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# The Impact of MoodleCloud on Faculty and Graduate Students' User-Independence Engagement in a State University in the Philippines

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**Abstract.** The study explores the impact of using MoodleCloud as a Learning Management System on Learning Engagement, as faculty and graduate students perceive it. The researchers determined the degree of user-independence engagement, focusing on the socio-cognitive factors: personal, behaviour and environment. It also explores MoodleCloud's impact in the online classroom regarding learnability, user-friendliness and user-satisfaction. Exploring its impact will add to the knowledge about its use and unlock its potential to improve student outcomes in hybrid or online settings. This study employed a correlational research design and used random sampling in choosing the respondents. The total respondents were 398 graduate students and 42 faculty members. Educational technology experts knowledgeable of various learning management systems validated the survey questions. The results revealed that MoodleCloud generally encourages user-independence engagement on socio-cognitive factors: 3.75 for faculty and 3.71 for students in personal factors, a mean of 3.71 for faculty and 3.70 for students in behavioural factors, and a mean of 3.68 for faculty and 3.63 for students in environmental factors based on the respondents' perception with highly acceptable concluding remarks. The analysed data reveals that users' level of usability in terms of learnability is 3.63 for faculty and 3.72 for students, while the level of usability in terms of user-friendliness is 3.56 for faculty and 3.50 for students. The level of usability in terms of user-satisfaction is 3.68 for faculty and 3.74 for students. The respondents show good attitudes regarding personalising their educational experiences, maintaining motivation and interacting with the platform. The MoodleCloud environment's performance, reliability, collaboration and adaptability are typically viewed favourably by faculty and students. The results show that MoodleCloud promotes efficient knowledge and skill acquisition. Likewise, the respondents who use

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MoodleCloud report that it is a user-friendly platform with good navigation, clarity, visual appeal and accessibility. Regarding user-satisfaction and its impact on the educational process, the results show that it has generally positive reviews of MoodleCloud.

**Keywords:** MoodleCloud usability; learning engagement; learning management system; graduate students; faculty

## 1. Introduction

It was observed when the pandemic hit in 2020 that various delivery modes were created to provide continuity of learning. One mode was online delivery, which required access to the internet and ICT. Educators used different platforms to continue their teaching, and in maintaining a proper and organised teaching and learning experience, Learning Management Systems (LMSs) were used. ICT during the pandemic has changed the educational landscape by providing a means to communicate with students and for educational continuity (Aguelo & Aquino, 2023). This scenario has broken the limits of traditional teaching and learning and has bridged the distance between learning and learners. After the pandemic, LMSs no longer simply provide continuity but are tools to enrich learning and improve learning practices (Al-Hunaiyyan et al., 2020). This is where technology and LMSs come into play.

Faculty members need to develop teaching designs to enhance student learning and engagement every term. It was observed in the university under study that greater clarity was needed on engagement, especially independent engagement (Aquino, 2023). Before this observation, a study found that student engagement in their respective fields of study had declined in terms of participating in class activities (Wester et al., 2021). Their study examined engagement in behavioural, cognitive and emotional constructs. Among the three, they found no significant change in behavioural engagement, but the decrease in class activity participation was noticeable despite this. This study also focused on engagement and socio-cognitive factors: personal, behaviour and environment.

Technology has revolutionised how education is provided to people worldwide (Turnbull et al., 2020). A diversity of methods is available when developing e-learning material with an LMS (Suartama et al., 2019); a well-constructed interface can significantly impact how engaged and satisfied students are with an LMS (Chigeza & Halbert, 2014). Students are more likely to interact with the topic if they can easily navigate and access the course materials, forums for discussion, quizzes and assignments. Schools have adapted to the available technology that they can use in teaching due to changes in how services are delivered in the field of education, the MoodleCloud LMS being one of them. It is a simple but attractive user interface in which simple system navigation is a vital usability component. MoodleCloud can be used to manage courses, especially uploading content and allocating resources, and directly impacts how much time and effort educators devote to course administration. Moodle is user-friendly and efficient for overseeing courses, boosting student engagement by ensuring concise and organised course content (Prasetya & Raharjo, 2023). MoodleCloud features were

identified as pertinent and successful factors for enhancing the students' listening abilities (Dewi et al., 2019).

Moreover, using Moodle creates a rich learning experience for learners by incorporating and arranging various resources and activities into engaging online courses. It is user-friendly, and there is ease of integration, easy access, blended learning features, appropriate assessment and testing and easy access to reporting and tracking. With Moodle as the LMS, faculty and students have complete ownership and control of the system (Simanullang & Rajagukguk, 2020). Faculty members can submit various content types using MoodleCloud, including text, images, videos, documents, quizzes and assignments (Estacio & Raga, 2017). Delivering a rich and varied learning experience depends on this flexibility in content management.

When compared to Moodle and Google Classroom, it is notable that MoodleCloud does not require downloading a mobile application or software. It is an actual website with the well-known and valuable features of Moodle. Despite all these advantages of MoodleCloud, nothing can be perfect, so it has flaws, one of which is its capacity to cater for many users. It can only cater for small to medium schools regarding the student population. Another disadvantage is its customisation because it includes programming languages and coding, which is not fundamental knowledge for faculty members trying to develop a MoodleCloud LMS.

The developers of MoodleCloud adopted a user-centred design strategy to construct an LMS that meets the university's requirements and preferences. It highlights the significance of incorporating users (students and faculty) at every stage of the process (Eggers et al., 2023). Furthermore, accessible educational technology is crucial because it promotes a more inclusive learning environment, affecting engagement (Roddy et al., 2017).

In this study, the instructor participants personalised their LMS using MoodleCloud. They used Moodle's features to upload materials, quickly view student submissions and give timely feedback. On the other hand, students used it to view the uploaded learning materials and submit their assignments. It was intended to be used as an LMS but is more personalised and appeared more like learning material to the students than an LMS.

As the institution adapts to the ever-changing educational landscape, MoodleCloud serves as an avenue of teaching and learning in graduate studies, which serves as an LMS and as a foundation for a reliable e-learning platform as long as it complies with standards and best practices recommended by expert educational and corporate stakeholders (Ivanovic et al., 2013). Thus, the researchers aimed to assess the relationship between MoodleCloud as an LMS and Graduate Studies and Applied Research (GSAR) students' learning engagement.

Furthermore, determining the relationship between MoodleCloud usage and independent engagement will allow opportunities to identify areas to be

improved, considering their socio-cognitive factors, so it can better support user-independent engagement. A positive relationship will encourage using it to a greater extent and will be a factor for decision-making in the budget allocation of the university.

### **Theoretical Framework**

The Social Constructivist Pedagogy Theory (SCPT) is the foundation for this study. Aligned with contemporary learning approaches in a Philippine state university, the integration of twenty-first-century skills involves adapting teaching methods to incorporate technology. As such, MoodleCloud was used as an avenue of learning and teaching in graduate studies. SCPT emphasises teaching as an art that involves integrating, adapting and ensuring accessibility, fostering independent learning and pacing in graduate studies amidst the new teaching delivery norms. The researchers aim to explore the extent of MoodleCloud's usability within classroom settings, considering factors like learnability, user-friendliness and user satisfaction. This investigation will consider the level of user engagement and socio-cognitive aspects across personal behaviour and the learning environment. Furthermore, it aims to identify the usability level of MoodleCloud in terms of user-friendliness, satisfaction and learnability. This may also increase the desire to provide high-quality educational services by implementing twenty-first-century technology integration techniques into the teaching process.

### **2. Research Objectives**

This research was explicitly intended to address the following objectives: (1) determine the degree of user-independence engagement in terms of their socio-cognitive factors in (a) personal, (b) behaviour, and (c) environment; (2) explore the level of usability of MoodleCloud in the classroom setting in terms of (a) learnability; (2) user-friendliness; and (c) user-satisfaction; and (3) identify the level of significance relationship of students' engagement to the MoodleCloud usability.

### **3. Research Methodology**

The study used a quantitative correlational research design employing a survey-descriptive questionnaire to get students' perceptions of the use and usability of the MoodleCloud LMS in a graduate school in one of the universities in the Philippines. It was used to establish the correlation between variables and was considered the most suitable approach before conducting extensive investigations to explore causation, ensuring a foundation and certainty for the study. Chen and Tian-Jun (2021) stated that quantitative research design was used to draw inferences that can be applied to the entire population from the information obtained from a sample.

Moreover, a random sampling technique was used in choosing the respondents. Bhardwaj (2019) indicates that a random sampling technique ensures equal opportunities for respondents to be selected for the study. Three hundred ninety-eight (398) students were picked from 450 graduate students through random sampling, along with the 42 faculty members of GSAR, to ensure that every graduate student and faculty member in this study had an equal chance of being selected to participate in the survey. The Microsoft Excel software was used to

randomise the selection using the =RAND function. A representative sample was obtained using this technique, improving the generalisability of the study's findings to a broader group of faculty members and graduate students.

The survey questionnaire was distributed via Google Forms to the participants, faculty, and graduate students enrolled in the GSAR across all programmes to get their perception of one state university in the Philippines. The survey included pre-written questions and response choices covering various topics related to participants' MoodleCloud experience. The survey questionnaire consists of six parts: user-independence in terms of (1) personal (5 items), (2) behaviour (5 items), (3) environment (5 items); level of usability in terms of (4) learnability (5 items), (5) user-friendliness (5 items), and (6) user-satisfaction (5 items). The questionnaire developed by the researchers was validated by field specialists competent in LMSs or education technology. Their feedback ensured that the questions were precise and pertinent and would measure the intended parameters (Boateng et al., 2018).

Additionally, there was a pilot testing period for the questionnaire, during which a smaller sample of participants who were representative of the target demographic answered the questions. Before the survey was conducted, the results of this pilot test were used to detect any potential problems with the questions or the survey procedure, enabling any necessary revisions or adjustments (Sorra et al., 2022). The study intended to gather trustworthy data and provide a thorough insight into how respondents view and use the MoodleCloud LMS in a graduate school by using these research procedures and techniques. The use of weighted mean, standard deviation and Pearson-r correlation enhanced the statistical rigour of the conclusions of the study.

The data was analysed using Pearson-r correlation on a four-point scale, eliminating the presence of outliers. Microsoft Excel software was used to process the raw data for statistical analysis.

#### **4. Presentation of Findings and Discussion**

This section presents the study's findings along with a discussion based on the findings. This section outlines the research objective of the researchers, which was to examine how learnable, user-friendly, and satisfying MoodleCloud is in a classroom setting while accounting for user-independence participation and socio-cognitive aspects: behaviour, environment and personal characteristics.

**Table 1. User-Independence Engagement and Socio-Cognitive Factors in terms of Personal Characteristics**

Statements	FACULTY		STUDENTS	
	Weighted Mean	Standard Deviation	Weighted Mean	Standard Deviation
I can easily navigate and obtain the readings and assignments for my learning.	3.77	0.44	3.68	0.52
I have the capacity to independently handle my learning activities and deadlines which leads to better results.	3.72	0.46	3.72	0.48
I take part in the forums and conversations for the courses on Moodle Cloud.	3.74	0.42	3.76	0.42
My comprehension of the course material has been positively impacted by my interactions with others through Moodle Cloud.	3.77	0.42	3.72	0.44
I contend that the lectures and group work on Moodle Cloud have improved my ability to think critically and solve problems.	3.76	0.49	3.77	0.42
<b>Overall Mean</b>	3.75		3.73	

Table 1 elicits the level of user-independence engagement and socio-cognitive attributes on MoodleCloud, as rated by both faculty and students, which are presented with their weighted means and standard deviations. The data's consequences for each claim and contrast the viewpoints of faculty and students are presented. High weighted mean ratings for professors and students – 3.77 for faculty and 3.68 for students- indicate they both find it very simple to explore MoodleCloud and find the needed readings and assignments. These beliefs are critical in influencing performance and engagement in online learning settings (Chiu et al., 2021). There is agreement about their capacity for independent learning, further supported by the low standard deviations – 0.44 for faculty and 0.52 for students highlighting the significance of collaboration and social interaction in online learning is consistent regarding involvement in discussions and collaborative features on MoodleCloud (Cheung & Vogel, 2013; Nguyen et al., 2016). Meanwhile, faculty and students' high mean scores (3.72) demonstrate their confidence in handling their educational tasks and deadlines using MoodleCloud. The low standard deviations suggest that faculty (0.46) and students (0.48) agree more about students' ability to learn independently. Concerning their participation in discussions and dialogues related to their courses on MoodleCloud, faculty and students both have high mean scores (3.74 for faculty and 3.76 for students). It demonstrates a keen interest in the platform's collaborative features. The low standard deviations (0.42 for faculty and students) imply that participation levels within each category are stable. Engaging in online forums regularly improves learning outcomes and creates a sense of community

(Chawla, 2020). Additionally, the social constructivist theory of learning is supported by the high mean scores of the respondents, indicating the beneficial effects of interactions on understanding course topics (Wiederhold, 2020).

The effect of interactions on understanding revealed a high mean score (3.77 for faculty and 3.72 for students), showing that faculty and students believe that connections to others through MoodleCloud positively enhance their understanding of course materials. The standard deviations (0.42 for faculty and 0.44 for students) indicate a fair agreement among each group. Additionally, self-efficacy views are shown by the high mean scores that respondents shared when asked how confident they felt about using MoodleCloud to handle educational assignments (Farmer et al., 2022). Meanwhile, the effect on problem-solving and critical thinking shows that mean scores (3.76 for faculty and 3.77 for students) demonstrate that both professors and students feel that lectures and group projects on MoodleCloud have significantly benefited their critical thinking and problem-solving skills. The low standard deviations (0.49 for faculty and 0.42) show broad agreement about this influence in each group.

The practical implementation of LMS depends on their usability and simplicity (Rodrigues, 2023). This favourable opinion shows that MoodleCloud's interface and design are simple and intuitive, facilitating efficient navigation. The overall mean analysis reveals that the mean for faculty (3.75) is marginally higher than for students (3.73). It implies that faculty generally have a higher positive opinion of MoodleCloud regarding user-independence engagement and socio-cognitive characteristics. Critical thinking and comprehension are improved through interactions with faculty and classmates (Hajhosseini et al., 2016). This interaction seems to be well facilitated by MoodleCloud. However, MoodleCloud is typically seen favourably by both groups as a tool for enhancing educational experiences. The data reiterated that MoodleCloud is a platform that fosters independent learning and participation in collaborative activities and has a beneficial influence on problem-solving and critical thinking for faculty and students. The few differences in mean scores between faculty and students suggest that MoodleCloud's usability and efficacy are generally perceived as consistent.

**Table 2. User-Independence Engagement and Socio-Cognitive Factors in Terms of Behaviour**

Statements	FACULTY		STUDENTS	
	Weighted Mean	Standard Deviation	Weighted Mean	Standard Deviation
I am at ease tailoring the MoodleCloud learning experience.	3.82	0.49	3.76	0.52
I feel motivated to learn when using MoodleCloud in an online classroom setting.	3.70	0.53	3.67	0.58

I am inspired to engage in Moodle Cloud.	3.64	0.48	3.72	0.54
I am proactively participating in customising my learning experience in Moodle Cloud.	3.60	0.48	3.64	0.49
I am used to using Moodle Cloud in doing tasks.	3.78	0.53	3.73	0.48
<b>Overall Mean</b>	3.71		3.70	

Table 2 shows the weighted mean and standard deviation regarding user behaviour associated with independence engagement and socio-cognitive attributes on MoodleCloud. Faculty members and graduate studies students benefit from accepting the behavioural factor, allowing them to learn faster by adjusting to technological abilities. With MoodleCloud, building knowledge and skills with the appropriate mindset and accepting changes in the teaching and learning process requires more grit. The learning experience is easy for the respondents as the mean scores (3.82 for faculty and 3.76 for students) reflect the simplicity with which faculty and students can customise their learning on MoodleCloud. The standard deviations indicate that this view varies moderately within both groups. The research highlighting the significance of personal factors in online learning is consistent regarding the ease of personalising the learning experience on MoodleCloud (Vaselevski & Birt, 2020). Likewise, using MoodleCloud in a virtual classroom shows a high degree of motivation for both faculty and students. The average ratings, 3.70 for faculty and 3.67 for students show that people favour the platform's capacity to spur involvement. The standard deviations imply that this incentive varies within each group. This was emphasised in the study of Aparicio-Gomez et al., (2021). Innovative learning aims to establish an enhanced interactive environment where educators and students can access learning resources efficiently, effectively and engagingly at the appropriate time and location.

For online education to be effective, graduate studies students must be motivated to engage and encourage active involvement. In line with the study, emphasising the significance of student motivation, intrinsic motivation in students has a favourable impact on their desire to employ instructional technologies and their level of engagement (Aguilera-Hermida, 2020). Motivating factors for using MoodleCloud: Students express a slightly higher mean score (3.72) than faculty (3.64). It indicates that students might feel more motivated to use the platform. The standard deviations reveal some variation in both groups' levels of inspiration. Hence, the mean scores (3.60 for faculty and 3.64 for students) show that faculty and students take a proactive approach to personalising their learning experience within MoodleCloud. Moreover, the standard deviations indicate a moderate variation in both groups' proactive conduct.

Furthermore, mean ratings (3.78 for faculty and 3.73 for students) represent the relatively high level of familiarity that both professors and students report using



MoodleCloud for various tasks. The standard deviations imply some variation in each group's regular usage. Culajara et al., (2021) reiterates that flexibility and accessibility should be addressed in today's education. Graduate studies students and faculty members should enhance and improve their technological capabilities to keep up with the trends in delivering instruction in learning. This was strengthened by Garcia-Murillo et al., (2020), who expressed high technological satisfaction with Moodle.

Customising one's educational journey increases motivation and engagement, leading to better learning outcomes. Additionally, the role of motivating variables in online learning is reflected in the mean scores of using MoodleCloud in a virtual classroom (Chen, 2021). Overall, the assessment reveals that faculty have a slightly higher mean (3.71) than students (3.70), indicating that faculty generally have a more favourable opinion of MoodleCloud behaviour regarding motivating learning and proactive involvement. Nevertheless, both groups generally see their behaviour on MoodleCloud favourably. As Alzuabi et al. (2022) state, MoodleCloud is not a new way of delivering instructions; it has been effective. The data reveals that MoodleCloud is a platform that enables both professors and students to customise their learning experiences, remain motivated and interact actively. The few differences in mean scores across faculty and students suggest that MoodleCloud's usability, as well as effectiveness in the area of behaviour, are perceived as broadly consistent. Meaningful engagement and successful learning outcomes are contingent upon learners actively participating in their education.

On the other hand, the Technology Acceptance Model (Silva, 2015) is consistent with the high mean ratings of the respondents regarding familiarity with using MoodleCloud for different tasks. This reiterated that users are more likely to accept and use technology when they perceive it as beneficial and easy to use. The utilisation of interdependent engagement behaviour serves as both a basis and an indicator of the concept of MoodleCloud's acceptability. Graduate studies students will benefit significantly from learning at their own pace and receiving positive reinforcement as they adapt and advance their technological skills. Graduate studies students can become more engaged because they can choose to modify and complete the assignments right away in MoodleCloud because of the autonomous learning opportunities it offers. When handling and completing the assigned responsibilities, they learn to manage time. Interdependent engagement behaviour is used to establish and measure the acceptability of the MoodleCloud idea. Graduate students will learn significantly from learning at their speed and get encouragement as they improve and adjust their technological skills.

**Table 3. User-Independence Engagement and Socio-Cognitive Factors in Terms of Environment**

Statements	FACULTY		STUDENTS	
	Weighted Mean	Standard Deviation	Weighted Mean	Standard Deviation
Moodle Cloud runs quickly and smoothly on the current computer and internet connection.	3.68	0.62	3.58	0.65
Access to the Moodle Cloud service and its content over the internet is very reliable.	3.54	0.66	3.54	0.63
I am convinced Moodle Cloud's collaborative components are beneficial to my learning.	3.68	0.63	3.56	0.54
The setting of Moodle Cloud has an effect on my ability to focus and engage with the course materials.	3.74	0.56	3.72	0.53
Moodle Cloud offers several learning environments based on the needs of the faculty and students.	3.74	0.48	3.74	0.48
<b>Overall Mean</b>	3.68		3.63	

Table 3 shows the weighted mean and standard deviation for user perceptions of the MoodleCloud environment. Both faculty and students have contributed their opinions. The research reveals that the significance of system performance in user-satisfaction (Ratna et al., 2020) is consistent with the performance and smooth functions of the MoodleCloud. A dependable and efficient platform enhances user-satisfaction and facilitates efficient learning. The average ratings, which are somewhat higher for faculty (3.68 for faculty and 3.58 for students), point to a generally favourable impression. The standard deviations show some variation in both groups' perceptions of this perception. According to the respondents, the MoodleCloud service and its content are reportedly entirely trustworthy. The faculty and student mean ratings (3.54) show a generally favourable opinion of the platform's dependability. The standard deviations imply variations in both groups' perceptions of this perception.

Likewise, the dependability and reliability are consistent with the mean ratings, demonstrating that MoodleCloud is trustworthy (Dwivedi et al., 2021). Users are more likely to use a system that they can rely on since it inspires confidence and trust in them. Additionally, the research demonstrates that collaboration in online learning consistently improves learning through collaborative features (Coman et al., 2020). Instructors must consider these variables in education and training if we are to elaborate on aspects relating to performance, dependability, cooperation, setting influence and diversity of learning settings. These factors play a crucial role in determining how well educational and training programmes

work, whether in conventional classrooms, online environments or the workplace.

Meanwhile, the collaborative features of MoodleCloud, from the perspective of faculty and students, enhance learning. Their mean scores of 3.68 and 3.56 indicate that the collaborative characteristics are seen well. They also concur that MoodleCloud's environment affects their capacity to concentrate and interact with the course materials. The average ratings (3.74 for faculty and 3.72 for students) imply that the platform's settings favourably impact participation. The standard deviations indicate a fair amount of agreement among each group. They also believe that MoodleCloud provides a variety of learning environments depending on their requirements. The mean ratings (3.74) show a favourable opinion of the platform's adaptability. With the study of Hsieh (2022), professionalised technology aspects of the online course activity, such as user-friendly operating systems for easy uploads, realistic downloads of instructional content, and real-time. Users can interact and participate more easily using collaborative features, encouraging teamwork and shared learning. According to research, the learning environment significantly impacts engagement and learning outcomes. The MoodleCloud environment supports this, improving concentration and interaction with course materials (Kumar & Sharma, 2016). Regarding efficiency, reliability and influence on participation, faculty view MoodleCloud's environment somewhat more on average than students (3.63 to 3.68), based on the overall mean comparison. Both groups, however, usually see the platform's environment favourably.

A supportive environment improves engagement and concentration. This study also shows the flexibility and adaptation of online learning platforms, indicating a positive impression of MoodleCloud, which offers a range of learning settings (Pal & Vanijja, 2020). Different learning styles and preferences are accommodated by providing multiple learning settings. The findings indicate that the respondents perceive MoodleCloud's learning environment to support their educational endeavours, with favourable assessments of its functionality, dependability, collaboration tools and adaptability. The slight differences in mean scores across faculty and students demonstrate that everyone understands the MoodleCloud environment similarly. This implies that blended learning using MoodleCloud had significant mean scores and standard deviation results. As to the study of Yustina et al., (2020), blended learning is an avenue of transmitting learning and teaching processes. Due to its convenience and adaptability to the trend of providing high-quality services through technology integration, MoodleCloud is widely used and well-received. This creates a secure learning environment and attitude of negotiation since feedback is given promptly and in a secure manner. The environmental aspect benefits faculty members and graduate students since it helps them adjust to technology capabilities and learn more quickly. Gaining knowledge and skills with MoodleCloud calls for a more resilient mindset and acceptance of the changes in teaching and learning.

**Table 4. Level of Usability of MoodleCloud in the Classroom Setting in terms of Learnability**

Statements	FACULTY		STUDENTS	
	Weighted Mean	Standard Deviation	Weighted Mean	Standard Deviation
The directions offered within Moodle Cloud regarding different educational tasks and evaluations are clear and understandable.	3.54	0.60	3.64	0.54
I can simply locate and access particular course resources, assignments and data on Moodle Cloud.	3.56	0.52	3.74	0.46
Moodle Cloud's labels and icons are clear and illustrative, facilitating navigation and understanding for the students to learn.	3.72	0.48	3.76	0.58
I can engage myself in conversations, tests and other interactive features on Moodle Cloud.	3.66	0.44	3.70	0.40
The MoodleCloud can provide features for feedback on assignments, tests or other assessments with regard to performance and progress that can help you learn more efficiently.	3.66	0.44	3.74	0.46
<b>Overall Mean</b>	3.63		3.72	

Table 4 reveals the weighted mean and standard deviation for user perceptions of MoodleCloud's learnability in a classroom context. Directional clarity, accessibility to course materials, legibility of labels and icons, use of interactive features and the efficiency of the feedback mechanism are the primary concerns. Research provides clear instructions in online learning that are consistent with the results, showing that respondents believe that the instructions in MoodleCloud are reasonably clear and understandable (Miller et al., 2020). Engagement, motivation and focus can be encouraged in a well-designed environment. An environment that is welcoming, encouraging and supportive can enhance learning.

The setting effect includes how technology and teaching strategies affect learning results. The instructions provided inside MoodleCloud regarding various educational assignments and evaluations are perceived to be reasonably clear and understandable by both faculty and students. Students' mean scores were marginally higher than faculty's (3.64 vs. 3.54), indicating a favourable perception. The standard deviations show some variation in both groups' perceptions of this factor. Compared to faculty, students believed finding and accessing specific course resources, assignments and data on Moodle Cloud was relatively easy. The

mean scores (3.74 for students and 3.56 for faculty) underscore that students can easily access course materials. The standard deviations indicate a fair amount of agreement between the two groups. An interface that is easy to use with logical labels and icons enhances usability and facilitates effective learning. Meanwhile, the positive perception of the efficacy of involvement in discussions, exams, and other interactive activities in MoodleCloud is consistent with the significance of interactive elements in LMS (Al-Fraihat et al., 2020).

Practical learning experiences are facilitated by precise instructions, which also reduce cognitive strain and increase user engagement. Studies also emphasise that the value of quick access to course materials is consistent with the higher mean scores from students compared to faculty about the ease of finding and accessing specific course resources, assignments and data on MoodleCloud (Karkar et al., 2020). Meanwhile, the labels and icons on MoodleCloud are perceived as being clear and illustrative by both professors and students, making navigation and understanding easier for efficient learning. The average ratings (3.72 for faculty and 3.76 for students) indicate a favourable opinion. The standard deviations show a fair amount of agreement between the two groups. On MoodleCloud, the respondents believe they can participate effectively in discussions, examinations and other interactive activities. The average ratings (3.66 for faculty and 3.70 for students) indicate a favourable opinion. The low standard deviations imply broad agreement about this engagement in both groups.

Meanwhile, students believe that MoodleCloud is somewhat more effective than other LMSs at providing tools for feedback on tasks, exams or other assessments, assisting in performance and progress assessment for effective learning. The faculty perceived the feedback mechanism as marginally more effective than students did, according to the mean scores (3.66 for faculty and 3.74 for students). The standard deviations indicate a fair amount of agreement between the two groups. Simple accessibility facilitates effective learning and reduces annoyance, improving the user experience. The value of an exemplary user interface is supported by statistics showing that features on MoodleCloud are perceived as transparent and illustrative by the respondents, facilitating navigation and understanding (Piliang & Kisman, 2020). Thus, technology integrates the acquisition of knowledge and skills in various aspects of life (Fehrer et al., 2022).

Regarding resource accessibility, label and icon clarity and feedback mechanism effectiveness, students generally saw MoodleCloud's learnability more favourably than faculty. This is demonstrated by the overall mean comparison, which shows a slightly higher mean for students (3.72) than faculty (3.63). The data implies that MoodleCloud is a platform that effectively supports learning, with positive perceptions regarding direction clarity, accessibility to course materials, legibility of labels and icons, participation in interactive features and the efficacy of feedback mechanisms. The few differences in mean scores among students demonstrate that MoodleCloud is perceived as being generally easy to use. Interactive elements enhance learning by encouraging participation, teamwork and active learning. Hence, research emphasising the value of efficient feedback mechanisms in online learning is consistent with the results showing a favourable opinion of MoodleCloud's efficacy in providing feedback on

assignments and exams (Siddiqui et al., 2019). Prompt and helpful feedback helps students learn and get better at what they do. These factors are critical in determining how compelling educational and training experiences are. The effectiveness of MoodleCloud can be determined by how well these variables interact and affect one another.

**Table 5. Level of Usability of MoodleCloud in the Classroom Setting in terms of User-Friendliness**

Statements	FACULTY		STUDENTS	
	Weighted Mean	Standard Deviation	Weighted Mean	Standard Deviation
The MoodleCloud is a user-friendly learning platform for both faculty and students.	3.48	0.56	3.54	0.54
I can easily navigate the various sections and features of Moodle Cloud.	3.54	0.64	3.56	0.60
The MoodleCloud interface's buttons, icons and other elements are recognisable for what they do.	3.56	0.60	3.48	0.57
Moodle Cloud's overall layout and style are appealing and supportive of the effective education of the students as well as in faculty.	3.56	0.60	3.44	0.56
MoodleCloud is accessible to me when it comes to readability, contrast of colours and device adaptation.	3.66	0.57	3.50	0.56
<b>Overall Mean</b>	3.56		3.50	

Table 5 emphasises user-friendliness, navigational simplicity, element clarity, visual attractiveness and accessibility. MoodleCloud was seen as a user-friendly educational tool by faculty and students, while students gave it a tiny edge (mean score of 3.56 for students versus 3.54 for faculty). Most respondents (3.54 for faculty and 3.56 for students) believed it is simple to browse the many parts and functionalities of MoodleCloud. Meanwhile, the MoodleCloud interface's buttons, icons and other aspects were perceived as being slightly more transparent by faculty than by students. There is a broad notion that user-friendliness is essential for technology adoption and pleasant user experiences, which is supported by the statistics showing that MoodleCloud was viewed as a user-friendly educational tool by the respondents (Haiduwa et al., 2022). Nevertheless, both groups believed that these components could be identified by their intended uses (mean score of 3.56 for faculty and 3.48 for students). Institutions and organisations can better meet the requirements of their students and participants by working to improve performance, reliability, cooperation, setting influence and the diversity of learning settings.

As Utami et al., (2021) state, one critical factor determining a quality system is its usability. Intuitive navigation makes effective platform utilisation possible, which enhances user experience. Likewise, the idea that elements of the MoodleCloud interface may be recognised based on their intended use is consistent with the idea of clarity in interface design (Said, 2021). Comparatively, to students, faculty believe that MoodleCloud's overall design and layout are a little more appealing and conducive to good teaching. The layout and style primarily support both groups (mean scores of 3.56 for faculty and 3.44 for students). Positive user views and engagement can be influenced by an aesthetically beautiful design.

Regarding users' perceptions of Moodle, cloud accessibility is consistent with the significance of accessibility in inclusive design (Rasheed et al., 2020). An accessible platform guarantees that a wide variety of users, including those with varying abilities, can use it. The standard deviations imply variations in both groups' perceptions of this perception. Conversely, graduate studies students and faculty believe MoodleCloud is a little more user-friendly regarding readability, colour contrast and device compatibility. However, MoodleCloud is usually considered accessible by both parties (mean score of 3.66 for faculty and 3.50 for students). Arora et al. (2022) suggest that MoodleCloud's simplicity, user-friendly interface, fast loading times, mobile compatibility, positive memory, consistent browsing and pleasant colour scheme contribute to its ease of use. Thus, this also implies that it has a satisfactory level of usability.

As reiterated by Naseem et al. (2021), in the global education sector, the cloud-based LMS paradigm is the most suitable and reliable approach to learning, particularly during economic downturns brought on by pandemics. The comparison of the overall mean between faculty and students indicated a slightly higher mean score for faculty (3.56) in contrast to students (3.50). This suggests that, on average, faculty members perceive MoodleCloud to be slightly more user-friendly and visually appealing in terms of accessibility. Adoption barriers are lowered, and simplicity of use is encouraged with a user-friendly platform. The importance of straightforward navigation is supported by the data showing that most respondents found it easy to traverse the various sections and features of MoodleCloud (Rante & Campbell, 2016). However, MoodleCloud's user-friendliness was viewed favourably by both faculty and students. The data reveals that MoodleCloud is a user-friendly learning platform with good perceptions on navigational simplicity, element clarity, aesthetic appeal and accessibility. The few differences in mean scores across professors and students suggest that MoodleCloud's user-friendliness is seen consistently throughout. This is supported by the study of Burns and Santally (2019) that showed that elements that are easily identifiable, improve usability and help users comprehend the platform's capabilities. Hence, the information indicating that respondents find the general style and arrangement of MoodleCloud to be pleasant and helpful is consistent with studies that highlight how essential design aesthetics are to user happiness. However, despite MoodleCloud's advantages, users may encounter drawbacks like intermittent internet connectivity issues and late submissions. To counteract this, faculty members usually adjust the task deadlines.

**Table 6. Level of Usability of MoodleCloud in the Classroom Setting in terms of User-Satisfaction**

Statements	FACULTY		STUDENTS	
	Weighted Mean	Standard Deviation	Weighted Mean	Standard Deviation
I am satisfied with the services of Moodle Cloud.	3.58	0.64	3.72	0.44
I learned a lot about technology, in particular the navigation of MoodleCloud.	3.64	0.60	3.70	0.38
I am satisfied with the communication tools within Moodle Cloud for interacting with faculty and students.	3.74	0.56	3.78	0.32
MoodleCloud is responsive and effective and helps students and faculty.	3.74	0.44	3.78	0.32
The ease of accessing course materials on Moodle Cloud affected my satisfaction with the learning platform.	3.70	0.48	3.70	0.48
<b>Overall Mean</b>	3.68		3.74	

Table 6 provides the weighted mean and standard deviation reported by faculty and students. The focus is on overall satisfaction, technology learning, satisfaction with communication tools, responsiveness and ease of accessing course materials. Students and faculty indicated a fair amount of satisfaction with MoodleCloud's services. According to the mean ratings (3.58 for faculty and 3.72 for students), students reported somewhat better satisfaction than faculty, which indicates a positive overall perception. The standard deviations show that there is some variation in the groups' levels of satisfaction. The data indicates a moderate level of satisfaction with MoodleCloud services relevant to the studies emphasising the role that user-satisfaction plays in adopting and using technology (Anthony et al., 2020). Faculty also believe they acquired in-depth knowledge about technology, especially how to use MoodleCloud. The average ratings (3.64 for faculty and 3.70 for students) indicate a favourable opinion. The standard deviations imply variations in both groups' perceptions of this factor.

Regarding interacting, MoodleCloud's communication capabilities are appreciated by faculty and students. A favourable perception is indicated by the mean scores (3.74 for faculty and 3.78 for students). The standard deviations imply that there is some variation in both groups' levels of satisfaction.



Enhancing user engagement and promoting continuous usage are possible outcomes of a positive user experience. Users' belief that they learn about technology, especially when using MoodleCloud, highlights how educational technologies can improve students' technological literacy (Mwatilifange & Mufeti, 2023). Using technology effectively can be facilitated by learning and mastering it in an educational setting. In addition, the importance of efficient communication tools in educational technology aligns with the favourable opinion of MoodleCloud's communication capabilities (Al-Samarraie & Saeed, 2018). Moreover, faculty and students see MoodleCloud as helpful and responsive. The average ratings (3.74 for faculty and 3.78 for students) indicate a favourable opinion. They also concur that how easily they may access course materials on MoodleCloud directly impacts how happy they are with the learning environment. The faculty and student mean scores (3.70) indicate a favourable perception. The standard deviations indicate a fair amount of agreement among each group.

Additionally, students generally see MoodleCloud more favourably than faculty regarding technological learning, communication tools and responsiveness, as evidenced by the slightly higher overall mean for students (3.74) compared to faculty (3.68). However, both categories generally view MoodleCloud's services and satisfaction favourably. Communication tools facilitate interaction, engagement and teamwork, improving the educational process. The belief that MoodleCloud is responsive and helpful highlights the value of responsiveness regarding user-satisfaction (Al-Azawei, 2019).

MoodleCloud is notable for its ability to improve self-directed learning. It offers an accessible approach to instruction and learning, enabling students to take charge of their education. Graduate studies students can interact with the course materials at their own pace and convenience, showing flexibility and adaptability. This flexibility extends to projects that may be adjusted for time, allowing students to use resources and finish assignments on their own terms. This promotes a more independent and self-directed learning environment. A platform's responsiveness guarantees a good user experience and fulfils user needs. Hence, it is consistent with the importance of accessibility in user experience to believe that having simple access to course materials affects user happiness. A smooth and practical user experience is enhanced by accessibility, particularly on educational platforms.

Further, the data indicates that MoodleCloud is a good learning platform for faculty and students, with favourable attitudes regarding technological learning, satisfaction with communication tools, responsiveness and the impact of accessing course materials. The slight differences in mean scores among the respondents claim that users of MoodleCloud are mainly satisfied. The MoodleCloud significantly influences the teaching and learning process at the state university and the faculty and graduate studies students accept its usability and adaptability. This also implies that MoodleCloud significantly raises the degree of independent learning since it provides a universal approach to teaching and learning through its adaptability and flexibility on time-adapted tasks. The

MoodleCloud, as a platform for faculty members and graduate students' teaching and learning, has considerably enhanced the understanding and mastery of each LMS component, as evidenced by considerable effects on personal, behavioural and environmental elements. It provides faculty members and graduate studies students convenience, flexibility and adaptation.

**Table 7. Significant relationship between user-independence engagement and socio-cognitive factors and usability of Moodle Cloud Faculty**

User-Independence Engagement and Socio-Cognitive Factors	Usability of MoodleCloud	r- value	Degree of Correlation	Analysis
Personal	Learnability	0.568	Moderate	Significant
	User-friendliness	0.488	Moderate	Significant
	User-satisfaction	0.452	Moderate	Significant
Behaviour	Learnability	0.724	Strong	Significant
	User-friendliness	0.628	Strong	Significant
	User-satisfaction	0.618	Strong	Significant
Environment	Learnability	0.328	Weak	Significant
	User-friendliness	0.400	Weak	Significant
	User-satisfaction	0.528	Moderate	Significant

*Range*                      *Degree of Correlation*

$\pm 0.81 - \pm 1.00$

*Very Strong*

$\pm 0.61 - \pm 0.80$

*Strong*

$\pm 0.41 - \pm 0.60$

*Moderate*

$\pm 0.21 - \pm 0.40$

*Weak*

$\pm 0.00 - \pm 0.20$

*Negligible*

Table 7 provides insightful information about the relationship between user-independence involvement, socio-cognitive factors and the faculty's capacity to use

MoodleCloud, considering various elements like environment, behaviour and personal factors. The degree of correlation and correlation coefficients (R-values) are displayed in the table, with significant implications for MoodleCloud's applicability in an educational setting. MoodleCloud is notable for being able to enhance self-directed learning. It offers an accessible approach to instruction and learning, encouraging students to take charge of their education. This is supported by Park et al. (2022). MoodleCloud functions as a central location for self-directed learning. Its many features and user-friendly design encourage active exploration and engagement with course content.

Because of its flexibility and adaptability, graduate studies students and faculty members can interact with the course materials at their convenience and pace. Learnability shows the moderately positive association indicates faculty members' perceptions of MoodleCloud's learnability ( $r = 0.568$ ), user-friendliness ( $r = 0.488$ ), and user-satisfaction ( $r = 0.452$ ) use rise in tandem with increases in personal engagement. As to the study of Basaran and Khalleefah (2020), Significant changes in outcomes have occurred in the State University's teaching and learning dynamics as a result of MoodleCloud. Recognising its usefulness in improving the educational experience, faculty members and graduate students have welcomed its adaptability and applicability. Thus, time-adapted

assignments are one example of this flexibility by allowing graduate studies students and faculty members to work independently and self-directly by using the resources and completing tasks. It is implied that the platform has become an essential education component for the faculty and graduate studies students. The study by Jeddi et al. (2020) significantly demonstrated its effectiveness in its usability, the ease of access and adaptability, as well as the capacity to cope with various teaching and learning methods.

Dwivedi et al., (2022) reiterate that MoodleCloud has gained recognition in delivering instructions and teaching. Similarly, Alsharida et al. (2020) show the reliability in elucidating users' intents regarding technology adoption through awareness and acceptance. In their study, behaviour factors reveal positive behaviour and perceived learnability ( $r = 0.724$ ), user-friendliness ( $r = 0.628$ ), and user-satisfaction ( $r = 0.618$ ) are significantly correlated, as shown by the substantial positive correlation. Positively behaving faculty members feel that MoodleCloud makes learning more conducive. Beyond its technological features, MoodleCloud significantly impacts the State University's teaching and learning process. It is essential to create an environment for learning that encourages autonomy, adaptability and individualised learning, ultimately improving the achievement of both faculty and students in the classroom.

Furthermore, the environment has a weak positive association ( $r = 0.328$ ) in learnability and user-friendliness ( $r = 0.400$ ), indicating that a somewhat better impression is correlated with a more positive perception of the environment. Hence, environment and user-satisfaction have a fairly positive association ( $r = 0.528$ ), indicating that higher levels of user-satisfaction are associated with more positive perceptions of the environment. The use of the LMS is significantly supported by the acceptance and awareness of MoodleCloud's usability. Due to these efforts to deliver instruction as a high-quality educational service, there will be a greater emphasis on upskilling and retooling technological capabilities. Additionally, it provides an atmosphere that encourages faculty and students to pursue more excellent independent learning.

With this, learnability, user-friendliness and user-satisfaction are among the usability elements of MoodleCloud for faculty that are significantly correlated with behaviour, the environment and personal factors. The study of Zaineldeen et al. (2020) reiterates that the Technology Acceptance Model provides valuable guidance for integrating technology into education. This advances methods and provides high-quality educational services. The strongest association is found in behaviour, suggesting that encouraging staff to use Moodle Cloud positively is essential for improving the user experience. Although they have a weaker link, environmental factors also significantly impact how usable MoodleCloud is. Thus, MoodleCloud creates an environment that provides a dynamic learning experience. This is also a way of uplifting and upskilling the faculty members' technological capabilities. Significant effects on personal, behavioural and environmental aspects demonstrate how MoodleCloud, as a platform for faculty members and graduate students teaching and learning, has significantly

advanced the understanding and proficiency of each LMS component. It offers ease, adaptability and flexibility to graduate students and faculty members.

**Table 8. Significant Relationship between User-Independence Engagement and Socio-Cognitive Factors and Usability of MoodleCloud Students**

User-Independence Engagement and Socio-Cognitive Factors	Usability of MoodleCloud	r- value	Degree of Correlation	Analysis
Personal	Learnability	0.640	Strong	Significant
	User-friendliness	0.588	Moderate	Significant
	User-satisfaction	0.602	Moderate	Significant
Behaviour	Learnability	0.744	Strong	Significant
	User-friendliness	0.688	Strong	Significant
	User-satisfaction	0.652	Strong	Significant
Environment	Learnability	0.448	Moderate	Significant
	User-friendliness	0.480	Moderate	Significant
	User-satisfaction	0.528	Moderate	Significant
<i>Range</i>	<i>Degree of Correlation</i>			
$\pm 0.81 - \pm 1.00$	<i>Very Strong</i>			
$\pm 0.61 - \pm 0.80$	<i>Strong</i>			
$\pm 0.41 - \pm 0.60$	<i>Moderate</i>			
$\pm 0.21 - \pm 0.40$	<i>Weak</i>			
$\pm 0.00 - \pm 0.20$	<i>Negligible</i>			

Table 8 presents important information regarding the relationship between user-independent engagement, socio-cognitive variables and MoodleCloud's usefulness for students. The correlation coefficients (R-values) and correlation strength are displayed in the table, providing insight into the importance and strength of the links between learnability, user-friendliness and user-satisfaction. MoodleCloud has had a significant and continuing effect on the dynamics of teaching and learning at the State University. Faculty and graduate students have embraced its versatility and usefulness, appreciating its significance in upgrading the learning process. Moreover, personal factors reveal the learnability with a robust positive correlation ( $r = 0.640$ ), indicating that students' perceptions of MoodleCloud's learnability are improved when they participate in more activities. Likewise, students perceive MoodleCloud to be more user-friendly and satisfy the user, which is positively correlated ( $r = 0.588$ ) and ( $r = 0.602$ ) in a moderate way, respectively. Students discover that MoodleCloud is comparatively more accessible to use.

Given that graduate students and faculty use the platform, this suggests that it has become an essential component of the teaching and learning process. Its success has been primarily attributed to its adaptability, which allows it to adjust to various teaching and learning styles, and accessibility, which refers to how easily it can be used and navigated. In terms of behavioural factors, it has a strong positive correlation with learnability ( $r = 0.744$ ), user-friendliness ( $r = 0.688$ ), and user-satisfaction ( $r = 0.652$ ), indicating that it has a positive response from

students, making MoodleCloud an excellent environment for learning. It is user-friendly which has a significant impact on users' overall contentment with MoodleCloud. This implies that graduate studies students and faculty members support the use of MoodleCloud in teaching and learning.

MoodleCloud is notable for its capacity to improve self-directed learning. It provides a universal method of instruction and learning, enabling students to take leadership roles in their education. Students can interact with the course materials at their own pace and convenience. This adaptability also extends to time-adapted assignments, allowing students to use resources and complete activities per their timelines, promoting a more independent and self-directed learning environment. Moreover, environmental factors have a moderately positive association with learnability ( $r = 0.448$ ), user-friendliness ( $r = 0.480$ ), and user-satisfaction ( $r = 0.528$ ), indicating that it has a favourable atmosphere that influences how learnable the content is judged to be.

Beyond its technological features, MoodleCloud significantly impacts the State University's teaching and learning process. It is essential to create a learning atmosphere that promotes independence, flexibility and personalised learning, eventually optimising the performance of both faculty and students in the classroom. Further, the information indicates a substantial correlation between behaviour, environmental factors, personal factors and the usability features of MoodleCloud for students, such as learnability, user-friendliness and user happiness. The most significant relationship between behaviour and usability reveals that encouraging students to behave well is essential to improving their MoodleCloud experience. Environmental elements significantly impact usability of MoodleCloud, even though their correlation with behaviour is slightly weaker.

## 5. Conclusion

Graduate studies students' involvement in their learning process is greatly influenced by how easily they can use MoodleCloud as an LMS, and the results reveal that there is a significant relationship between user-independence engagement and socio-cognitive factors and the usability of MoodleCloud among faculty and students. This shows that a user-friendly, intuitive interface, practical course management, user-centred design, customisation possibilities, accessibility and mobile usability greatly influence graduate students' total learning experiences and engagement. Continuous attempts to improve MoodleCloud's usability may remain a top priority as more research is undertaken and technology develops to guarantee that every user has the best learning experience. MoodleCloud's usability is significant to the student's engagement according to the respondents. MoodleCloud generally encourages user-independence engagement and socio-cognitive variables based on the respondents' perceptions. The analysed data reveals that users believe that MoodleCloud is a platform that fosters critical thinking and active learning. The respondents show good attitudes regarding personalising their educational experiences, maintaining motivation and interacting with the platform.

Thus, each faculty member and graduate student's environment, behaviour and personal traits were significantly impacted by MoodleCloud. As a result, educators at institutions are more actively engaged in achieving institutional goals and providing high-quality education. Moreover, the MoodleCloud environment's performance, reliability, collaboration and adaptability are typically viewed favourably by both faculty and students. Users find that MoodleCloud's environment encourages participation and cooperation in learning. MoodleCloud is also primarily regarded by faculty and students as a platform that facilitates learnability, with favourable opinions about navigational simplicity, clarity, engagement and feedback mechanisms. The results show that MoodleCloud promotes efficient knowledge and skill acquisition by integrating technology to adopt twenty-first-century skills and knowledge. Using MoodleCloud to deliver instruction has aided graduate studies students in their learning by fostering independence and providing a more favourable time for them to complete assignments independently.

Furthermore, MoodleCloud reports that it is a user-friendly platform with good navigation, clarity, visual appeal and accessibility. As such, it is a user-friendly platform that encourages productive communication and education. The services, technological learning opportunities, communication facilities and responsiveness of MoodleCloud are highly rated by users. Graduate studies students and faculty members have positive opinions about MoodleCloud regarding user-satisfaction and its influence on the educational process.

## **6. Recommendations**

Based on the study's findings, it is suggested that the university organises regular training sessions or workshops for faculty and students to improve the user experience further and optimise the platform for efficient learning engagement. MoodleCloud can contribute to quality services in education by providing for twenty-first-century skills and technological capabilities. For further research, it is recommended that other attributes or variables are explored. Future researchers may also consider other research designs in exploring the usability of MoodleCloud. The MoodleCloud's adaptable learning methodology has been demonstrated. The institution should continue to support this mode of instruction, giving students the freedom to access their classes and course materials from any location, which is particularly helpful in the current digital era. Future researchers should consider using various research methodologies to evaluate the usability and efficacy of the MoodleCloud. This could entail in-depth case studies, cross-institutional comparisons, or longitudinal investigations for further analysis and understanding of the effectiveness and efficiency of MoodleCloud in delivering quality teaching and learning in the post-pandemic era and the new normal of education. A more comprehensive and complex comprehension of the platform's strengths and limitations could be attained by a qualitative study in the use of MoodleCloud. This may further increase the desire to provide high-quality educational services by implementing twenty-first-century technology integration techniques into the teaching process.

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