Evaluating E-Learning Acceptance in Nepal: A Case Study of a Tribhuvan University Affiliated College

Bibhor Baral*1, Henrik Hansson² Ulf Larsson³

*Corresponding Author

Abstract

In Nepal, Tribhuvan University (TU) introduced a blended e-learning approach by implementing MOODLE, a learning management system. There is a concern of acceptance of e-learning among the students as well as among teachers due to barriers on technological up-to-date, scarcity of resource and technology know-how. The study analysed the perceptions of teachers and students on this change using qualitative methodology, especially empirical phenomenology. The results showed that both teachers and students at sampled one of the TU affiliated colleges, are positive about the e-learning system, but students are more likely to accept it than teachers. Senior teachers from non-ICT backgrounds and part-time teachers were less supportive. The e-learning system was recognised for its benefits, including providing extended learning opportunities, reducing additional burdens, facilitating effective sharing of ideas and knowledge, and enabling new forms of interaction. However, challenges in Nepal, such as inconsistent electricity supply, limited user resources, slow internet connectivity, and insufficient technical support, may hinder its acceptance. Addressing these challenges is crucial for the successful implementation of e-learning in Nepal.

Keywords: blended learning developing country, e-learning, Moodle, user acceptance, UTAUT

Cite as: Baral, B., Hansson, H., & Larsson, U. (2024). Evaluation e-learning acceptance in Nepal: A case study of a Tribhuvban University affiliated college. *Journal of Business and Social Sciences Research*, 9(1), 139-156. https://doi.org/10.3126/jbssr.v9i2.72422

INTRODUCTION AND RESEARCH OBJECTIVES

E-learning is the concept of using information and communication (ICT) to change teaching methods and practices. It is a result of the recent development of the information society and often affects the world economy and culture (Kahiigi et al., 2008). Therefore, e-learning can be understood as ICT-supported or enhanced learning (Ssekakubo et al., 2011). Developing countries are starting to use ICT to meet their increasing educational needs (Andersson & Grönlund, 2009). Authors believe that e-learning can help the country develop in many ways. The results of this

¹Mr. Baral is an Information Management Officer at International Organization for Migration (IOM), Sudan, Africa. Email: bibhorbaral@gmail.com

²Dr. Hansson is a Professor of Computer and Systems Sciences at Department of Computer and Systems Sciences, Stockholm University, Sweden. Email: henrik.hansson@dsv.su.se

³Mr. Larsson is a Programme Manager at Spider at Department of Computer and Systems Sciences, Stockholm University, Sweden. Email: laru@dsv.su.se

include increasing students' access to higher education (Dhanarajan, 2001), improving academic quality (Barrettoa et al., 2003), addressing the teacher shortage (UNESCO & International Task Force on Teachers for Education 2030, 2006), reducing costs and improving the quality of education (Chao & Chen, 2009). Universities in developing countries, including Africa and Asia, have been implementing e-learning for years to redesign pedagogical approaches and create a studentcentred learning environment. This approach is expected to boycott the punishment system (Andersson, 2008; Deoghuria & Roy, 2008; Power & Shrestha, 2010; Ssekakubo et al., 2011; Tedre et al., 2010). Regarding integrating ICT in education, in 2001, Tribhuvan University (TU) started a oneyear distance learning program for teachers (Mason & Rennie, 2007). Since then, it has remained TU's median e-learning initiative.

Nepal has a formal education system dating back to 1853. After the fall of the Rana regime in 1951, education expanded to the masses, with 1200 primary schools, 83 high schools, and 14 new colleges. In 1957, the Ministry of Education and Sports adopted distance education via state-owned radio, and in 1978, Radio Nepal launched a teacher training program. The government is prioritising ICT to address education issues and create a more student-centred learning environment. However, Nepal, a Himalayan country in South Asia, has not investigated the advantages of e-learning in universities. Among all universities in the country, TU accounts for more than 87 percent (UGC, 2024). Joshi et al. (2024) found that despite Nepal's government's ICT policies since the 1990s, such as the ICT in Education Master Plan, Higher Education Policy, Digital Nepal Framework, and NEHEP, significant obstacles remain, such as insufficient financing, inadequate infrastructure, and teacher training shortages. They suggest a coordinated strategy, sustained investment, and rigorous monitoring to maximise ICT's potential in Nepal's higher education.

Furthermore, Wagley (2006) noted that the university employs a conservative teaching technique that encourages memorising rather than developing critical and creative thinking skills in students. The system is like Paulo Freire's 'Banking Education', where teachers know everything and students know nothing, instructing them to follow a mechanical process of receiving, filing, and storing information (Freire, 1970). Shakya et al. (2018) illustrated the transition from traditional learning to E-learning in a rapidly changing environment and provided an overview of the current of E-learning in Nepal, emphasising on impact and problems. It aimed to incorporate a literature study to present a high-level comparative assessment of the state of the education system in relation to E-learning. Based on these investigations, the study discovered the impact and obstacles of E-learning, as well as why higher education institutions are increasingly embracing the E-learning method. Similarly, Subedi (2020) investigated the acceptability of online classes in Nepal using the Technology Acceptance model. The study discovered that perceived usefulness had a significant impact on intention to use online courses. Perceived usefulness and simplicity of use have a major impact on the intention to use online classes. Hence, there is a concern of acceptance of e-learning due to access to technology or cost factors or even eagerness to accept the changes.

E-learning does not necessitate abandoning traditional distance education methods. A blended learning approach, combining

traditional and e-learning elements like multimedia technology, video conferencing, virtual classrooms, and video streaming, is suitable for universities in their early stages of ICT adoption for the universities like TU (Thorne, 2003). Collaboration software provides online courses, computer-based communication, and classroom lectures (Mortera-Gutierrez, 2005). Similarly. blended learning software can manage administrative functions of online learning, such as creating, reusing, locating, delivering, managing, and improving learning content (Rengarajan, 2001). Such software tools are popularly called Virtual Learning Environment (VLE), Learning Management Systems (LMS), Learning Content Management Systems (LCMS) and Course Management Systems (CMS) (Martin-Blas & Serrano-Fernández, 2009). LMS is crucial for modern higher education institutions, with commercial LMSs like Blackboard and WebCT being successful. However, high site licensing and renewal fees pose financial issues (Gorb et al., 2004). Several free Learning Management Systems (LMS) like Docebo, eFront, Dokeos, Claroline, ATutor, ILIAS, OLAT, Sakai, LRN, openelms, Ganesha, and Moodle (Modular Object-Oriented Dynamic Learning Environment) are available. The shift from commercial LMS to open systems like Moodle is increasing, making it a popular choice worldwide (Martín-Blas & Serrano-Fernández, 2009; Rodrigues et al., 2011). Moodle, being open source, can be customised to meet the specific needs of institutions, making it crucial for both experienced e-learning institutions and those starting their journey, like TU. Hence, the paper aimed to understand the perception of teachers and students before using Moodle of E-learning.

LITERATURE REVIEW

The following paragraphs discuss the review of literature relevant to this study.

E-learning and Blended Approach

E-learning be defined can electronic learning using media such as the Internet, intranet, extranet, audio cassette, video cassette, radio and television (Garrison & Anderson, 2003; Govindasamy, 2002; Rosenberg, 2001). Electronic learning (E-learning) technology is commonly used as a teaching and learning approach in higher education institutions around the world. In 1998, Cross coined the term e-learning (Cross, 2004; Dublin & Cross, 2002). E-learning technologies refer to the use of digital technology to acquire, store, and process information in a learning environment. Sangrà et al. (2012) define e-learning as a digital teaching strategy that enhances access to training, communication, and engagement through digital technology.

E-learning models, initially seen as replicating classrooms, have evolved to integrate technology and pedagogical issues. They provide content, delivery, electronic services, emphasising virtual instructional design and virtual learning communities (Engelbrecht, 2003). Higher learning relies on interaction between teachers and students. e-learning facilitates this interaction. Interaction learning can be synchronous asynchronous, with asynchronous allowing independent learning experiences and requiring simultaneous interactions (Hines & Pearl, 2004; Johnson et al., 2006). Synchronous e-learning allows real-time interactions between teachers and students. requires simultaneous interactions, and

allows communication between multiple users. Both types of learning methods are essential for effective higher education (Ally, 2004; Johnson et al., 2006). E-learning can complement traditional education and replace traditional teaching methods. There are three continuums: enhanced, blended, and online. Blended learning combines traditional classroom teaching e-learning, using both online and face-toface methods for a comprehensive learning experience. It also combines the strengths of both synchronous and asynchronous learning approaches (Garrison & Kanuka, 2004; Graham, 2006). Blended learning combines web-based technology. traditional pedagogical approaches, training, and instructional technologies to achieve educational goals. It uses real-time virtual classrooms, self-paced instructions, and collaborative learning to achieve learning outcomes. optimal learning also blends traditional training with instructional technologies like videotapes, CDs, web-based training, and films, fostering harmony between learning and working (Driscoll, 2002). Hence, blended learning is preferred over single-delivery mode programs (Singh, 2003). Sthapit and Shrestha (2020), in their paper based on a survey of 224 management students at Nepal Open University, found that their online learning experience was comparable to face-to-face instruction. The study highlighted that the intensity of interaction and ease of attending classes significantly impacted the amount of knowledge learned, demonstrating a positive correlation between online learning and face-to-face instruction

Blended learning offers numerous benefits like improved pedagogy, resource utilisation, social interactions, personal pace, cost-effectiveness, and revision opportunities. It allows students to use class time effectively, connect with experts. and access knowledge more efficiently. However, it presents challenges like determining face-to-face interaction effectiveness and selecting the right blends, making balancing innovation and production a constant challenge for blended learning model designers (Graham, 2006; Osguthorpe & Graham, 2003). In context of Nepalese e-learning practices. Shrestha and Sthapit (2021) found that comparative interaction level and ease of attending online classes significantly impact comparative knowledge gain, and low intensities of these factors, however, had a lower effect on determining the similarity or superiority of online classes compared to face-to-face classes, according to the study.

Learning Management System and Moodle

A learning management system (LMS) is a crucial component of web-based learning programmes and a popular tool for blended learning in developing countries. It aids in content preparation, course offerings, preparation. exam student database management, and automating training event administration. LMS can be proprietary or free and open source, managing users' logs, course catalogues, and learners' data. It manages users" logs, course catalogues, and learners" data, generating reports (Reme's, 2005; Ssekakubo et al., 2011). Open-source software offers advantages like free redistribution of source code, derived works, integrity of author code, non-discrimination, and license sharing (Open Soruce Initiative, 2007).

Moodle is an open-source Learning Management System (LMS) developed

by Martin Dougiamas, a university administrator in Perth. Australia. focuses on five core learning ideas: collaborative learning. creating expressing something to others, observing friends' activities, understanding learners' context, and a flexible, adaptive learning environment. Moodle is popular due to its high satisfaction rates, low costs, and easy implementation. Its initial cost was \$16.77 per learner, significantly lower than proprietary alternatives like SAP. Saba, and Blackboard. Moodle runs on various platforms and supports various databases like MySQL, PostgreSQL, and Oracle. Users can customise the software and receive high-quality documentation and technical support from the user and developer community (Cole et al., 2011; Martinez & Jagannathan, 2008; Su, 2005).

Moodle is a popular educational platform, favoured by mature users and ICT experts, but its higher administration and maintenance costs are criticised for overshadowing its benefits. Its functionality relies on content, making it difficult to use without incentives or a separate team.

However, it offers a growing community, discussion forums, and resources for sharing ideas (Al-Ajlan & Zedan, 2008; Bower & Wittmann, 2009).

Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology (UTAUT) model consists of four direct measures: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitation Conditions (FC). These constructs influence user acceptance and behaviour and are influenced by factors such as gender, age, experience, and voluntariness of use. The four direct actions are the main criteria that influence users' willingness to use new technologies, but there are obstacles to developing or weakening their strengths (Venkatesh et al., 2003; Cheng et al., 2011). The UTAUT paradigm was developed to describe and predict technology use in institutional settings (Venkatesh et al., 2003) but has since been tested in noninstitutional settings as well (Venkatesh et al., 2012; Venkatesh et al., 2016). The authors created UTAUT2 by combining

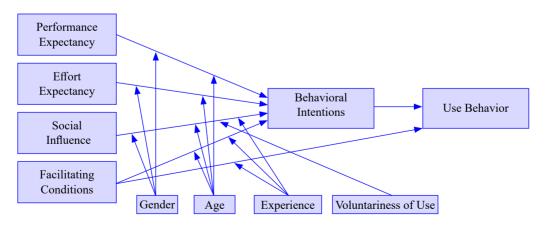


Figure 1. Unified Theory of Acceptance and Use of Technology Note. Venkatesh et al., 2003

three new concepts and changing most of the relationships in the original model (e.g., removing voluntariness), thus better aligning it with the user concept of product technology. This methodology provides a new theoretical framework for predicting technology acceptance that is supported and supported by previous research (Bagozzi, 2007: Venkatesh et al., 2007). UTAUT2 attempts to increase efficiency by focusing on specific users as well as the development of data recognition technology (Venkatesh et al., 2012). UTAUT 2 assumes that people's technology use is influenced by three additional constructs: hedonic motives, cost/perceived value, and habit, which varies according to age, gender, and experience.

The UTAUT model is a framework used to study the relationship between job performance, ease of use, perceived infrastructure, and actual use of a system. It considers factors such as performance expectancy (PE), effort expectancy (EE), social influence (SI), facility conditions (FC), and behavioural intention (BI). PE is influenced by age and sex, while EE is influenced by the user's perception of time and effort spent using the system. BI is affected by age, sex, and experience, with younger females requiring more resources than experienced males. SI is influenced by others' beliefs about the system's usefulness, with a higher influence on females, inexperienced, and old users. FC, on the other hand, is the belief that infrastructure exists to help users use the system. The model suggests that BI is a dependent variable, influenced by independent variables such as PE, EE, SI, and FC (Chen, 2011; Keller, 2005; Sánchez & Hueros, 2010; Sun et al., 2008; Venkatesh et al., 2003).

An e-learning Framework for Implementing Moodle

The paper uses the e-learning framework for implementing Moodle, as proposed in Moodle 2.0 for Business. The framework consists of five steps: align, develop, evaluate implement, measure. and (ADIME). The Moodle initiative's alignment phase assesses its organisational impact, setting success criteria. The development phase develops the solution, followed by implementation. The measure phase assesses usage, ensuring validity and meeting expectations. The evaluation phase evaluates the solution's impact on the organisation's strategy (Cole et al., 2011).

RESEARCH METHOD

The study uses qualitative methodology to explore blended e-learning experiences at the College of Applied Business and Technology (CAB), a TU-affiliated college. It focuses on local contexts and responds to changing situations, ensuring a comprehensive understanding of individual experiences and the subjective social world. The guided approach is used for semistructured interviews, allowing flexibility in question sequences. The research aims to understand the dynamic nature of teachers and students' attitudes towards Moodle and its impact on their learning experience (Cohen et al., 2007; Creswell, 2003).

The UTAUT model was used in this research, involving face-to-face interviews with teachers and students, and qualitative observation techniques to record users' interactions with Moodle. The study was divided into two phases: a broad survey for generalisation and a focus on qualitative and open-ended interviews for detailed insights. The mixed methods approach

was chosen due to its cost and time-consuming nature, and the need for a strong understanding of both approaches (Cohen et al., 2007; Creswell, 2003; Johnson & Onwuegbuzie, 2004).

Twenty-one (21) individuals were selected for data collection through open-ended semi-structured interviews. The majority were teachers, with 11 being male and ten being female. The age range of teachers was high, ranging from below 30 to over 60, while students were in the same age group of 20-25. The questions were based on the determinants and influencers of the UTAUT model. Individual teachers were interviewed face-to-face, whereas focused group interviews with six to eight interviewees were conducted with students. Furthermore, users' interactions with Moodle were recorded using qualitative observation techniques.

The second research question aimed to understand teachers' and students' perceptions of using a week-long programme, where ten individuals were considered for interview. The majority were male covering 14 interviewees and remaining female interviewees, with eight (8) being teachers and remaining 13 being students. The teachers' age ranged from below 30 to over 60, while students were between 20 and 25 years old. The study replicated the first research question's procedure. Hence, the paper followed empirical or psychological phenomenology that focuses on the interpretations of the researcher and more on a description of the experiences of participants.

Validity and Reliability

Limiting bias is crucial for interview validity and reliability. This can be achieved by developing well-descriptive questions, avoiding leading questions, and collecting data from multiple sources. This research used interviews and observations, minimising bias and avoiding leading questions to maintain overall validity and reliability (Cohen et al., 2007; Creswell, 2003).

Ethical Considerations

Ethical issues in interviews include informed consent, confidentiality, and consequences (Cohen et al., 2007). Researchers can ensure participants' rights by developing an informed consent form and getting it signed before involvement. Participants were informed about the study's objectives and assured their identity would be kept confidential (Creswell, 2003). This paper respects the protection of private information, as personal or organisational security-sensitive information might be exposed during qualitative data collection.

DATA ANALYSIS AND DISCUSSION

The researcher implemented the developed Moodle-based e-learning system with a sample group of 21 participants. The Moodle platform was integrated into the official website of the sampled college in coordination with the college administration. A five-step e-learning framework (Cole et al., 2011) was adopted to facilitate the deployment of the Moodle system. The platform was developed and configured using PHP version 5.2.17 and MySQL version 5.1.33. The five steps of the e-learning framework utilised in this study are detailed below:

Design Implication on Users' Interactions with Moodle

Align: The principal of CAB interviewed to evaluate the alignment of Moodle

with a five-step e-learning framework with the college's strategy. The college experimented with teaching pedagogy, reducing lectures and prolonging lecture hours. Subject teachers prepared detailed plans and computerised reading materials for courses, aiming to improve teaching and learning activities.

Develop: The study used sampled college, College of Applied Business and Technology-CAB's website for testing e-learning Moodle. Hence, an official website of the sample college, cab.edu. np, was tested on its web server using PHP version 5.2.17 and MySQL version 5.1.63. The 1.9 version of Moodle was chosen, and development work was conducted to ensure the requirements of course plans, lecture notes, assignments, tests, and forums were configured.

Implement: The system, which can be accessed online at cab.edu.np/ilearn, grants users three levels of privilege: administrator, teacher, and student. It registers all college courses under BIM and BBA programmes, allowing course leaders to manage activities like enrolment, course status changes, lecture planning, notes uploading, assignments, forums, and online exams. This system enables efficient course management and student engagement.

Measure: When observing the behaviour of teachers, they had started to use Moodle to prepare course and upload notes. Similarly, it allows students to submit assignment via Moodle. It is also seen that some teachers have started to use online quizzes and interact with students through chat. As a result, it is evaluated that Moodle has achievedthe goals set during the alignment phase.

Evaluate: During the second interview, the principal of CAB said that Moodle fulfils all their p lans. According to him, the system hopes to help teachers plan lessons, enable them to upload lessons, provide online assignments and tests. Therefore, interviewee believed that Moodle has all the above advantages.

Findings from Teacher Interview

Teachers generally support a PE system for its ability to track data, identify course status, plan courses, store materials, and track student performance. However, some are sceptical due to concerns about weakly motivated students and potential plagiarism, as the system may make it difficult for teachers to identify the original author

The survey revealed mixed responses from teachers regarding EE. Most indicated they would need significant effort to learn and prepare digital teaching materials. Some cited difficulties in adapting the system due to poor eyesight, while others found the features self-explanatory. One teacher found digitising teaching materials easy, indicating the need for further effort.

The interview revealed that teachers received strong support from the college for adapting to Moodle, but motivation was not entirely based on the college's guidance. Most teachers believed CAB had all the necessary facilities for successful implementation, including wireless internet connectivity, computer laboratories, electricity backup, and technical support. However, some teachers were sceptical about the technical support. Overall, the college's support did not completely guide teachers' behaviour.

The college is criticised for lacking trained support personnel, insufficient internet speed for multimedia content transmission, and insufficient amenities. One of the lecturers emphasised the need for basic facilities like laptops and internet access. Teachers also express concern about the country's lack of electricity.

All teachers had prior experience with computers and the internet, using them for presentation slides and lecture notes. However, few have used LMS in the past. Two out of 10 teachers used another university's website for uploading and downloading lecture notes, and one used Pearson's e-learning portal, which was considered as comprehensive as Moodle.

The majority of the ten teachers stated a readiness to use a helpful system willingly, but one teacher was hesitant owing to the increased burden and discomfort of abruptly changing teaching style, indicating a lack of interest in voluntary use.

Findings from Observation on Teachers Perceptions

A workshop was held for CAB teachers to learn Moodle. Out of 25 teachers, twelve were present, with five females and seven males. Young teachers below thirty showed more interest in Moodle than older ones. ICT-related subjects taught Moodle more quickly. Nine out of twelve teachers completed the demo system task, while the rest abandoned it. The remaining teachers were males over sixty and females aged 35-50, who were not involved in teaching ICT-related courses

*Opinions on 'Use Behaviour' of Teachers*Venkatesh et al. (2003) discovered that BI and FC have a direct influence on teachers'

'use behavior'. Most teachers intended to use the technology and responded positively to FC. Despite certain suspicions, they were not completely negative. Most professors finished their homework during the Moodle session, indicating a better likelihood of using the system. Observation of teachers' actions confirmed favorable usage behavior.

Findings from Observation on Students Perceptions

The 13 sampled students believed that the system would improve their performance. They were fascinated by online forums. Additionally, they stated that Moodle would allow them to access the lecture notes and provide an entire course plan. However, students were quite suspicious about online exams and online assignments. According to them, they lack prior experience in giving exams and submitting assignments online and are unsure how their performance would be impacted.

One of the students believe that Moodle may negatively impact their performance, potentially making them lazy and reducing the value of face-to-face lectures. Another student believed that a sudden change in teaching pedagogy could be counterproductive to their studies.

According to the interview, both students considered that learning Moodle would take a large amount of effort due to its many features. Some students expected the learning curve to be steep at first but then substantially lower. However, several ICT students assumed that because Moodle was a complex platform, adapting it would take little time and effort.

Teachers encouraged students to use the system, and the majority had good attitudes

toward SI. However, other students believed that their personal experiences would determine whether they accepted or rejected the system.

The interview with students on FC produced mixed results. Most of the respondents trusted the available facilities at CAB. However, they were sceptical about the proportion of computers and the number of students as they pointed out that the number of students vastly outnumbered the available computers at CAB. They added that the short break times would make it impossible for them to use the computers at college labs.

Similarly, mixed responses were received while talking about the personal equipment. Moreover, a few respondents denied that the existing facilities were enough to execute Moodle. They also believed that the college lacked adequate support staff. However, some students strongly believed the existing facilities were adequate for Moodle. However, the reason behind such remarks was found to be inspired by the availability of their equipment.

The study found that while most students had experience with computers, they had not yet used an LCMS. Many expressed willingness to use the system, but some had doubts and only used it for limited purposes. Some students expressed vehement opposition to the system if it was optional, but most students expressed their decision to use it.

Findings from Student Observation

About twenty students were observed during a classroom lecture on Moodle. The major functionalities of Moodle were demonstrated. Besides, students were allowed to share their views and ask questions. However, mixed responses were observed from them. Most of the students showed their interest in Moodle. Furthermore, they shared their intentions of using the system and believed it could enhance their studies. However, it was observed that a few students were not happy with the introduction of Moodle. They exclaimed that Moodle could make their studies difficult.

Opinions on 'Use Behaviour' of Students

The interview results indicated that most students intended to use the system. Regarding FC, it was found that some students were highly favourable, and most were positive. Similarly, a few students who provided negative feedback on FC did not intend to use the system.

Findings from Teacher Interview

Interviewed teachers generally favoured Moodle for online PE, citing its ability to minimise workload and save course-related details. However, one out of eight teachers found the system complex and user-unfriendly, particularly in quizzes and tests. He also criticised Moodle's inferiority to other LMSs in resource management and the tiring nature of creating course content. He also expressed scepticism about the effectiveness of the course plan prepared with Moodle. Overall, teachers viewed Moodle as a valuable tool for online PE.

Teachers have mixed opinions on EE, with 55 percent finding Moodle easy to learn and having experience with online systems like Facebook. Some find it time-consuming and difficult to explore, while others struggle with quizzes and eyesight. All teachers praise SI and encourage each other to use it. Some teachers have mixed reactions to CAB, FC, and support teams,

including doubts about the support team's capabilities, internet speed, and electricity load shedding problems.

Most respondents praised the voluntary nature of the system, with some expressing a willingness to learn and adapt over time. However, most teachers expressed a willingness to implement it, with some already logging in and developing course details. One teacher, however, expressed a lack of interest due to its complexity and difficulty in learning.

Findings from Observation on Teachers

The college formed a Moodle support team, which created user accounts for all teachers. The usage behaviour of the teachers, who were interviewed earlier was observed. It was found that almost all the sampled eight teachers had logged into the system. Moreover, most of them uploaded course outlines and some reading materials. One of them also used features like quizzes, assignments and external links. However, a few teachers had not uploaded anything to their course homepage. In addition, one teacher had not even logged in.

Opinions on 'Use Behaviour' of Teachers

The interview results revealed that almost all teachers intended to use the system. Likewise, most of them provided positive responses on FC. Moreover, some respondents claimed FC to be below a satisfactory level. On the other hand, they agreed that the underlying facilities would allow the college to run the system. Furthermore, it was found that most teachers had already started using multiple Moodle features.

Findings from Student Interview

A total of 13 students believe Moodle can serve as a platform for accessing reading materials, lecture slides, and additional information, extending their studies beyond textbooks. They also believe Moodle can help recover missed lectures, facilitate interaction with teachers and peers remotely, save time, and enhance grades, making it a valuable tool for students' learning experience.

Most students believed that adapting Moodle would not be difficult for them. They indicated that Moodle was userfriendly and that plenty of tutorials on how to operate Moodle could be found on the Internet. According to them, Moodle could be quickly learnt if they were provided with the necessary facilities.

However, some respondents believed that adapting Moodle would require significant effort initially. On the contrary, one respondent stated that he found Moodle to be a complex system full of complicated features. All the students agreed to be encouraged by the college to use Moodle. Moreover, they added that teachers frequently motivate them to use Moodle by claiming that the system contains information required to complete assignments.

Interviewed students provided mixed responses regarding FC. Most of them claimed that the conditions were favourable for them to adapt to Moodle. Similarly, most of the students stated that. They possessed personal equipment, whereas some students stated that they lacked the required facilities at their end. Moreover, all responding students provided positive indications towards voluntariness of use. According to them, they had understood the importance of the system and had already started using it.

Findings from Observation on Students

The Moodle support team created user accounts for the students. They were further provided with enrolment keys for the courses they were associated with. All the students who were observed had enrolled themselves on the courses.

Opinions on 'Use Behaviour' of Students

The interview result indicated that all students had intended to use the system. Moreover, it was observed that all of them had started using Moodle.

Discussion

This study found no direct relationship between gender and age in PE, as per Venkatesh et al. (2003) research. Regardless of gender and age, most respondents provided positive responses on PE during interviews. The UTAUT framework reveals a direct association between EE with gender, age, and experience. However, experience was found to be directly influenced by PE. Most respondents initially believed learning a system would require high effort, but this changed after a week of use. Teachers and students also indicated that little or moderate effort would be required to adapt a system.

The UTAUT framework reveals that social influence (SI) is influenced by gender, age, experience, and voluntariness of use (VoU). However, no significant relationship was found between VoU and SI. FC is associated with age and experience, but no such indication was found. BI is directly influenced by PE, EE, and SI, with PE having a strong influence and EE having a moderate influence. No substantial evidence was found on SI's influence over BI. FC and BI have a direct influence on UB, with both having a strong influence.

The study found that both teachers and students support the introduction of e-learning systems. However, vounger, experienced teachers are more likely to adapt, while teachers over 40 and from non-ICT backgrounds are less supportive. unfamiliar with computers Teachers and the internet are more likely to reject while part-time e-learning systems. teachers with limited time and financial benefits are more likely to reject them. Students adapt to the system quicker than teachers, and those living at home with their families have a higher chance of accepting it. Facilities and resources also influence use behaviour, with Nepal's electricity struggles being the primary factor.

The e-learning system aims to provide students with access to course materials. recover missed lectures, and communicate with teachers without waiting for classroom lectures. It automates administrative tasks. allowing teachers to focus on improving teaching pedagogy. Students can access course-related information, while teachers can share lecture notes, presentation slides, and multimedia content. The system creates interactive learning environment. enhancing students' understanding of the subject matter. It stores course activities, allowing users to track relevant activities anytime. Teachers can learn about students' progress and make fair evaluations. enhancing future performance.

The study divided teachers into two groups: full-time and part-time. Full-time teachers have longer college stays, higher pay, greater access to resources, and personal computers, whereas part-time teachers have less time in college, less easy access to resources, and are less likely to have personal resources.

The study distinguishes two student groups: those who are native to Kathmandu and live with their families and have personal computers, internet access, and power backups, and those who come to the capital for studies but often live in rented rooms or hostels and lack the personal resources to access e-learning systems.

The e-learning system in Nepal requires basic technical knowledge, exposure is in its early phase. Older generations have limited knowledge of computers and the internet, making students more likely to possess technical skills than teachers. Remote students and teachers from non-ICT backgrounds also have limited access to computers. This lack of technical knowledge is a significant obstacle to Nepal's e-learning system implementation. Both teachers and students in Nepal have minimal exposure to e-learning, making it difficult to adapt to new pedagogy. Senior teachers are more likely to reject the system and are weakly motivated to make changes. Students initially have a hostile perception towards e-learning, but this change when they use the system.

The research suggests that e-learning could significantly improve Nepal's higher education system by providing more resources, allowing teachers to clarify subject matter, and allowing students to ask questions during class hours or missed lectures. This shift from a teacher-centred approach to a student-centred one would improve education quality. E-learning could also increase college capacity by reducing administrative workloads and allowing students to upload lectures. Campuses could also increase student quotas for a more efficient education system.

CONCLUSION AND IMPLICATIONS

This paper uses UTAUT model to study teacher and student responses to blended learning. This study was conducted on the introduction of online learning management in Moodle at one of the affiliated business and IT college of Tribhuvan University, Nepal.

The research has followed qualitative methodology by using interview and observation data collection techniques. The study's findings indicated that teachers and students are positive about adapting LMS Moodle. Hence, it is likely that they will accept the e-learning system. Furthermore, students were found to accept the system more easily and faster than the teachers.

The college management believed that the e-learning system would give extra mileage to the college. Similarly, both the students and the teachers considered the e-learning system to be beneficial for them as they discovered its advantages, such as providing extended learning opportunities, reducing additional burden, allowing effective sharing of ideas and knowledge, and opening a new door for interaction. The e-learning system in Nepal has strong intentions but is hindered by lack of proper facilitating conditions, such as personal computers, slow internet, and weak technical support. Despite these issues, both teachers and students have higher chances to accept the system. The e-learning system could improve the quality of education by providing additional teaching and learning platforms to teachers and students.

Secondly, the country's education system would be able to serve more students than before. Hence, the country's higher education sector would witness a significant

increment in the number of students. Finally, the improved quality of education and the increment in the ability to provide improved educational services to additional students would result in an increased number of students who successfully pass out of the university. Thus, it would help the country to manage the current problem of drop-out rates of students in the higher education system.

The findings show that teachers and students have positive attitudes towards adopting LMS Moodle. Therefore, they are likely to accept e-learning technology. Alos, students adopted the system more easily and quickly than teachers. At the same time, students and teachers believed that e-learning technology is beneficial for them because e-learning technology provides an extended learning experience, reduce the

burden allows sharing of ideas, knowledge, and opens new doors to learning.

There is a desire for e-learning in Nepal, but the lack of necessary facilities such as lack of personal computers, slow internet speed, poor logistic support, etc hinder this desire. Despite these problems, teachers and students are more likely to accept the system, E-learning systems can improve the quality of education by providing addition information to teachers and students, Therefore, the number of students in the country's higher education system will increase, Finally, improving the quality of education and providing quality education services to more students will allow more students to graduate from higher education. This will therefore help the county solve its current problem of students dropping out of higher education.

Funding

The authors declared that they received no funding or financial support for carrying out the research

Conflict of interest

The authors declared no conflicting interest in this research work.

REFERENCES

- Al-Ajlan, A., & Zedan, H. (2008). Why Moodle? 12th International Workshop on Future Trends of Distributed Computing Systems (pp. 58-64). IEEE Computer Society.
- Al-Ajlan, A., & Zedan, H. (2008). *E-learning (MOODLE) based on service-oriented architecture*. ZDnet White Papers, De Montfort University.
- Ally, M. (2004). Foundations of educational theory for online learning. In T. Anderson, & F. Elloumi (Eds.), *Theory and practice of online learning* (pp. 3-31). Athabasca University, Athabasca.
- Andersson, A. (2008). Seven significant challenges for e-learning in developing countries: Case study eBIT, Sri Lanka. *International Journal of Education and Development Using Information and Communication Technology*, 4(3), 45-62.
- Andersson, A., & Grönlund, Å. (2009). A conceptual framework for e-learning in developing countries: A critical review of research challenges. *The Electronic Journal of Information Systems in Developing Countries*, 38(1), 1-16. https://doi.org/10.1002/j.1681-4835.2009. tb00271.x

- Bagozzi, R. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems*, 8(4), 244-254. https://doi.org/10.17705/1jais.00122
- Barrettoa, S.F.A., Piazzalungaa, R., Ribeiroa, V.G., Dallaa, M.B.C., Filho, R.M.L. (2003). Combining interactivity and improved layout while creating educational software for the Web. *Computers & Education*, 40(3), 271–284. https://doi.org/10.1016/S0360-1315(02)00131-8
- Bower, M., & Wittmann, M. (2009). Pre-service teachers' perceptions of LAMS and Moodle as learning design technologies. In *Opening up learning design* (pp. 28-39). LAMS Foundation.
- Brown, R., & Eis, W. (2003). Faculty development initiative: Acquisition and support of course management software. *Journal of Computing Sciences in Colleges*, 18(4), 191-199.
- Central Bureau of Statistics. (2009). Statistical yearbook of Nepal. Government of Nepal.
- Chen, J. L. (2011). The effects of education compatibility and technological expectancy on e-Learning acceptance. *Computers & Education*, *57*(2),1501-1511. https://doi.org/10.1016/j. compedu.2011.02.009
- Cheng, B., Wang, M., Yang, S., Kinshuk, & Peng, J. (2011). Acceptance of competency-based workplace e-learning systems: Effects of individual and peer learning support. *Computer & Education*, *57*(1), 1317-1333.
- Chao, R.J., & Chen, Y-H.(2009). Evaluation of the criteria and effectiveness of distance e-learning with consistent fuzzy preference relations. *Expert Systems with Applications*, 36(7), 10657-10662. https://doi.org/10.1016/j.eswa.2009.02.047
- Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education. Routledge.
- Cole, J., Cole, J., & Henrick, G. (2011). Moodle 2.0 for business. Packet Publishing.
- Creswell, J. W. (2003). Research design: Qualitative, quantitative and mixed methods approaches. Sage Publications.
- Cross, J. (2004). An informal history of eLearning. *On the horizon: The International Journal of Learning Futures*, 12(3), 103-110. https://doi.org/10.1108/10748120410555340
- Deoghuria, S., & Roy, S. (2008). *Open courseware: A unique opportunity for India.* Inflibnet Centre.
- Dhanarajan, G. (2001). *Online learning a social good or another social divide?* The Commonwealth of Learning, International Conference on Learning and Teaching Online, 10th January 2001, Guangzhou, China.
- Driscoll, M. (2002). Blended learning: Let's get beyond the hype. *E-learning and Digital Media*, *3*(3). https://www.elearningmag.com/elearning/article/articleDetail.jsp?id=11755
- Dublin, L., & Cross, J. (2002). *Implementing eLearning: Getting the most from your e-learning investment.* ASTD International.
- Dwight, R., & Holmes, D. M. (1991). *Training teachers at a distance: A case study of Nepal's radio education teacher training program.* Florida State University.
- Engelbrecht, E. (2003). A look at e-learning models: Investigating their value for developing an e-learning strategy. *Progressio*, 25(2), 38-47.
- Freire, P. (1970). *Pedagogy of the oppressed, 30th anniversary edition*. Ramos, M. B. (Trans.). Herder and Herder.
- Garrison, D. R., & Anderson, T. (2003). *E-learning in the 21st century: A framework for research and practice*. Routledge Falmer.
- Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, 7(2), 95-105. https://doi.org/10.1016/j.iheduc.2004.02.001

- Govindasamy, T. (2002). Successful implementation of e-learning: Pedagogical considerations. *Internet and Higher Education*, *4*(3-4), 287-299. https://doi.org/10.1016/S1096-7516(01)00071-9
- Gorb, H. L., Bensberg, F., & Dewanto, B. L. (2004). Developing, deploying, using and evaluating an open source learning management system. *Journal of Computing and Information Technology*, *12*(2), 387-393. https://doi.org/10.1109/ITI.2004.241972
- Graham, C. R. (2006). Blended learning system: Definition, current trends, future directions. In C. J. Bonk, & C. R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs* (pp. 3-21). Pfeiffer Publishing.
- Hines, R. A., & Pearl, C. (2004). Increasing interaction in web-based instruction: Using synchronous chats and asynchronous discussions. *Rural Special Education Quarterly*, 23(2), 33-36. https://doi.org/10.1177/875687050402300206
- Johnson, G. M. (2006). Synchronous and asynchronous text-based CMC in educational contexts: A review of recent research. *Tech Trends*, *50*, 46-53.
- Johnson, R. B., & Onwuegbuzie, A. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14-26.
- Joshi, B. M., Acharya, U., & Khatiwada, S. P. (2024). Policy versus reality: Challenges of implementing ICT in higher education in Nepal. *Pragyaratna*, 6(2), 226–234. https://doi. org/10.3126/pragyaratna.v6i2.71003
- Kahiigi, E. K., Ekenberg, L., Hansson, H., Tusubira, F., & Danielson, M. (2008). Exploring the e-learning state of art. *The Electronic Journal of e-Learning*, 6(2), 77-88.
- Keller, C. (2005). Virtual learning environments: Three implementation perspectives. *Learning, Media & Technology, 30*(3), 299-311. https://doi.org/10.1080/17439880500250527
- Khan, B. (2007). E-learning framework. http://asianvu.com/bk/elearning evaluation article.pdf
- Khan, B. H. (2004). People, process and product continuum in e-learning: The e-learning P3 model. *Educational Technology*, 44(5), 33-40.
- Martín-Blas, T., & Serrano-Fernández, A. (2009). The role of new technologies in the learning process: Moodle as a teaching tool in physics. *Computers & Education*, 52(1), 34-44. https://doi.org/10.1016/j.compedu.2008.06.005
- Martinez, M., & Jagannathan, S. (2008). *Moodle: A low-cost solution for successful e-Learning: The eLearning guild's learning solutions.* David Holcombe.
- Mason, R., & Rennie, F. (2007). Using Web 2.0 for learning in the community. *The Internet and Higher Education*, 10(3), 196-203. https://doi.org/10.1016/j.iheduc.2007.06.003.
- Mortera-Gutierrez, F. (2006). Faculty best practices using blended learning in e-learning and face-to-face instruction. *International Journal on E-Learning*, 5(3), 313-337.
- Moodle. (n.d.). *Moodle plugins directory*. http://moodle.org/plugins/index.php
- Moodle. (n.d.). *Moodle myths*. http://docs.moodle.org/22/en/Moodle_myths There.E2.80.99s_no_documentation.2C_training_or_technical_sup port_available_.E2.80.93_you.E2.80.99re_on_your_own
- Moodle. (n.d.). *Security recommendations*. http://docs.moodle.org/22/en/Security_recommendations
- Open Education News (2010). *Open University in Nepal*. http://openeducationnews.org/2010/05/28/open-university-in- Nepal/
- Open Source Initiative (2007). Open source defination. www.opensource.org/osd
- Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning environments: Definitions and directions. *The Quarterly Review of Distance Education*, 4(3),227-233.

- Patton, M. Q. (1980). *Qualitative evaluation methods*. Sage Publications.
- Powell, A., & Patrick, S. (2006). *Nepal: An international perspective of K-12 online learning: A summary of the 2006 NACOL International E-Learning Survey*. North American Council for Online Learning.
- Power, T., & Shrestha, P. (2010). *Mobile technologies for (English) language learning: An exploration in the context of Bangladesh*. IADIS International Conference, Mobile Learning, Porto.
- Rengarajan, R. (August 2001). *LCMS and LMS Taking advantage of Tight Integration*. http://home.click2learn.com/en/solutions/white_papers.asp
- Reme's, R. (2005). Learning management system. Matfyz Press.
- Rodrigues, M., Fdez-Riverola, F., & Novais, P. (2011). *Moodle and affective computing: Knowing who is on the other side*. ECEL-10th European Conference on e-Learning (pp. 678-685). University of Brighton.
- Rosenberg, M. J. (2001). *E-learning: Strategies for delivering knowledge in the digital age.* McGraw-Hill.
- Sangrà, A., Vlachopoulos, D., & Cabrera, N. (2012). Building an inclusive definition of e-learning: An approach to the conceptual framework. *The International Review of Research in Open and Distributed Learning*, *13*(2), 145–159. https://doi.org/10.19173/irrodl.v13i2.1161
- Saeedikiya, M., Mooghali, A., & Setoodeh, B. (2010). *Stages of the implementation of e-learning in traditional universities* (pp. 6620-6624.). EDULEARN10.
- Sánchez, R. A., & Hueros, A. D. (2010). Motivational factors that influence the acceptance of Moodle using TAM. *Computers in Human Behavior*, 26(6), 1632-1640. https://doi.org/10.1016/j.chb.2010.06.011
- Shakya, S., Sharma, G., & Thapa, K. (2018). State education system with e-learning in
- Nepal: Impact and challenges. *Journal of the Institute of Engineering, 13*(1), 10-19. https://doi.org/13.10.10.3126/jie.v13i1.20344.
- Sharma, G. N. (1990). The impact of education during the Rana period in Nepal. *Himalaya, the Journal of the Association for Nepal and Himalayan Studies, 10*(2&3), 3-7.
- Shields, R. (2011). ICT or I see tea? Modernity, technology and education in Nepal. *Globalisation, Societies and Education, 9*(1),85- 97. https://doi.org/10.1080/14767724.2010.513536
- Shrestha, B. D. (2010). E-Library in Tribhuvan University.
- Shrestha, J. N. (2009). Application of building integrated photovoltaic electric system: Its contribution in reduction of load shedding hours in Nepal. *Journal of the Institute of Engineering*, 7(1), 1–5. https://doi.org/10.3126/jie.v7i1.2056
- Shrestha, B., & Sthapit, A. (2021). The effect of intensities of comparative ease and interaction on comparative knowledge gained from online and face-to-face learning modes. *International Research Journal of Management Science*, 6(1), 1-16. https://doi.org/10.3126/irjms. v6i1.42332
- Singh, H. (2003). Building effective blended learning programs. *Educational Technology*, 43(6), 51-54.
- Singh, M. (2006). *Towards a new paradigm of higher education: A reflection on distance education in Tribhuvan University*. EU-Asia Seminar on Distributed Learning. Kathmandu, Nepal.
- Ssekakubo, G., Suleman, H., & Marsden, G. (2011, October). Issues of adoption: Have e-learning management systems fulfilled their potential in developing countries? In *Proceedings of the South African Institute of Computer Scientists and Information Technologists Conference on Knowledge, Innovation and Leadership in a Diverse, Multidisciplinary Environment* (pp. 231-238). https://doi.org/10.1145/2072221.2072248

- Sthapit, A., & Shrestha, B. (2020). Comparative knowledge gained from online and face-to-face learning modes in management courses in Nepal. *Journal of Business and Social Sciences Research*, 5(1), 25-50. https://doi.org/10.3126/jbssr.v5i1.30197
- Su, C.-c. (2005). An open-source platform for educators. In *Advanced learning technologies*. *ICALT Fifth IEEE International Conference* (pp. 961-962). IEEE Computer Society.
- Sun, P.C., Tsai, R. J., Finger, G., & YuehYang Chen, D. Y. (2008). What drives successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computer & Education*, 50(4), 1183-1202. https://doi.org/10.1016/j.compedu.2006.11.007
- Subedi, M. (2020). Exploring the acceptance of online classes in Nepal: Application of Technology Acceptance Model. *Rupantaran: A Multidisciplinary Journal*, *4*, 112-120. https://doi.org/10.3126/rupantaran.v4i1.34206
- Tedre, M., Ngumbuke, F., & Kemppainen, J. (2010). Infrastructure, human capacity, and high hopes: A decade of e-Learning development in a Tanzanian HEI. *RUSC Universities and Knowledge Society Journal*, 7(1), 7-20. http://dx.doi.org/10.7238/rusc.v7i1.658
- Thorne, K. (2003). *Blended learning: How to integrate online and traditional learning*. Kogan Page.
- Tselios, N., Daskalakis, S., & Papadopoulou, M. (2011). Assessing the acceptance of a blended learning university course. *Educational Technology & Society*, *14*(2),224-235.
- UNESCO & International Task Force on Teachers for Education 2030 (2006). *Global report on teachers: Addressing teacher shortages and transforming the profession.* https://doi.org/10.54675/FIGU8035
- UNDP. (2012). *Meeting the millennium development goals in Nepal*. United Nations Development Program. https://www.undp.org.np/mdg/
- University Grant Commission (UGC). (2024). *Universities in Nepal*. https://www.ugcnepal.edu.np/frontpage/20
- Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27 (3), 425-478.
- Venkatesh, V., Davis, F., & Morris, M. (2007). Dead or alive? The development, trajectory and future of technology adoption research. *Journal of the Association for Information Systems*, 8(4), 267-286. https://doi.org/10.17705/1jais.00120
- Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, *36*(1), 157-178. https://doi.org/10.2307/41410412
- Venkatesh, V., Thong, J., & Xu, X. (2016). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, 17(5), 328-376. https://doi.org/10.17705/1jais.00428
- Wagley, J.R. (2006). *Transnational organized crime: Principal threats and U.S. responses*. Library of Congress Washighton DC Congressional Research Service.
- Wood, H. (1959). The development of education in Nepal. US Department of Health & Welfare.