brightspace grades, individual assignments and rubrics were used. Consequently, this research paper will add to the existing knowledge in this area, potentially having a positive influence on the educational sector, because doing so could help the educational system to improve and to better consider the aspects which influence the attitude of teachers that leads to applying a technology. In addition, we recommend more e-learning research studies in Afghanistan in order to find a solution for educating women in Afghanistan.

Introduction

Due to the rapid advancement of technology, a revolution has erupted on all surfaces of educational life, particularly in the teaching and learning process. The twenty-first century is the age of intelligence, where academic tasks are designed based on the influence of technology and educational innovations (Rahim & Chandran, 2021). With reference to e-learning, for the first time between 1980 and 1990, e-learning programmes were created to supplement, upgrade and support the process of educating and learning with the work of electronic

instruments or computerized media. Since that time, many subcategories of e-learning have risen in a huge number of sorts and shapes: computer-based training, online education, interactive media learning, virtual learning, Massive Open Online Courses (MOOCs), learning communities, virtual classrooms, Learning Management System (LMS) etc. It is important to understand that e-learning does not mean transforming textbooks into e-books; rather, e-learning is a representation of modern teaching techniques with multiple characteristics (Peroz, 2015). The need for today's education requires teachers and the educational institutions to restructure strategies for effective educational practices and upgrade their teaching and learning platforms to meet global needs. These transformations of e-learning approaches were reinforced during COVID-19 times (Van Puffelen et al., 2022), in which online and blended (combined online and face-to-face) learning approaches became even more prominent. With regard to this, many scholars have investigated the potential of applying e-learning in education to help students improve their learning performance. For example, instructors can upload and present teaching content, track learners' activities, assess learners' knowledge and keep students updated on the course (Guragain, 2016). E-learning offers more opportunities for improving problem-solving capabilities, enhancing higher- order thinking skills and achieving learning effectiveness (Chen et al., 2005; Liaw, 2004).

Although, advancements in technology have affected people around the world, e-learning is considered especially necessary in modern education. On the other hand, an increasing demand for learning, lack of access to training centres, the need to save time and the use of experienced professors from different parts of the world has caused experts to establish new platforms of learning with the help of information technology. This method of learning is economically viable, has better potential quality and simultaneously helps a large number of students with learning (Oroma & Wanga, 2012). With regard to developing countries, most of these countries face many opportunities and challenges. Afghanistan's higher education is not an exception to these challenges. Basic and professional education from the perspective of the United Nations Development Programme (UNDP), the United Nations Education, the Scientific and Cultural Organization (UNESCO) and the World Summit on the Information Society (WSIS) are considered important for developing countries' economic self-sufficiency. Furthermore, learning through Information Communication and Technology (ICT) is also important for developing countries. Therefore, higher education in Afghanistan also requires this learning method (Frugh, 2019). Afghanistan is one of many countries witnessing the innovations brought on by technology. Due to poverty, insecurity, illiteracy and lack of political stability, Afghanistan has always been an unstable country. It is a war-torn country and, according to the UNESCO (2023), Afghanistan is among the least educated and most impoverished countries in the world. Over the years, the educational sector of the country has faced numerous challenges. However, in 2003, the Ministry of Communication and Information Technology (MoCIT) with the support and cooperation of the Ministry of Education (MoE), the Ministry of Higher Education (MoHE), and associated institutions decided to take effective steps towards the implementation and launch of e-learning programmes in Afghanistan. Afterwards, the first comprehensive e-learning programme launched in Afghanistan was the Cisco Networking Academy Programme (CNAP) which launched its first generation of academies in Kabul, hosted by the Kabul University (KU) Faculty of Computer Science. Later the MoHE established the e-learning policy with the cooperation of MoCIT to embed and integrate the variety of e-learning programmes for teaching and learning. This policy covers higher education, schools and semi-higher education institutions. The implementation of such programmes is supposed to have a positive effect on the economic and social development of Afghanistan. According to the

MoHE the e- learning strategic plan and e-learning action plan, it is very clear that the Ministry is aiming to achieve this goal and is keen to implement it and succeed in doing so (Sokout & Usagawa, 2018). Furthermore, for the purpose of the current study, Wageningen University and Research (WUR) has been chosen as an example of top world universities. WUR is a public university in Wageningen, the Netherlands, specialising in life sciences and with a focus on agriculture, technical and engineering subjects. WUR is a global centre for life sciences and agricultural research. The QS World University Rankings by Subject 2023 shows that Wageningen University & Research is first in the world in the field of Agriculture and Forestry. Wageningen University students come from 98 different countries, which results in a very diverse and rich environment for discussion and collaboration. Developing the use of new technology and ICT in the university was one of the main priorities of the university in the last decades (Wageningen University and Research, 2023). In this regard, Mahdizadeh et al., (2008) already conducted a study on the use and attitude towards different features of the e-learning environment in Wageningen University and reported that the university is well equipped for computer-mediated communication and has a well-known platform for e-learning. Teachers and students have access to high- speed internet connections and they are supported and guided by a group of professional experts in Coordination ICT in Education (CIO). E-learning technologies have been used at WUR over the years in terms of online tools, assessments of students, video sharing and recordings, etc. In addition, according to the WUR vision for education (2017), digital technologies enable us to serve more students and make better use of the valuable interaction time between teacher and student in order to reach higher cognitive learning goals more efficiently. By blending online tools and methods for knowledge transfer (such as e-learning modules or video clips) with on-campus interactions in lab sessions, working groups or project work, we can make education more effective. The open sharing of content enhances collaboration in global networks. Open platforms such as edX, Coursera or the Khan Academy demonstrate how technology can be used to provide education to a global public of learners and they offer open and online courses.

However, along with the increasing inclination towards e-learning within academics, it is very necessary to identify perspectives and attitude of teachers towards of e-learning. When universities promote ICT use, they need to understand their teachers' and students' attitudes towards its use. Teachers' attitudes are considered to be a major predictor of the use of new technologies in instructional settings (Albirini, 2006). This paper tries to understand attitude of teachers towards e-learning tools and current usage the e-learning tools at both universities. Section 2 describes a review of related literature. Section 3 describes the research method used in the study. Section 4 discusses the results followed by the conclusion of the study.

Research Problem

Technology offers tremendous opportunities for increasing the effectiveness and efficiency of education in the future. Now, the trend of using e-learning as a learning and teaching tool is rapidly expanding into education (Krishnakumar & Rajesh Kumar, 2011). With regard to e-learning, Afghanistan has always been an unstable country. It is a war-torn country, but nevertheless massive progress has been made in enrolment at all education levels over the course of twenty years, from approximately 1 million students in 2001 to 10 million in 2018, with the number of girls in primary school increasing from nearly zero in 2001 to 2.5 million in 2018. In addition to

unimaginable human costs, the Taliban takeover in August 2021 has sparked a crisis which threatens reverse of the development gains made during those twenty years. The education system has been hit hard and the right to education for Afghan children and youth is at stake. Since 23 March 2022, 1.1 million secondary girls have been prevented from attending secondary school until further notice. The ongoing crisis has had a detrimental impact on young women in higher education as well, with a 60 percent decline in recorded enrolment (UNESCO, 2023). In this case, e-learning could potentially play an important role in filling the gap of educational quality and access, and it is assumed that e-learning has a lot to offer if educators integrate these tools into education. For example, in Afghanistan during the COVID-19 period, (as in other countries), when all educational campuses closed, schools and universities tried to carry out the process of teaching through Internet-based learning because there were no other means of instruction. The Ministry of Higher Education (MoHE) of Afghanistan tried to provide the teaching process by lecturers to students through a web-based learning process. The MoHE introduced the Higher Education Learning Management System (HELMS) in order to provide teaching materials to students (UNDP Afghanistan, 2020). Notably, upon the return of the Taliban, students were not able to attend university during the whole week, and female students were only allowed to come to the university for three days a week, the same situation occurred for male students due to the new restrictions and regulations of the Taliban. Unfortunately, the situation has changed and even worsened for female students. Now, they are no longer allowed to study at the university at all. In this situation, proper and acceptable e-learning tools may facilitate the interaction of Afghan youths, especially female students to worldwide academic literature and scientific debates. Furthermore, due to various reasons, Afghanistan's educational institutions have faced several challenges, and here there might be an opportunity for students to use e-learning to reduce the shortage of school materials, colleges and faculty. Most importantly, for insecure and remote areas of the country, education is very difficult to acquire for people in society in general and especially for women. Also noteworthy to mention is that improving ICT infrastructure in Afghanistan is the most important key factor that enables this development. With this connection and within the context of the adoption and implementation of different e-learning tools in Afghanistan, this study was carried out in the Faculty of Agriculture of Kabul University as a prototypical example of an Afghan university.

In this paper, the focus is also on the world's leading universities, and WUR has been chosen as an example, since these universities are in a more advanced phase of e-learning implementation than universities in developing countries and, as such, can represent a future goal phase of e-learning implementation for universities, lectures, and students in developing countries. Furthermore, professional development needs are dependent on the international, national and institutional contexts of universities, as these needs are shaped by the teaching and research requirements. In addition, universities have changed the context of internationalisation and the digitalisation of higher education worldwide (Jõgi, Karu & Krabi, 2015). Perhaps most notable among these changes are innovations in learning technology such as e-learning, online simulation, gamification, requirements related to pedagogy and curriculum reforms and the increasing student diversity that comes with mass access to higher education (UNESCO Institute for Statistics, 2014). These changes have made it imperative for lecturers to become lifelong learners and continually update their technical skills and knowledge (Burns & Lawrie, 2015).

Reviews also indicate that, teachers need to see examples of what this kind of teaching looks like in practice.

While some teachers may have built relevant knowledge and beliefs from previous experiences (Ertmer, 2005), they may not understand how these ideas translate into practice. Furthermore, although teachers may wholeheartedly accept these new views of good teaching, they may be unable to implement them without concrete examples of what this looks like. Therefore, examples become an important strategy to facilitate both teacher knowledge and belief change (Zhao & Cziko, 2001).

For these reasons, based on previous research, a knowledge gap has existed in regard to the attitude of teachers and usage of e-learning tools at KU after Taliban take over in Afghanistan. Therefore, measuring attitude and efforts to improve attitude towards technology is very much essential if one is to effect any change through technology. This necessitated the first author to conduct this study. Assessment of attitude based on (Liaw & Huang, 2003) measurements, perceived enjoyment, usefulness and usability at both universities can determine levels of positiveness towards different e-learning tools. Thus, this study aims to provide opportunities for comparison in general terms between the two settings. Although it was not possible in this study to compare the two settings with identical instruments and, thus, with statistical analysis, the overall picture of teachers' attitude towards and experiences with e-learning tools at these two universities could be presented and be compared qualitatively in terms of general patterns. In this way, the present research aims to contribute to theory on similarities and differences in tearchers' attitude towards and experiences with e-learning tools at universities in different phases of e-learning implementation. Moreover, the outcomes of the study could benefit Afghan higher education by offering a frame of reference for future implementation. For developing a positive attitude, the absence of one of these components may impact the effectiveness and efficient use of a tool. In addition, Afghanistan's Ministry of Higher Education needs to know what the main drivers of e-learning success are and how to succeed. Therefore, the use of experiences from different countries of the world and other universities will be extremely effective and will help Afghanistan's universities (Ministry of Higher Education of Afghanistan, 2015).

This research paper will add to the existing knowledge in this area, potentially having a positive influence on the educational sector because this addition could help the educational system to improve and to better consider the aspects which influence the attitude of teachers that lead to applying a technology. In this connection, particularly in countries such as Afghanistan, representing the data from WUR could help policy makers to better respond to where support or change is needed. In addition, the results of this study will also be useful for researchers, educators, curriculum designers, smart technology creators, and both leaders and authorities of universities to better understand the implications of e-learning. Before one starts e-learning experiments or other e-learning activities, it is very important to check which type of learning the organisation and the teachers prefer. Each type of learning requires different added values of e-learning and guides them based on their preferences and needs because the difference in e-learning as an environment for learning, development, and management is also important.

Research Objectives

The purpose of the study is to assess the attitude of teachers towards e-learning tools and to know the experiences

of teachers with e-learning tools in both universities and to compare those in general terms. Assessment of attitude based on Liaw and Huang's (2003) measurements, perceived enjoyment, usefulness, and usability at both universities can determine levels of positiveness towards different e-learning tools. This study aims to answer the following specific research questions:

1. What is the attitude of university teachers towards e-learning tools at KU and at WUR?

   1.1. What are the teachers' perceived enjoyment (affective), usefulness (cognitive) and intentional (behavioural) attitude towards e-learning tools?

2. To what extent teachers have been using online tools, and what is their satisfaction with these tools in their classrooms at KU and WUR?

Theoretical Framework

The framework of this study was built on two sets of variables, namely the attitude towards e-learning tools and teachers' online tools experiences. Teachers' attitude towards electronic learning tools was defined based on Liaw & Huang (2003), with three measurements: affective, cognitive, and behavioural. The second central variable is the experiences of online tools, where we looked at two concepts that included the teachers' experiences with use of these tools and corresponding satisfaction level (see Figure 1).

 With regard to attitude as a variable of this study, the study of attitude is one of the major research areas in psychology. Psychologists are interested in the components of attitude, how attitude develop and how they change. There are several main theoretical viewpoints about the essential components of attitude (Olson & Maio, 2003). One of these viewpoints is the tripartite theory or the tricomponent view- point, which embraces the notion that attitude has three components: Affect, Behaviour and Cognition (the 'ABC' of attitude). Several diverse theoretical perspectives including the Theory of Reasoned Action (TRA) (Azjen & Fishbein, 1980), and the Theory of Planned Behaviour (TPB) (Ajzen, 1985), and Innovation Diffusion Theory (IDT) (Rogers, 2010). Technology Acceptance Model (TAM) has been broadly used to check the acceptance of online learning technologies. TAM comprises five variables: Perceived Ease of Use (PEU), Perceived Usefulness (PU), Attitude towards Use (AU), Behavioural Intention (BI), and actual use (Lederer et al., 2000). In addition, many investigations were interested in studying the numerous factors influencing teacher behaviour and to what extent attitude and beliefs represent cognitive, affective, or evaluative qualities. Ajzen's Theory of Planned Behaviour is one of the studies which attempted to elucidate the complex interrelationships between beliefs, attitude and actions. In a context of implementing educational innovation such as e-learning tools, according to Ajzen's theory, attitude reflects an individual's affective and evaluative response to that innovation, and attitude influence one's belief, and shape an individual's intentions, which eventually translate into specific action applying the innovation. Moreover, personal attitude is a major factor to affect individual usage of information technology. In other words, understanding the attitude towards e-learning facilitates the creation of appropriate e-learning environments for teaching and learning (Liaw, 2002; Wang, 2003). The measurement of e-learning must incorporate different aspects of user perceptions to form a useful diagnostic instrument (Wang, 2003). Furthermore, Based on Liaw's (2002) point of view, constructing user attitude towards computer and internet technologies can be divided into three major measurements: affective (such as perceived enjoyment), cognitive

(such as perceived usefulness) and, behavioural (such as the behavioural intention to use e-learning as a teaching or learning tool) (Liaw & Huang, 2003). This measurement is based on integrating of TAM and the Theory of Reasoned Action (TRA) (Azjen & Fishbein, 1980). In this study for measuring attitude, the Liaw & Huang measurement was used as previous studies had discussed measuring attitude and technology use. For instance, three major attitudinal factors drove the participant willingness to use technology for learning: intended learning effort, perceived usefulness of technology for learning, and finally, perceived educational compatibility of technology with learning needs and preferences (Lai, 2018). Individual attitudes toward using technology was significantly predicted by perceived usefulness of technology, which was in turn hypothesized to affect behavioural intentions to use technology and actual use (Teo, 2010; Jan & Contreras, 2011).

Attitude was recognized as an important factor in the application of a technology and perceived satisfaction. In this regard, learning satisfaction was defined as a feeling or attitude of learners that their desires and needs can be fulfilled in learning activities or processes (Sanchez-Franco, 2009; Topala & Tomozii, 2014). Online user satisfaction refers to evaluation-based opinions and emotional experiences of users toward the quality of online learning service, which is a cumulative psychological response to online learning contents and learning environment, formed after a rational and emotional comparison between the actual perceived online learning effect and expectations of the perception (Yao et al., 2016. The determinants of Moodle effectiveness and satisfaction were studied by Damnjanovic et al., (2015). The researchers found that, in order to perceive satisfaction, variables such as interactive intent for future use, communicativeness, structure, quality of information, perceived learning outcome, usefulness and quality of the system are important.

Figure 1. The Conceptual Framework of the Study

Literature Review

The potential of e-learning technologies has enabled higher learning institutions (HLIs) to reach new learners at a distance, increase convenience and expand educational opportunities (Salmon, 2011; Weller, 2007). Literature has consistently suggested e-learning to be the best alternative to managing constraints to accessing education (Clarke, 2008; Garrison, 2011; Weller, 2007). This huge and sudden transition has raised an urgent need to explore

what are teachers' and students' attitudes towards and emotions related to online education and how they perceive their activities and performance in online education (Daniel, 2020).

In the context of higher education, a large number of studies have been conducted about the impact of online settings on education and both negative and positive attitudes, emotions, and perceptions have been reported (Drachsler et al., 2021). Similarly, studies show that successful implementation of educational technologies depends largely on the attitude of educators and that their attitude is a major enabling/disabling factor in the adoption of technology (Albirini, 2006; Mahdizadeh et al., 2008; Kumar & Kumar, 2011).

Accordingly, teachers are playing a key role in educational settings and their perception about e-learning affects students' attitude towards e-learning (Thakkar & Joshi, 2017). The teachers' attitude towards technology influences acceptance of technology as a useful resource, as well as technology's integration into teaching (Huang & Liaw, 2005). When instructors exhibit a more positive attitude towards e-learning, then they have more behavioural intentions to use it (Liaw, 2002). Teachers' positive perceptions regarding e-learning also help the students to adopt technology for educational purposes. Instructors themselves can also use e-learning to provide extra study material and ease of access to their students to improve their academic performance (Ramirez-Anormaliza et al., 2016). Kisanga (2016) surveyed various factors determining teachers' attitude towards e-learning. The results showed that teachers have positive attitude towards e-learning with computer exposure as a key contributing element towards their attitude.

Furthermore, studies found high satisfaction with online education for both teachers and students, since they found it to be a comfortable, flexible, and accessible mode of education (Mukhtar et al., 2020). Such an argument suggests the need for rethinking education in higher education settings and designing a thoughtful new education apparatus where we can provide flexible yet effective education in the post-pandemic era (Neuwirth et al., 2021). Teachers' and students' attitudes and emotions towards blended education were associated with their satisfaction (Van Puffelen et al., 2022; Banihashem et al., 2023). However, at the same time, reviews indicate that there are some factors, especially in developing countries, that impact teachers' attitude and acceptance and adoption of technologies. For example, the findings of the study conducted by Noori (2018) in Afghanistan revealed that, though the teachers had a positive attitude towards instructional technology, they also reported specific challenges that influence their use of instructional technology in classrooms. Challenges such as 'not enough computers', 'lack of time to use instructional technology in class' and 'Internet access not easily accessible' were among the main challenges reported by teachers.

Similarly, in a study carried out at Kabul Polytechnic University of Afghanistan by Sokout and Usagawa (2018), the researchers stated that having a proper infrastructure is one of the main necessities for the implementation of e-learning programmes in Afghanistan. In addition, a study conducted by Frugh (2019) on e-learning in Afghan universities, reported that more than half of the students confirmed that their classroom is using technology and e-learning tools. The study also reported challenges, such as lack of teachers' expertise with ICT, lack of skills and lack of awareness about ICT tools. As in Afghanistan, higher education in countries such as Tanzania has also addressed this problem and higher education for e-learning faces different challenges, such as lack of knowledge and awareness of innovations of e-learning, lack of attitude, lack of motivation and, finally, resilience and the

resistance to change among professors (Selim, 2007). Another study conducted in Saudi Arabia shows that the factors of successful e-learning at King Saud University are positive attitudes of users, easy use of tools, training effectiveness, e-learning initiative effectiveness and the adoption of new innovations in e-learning (Saay, 2018).

Moreover, Priyanto et al., (2017) reported that the effects of the social environment and other mechanisms to the e-learning acceptance arbitrated into three core variables of TAM, i.e., perceived usefulness, perceived ease of use, and intention to use. The findings also revealed that a more comfortable e-learning procedure would be beneficial for teachers to modify teachers' output and efficacy. The perceived ease of use positively affects perceived usefulness, which is essential to measure the success of the e-learning system. Perceived value involves evaluating relative advantages and compatibility as the users are concerned about whether e-learning systems could accomplish the user's job responsibilities or not (Lee et al., 2015). In other words, e-learning has been identified as a crucial component in education. In addition, measuring the attitude of teachers towards e-learning tools through three core variables perceived usefulness, perceived ease of use, and intention to use is essential and will have an impact on the usage of different e-learning tools.

Method

Research Methodology at KU
Participants

The study population comprises teachers at university level and a simple random sampling method, was used to collect the data. At Kabul University, when the survey was designed, all working teachers from the Faculty of Agriculture received the questionnaire. In total, 45 teachers in bachelor programmes from the Faculty of Agriculture filled out the survey. Among the different departments of the Kabul University, Faculty of Agriculture, three departments (Agricultural Environmental Science, Biotechnology, and Agricultural Economics and Extension) were selected because of the overlap with the domains in the WUR study conducted by Banihashem et al., (2023). One of the reasons that teachers did not participate in the research may have been the current situation in Afghanistan. From each department, 53%, 22% and 25% of teachers were participated respectively. There were 71% male respondents and 29% female respondents. Access to the Internet also varies from respondent to respondent, as 37% of the respondents had access to the Internet at their homes, 40% of the respondents had access to the Internet at the university, 11% of the respondents from the library and 12% in their classrooms.

Instrument for Data Collection

For collecting data, a structured survey questionnaire was used. The questionnaire was developed to know the attitude of teachers towards e-learning tools and experiences with the e-learning tools which were distributed between June 2022 to August 2022 to the teachers through web-based services, as well as, in-person methods used to collect the data after a final check of the survey. The questionnaire encompasses three main parts: (1) demographic information (see section 'Participants'). (2) the attitude of teachers toward the use of e-learning tools and (3) online tools use. It is noteworthy to mention that the questionnaire used at KU had just the above-

mentioned parts.

Furthermore, it should be noted that, based on the research objectives of the study conducted by Banihashem et. al., (2023) at WUR (see section on research methodology at WUR for more details), objectives of the current study at KU were developed, and a comparable questionnaire was designed. Research shows that the efficiency of technology enhanced learning and teaching depends on several factors. Most important of these factors are the following: suitable technological tools, appropriate didactical approaches, technological tools in various educational forms, taking into account the different abilities and preferences of learners and teachers, high-level competence of teachers and, finally, positively motivated teachers and students to use information and communication technologies. This justifies the purpose of the research effort, namely, to assess the attitude of teachers towards e-learning tools and to investigate the utilisation of e-learning tools at both universities.

Measurements

Measurement of Teachers' Attitude Towards e-learning Tools

Based on Liaw's (2002) point of view, the user's attitude towards computer and Internet technologies can be divided into three major measurements: affective, cognitive, and behavioural. The attitude towards e-learning tools was measured via three variables. The first variable was affective (i.e., perceived enjoyment), which could be defined as 'the degree to which the activity of using technology is perceived to be enjoyable in its own right apart from any performance consequences that may be anticipated'. It consisted of three items, such as 'I enjoy the use of ICTs in teaching'. The second variable was cognitive (i.e., perceived usefulness), defined by Davis (1989) as 'the degree to which a person believes that using a particular system would improve their job performance'. It consisted of ten items, such as 'The e-course offers a variety of ways to assess my teaching quizzes, written work, forums, and files'. The third variable was behavioural (i.e., behavioural intention to use e-learning as a teaching or learning tool) defined as 'teachers believed and developed an attitude to use e-learning tools as learning tools'. It consisted of five items such as 'I feel high mental effort when teaching in a blended form'. In the study an adapted version of Albirini's (2006) questionnaire was used, including five-point Likert scale (1 =Strongly Disagree; 5 = Strongly Agree); the percentage of teachers who agreed or strongly agreed with a given statement was calculated to indicate the general support of a statement.

To examine teachers' attitude towards the use of e-learning tools the procedure by Noori (2018) was followed, and few changes were made to the questionnaire to adapt to the current objectives and context of this study. The data was analysed in terms of mean scores and standard deviation in which the highest mean score that could be obtained is 5, indicating a highly positive attitude (most favourable attitude), and the lowest mean score that could be obtained is 1, indicating a highly negative attitude (least favourable attitude) among the respondents.

Measurement of Teachers' Online Tools Experiences

The experiences of teachers with online tools were measured via two variables. The first variable was about the usage of online tools (experiencing of different online tools during teaching), which was measured under four

categories (live interaction, interaction with students, assessment, video sharing and recording) and under each category different related tools were listed such as 'For live interaction with students: Zoom, Skype, Microsoft Teams and virtual classrooms'. Data was collected with closed Yes/No questions. The second variable represented teachers' satisfaction (the contentment one feels while experiencing the tool) for each category of tools usage and data was collected on a five-point Likert scale ranging from 'very dissatisfied', 'dissatisfied' to 'neutral', or 'satisfied' to 'very satisfied', (1 =very dissatisfied; 5 = very satisfied), the percentage of teachers who satisfied or very satisfied with a given item was calculated to indicate the general support of an item. It should be noted that these categories of tools have been selected based on the current usage of online tools at KU.

Data Analysis

For quantitative data obtained from the questionnaire, this research employed a quantitative design, specifically the descriptive approach. Quantitative descriptive design is the most appropriate approach in this study since it is used to measure or identify traits or experiences (Cresswell, 2014). The frequency count was used to present the total responses given for each item in the questionnaire to analyse the gathered data. The percentage was used to present the portion of the responses that were gathered aligned with probable answers. In addition, graphs, tables, and percentages were used to demonstrate, elaborate and present the findings.

Research Methodology at WUR
Participants

At Wageningen University and Research (WUR), data was collected from 307 teachers from different science groups: 22% of the respondents belonged to Agrotechnology and Food Sciences, 24% belonged to Environmental Sciences, 11% belonged to Animal Sciences, 23% belonged to Social Sciences, 19% belonged to Plant Sciences and only 1% belonged to other science groups. There were 48% male respondents, and 46% female respondents, and 6% preferred to not mention their genders.

Instrument for Data Collection

For this study, secondary data on WUR from a survey which was recently conducted by Banihashem et al., (2023) between September 2021 and February 2022 with respect to the 'transition to blended education (combined online and face-to-face) education during the corona crisis situation' was used. At WUR, a mix of quantitative research (surveys) and qualitative research (interviews) was chosen to collect the data. The questionnaire used had different parts based on previous research goals, but for this study only the three comparable but not identical parts (demographic information, teachers' attitude, and online tools use) were used as secondary data.

Measurements
Measurement of Teachers' Attitude Towards e-learning Tools

Based on Liaw's (2002) point of view, user's attitude towards computer and Internet technologies can be divided

into three major measurements: affective, cognitive, and behavioural measurements. Teachers' attitude towards e-learning tools was measured via three variables. The first variable was affective and consisted of three items such as 'I like blended teaching'. The second variable was cognitive and consisted of four items such as 'I feel blended teaching adds value to my teaching'. The third variable was behavioural and consisted of four items such as 'I feel high mental effort teaching in a blended form'. In the study an adapted version of Albirini's (2006) questionnaire was used, including a five-point Likert scale (1 =Strongly Disagree; 5 = Strongly Agree). The percentage of teachers that agreed or strongly agreed with a given statement was calculated to indicate the general support for a statement.

Measurement of Teachers' Online Tools Experiences

The experiences of teachers with online tools were measured via two variables. The first variable was about the usage of online tools (experiencing of different online tools during teaching), which was measured under four categories (live interaction, interaction with students, assessment, video sharing and recording) and under each category different related tools were listed, such as 'For live interaction with students: Zoom, Skype, Microsoft Teams and virtual classroom'. Data was collected in closed Yes/No questions. The second variable represented teachers' satisfaction (the contentment one feels while experiencing the tool) for each category of tools usage, and data was collected based on a five-point Likert scale ranging from 'very dissatisfied', 'dissatisfied' to 'neutral' or 'satisfied' to 'very satisfied'. It should be noted that these categories of tools have been selected based on the current usage of online tools at WUR.

Data Analysis

For quantitative data obtained from the questionnaire, descriptive statistics were used to measure the frequencies of the variables. Therefore, graphs, tables, and percentages were used to demonstrate, elaborate and present the findings. Since the survey items used at KU and at WUR were not completely identical, direct statistical comparison between the two universities was not possible. Instead, the findings from the two universities were presented as separate cases.

Results

Results at KU

Attitude of Teachers towards e-learning Tools

RQ1. What is the attitude of teachers towards e-learning tools at KU?

The teachers of the Faculty of Agriculture at KU had a favourable (53.33%), most favourable (31.11%) or least favourable (17.77%) attitude towards e-learning tools (see Figure 2). Therefore, more than 80% of the respondents had a favourable attitude towards e-learning tools, indicating that they had enjoyed, liked the use of e-learning tools and perceived usefulness of e-learning tools in their teaching process. They mentioned that they have used e-learning tools at their own pace in their classrooms, but, in general they were positive about e-learning tools.
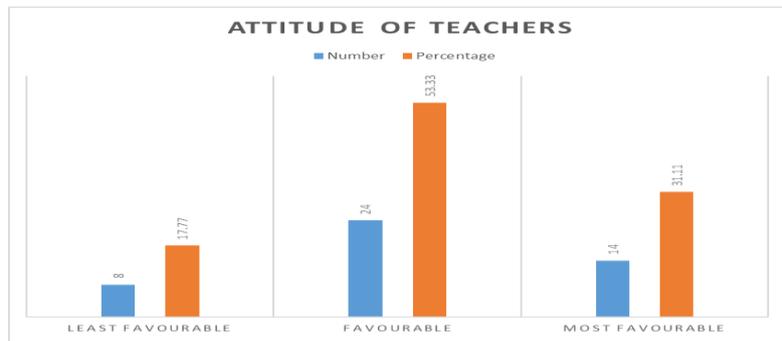
Figure 2. Attitude of KU Teachers

KU Teachers' Attitudinal Statements Results

RQ1.1. What is the teachers' perceived enjoyment (affective), usefulness (cognitive), and intentional (behavioural) attitude of teachers towards e-learning tools?

At KU, the perceived attitude of enjoyment (affective) of teachers show that the majority of the teachers enjoyed the use of ICT in teaching and perceived e-learning tools as more interesting (3.42 on average). Furthermore, some teachers did not enjoy themselves and developed a least favourable attitude towards online learning tools, such as feeling worried about teaching in blended form (2.68 on average) and finding it difficult to combine personal life at home with blended teaching (3.16 on average). Subsequently, at KU the perceived usefulness attitude (cognitive) of teachers towards e-learning tools show that teachers perceived the usefulness of e-learning tools in terms of saving time (3.58 on average), understandable ways of teaching (3.28 on average), efficiency in teaching tasks (3.46 on average), usefulness in language learning (2.76 on average) and increased interaction with students (3.56 on average). Furthermore, at KU the intentions to use e-learning tools as learning tools (behavioural attitude) show that teachers believed and developed an attitude towards e-learning tools such as can enhance student learning (3.16 on average), students rapidly can get an answer (4.16 on average), can have more focus (3.96 on average), feel they are managed to teach (3.87 on average) and feel high mental effort (3.76 on average) (see Figure 3).
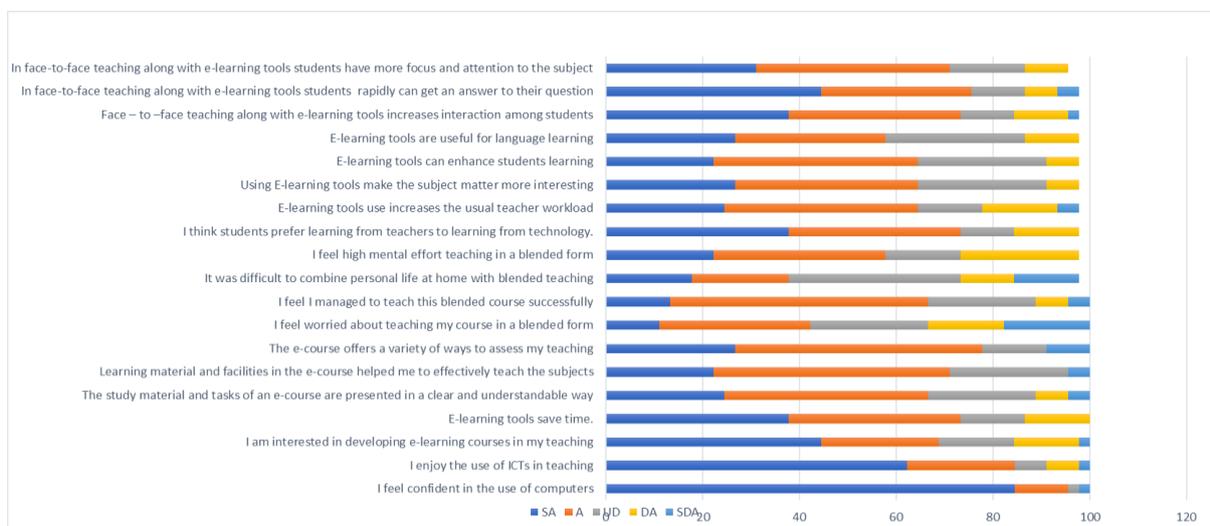

Figure 3. Attitudinal Statements of KU Teachers

Teachers' e-learning Tools Experiences

RQ.2. To what extent teachers have been using online tools, and are they satisfied with these tools in their classrooms at KU?

Teaching Format

At KU, the findings reveal that 55%, more than half of the teachers used a face- to -face education format, 29% used a blended format and only 16% used an online education format (see Figure 4). It is noteworthy to mention that, during COVID- 19 period, when the university was closed, teachers used blended and online teaching formats Also, they have used face–to–face teaching formats throughout the whole academic years during the COVID-19 period, which means when the university was not closed.
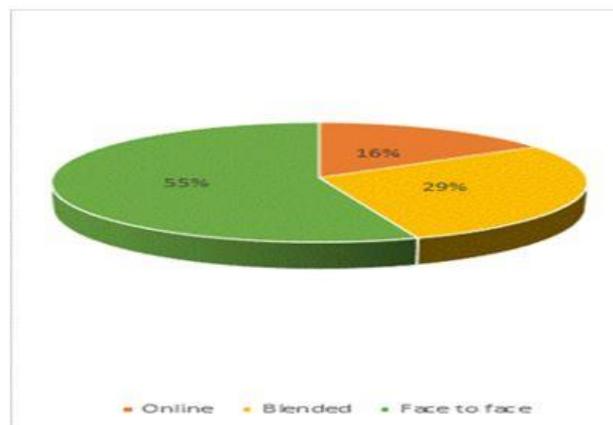

Figure 4. Teaching formats at KU

Live Interaction with Students

Since the COVID-19 epidemic has had a significant impact on higher education institutions, it seems that most of the institutions during this period paid more attention to the use of different e-learning tools. During the COVID-19 period, Afghanistan's MoHE of Afghanistan opted for online teaching immediately and in Afghanistan universities were not closed for the whole academic year, only during the highest levels of COVID-19 (almost three months) were universities closed. During this time, some teachers recorded videos and uploaded them to their classes online for students to access, while some went even further and used Google Classroom, WhatsApp, HELMS and other online platforms. In this connection, as Table 1 illustrates, the live interaction with students during COVID-19 period at KU data indicates that almost half of the teachers mainly used virtual classroom and WhatsApp for live interaction with students and were somewhat satisfied with these tools. The results also indicate that the majority of the teachers did not use more frequently Microsoft Teams, Zoom and Skype, and they were less satisfied with these tools. It can be noted that on average teachers were motivated to teach online.

Video Sharing and Recordings

Additionally, Table 1 indicates the use of video recording and sharing tools. Teachers used video recording and sharing tools on a large scale. For the most part, at KU a vast majority of teachers used recorded PowerPoints,

and videos on YouTube. It also indicates that most of the teachers used other tools like knowledge clips, web lectures from previous years, newly recorded lectures and library for interaction with students. And, as can be seen from Table 1, the teachers were more satisfied with knowledge clips and then recording with PowerPoints while using them.

Interaction with Students (Non-synchronous)

Meanwhile, the data reveals that most of the Agriculture Faculty teachers who interacted with students (non-synchronous) used Afghanistan online teaching platform called the Higher Education Learning Management System (HELMS) (70%) and the Google Classroom (51.11%) for interaction with students and were somehow satisfied with these tools (see Table 1).

Assessment Tools

As data in Table 1 illustrates that, most of the teachers at KU used different tools to assess students. Aassessment tools such as group assignments, self-assessment, quizzes and surveys are important tools. Teachers that used these tools were satisfied with these tools. But, individual assignments and quizzes (84%) were widely used tools among teachers.

Table 1. Online/digital Tools Experiences by KU Teachers

Tools	Use		Satisfaction level				
Live interaction with students	Not use	Use	1	2	3	4	5
Virtual classroom	51.11	48.88	0	13.33	8.89	11.11	15.55
Zoom	86.66	13.33	0	0	15.55	13.33	0
Skype for Business	68.88	31.11	44.44	0	15.55	11.11	0
WhatsApp	44.44	55.55	8.88	11.11	13.33	15.55	6.66
Microsoft Teams	91.11	8.88	0	8.88	0	15.55	0
Video sharing and recording							
Web lectures newly recorded	53.33	46.66	8.88	0	20	8.88	8.88
Web lectures of previous years	51.11	48.88	6.66	6.66	15.55	15.55	4.44
Knowledge clips of previous years	62.22	37.77	14.8	14.8	34.55	34.55	9.86
Library for learning sources	53.33	46.66	6.66	0	13.33	22.22	6.33
PowerPoint recordings	37.77	62.22	0	8.88	8.88	24.44	20
Videos on YouTube	40.00	60.00	0	13.33	11.11	20	15.55
Interaction (non-synchronous)							
Afghan X	48.88	51.11	0	4.44	17.77	0	8.88
HELMS	30	70	17.77	11.11	17.77	8.88	24.44
Google Classroom	24.44	68.88	4.44	13.33	8.88	13.33	11.11
Assessment tools							
Individual assignments	15.55	84.44	0	11.11	33.33	22.22	17.77

Tools	Use		Satisfaction level				
Group assignments	17.77	82.22	0	17.7	22.22	24.44	17.77
Quizzes	15.55	84.44	0	11.11	26.66	35.55	11.11
Self-assessment	46.66	51.11	2.22	13.33	20	11.11	11.11
Surveys	48.88	51.11	0	0	24.44	20	6.66

1=very dissatisfied, 2= dissatified, 3=neutral, 4=satisfied, 5=very satisfied

Results in WUR

Attitude of Teachers towards e-learning Tools

RQ1. What is the attitude of teachers toward e-learning tools at WUR?

The survey at WUR reveals that teachers used different tools and were satisfied about these tools, which means the data shows definitively high levels of positive attitude of Wageningen University teachers towards e-learning tools based on their perceived enjoyment, usefulness and usability of e-learning tools in their teaching process.

WUR Teachers' Attitudinal Statements Results

RQ1.1. What is the perceived enjoyment (affective), usefulness (cognitive), and intentional (behavioural) attitude of teachers towards e-learning tools?

As the data from the survey reveals, WUR teachers perceived enjoyment attitude (affective) show that, teachers liked blended teaching (3.86 on average). In addition, they also felt comfortable (3.43 on average), felt a sense of wellbeing (2.68 on average) and felt satisfied with blended teaching (3.25 on average).Subsequently, at WUR, teachers' perceived usefulness attitude (cognitive) towards e-learning tools show that, teachers perceived usefulness of e-learning tools in terms of adding value in teaching (3.16 on average), increasing teaching efficiency (2.87 on average) and increasing ability (2.98 on average) (see Figure 5).
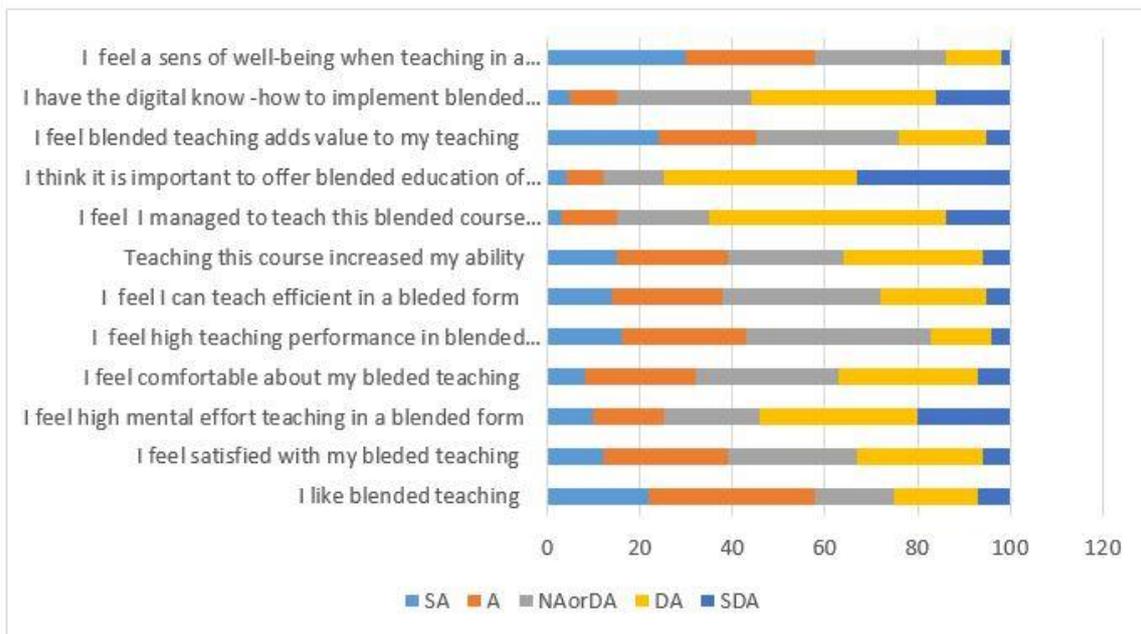

Figure 5. Attitudinal Statements of WUR Teachers

In addition, the data from survey indicates that at WUR, the teachers' intentions to use e-learning tools as learning tools (behavioural attitude) show that, teachers believe and developed attitude towards e-learning tools as on average they feel high teaching performance, high mental effort and they managed to teach with the blended teaching format.

Teachers' e-learning Tools Experiences

RQ.2. To what extent teachers have been using online tools, and what is their satisfaction with these tools in their classrooms at WUR?

Teaching Format

As the data at Wageningen University indicates that, 35% of the teachers used face-to-face education format, 33% used a blended format and 32% used an online education format (see Figure 6).
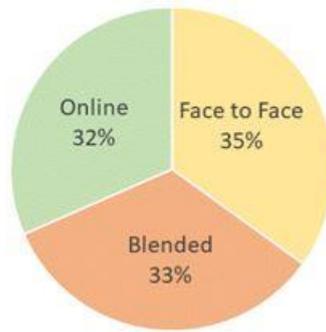

Figure 6. Teaching Format at WUR

Live Interaction with Students

Table 2 shows that at WUR, teachers mainly used Microsoft Teams (97%) for live interaction. In addition, more than half of the teachers used the virtual classroom and were satisfied with these tools (see Table 2).

Video Sharing and Recordings

As Table 2 illustrates video recording and sharing tools at WUR, data shows that newly recorded web lectures (56%), and videos on YouTube (47%) were popular among teachers. In addition, the teachers also used other tools such as knowledge clips of previous years, web lectures from previous years and recording with PowerPoints, but the majority of them were mostly satisfied with recording with Snagit and knowledge clips.

Interaction with Students (Non-synchronous)

The results at WUR indicate that teachers mainly used Brightspace assignments (79%). In addition, they have also used Brightspace s' email tooling, group management and forum discussions for interaction with students, and students were quite satisfied with these tools (see Table 2).

Assessment Tools

At WUR the data in Table 2 indicates that, most teachers used group assignment (74%). Besides, group assignment they also used, Brightspace grades, individual assignments, Rubrics, quizzes and Turnitin as assessment tools and most of them were satisfied with these tools.

Table 2. Online/digital Tools Experiences by WUR Teachers

Tools	Use		Satisfaction level				
Live interaction with students	Not use	Use	1	2	3	4	5
Virtual classroom	46	54	6	14	24	42	14
Zoom	86	14	1	1	18	51	29
Skype for Business	94	6	36	21	21	14	8
WhatsApp		0					
Microsoft Teams	3	97	5	9	15	31	40
Video sharing and recording							
Web lectures newly recorded	44	56	2	13	24	46	15
Web lectures of previous years	70	30	3	15	24	41	17
Knowledge clips of previous years	55	45	1	1	19	55	24
Library for learning sources	93	7	1	8	9	46	36
PowerPoint recordings	60	40	4	11	24	43	28
Videos on YouTube	53	47	1	6	20	50	23
Interaction (non-synchronous)							
Feedback fruits assignments	90	10	11	5	26	32	26
Feedback fruits peer assignment	84	16	6	1	24	31	38
Brightspace email tooling	43	57	11	14	19	44	12
Brightspace group management	53	47	3	6	23	53	25
Brightspace assignment	21	79	2	4	14	52	28
Brightspace forum discussions	61	39	12	17	26	35	10
Assessment tools							
Individual assignments	44	56	1	14	12	63	20
Group assignments	26	74	1	5	11	62	21
Quizzes	61	39	2	5	22	48	23
Self-assessment	80	20	1	6	31	59	3
Surveys	88	12	1	1	1	55	42

1=very dissatisfied, 2= dissatified, 3=neutral, 4=satisfied, 5=very satisfied

Discussion

The educational landscape is going through a revolutionary change. Currently, courses, lectures and seminars no longer have to be confined to a traditional classroom setting. Therefore, teachers have to change their attitude and

learn how to revise their pedagogical practice, how to replace traditional lessons and how to incorporate new education models that place students in the centre of the learning process. Teachers' attitude towards ICT and computers can greatly influence their adoption and integration of these technologies into their teaching (Albirini, 2006; Buabeng-Andoh, 2012). It cannot be expected that teachers will automatically accept that they need to change their teaching methodology and embrace technology as they must first understand why technology should be used in teaching and how it can be used to make teaching better.

From the results of the survey, it can be concluded that most teachers have the ability to employ ICT in teaching and learning. Teachers who responded to the survey at both universities generally have a positive attitude towards ICT tools and e-learning which means that according to the three major measurements affective, cognitive, and behavioural (Liaw & Huang, 2003). On the other hand, they have perceived enjoyment, usefulness and usability of e-learning tools in their teaching process and believe that ICT and e-learning can play an important role in improving the quality of the educational process. As the data shows, teachers with favourable attitude indicated that they enjoyed, liked the use of e-learning tools and perceived usefulness of e-learning tools in their teaching process. In addition, they have used e-learning tools at their own pace in their classrooms. However, they were positive about e-learning tools. While teachers with the most favourable attitude indicated that they more liked, more enjoyed the using of ICT and more perceived usefulness of e-learning tools in their teaching process. They have used e-learning tools on a large scale compared to the teachers with favourable attitude and showed a higher level of positivity. Teachers with least favourable attitude indicated that to some degree they have negative attitudes towards e-learning tools based on perceived enjoyment, usefulness and usability of e-learning tools in their teaching process. The reason behind this might be that some of the teachers do not know which form of technology to use or how to use it and they do not have time to learn because they are already overloaded with work. It is inevitable that all this will impact their acceptance of ICT and e-learning technologies in education, which leads to not possessing a high level of positivity and sometimes a low level of positivity towards e-learning tools. Therefore, teachers need to be assured that e-learning can make their teaching interesting, easier, more fun for them and students, more motivating and more enjoyable. From the survey it is visible that the KU teachers were having favourable attitude towards e-learning tools. The finding is in line with the finding of the study conducted by Noori (2018) in Afghanistan, where he reported moderate use of technology and teachers with a positive attitude. Hashemi (2021) also reported that the lecturers possibly have appeared to be more in favor of online teaching with more teaching experience, and higher academic qualifications (degree).

Further, e-learning is a new concept for most teachers and students, therefore, it is necessary to enhance their familiarity with education technology at a certain level. For example, at WUR it seems that most of teachers were having most favourable attitude towards e-learning tools which means they liked, enjoyed and perceived more usefulness of e-learning tools in their teaching process. In addition, they have used more e-learning tools at a large scale. As Liaw (2002) indicated, when instructors exhibit more positive attitude towards e-learning, they have more behavioural intentions to use it. In a context of implementing educational innovation, Ajzen's theory describes attitude as something which reflects an individual's affective and evaluative response to that innovation, and attitude influences one's beliefs and shapes an individual's intentions, which eventually translate into specific action applying the innovation.

Furthermore, the results indicate that a majority of teachers from the Faculty of Agriculture have used face to face teaching formats and have not used the online and blended format on a large scale. The reasons may be that students might not learn from online learning compared to traditional classroom setting, learners might not have access to Internet-based learning through computers, students might not favour web-based learning, and students might not seek the same descriptions of on online learning as they experienced during COVID-19 period.

 Furthermore, at Wageningen University and Research Centre, teachers have used face to face and blended education format rather than online format. As the 4TU.Centre for Engineering Education (4TU.CEE) states in its paper, "The impact of COVID-19 on university teaching and learning" at WUR, both students and teachers indicated that they thought the students' learning performance in online education would be worse than on-campus education. Teachers' feedback to students, the collaborative learning between students, the motivation of students, and students' participation were all considered to be lower in online education. In other words, based on the survey data, teachers' perceived ability to teach in a blended format was relatively high, but teachers' perceptions of the effects of blended teaching on student learning were not strongly positive. Additionally, teachers mainly indicated that they had enough digital knowledge but not enough pedagogical knowledge to teach in a blended format.

Moreover, in terms of online digital tools, KU and WUR have had their own initiatives and surely, we cannot compare these two universities because there is a huge gap in terms of using technologies at both universities but stull the results illustrate that what type of technologies they have used. In this connection, at KU the majority of teachers for interaction with students have used HELMS and Google Classroom. For live interaction, they have used virtual classroom and WhatsApp but their satisfaction with these tools was very low. The reason behind low satisfaction with the use of tools could be that teachers, especially those who were not familiar with the use of technology in teaching, had a low satisfaction level. In addition, many aspects may have affected the satisfaction level of teachers, such as lack of skills, equipment, facilities and so on, which needs more consideration. The finding is in line with the finding of study conducted by Himat et. al., (2021) in Afghanistan, and this study revealed that the level of acceptance was highly affected by knowledge about the development and lack of necessary skills in e-content which was a major issue with respect to use of HELMS.

At WUR, teachers largely used for interaction and live interaction with students Brightspace and Microsoft Teams with a high level of satisfaction. The finding is in line with the finding of study conducted by Stevens et.al., (2020) and the study revealed that Virtual Classroom in Brightspace for live interaction was used by teachers. Moreover, teachers at both universities used video recording and sharing tools on a large scale, mostly recording with PowerPoints, videos on YouTube and knowledge clips were used among teachers. It can be seen from the data that more likely among teachers' videos on YouTube and knowledge clips were more concise in handling their subject matter, and easy access to a variety of the videos was provided at both universities.

Taking this into account, in KU mainly used group and individual assignments, and quizzes as assessment tools and they were satisfied with these tools. In addition, teachers at WUR mainly used, Brightspace grading, group and individual assignments, and Rubrics as assessment tools and were satisfied with these tools. It is clear that, these tools can help teachers to support and track students learning progress and provide targeted feedback. Also,

the teacher can easily understand where the students need guidance and how to improve it.

 It can be pointed out that teachers at KU mainly use non-digital tools (traditional ways of learning) for assessment of the students, while teachers at WUR mainly use digital tools for assessment of students. On the other hand, it is obvious that the reasons for not using e-learning tools in assessment are that the teachers do not have awareness, knowledge and access to different e-learning tools at KU. In developing countries like Afghanistan, where the situation for learning and teaching is always not favourable and constant for some specific groups. It is important for institutions, and particularly for teachers in those institutions, to always consider this and find solutions. Significantly, many teachers with favourable attitude are not more interested in changing an existing programme to something they only know through discussion and reading and not through observation.

In this connection, based on reviews, barriers are also important factors in shaping one's attitude and in acceptance and adopting of e-learning tools. For example, the lack of technical support and equipped classrooms are found to be the most important barriers in the use of new technologies and new methods of teaching. On the other hand, factors that have been categorized by Becta in 2004 could be considered to address the barriers in e-learning process. These factors categorized are into teacher-level, institutional-level, and system-level barriers. Teacher-level barriers include lack of teacher ICT skills, lack of teacher confidence, lack of pedagogical teacher training, lack of follow-up of new and lack of differentiated training programmes. Institutional-level barriers comprise absence of e-learning infrastructure, old or poorly maintained hardware, lack of suitable educational software, limited access to e-learning, limited project-related experience, lack of integration of e-learning into institutional strategy and the system-level barriers include rigid structure of traditional education systems, traditional assessment, restrictive curricula and restricted organizational structure. Knowing the extent to which these barriers affect individuals and institutions may help in taking a good decision on how to tackle them.

Theoretical and Practical Implications

The findings of the study make advancements to theory, for instance, regarding Liaw's (2002) three major measurements of attitude: affective, cognitive, and behavioural. The cognitive attitude towards an e-learning platform would connote that high satisfaction with the system would be developed by teachers when they perceive usefulness of a specific type of e-learning. This means that they would enjoy themselves while using it, so they could develop an affective attitude, which would lead to their intentional attitude. This makes teachers use the e-learning tools more frequently. It stands to reason, therefore, that through frequent use of the e-learning tools, teacher performance is enhanced; teachers would like to use different types of e-learning tools in the future. Hence, Davis (1989) not only induces satisfaction levels of e-learners, as Pérez-Pérez et al., (2020) and others confirm, but it also improves their teaching outcomes. Thus, an effective e-learning system would help future learners and so policymakers should consider the usefulness and enjoyment of the e-learning tools while they introduce them. Attitude always leads to increased satisfaction among different e-learning users who participate in e-learning process because, without an effective implementor, a quality system does not yield expected results. As a corollary to this, teachers with positive attitudes towards e-learning tools are expected to make excellent use of e-learning tools once they are happy with and have intention to use them as an instructional technology in the future.

According to Cennamo et al., (2010) in order for "optimal" technology integration to occur, teachers need to know how to carry out the following steps: 1. Identify which technologies are needed to support specific curricular goals; 2. Specify how the tools will be used to help students meet and demonstrate those goals; and 3. Enable students to use appropriate technologies in all phases of the learning process 4. Select and use appropriate technologies to address needs, solve problems, and resolve issues related to their own professional practice and growth.

Also, issues related to teacher change are central to any discussion of technology integration. In general, when teachers are asked to use technology to facilitate learning, some degree of change is required, along with any or all of the following dimensions: (a) beliefs, attitudes or pedagogical ideologies; (b) content knowledge; and (c) pedagogical knowledge of instructional practices (Fullan & Stiegelbauer, 1991). Furthermore, Sun et al., (2008) determined that, because teachers are key actors in learning activities, their attitude towards the technological equipment used in e-learning has a positive consequence on the e-learning system. When thinking about technology as an innovation, Fisher (2006) cautioned against viewing technology as an 'agent of change'. Rather, he argued that teachers must assume that role.

Consequently, learners and teachers with positive attitudes upon having perceived e-learning's usefulness, who enjoyed using it and who were satisfied with it, then, finally have an intention to use it for longer periods of time. This extended use could occur through intensive trainings and guidance for e-learners, regardless of technological background. It is through this training and first-hand experience that teachers would most likely enjoy working with the e-learning tools and could develop a positive attitude. In comparison to industrialised countries, in developing economies, the approach towards adoption and/or implementation on a large scale needs to be tailored to the cultures of the users in frontier economies (Farooq et al., 2020). Corollary to the findings, we recommend that, based on the current situation and the education of women in Afghanistan, teachers are highly motivated to use e-learning tools, and this motivation thereby shapes their attitude towards technology. Therefore, user-friendly e-learning platforms would cause distance learning students to appreciate e-learning, which would, in turn, boost their performance (Farooq et al., 2020; Farooq et al., 2021; Khadam et al., 2018). Additionally, satisfaction is essential to ensuring that instructor factors and technology anxiety among teachers significantly influences performance in an e-learning environment. Notwithstanding, as underscored by Khadam et al. (2018), we reiterate that regulators must account for individual differences when rolling out e-learning policies.

The aftermath of this study might be utilized as the foundation for forecasting how users will respond to the implementation of e-learning tools and the degree to which they will use these in their everyday lives. We recommend that policymakers and educational institutions develop regular training for tutors/instructors/facilitators as well as students, so that the basic skills required for operating technological equipment and e-learning platforms could be imparted to all distance learning students within their reach. This impartment of skills would enable both teachers and students to take greater advantage of the e-learning system's potential for improved performance. More importantly, the channel through which the determining factors of teachers' attitude and e-learning tools usage affect the performance of e-learners should be of great concern to governments and educational policymakers in developing economies in their journey to catch up with their

counterparts in the advanced world. Furthermore, user-friendly systems should be employed rather than complex e-learning mechanisms. Following Liaw's (2002) measurement mode, teachers would only use a system if and when they perceive that the system is useful and requires little effort, thereby leading to teacher enjoyment and satisfaction. Moreover, in developing countries, a proper infrastructure is one of the main necessities for the implementation of e-learning programmes.

Therefore, this study offers an optimistic view about e-learning values to improve student access and improve the quality of teaching and learning in the higher education context of Afghanistan. The results provided in this study also show that the implemented e-learning tools at WUR were successful and provided users with a way through which they might undertake educational activities in the institution. In addition, it is very important for educational institutions to have information about the e-learning tools which have been used by the teachers, as well as information about teacher satisfaction level.

Consequently, the study also provides suggestions to the HEIs such as making the e-learning tools accessible 24/7, provision of error-free information, the robustness of the server, quality of content, updated information, quality of information, user-friendly designs of the student portal, well-organized data, training module materials associated with e-learning portal use for new users and periodic feedback from the users. Suggestions such as these, if taken up and executed, will enhance the acceptability and durability of the ELP (E-learning Programmes) at both universities.

Conclusion

The current study evaluated teachers' attitude towards e-learning tools and tools which have been used at both universities. It can be concluded that at KU teachers had positive attitude towards e-learning tools which findings indicate their perceived enjoyment, usefulness and usability of e-learning tools. They are using face to face teaching formats and less advanced and educational e-learning tools, which findings also indicate that, in addition to their attitude another factor is the challenges, the focus is on the challenges and needs for implementing e-learning tools. In this situation specifically important for the education of female students. On the other hand, the success of WUR in terms of the use of e-learning tools shows impact of high-level positivity and intensions of teachers about the adoption and integration of e-learning tools without challenges which might have negative impact on teaching and learning process. In this connection, as mentioned earlier, although the majority of teachers at both universities used online platforms as new modes of delivery for live interaction, interaction, assessment and video sharing and recording, but the tools usage and satisfaction levels were different. Lastly, the findings of this study can benefit higher education administrators, project implementers, and teachers to better target students and to provide more effective support within integration of e-learning tools in education contexts.

Limitations and Future Research

- There are some limitations of this study that need to be acknowledged. First, the data was collected from one university in both countries; however, the size of the data was rather large at WUR but small at KU.

> This means that the findings should be cautiously generalized for any type of e-learning tools and may not be the same for teachers in different institutions. For future research, we suggest additional comparable studies to explore whether the findings are in line with the present study in order to confirm the validity and reliability of the findings to scale up.

- Second, due to the current situation in Afghanistan and limitations for women in education and work, the procedure was complicated and different for the researcher as a female researcher and data collector in comparison with the challenges a male researcher might experience. Future research can be conducted by a male researcher in Afghanistan to use different methods of data collection and to reach to different aspects of the data.

- Third, this study was limited to higher education settings of two different universities, which hampers the study's applicability in other education settings. Thus, the researchers recommend more studies concerning technology acceptance for educational purposes specially in Afghanistan, to cope with the existing challenges especially for Afghan female students, regarding e-learning adoption and integration in higher education.

- Fourth, the results of the data in this study did not provide comprehensive and in-depth connection and insights into the reasons behind teachers' positive or negative attitudes and emotions related to e-learning tools. Therefore, an in-depth analysis of the underlying themes and a systematic connection of the reasons to the ongoing empirical literature was not possible. For future studies, we suggest a more in-depth analysis of the themes and making a strong tie between qualitative and quantitative results in order to provide a comprehensive overview and understanding of the gap.

- Last but not least, in this study, we did not investigate relationships between the attitudes, demographic information and e-learning tools usage. For future studies, we suggest exploring the relationships between these variables.

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