

Assessing Discord As LMS: An Evaluation Using Kirkpatrick's Model Among University Students

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Abstract

The contributions of lab demonstrators significantly increase the effective setting of lab sessions for certain subjects. By providing clear learning objectives and assessment criteria for course subjects, they help students effectively complete their assignments. Lab demonstrators maintain regular communication with students, keeping them informed about assignments, class materials, and notes, thereby creating a supportive as well as structured learning environment. Technically, they must use a designated online platform for effective material management and student communication. Recognizing the importance of a robust Learning Management System (LMS) in maintaining communication with students, lab demonstrators are now seeking a fresh platform to serve as the new LMS. Therefore, the Discord app is used in this study as the chosen platform, and its efficiency is evaluated. This paper employs Kirkpatrick's four-level evaluation model to specifically investigate the following: (i) student reactions to the effectiveness of Discord in terms of user engagement

and learning resource accessibility; (ii) degree of knowledge and skills gained during the student learning session using Discord in terms of user engagement and learning resource accessibility; and (iii) student transfer of knowledge and skills from using Discord. Purposive sampling was used to choose a sample of 30 students who enrolled in specific courses offered by the faculty. The efficacy of Discord was assessed using behavioral surveys, feedback questionnaires, semi-structured interviews, and pre-and post-tests. According to the study, three of the four levels of Kirkpatrick's Model had evidence from the evaluation that was done. On a 5-point Likert scale, Discord received an average response of 4. The pre-and post-test results showed a good improvement in knowledge and skills, indicating learning. The behavioral surveys that were carried out also included questions about the evidence of knowledge transfer, skill transfer, and continued use of Discord after the course ended. As a result, the findings benefit the stakeholders and lecturers by encouraging them to keep using Discord in place of the university's learning management system for their lab demonstrators.

Keywords: Evaluation, Kirkpatrick Model, Effectiveness, Discord, Learning Management System (LMS)

1. Introduction

Lab demonstrators play a crucial role in managing lab sessions for specific subjects. They guide students to complete assignments by clarifying rubrics and learning outcomes from lecture topics. They maintain constant communication with students, providing updates on notes, class materials, and assignments to ensure a cohesive and supportive learning environment. In today's digital educational landscape, efficient communication and resource sharing between educators and students are essential for successful learning outcomes. Universities typically provide Learning Management Systems (LMS) to facilitate these needs, offering a structured and secure environment for academic activities (Komljenovic, 2025; Hernández-García et al., 2024).

However, due to the limitations imposed on lab demonstrators in utilizing the university's LMS such as restricted permissions, limited editing or content-publishing rights, and sometimes usability or access constraints, as reported in institutional LMS evaluations (Ndibalema, 2025), they are seeking an alternative platform to facilitate communication with students. As the current LMS lacks the necessary access, many academicians are exploring new options to enhance student engagement and interaction. Subsequently, this research considers Discord as a prospective LMS for novel and inventive concepts. The educational sector has increasingly used Discord as an LMS. It provides a platform for students and teachers to engage in real-time communication, collaboration, and resource sharing. Discord's adoption as an LMS started when educators recognized its potential for creating interactive learning communities and providing innovative methods of instruction (Ramadhan, 2021).

This app was originally designed for gamers to communicate and collaborate (Uong et al., 2022). However, Discord's user-friendly interface and diverse features have made it an attractive option for educators seeking an alternative LMS. Its real-time communication capabilities, integration with various media formats, and customizable server functions offer a dynamic space for students and instructors to engage in discussions, share resources, and

collaborate on projects (Ardiyansah et al., 2021). Discord is selected as an alternative Learning Management System (LMS) due to its innovative platform for student interactions. In addition, the favour of this apps is due to its less formal communication mechanism. The incorporation of emoticons and GIFs on Discord cultivates a casual communication, inclusive interchange of concepts and opinions among users (Ardiyansah et al., 2021).

The unique combination of social networking elements and educational tools within Discord creates an immersive and interactive learning environment that resonates with digital-native learners. As such, the objectives of this study are to evaluate the effectiveness of Discord by LMS using Kirkpatrick's models to understand its impact on student learning resources accessibility and user engagement. Specifically, this research objectives are:

- (i) to determine the reactions of students to the implementation of Discord as alternatives LMS;
- (ii) to determine the level of students learning; and
- (iii) to determine the students transfer of learning and behavioural, in terms of effectiveness on using Discord precisely on learning resources accessibilities and user engagement.

Utilizing Discord as an educational tool follows the objectives of the Sustainable Development Goals (SDGs) in Action: Creating Impact Through Education and Practice. More precisely, it provides support for Goal 4, which highlights the significance of high-quality education. Through the democratization of learning resources and the promotion of inclusive and equitable education, Discord has the potential to enable lifelong learning opportunities for everyone. This study examines the potential of utilizing Discord to optimize education and generate substantial, instantly creating favourable effects on learning and growth. Thus, this research aims to contribute to the broader objectives of sustainable development by examining the effectiveness of Discord as a LMS. The aim is to guarantee that educational technologies are both innovative, inclusive, and sustainable.

1.1 Evaluation of the Learning Management System (LMS)

Evaluation of learning management systems is crucial for ensuring their effectiveness and efficiency in supporting the teaching and learning process (Mohammed, 2023). It allows educators and institutions to assess whether the LMS meets their specific needs and goals and identify areas for improvement. There are several key factors to consider when evaluating a learning management system. One important aspect is the user interface and experience. The ease of navigation, accessibility of features, and overall design can greatly impact the user's satisfaction and engagement with the platform (Xin, 2023). Another critical factor is the functionality of the LMS (Fan, 2020). This includes assessing its ability to handle various types of content, facilitate communication and collaboration, provide assessment tools, and integrate with other systems or applications (Gomes et al., 2023).

Furthermore, the effectiveness of technical support and training resources provided by the LMS vendor should be evaluated to ensure smooth implementation and ongoing usage (Farhangi et al., 2018). Additionally, it is important to assess student learning resource

accessibility and user engagement when evaluating LMS. This can be done through analysing usage data, conducting surveys or interviews with students, and monitoring student progress and outcomes. When evaluating a learning management system, it is also essential to consider its scalability and flexibility (Longo et al., 2023). As educational institutions grow and evolve, the LMS should be able to accommodate changing needs and expand user bases. Scalability ensures that the system can handle increased demands without compromising performance, while flexibility allows for customization and adaptation to specific requirements (Abaricia & Santos, 2023).

Moreover, cost-effectiveness and budget should be part of the evaluation process. It is important to weigh the initial setup and ongoing maintenance costs against the benefits and efficiency gained from the LMS (Abaricia & Santos, 2023). This evaluation helps determine the long-term viability and sustainability of the chosen learning management system. It is also essential to gather feedback from educators and students who interact with the LMS regularly. Their insight can provide valuable input for improving the system and tailoring it to meet the specific needs of the users better.

In conclusion, a comprehensive evaluation of learning management systems should encompass user experience, functionality, technical support, student engagement resources accessibility, user engagement, and cost-effectiveness. By carefully assessing these factors, educators and institutions can make informed decisions about selecting and optimizing an LMS that best serves their needs and enhances the teaching and learning process. Additionally, this research will evaluate Discord as an alternative LMS in terms of accessibility to student learning resources and user engagement.

1.2 Discord as a Replacement of LMS

Discord has several advantages as a replacement platform for a LMS, particularly its user-friendly interface and easy accessibility (Munibi et al., 2024). Unlike conventional LMS platforms, which frequently require subscription fees, Discord is free and only requires an account to use its features. Its user friendly interface enables students to adapt quickly, making it an appealing choice for educators looking for a low-cost alternative. Additionally, Discord allows for dynamic and informal interaction via chat, voice, and video, fostering a closer learning community and increasing engagement between students and instructors (Kruglyk et al., 2020). Another significant advantage is its ability to integrate with external learning tools like Google Drive, YouTube, and third-party applications, allowing for collaborative learning and seamless sharing of course materials (Ghazali, 2021). However, Discord has significant flaws that limit its usefulness as a formal LMS. One of its major drawbacks is the absence of built-in assessment features such as automated testing, learning analytics, and grading systems, which are required by traditional platforms such as Moodle and Google Classroom (Yoon et al., 2025). This limitation makes it difficult for educators to monitor student progress and manage assessments effectively.

Furthermore, because Discord is widely used as a social and gaming platform, students may be easily distracted by non-academic channels and conversations, resulting in a lack of focus during learning sessions (Ghazali, 2021). These difficulties highlight the need for more

tools and strategies to ensure an effective learning experience when using Discord as an LMS. As a result, the purpose of this study is to assess Discord's functionality as an LMS replacement and its potential as a formal learning platform. In addition, the Kirkpatrick Model, a well-established framework for evaluating the efficacy of educational and training interventions, will be employed in this study to assess the effectiveness of Discord as a Learning Management System (Jannah & Hentasmaka, 2021).

1.3 Effectiveness of Student Learning Resources Accessibility and User engagement Features in LMS

The importance of accessibility to student learning resources and user involvement within LMS is a critical element of the educational process (Abaricia & Santos, 2023). Accessibility to student learning resources and user engagement in Learning Management Systems significantly influence the quality of education (Brito & Dias, 2020). When materials are easily accessible, students can readily interact with the content, leading to improved academic achievements. Additionally, active participation within the LMS fosters a sense of community and cooperation, establishing an environment where students can communicate, exchange thoughts, and assist each other in their educational path (Kedia & Mishra, 2023). As technology progresses, educational institutions must prioritize accessibility and user engagement within their LMS to establish an inclusive and efficient learning atmosphere for all students (Bhat, 2023).

The effectiveness of student learning resources accessibility and user engagement in Learning Management Systems plays a crucial role in enhancing the overall learning experience (Barri, 2020). In the context of student learning resource accessibility and user engagement, using platforms like Discord as an LMS can significantly enhance the overall educational experience. Discord provides a user-friendly interface that allows students to easily access learning materials and interact with their peers and instructors. Its chat and voice features facilitate real-time communication and collaboration, promoting engagement and active participation (Ardiyansah et al., 2021). Moreover, Discord's versatility in supporting various types of content, such as text, images, videos, and links, makes it a well-rounded platform for sharing educational resources. This accessibility to diverse learning materials empowers students to explore content in different formats, catering to various learning styles and preferences. In addition, the interactive nature of Discord, with features like polls, quizzes, and discussion channels, encourages user engagement and fosters a sense of community among students. This type of engagement not only enhances the overall learning experience but also contributes to a more inclusive and supportive learning environment (Barnad, 2021).

Overall, the use of Discord as an LMS can significantly contribute to the effectiveness of student learning resources accessibility and user engagement, thereby enriching the educational journey for all students involved.

1.4 Kirkpatrick's Four Levels of Evaluation Model

Numerous models for assessment have been put out in the literature, such as the CIPP model by Galvin (1983), the Brinkerhoff model (1987), the Kraiger, Ford, and Salas model (1993),

the Holton model (1996), and the Phillip model (1966). However, the four levels of assessment model which was created by Donald Kirkpatrick in 1967 is the most often used evaluation model. Unlike more complicated model like CIPP that demand significant data collection and financial analysis, Kirkpatrick's four level framework offers a clear and practical method for assessing training efficacy. It's simple, methodical approach helps companies to monitor learning results without needing complicated calculations (Lee, 2023). The four assessment levels make up this model are Level 1 is for reaction, Level 2 is for learning, Level 3 is for behaviour, and Level 4 is for results (Figure 1). According to Kirkpatrick, every level has significance and exerts influence over the one before it. As the assessor moves from one level to the next, the evaluation procedure gets more intricate and time-consuming (Kirkpatrick & Kirkpatrick, 2006). As a result, only a limited number of evaluations are able to assess performance beyond level 2.

In this study, the Reaction level or level 1 focuses on the participants' reaction of the experience of using Discord. Kirkpatrick called this level as a measure of user satisfaction. Questions such as, How would you described your overall experience assessing learning resources on Discord?; When you encounter a new learning resource on Discord, how likely are you to explore it immediately?; What is your emotional response when actively engaging in discussion or activities on Discord?; How do you feel about the level of collaboration and interaction with others on Discord ?; and What emotions come to mind regarding the use of Discord for educational purposes? are describing the reaction level of learning resources accessibility and user engagement perspectives.

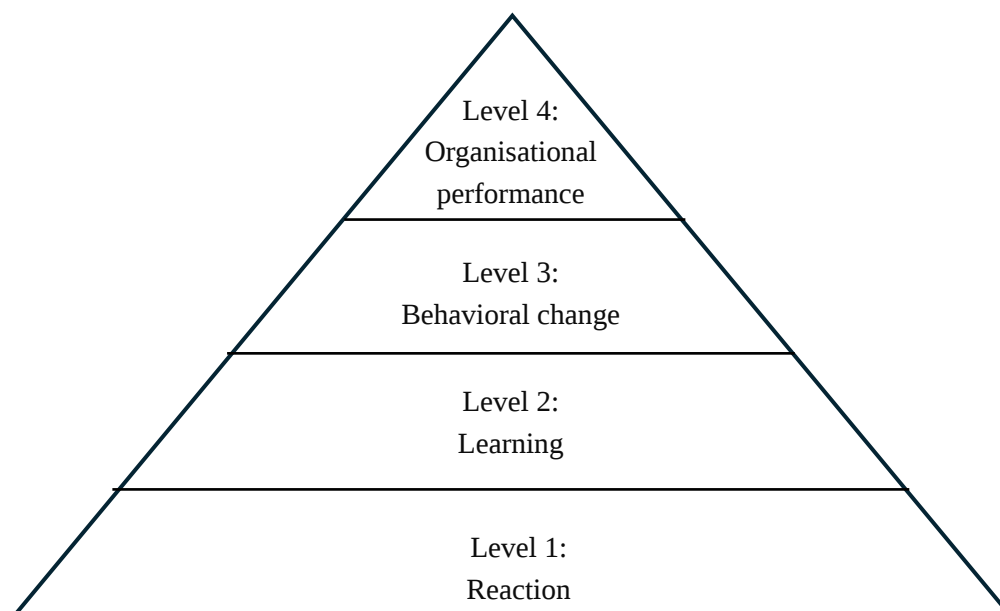


Figure 1. Kirkpatrick's four levels of evaluation model
Source: from Kirkpatrick (1996)

The purpose of these questions is to learn more about the participants' opinions of the Discord they have used. A favourable response would indicate that the users were content and contented with the applications, increasing the likelihood that they would feel at ease utilising them once more. It is crucial to measure this level because choices made by senior management may be influenced by information, they have learned about this substitute LMS. Student input is gathered at the Reaction level to determine how satisfied and involved they are with the apps. Surveys, interviews, or focus groups can be used for this. Because of this, it is critical to have real information on positive student replies. If there is negative feedback, students are unlikely to remain motivated to study and utilise these apps (Kirkpatrick & Kirkpatrick, 2006).

Level 2, or Learning level, is the next evaluation stage that comes after. Learning is the process of becoming knowledgeable, altering one's conduct, picking up new abilities, and forming attitudes (Knowles et al., 1988, as cited in Ehlers & Schneckenberg, 2010). According to this definition, a new apps implementation can accomplish three things: The three main objectives are to enhance knowledge, refine skills, and alter attitudes. Furthermore, level 2 seeks to assess the extent to which students have acquired knowledge from their previous experience and their subsequent use of Discord as their Learning Management System (LMS).

The evaluators can measure the acquired knowledge using the pre-test and post-test methods. If the purpose of this implementation of Discord is to enhance the participants' skills, the assessors can utilize performance tests. If the goal is to measure the changes in attitudes, the assessors should employ attitude surveys that encompass any relevant attitudes that the organizations desire the participants to possess after completing the training program. According to Kirkpatrick & Kirkpatrick (2006), learning is considered to have occurred at the end of a training program if the participants' knowledge has increased, their skills have improved, or their attitudes have changed.

The behavioural level, also known as level 3, assesses whether or not the attitudes, knowledge, and abilities acquired might be applied to the learning process and show improvements in behaviour and academic achievement. Kirkpatrick underlined that knowledge cannot influence the learning process if it does not translate into the conduct of the learner. Nevertheless, additional factors might affect how well pupils apply what they have learned. For instance, there are four important conditions for change to occur, which are (i) The student must have a desire to change; (ii) The student must know what to do and how to do it; (iii) The student must work in the right climate; and (iv) The student must be rewarded for changing. Therefore, in this level of evaluation, the students' intentions and plans for continued use of Discord after course completion are assessed by emphasizing knowledge transfer, learning resources accessibilities, and ongoing user engagement.

Lastly, the Results level, also referred to as level 4, discusses the influence of the students' improved performance on how Discord is implemented. The purpose of this study is to evaluate how the learning process is affected when Discord is used as a substitute LMS. It specifically looks at whether utilising Discord increases students' comfort level and

understanding after it is implemented. Teachers are very interested in knowing what influences academic success, and it is difficult to provide a definitive answer. This is because numerous factors beyond a student's learning performance can influence their academic success (Kirkpatrick & Kirkpatrick, 2006).

Additionally, in order to facilitate the successful implementation of this approach, Kirkpatrick and Kirkpatrick (2006) have put up a number of suggestions. In the beginning, the assessments should start at level 1 (Reaction) and work their way through the remaining levels in a sequential manner. Each level has a distinct influence on the subsequent level, thus making each level significant. As the level increases, the process becomes more demanding and requires additional completion time, but it yields more significant outcomes.

Moreover, organisations can use the total evaluations of all responses to decide whether to continue or stop implementing the programme. Should advice exist to improve future execution, organisations ought to utilise it. Furthermore, achieving level 2 (Learning) proficiency can be facilitated by assessors who clearly understand the specific knowledge, skills, and attitudes they expect participants to acquire upon completion of the implementation session. Pre-testing and post-testing are crucial in verifying the occurrence of learning. As for this study, out of 4 level of Kirkpatrick evaluation model only two level was conducted which are Reaction and Learning. Usually, level 3 (Behaviour) and 4 (Results) are the most difficult levels to complete. Hence, organizations might want to hire consultants for these purposes.

2. Method

By using a non-experimental, longitudinal design with a single group pre- and post-test, this study was carried out in the first half of 2024. Thirty students were registered for the session. The capacity to investigate Discord's use in educational environments and a willingness to engage in the study were prerequisites for enrolment. Being absent from the learning environment for more than three consecutive days and refusing to engage were exclusion grounds. During this experiment, students who registered for courses were paired with designated demonstrators to participate in lab sessions. All instructional materials, files, notes, assignments, and communications were managed during these lab sessions. Discord was the primary medium for communication, instruction, and learning between the demonstrators and students during the 14-week semester. In contrast to the conventional LMS that universities employ, this approach was implemented.

This study aimed to evaluate two levels of outcomes which is Level 1 (Reaction) and Level 2 (Learning) using the designated instrumentation. Assessing participants' reactions to Learning Resources Accessibility and User Engagement via Discord was the primary focus for Level 1. This level sought prompt feedback on participant engagement throughout the learning process and the accessibility of the learning materials. Meanwhile, as for Level 2 focused on assessing participants' learning outcomes through a Pre- and Post-Test, as a result measuring their perceptions of the learning experience both before and after the use of Discord. Therefore, to ensure comprehensive data collection, both levels completed structured questionnaires.

As for the Level 1: Reaction questionnaire focused on users' perceptions of User Engagement and the Accessibility of Learning Resources. This section consisted of nine questions designed to assess participants' immediate reactions regarding their experiences with the learning resources and their level of engagement while using Discord. The participants' perceptions of their Discord learning experience were assessed using a Pre- and Post-Test for Level 2: Learning. This level questionnaire contained 13 Likert-scale questions designed to assess participants' opinions before and after the implementation of Discord as an educational tool.

Two subject matter experts conducted content validation to ensure the accuracy of the instruments. Verification that the instrument accurately measures its intended construct relies on content validity (Azwar, 2015). The professionals provided feedback on the suitability, clarity, and relevance of the questionnaire items. Their recommendations enhanced the instruments through necessary modifications.

Nonetheless, this study did not include any reliability analysis, specifically Cronbach's Alpha. This decision was made because reliable analyses, such as Cronbach's Alpha, require a larger sample size to produce consistent and significant results. The results of reliability analysis may lack accuracy or significance due to a limited sample size, such as 30 participants (Taber, 2018; Gliem & Gliem, 2003). The primary focus of this study was to establish content validity through expert validation, considered sufficient for the initial phase of the investigation. Future research should utilize larger sample sizes to facilitate reliability analysis, thereby enhancing the instrument's robustness. Figure 2 below showed the screen captured from the Discord apps.



Figure 2. Screen Captured from the Discord apps.

As for Level 1: Reaction, a survey was administered at the end of week four to evaluate participants' responses regarding the accessibility of learning resources and user engagement

while utilizing Discord as an alternative platform for a Learning Management System (LMS). The survey comprised six multiple-choice questions, yielding a total score between 0 and 30. The data obtained from this phase were analysed by descriptive analysis utilizing SPSS.

A pre-test and post-test were conducted for Level 2: Learning to assess students' perceptions of their cognitive learning levels. The assessment comprised 13 items utilizing a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree), with a minimum score of 0 and a maximum score of 65. The questions were formulated with the aid of ChatGPT, utilizing students' experiences with Discord as an alternative Learning Management System. Then, the data obtained from the pre-test and post-test were analysed utilizing a Paired Sample T-test to identify significant differences in perceptions, and the Cohen's *d* value was computed to assess the effect size of the changes following the implementation of Discord (Peng & Chen, 2014).

3. Finding & Discussion

Regarding the overall experience, students unanimously agreed that utilizing Discord offered a seamless and effective experience. The participants evaluated a total of six questions about the response rate, user engagement, and accessibility to learning materials based on the information presented in Table 1. According to the results, the average scores were evaluated quite favorably, particularly above the 3.5 score on the Likert scale with a five-point range. This implies that students were quite pleased with the overall response and the usefulness of the learning tools and user interaction offered on the Discord server. Similar findings have been reported in higher education contexts, where students expressed strong satisfaction with Discord's usability and its ability to foster a sense of community, timely updates, and active participation (Lauricella et al., 2023; Ayob, Hadi, Pahraraji, Ismail, & Saaid, 2022; Craig & Kay, 2022)

Table 1. Result from survey on reaction towards Discord effectiveness learning resources accessibilities and user engagement.

Section	Level 1 (Reaction)	Mean Score	Average Mean Score
Learning Resources Accessibilities	What would you describe your overall experience assessing learning resources on Discord?	4.24	4.08
	When you encounter a new learning resource on Discord, how likely are you to explore it immediately?	3.92	
User Engagement	What is your emotional response when actively engaging in discussion or activities on Discord?	4.12	4.10
	What do you feel about the level of collaboration and interaction with others on Discord?	4.08	
Overall Reaction	What emotions come to mind regarding the use of Discord for educational purposes?	4.0	4.12
	How likely are you to recommend Discord as a platform for learning and collaboration to your friends?	4.24	

The study revealed that students expressed satisfaction with the utilization of Discord as the Learning Management System (LMS). They expressed their desire to explore new learning materials immediately after utilizing the applications. Additionally, they felt highly motivated when participating in discussions or activities, and they experienced a high level of satisfaction when collaborating and interacting with others in Discord.

The results of the pre- and post-tests for the learning assessment level are displayed in Table 2. The post-test and pre-test results were compared to determine the proportion of learning acquired. The results demonstrated that after the students used Discord, their mean scores on the pre-test (mean scores of 37.5%) increased to 80.8%. This indicates that nearly all students have acquired useful knowledge while using Discord as a substitute LMS (mean scores of + 43.3%). These gains mirror trends observed in previous quasi-experimental work, where Discord use was associated with substantial improvements in knowledge acquisition and learning outcomes (Zannah et al., 2022; Arifin et al., 2025). Collectively, these findings suggest that Discord, when used as a substitute or supplement to LMS, can provide students with an effective, engaging, and satisfying learning environment.

Table 2. Result of score for pre-test and post-test using percentages (%)

Name	Pre-Test Score (%)	Post-Test Score (%)	% Gain
Participant 1	44.0	64.8	20.8
Participant 2	38.4	80.0	41.6
Participant 3	40.0	80.0	40.0
Participant 4	36.0	84.0	48.0
Participant 5	37.6	82.4	44.8
Participant 6	38.4	78.4	40.0
Participant 7	38.4	78.4	40.0
Participant 8	37.6	82.4	44.8
Participant 9	36.0	84.0	48.0
Participant 10	39.2	80.8	41.6
Participant 11	35.2	84.8	49.6
Participant 12	31.2	88.8	57.6
Participant 13	37.6	82.4	44.8
Participant 14	33.6	86.4	52.8
Participant 15	36.8	83.2	46.4
Participant 16	44.0	64.8	20.8
Participant 17	38.4	80.0	41.6
Participant 18	40.0	80.0	40.0
Participant 19	36.0	84.0	48.0
Participant 20	38.4	78.4	40.0
Participant 21	38.4	78.4	40.0
Participant 22	37.6	82.4	44.8
Participant 23	36.0	84.0	48.0
Participant 24	39.2	80.8	41.6
Participant 25	35.2	84.8	49.6
Participant 26	31.2	88.8	57.6
Participant 27	37.6	82.4	44.8
Participant 28	33.6	86.4	52.8
Participant 29	36.8	83.2	46.4
Participant 30	44.0	64.8	20.8
Average	37.5	80.8	43.3

The average scores, evaluated by a paired t-test as presented in Table 3, demonstrated a statistically significant improvement following the utilization of Discord. The students' knowledge significantly improved, with a 43.3% increase in post-test scores ($P < 0.001$). Domple et al. (2019) conducted a study that found a notable difference in pre- and post-test scores using a paired t-test. Furthermore, numerous studies have documented similar results for the enhancement of knowledge when comparing pre- and post-test scores (Paul et al., 2021).

Table 3. Mean (SD) scores of participants before and after research methodology workshop using paired *t* - test

Pre-Test		Post Test		<i>p</i>
Mean	Standard deviation	Mean	Standard deviation	
37.55	3.10858	80.80	6.10709	< 0.001

Table 2 enumerates each participant's pre-test and post-test scores along with their percentage increases. The mean pre-test score was 37.5% (SD = 3.11), while the mean post-test score was 80.8% (SD = 6.11), resulting in an average percentage increase of 43.3%. This indicates that post-intervention, scores have markedly improved. Table 3 presents the summary statistics and outcomes of a paired samples *t*-test that compares the pre-test and post-test scores. The findings indicated a statistically significant enhancement in scores from the pre-test ($M = 37.55$, $SD = 3.11$) to the post-test ($M = 80.80$, $SD = 6.11$), $p < .001$. The findings indicate that the intervention significantly and positively influenced the participants' scores. Based on Table 4, in order to assess the impact of Discord implementation on scores, a paired samples *t*-test was conducted. The results indicated a statistically significant increase in scores after the implementation of Discord ($M = 80.80$, $SD = 6.11$) compared to before the implementation ($M = 37.55$, $SD = 3.11$). The mean difference between the scores was -43.25 ($SD = 9.07$), 95% CI [-46.64, -39.87], indicating a substantial improvement. This difference was statistically significant, $t(29) = -26.13$, $p < .001$ (two-tailed).

Table 4. Paired Samples *t*-Test for Scores Before and After Discord Implementation

Variable	Mean Difference	Std. Deviation	Std. Error Mean	95% CI of the Difference	<i>t</i>	df	<i>p</i> (Two-Sided)
Score Before - Score After Discord	-43.25	9.07	1.66	[-46.64, -39.87]	-26.13	29	< .001

The negative mean difference indicates that the scores were significantly higher after the implementation of Discord. These findings demonstrate that the implementation of Discord had a strong and meaningful positive impact on the scores, highlighting its effectiveness as an intervention in this context.

Referring to Table 5, the effect size, as measured by Cohen's *d*, was -4.77, 95% CI [-6.04, -3.49], indicating a very large effect. This means that the mean score after Discord implementation was 4.77 standard deviations higher than the mean score before implementation. Hedges' correction for small sample sizes yielded a similar effect size ($g = -4.65$, 95% CI [-5.88, -3.40]). These results showed that the implementation of Discord had a substantial and meaningful positive impact on the scores.

Table 5. Paired Samples Effect Sizes for Scores Before and After Discord Implementation

Effect Size Measure	Point Estimate	95% Confidence Interval
Cohen's <i>d</i>	-4.77	[-6.04, -3.49]
Hedges' <i>g</i>	-4.65	[-5.88, -3.40]

Note. Cohen's *d* and Hedges' *g* were calculated using the sample standard deviation of the mean difference. Negative values indicate higher scores after Discord implementation

4. Limitations

Discord, being a free platform, not only acts as a valuable medium for communication and material distribution but also aligns with the lecturers' goal of finding accessible solutions for the lab demonstrators. Therefore, the findings from the evaluation directly inform the lecturers' decisions regarding the continued use of Discord, emphasizing its viability as an effective tool in the educational technology landscape.

Additionally, the evaluation literature for alternative tool programmes, like LMS, might benefit from the inclusion of this study. The tiny sample size of this study is a restriction. Given that higher sample sizes are often more representative. To increase their usefulness, it is advised that future research employ a bigger sample size. Furthermore, the analyses conducted for this study were restricted to a single course part. In the future, evidence from various sections on this topic could provide different conclusions. Lastly, the authors suggest that future studies look at a larger variety of training and development-related topics across a more varied range of organizations and across all industry types.

5. Future Recommendations

The authors recommend that future research should focus on identifying potential challenges and limitations associated with using Discord as an alternative Learning Management System (LMS). Given Discord's unique features and widespread popularity, it is essential to thoroughly investigate any issues that might arise when adapting it for educational and training purposes. Specifically, research should explore the technical support and infrastructure requirements needed to implement and maintain Discord as an alternate LMS. This includes evaluating the technical expertise required to set up and manage Discord and the availability and quality of support from Discord's service team. By addressing these aspects, future studies can provide valuable insights into the practicality and feasibility of using Discord for educational and training applications.

Conclusively, this study aligns with the objectives of the Sustainable Development Goals (SDGs) in Action: Creating Impact Through Practice and Education, as it uses cutting-edge technology to improve learning and development. The SDGs prioritize the significance of high-quality education (Goal 4), and the incorporation of platforms such as Discord can democratize the availability of educational materials, foster inclusive and fair education, and

enable lifelong learning opportunities for everyone. Furthermore, through an analysis of Discord's effectiveness as a Learning Management System (LMS), future research can make valuable contributions to the overarching goals of sustainable development. This research aims to guarantee that educational technologies are efficient and inclusive while promoting long-term sustainability. This study not only advances educational technology but also correlates with the global goal of improving education through innovative methods, thereby contributing to creating a more equitable and educated world.

6. Conclusions

This paper aims to evaluate the effectiveness of Discord. Using Kirkpatrick's four levels of the evaluation model, this paper examines explicitly: (i) the reactions of the students towards the effectiveness of Discord in perspectives of learning resources accessibilities and user engagement; (ii) the effectiveness of students learning; and (iii) the student's transfer of learning and behavioral, in terms of effectiveness on using Discord precisely on learning resources accessibilities and user engagement. The findings of this study showed that most of the students were happy with the performance of Discord as LMS. As for the overall experience using Discord as LMS, they are always excited to do any activities there. They would like to recommend that others use Discord as a learning platform and collaborate with peers. They were satisfied and convinced with the materials and learning activities provided inside Discord. They perceived that good learning resource accessibilities and user engagement in Discord attracted and motivated them, which enhanced their interest in this course.

The results also provided proof that the students' level of understanding had increased and that they could use Discord to use their newfound knowledge and abilities. After finishing this course, they expected to use Discord as a communication tool for reasons other than education. This study indicates that the use of Discord as a substitute LMS was successful since there was good empirical evidence for responses, learning, and learning transfers. As a result, they may keep using the applications in the future.

The importance of the findings in this evaluation study is directly tied to the stakeholders, particularly the lecturers and Professors involved in the courses. Recognizing the demonstrator's restricted access to the designated LMS of universities and emphasizing the practical challenges faced in communication and material dissemination. Thus, by assessing the effectiveness of Discord as a substitute for designated LMS, the lecturers managed to address these challenges, providing valuable insights into a potential solution. The acknowledgment of the need for a cost-effective alternative emphasizes the relevance of the findings to the stakeholders, who are keen on optimizing tools to enhance the learning experience.

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