

E-Learning Management System for K-12 Science Instruction Using Quipper

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Abstract. This study examined the effectiveness of Quipper School as an e-learning management system for K–12 Science instruction in selected public secondary schools in the Madrid and Cantilan Districts of Surigao del Sur, Philippines. Specifically, it assessed users' awareness and perceptions of Quipper, determined changes in students' learning performance following its application, identified implementation challenges, and examined the relationship between awareness and perceptions. A descriptive-quantitative research design was employed, with purposive sampling used to select Grade 10 students and Science teachers with experience using Quipper. Data were collected through a researcher-developed questionnaire, pretest and posttest assessments, and analysis of users' experiences with the platform. The findings indicated high levels of awareness among both students and teachers, with grand mean scores of 4.47 and 4.90, respectively. Respondents also expressed strongly positive perceptions of Quipper's instructional advantages, including improved access to learning materials, flexible learning, communication, assignment management, and instructional efficiency. However, reliable internet connectivity and technological resources emerged as major barriers to effective implementation. Correlational analysis showed no significant relationship between awareness and perceptions of Quipper ($r = .196$, $p = .201$), suggesting that familiarity alone does not determine users' evaluations of the platform. In contrast, pretest and posttest results revealed a statistically significant difference ($t = -9.333$, $p < .001$), indicating improved student performance following Quipper-based instruction. The study concludes that Quipper can support Science learning when accompanied by reliable connectivity, adequate digital resources, teacher training, and sustained institutional support to promote equitable, effective, and sustainable technology integration in Philippine schools.

Keywords: E-Learning Management System; K–12 Science Education; Quipper School; Student Learning Outcomes; Technology Integration

Introduction

The rapid advancement of digital technology and the widespread availability of the World Wide Web have transformed educational practices, contributing to the development and adoption of learning management systems (LMS) that facilitate technology-supported teaching and learning. Digital learning environments can provide learners with individualized learning experiences, multimedia resources, interactive activities, and opportunities for engagement beyond conventional classroom settings. Recent research indicates that adaptive and personalized e-learning systems can support individualized learning by tailoring learning experiences to learners' characteristics and needs (Wang et al., 2025). Similarly, systematic reviews have highlighted the potential of multimedia technologies to expand access to educational resources and support teaching and learning processes through the integration of text, audio, video, animation, and other interactive materials (Olusanya et al., 2020).

Learning management systems and technology-enhanced learning environments have increasingly supported learner-centered approaches by providing flexible access to instructional materials, assessment activities, feedback, and interactive learning experiences. Evidence from recent research suggests that the effectiveness of digital learning environments is influenced by the quality of the system and instructional content, learner characteristics, and opportunities for meaningful interaction (Saeed et al., 2026). In science education, technology-enhanced learning can provide opportunities for students to engage in inquiry-

oriented activities and use digital tools to explore scientific concepts, collaborate with peers, and develop deeper understanding (Chen & Chen, 2025). These developments suggest that digital platforms can serve not merely as repositories of instructional materials but also as environments that support active participation and technology-mediated learning.

In the Philippine context, Quipper School has been used as an educational technology platform to support teachers and students in integrating digital resources into classroom instruction. Quipper's Philippine platform provides curriculum-aligned learning materials, interactive quizzes, video lessons, assessments, and other digital resources designed to support teaching and learning across basic education levels (Quipper Philippines, 2026). The platform was already being integrated into Philippine classroom practices by 2014, with documented teacher experiences describing increased student engagement following its implementation (Quipper Philippines, 2021). However, the effective integration of digital platforms may depend on teachers' technological competencies, students' access to digital resources, and the availability of appropriate technological infrastructure. Consequently, examining how teachers and learners perceive and utilize Quipper remains important, particularly in educational settings where technological resources and digital familiarity may vary.

This study aimed to determine the effectiveness of Quipper as an e-learning management system for K–12 Science instruction. Specifically, it examined the platform's contribution to teaching and learning practices, student engagement, access to learning resources, and technology integration in science education. The findings may provide useful insights for teachers, school administrators, and other education stakeholders in strengthening the pedagogical use of digital learning platforms and identifying strategies for maximizing their potential in K–12 Science instruction, particularly in contexts where technological resources and digital learning opportunities remain limited.

Research Questions

This study investigated the effectiveness of Quipper school in teaching science instructions as it is expected to be affected by the respondents' awareness on Quipper, their perception as to advantages and disadvantages of the use of Quipper and their problems met in using it.

Specifically, it sought to answer the following questions;

1. What is the profile of respondents in terms of the following:
 - 1.1 Number of Months in using Quipper,
 - 1.2 Electronic Gadgets Available at Home Used in Quipper,
2. What is the level of teachers and students' awareness in using Quipper?
3. What is the level of teachers and students' perception in using Quipper?
 - 3.1 Perceived advantages,
 - 3.2 Perceived disadvantages,
4. Is there a significant relationship between the respondent's perception on the use of Quipper school and their level of awareness on the use of online tool as a learning platform?
5. Is there a significant difference between the pre-post-tests results of the students/output before and after Quipper application?
6. What are the problems met by both teachers and students in the utilization of Quipper?
7. What intervention could be proposed based on the findings of the study?

Scope and Delimitation of the Study

This study investigated the awareness, perceptions, and challenges of K to 12 students in using Quipper as a Learning Management System for Science instruction during the School Year 2020. It focused on students' exposure to Quipper, electronic devices used, perceived advantages and disadvantages, and problems encountered in its utilization during the implementation of asynchronous and blended learning in selected schools in the Cantilan and Madrid Districts. The study was limited to the respondents' experiences with Quipper in learning Science topics, particularly the behavior of gases, and was constrained by factors such as online monitoring, internet connectivity issues, power interruptions, and pandemic-related restrictions.

Literature Review

E-learning Management Systems

E-learning management systems have become an important component of modern education by transforming traditional teaching approaches into more interactive, flexible, and learner-centered environments. These platforms can support personalized learning, continuous assessment, access to multimedia resources, and opportunities for interaction, thereby contributing to students' engagement and

overall learning experiences (Wang et al., 2025; Saeed et al., 2026). Quipper School, as a digital learning platform, provides teachers with tools for managing classes, developing and sharing instructional materials, monitoring learner progress, and delivering lessons and assessments through an online environment (Quipper Philippines, 2026). These functions enable teachers to integrate digital resources into instruction while allowing students to access learning materials and complete learning activities in a flexible manner. Research on technology-enhanced education likewise indicates that multimedia and interactive digital resources can facilitate learner participation and provide alternative ways of presenting educational content (Olusanya et al., 2020; Chen & Chen, 2025). However, the effectiveness of e-learning platforms is influenced by several implementation challenges, including inadequate internet connectivity, limited access to appropriate digital devices, insufficient technological competencies, and difficulties in maintaining meaningful interaction in technology-mediated environments (Saeed et al., 2026). These challenges demonstrate the importance of teacher training, institutional support, reliable technological infrastructure, and appropriate pedagogical integration when implementing digital learning systems. Thus, the continued development and utilization of platforms such as Quipper School demonstrate the potential of technology to enhance educational accessibility, learner engagement, and instructional delivery when supported by appropriate resources and effective implementation strategies.

Quipper School

Quipper School is a free online Learning Management System introduced in the Philippines in 2014 to support the implementation of the K to 12 Basic Education Curriculum. It provides curriculum-aligned resources for Kindergarten to Grade 12, including specialized tracks, and serves as a comprehensive platform that assists teachers in managing instruction, developing learning materials, and supporting students' engagement. Local studies revealed that Quipper contributes positively to teaching and learning processes. Cruz et al. (2023) found that Quipper was utilized effectively and satisfied teachers' instructional needs, while Melia (2022) reported improvements in students' motivation, learning activities, and academic outcomes through Quipper-based blended learning. Despite these benefits, challenges related to technological skills, access to digital resources, and teachers' readiness remain significant concerns. These findings highlight the importance of continuous training, proper implementation, and institutional support to maximize the effectiveness of Quipper as a technology-based learning platform in Philippine education.

Foreign studies have shown that the integration of e-learning platforms and Learning Management Systems (LMS) positively influences teaching and learning processes by promoting student engagement, communication, and technology acceptance. Mustafa (2015) and Al-Said (2015) emphasized that students are more likely to accept digital learning tools when they find them useful, relevant, and satisfying, while Balasubramanian et al. (2014) found that teachers developed positive attitudes toward LMS integration in classroom instruction. Similarly, studies conducted in Indonesia and Malaysia revealed that online platforms support student participation, improve teacher-student interaction, and provide alternative learning resources. Research on Quipper School further showed that students perceived the platform as beneficial due to its accessibility, ability to provide continuous learning opportunities, and support for interactive learning experiences (Septinawati et al., 2020; Kusumawardani & Faizah, 2017). However, challenges such as unstable internet connectivity, limited technological resources, and insufficient digital facilities were also identified as barriers to effective implementation. Overall, these studies highlight that e-learning platforms like Quipper School can enhance student-centered learning and instructional effectiveness when supported by adequate resources, teacher readiness, and appropriate implementation strategies.

Local studies have shown that Quipper School and other ICT-based learning platforms contribute positively to students' academic performance, engagement, and instructional practices in Philippine educational settings. Guillen (2018) found that Quipper School enhanced the reading comprehension competencies of Grade 8 students and served as an effective supplemental strategy for improving academic achievement. Similarly, Pitagan (2017) reported that the integration of Quipper School in Grade 7 Mathematics classes improved students' test scores, attendance, and assignment completion, while students, teachers, and administrators expressed positive perceptions toward its use. Cano (2023) also revealed that Quipper was an effective and widely utilized Learning Management System among faculty members of Saint Paul University Surigao, although proper training, implementation guidelines, and continuous support were recommended to maximize its benefits. However, local studies also identified challenges affecting technology integration, including limited ICT facilities, insufficient teacher training, unstable internet connectivity, and lack of technological resources (Correos, 2014; Lorenzo, 2016; Trusciano, 2014). These findings emphasize that while Quipper School provides opportunities for innovative and student-centered learning, its effectiveness depends on adequate infrastructure, teacher readiness, and sustained institutional support.

Methodology

Research Design

This study employed a descriptive-quantitative research design to assess the utilization of the Quipper School Learning Management System (LMS), including its effectiveness, awareness, perceptions, and challenges encountered by teachers and learners. According to Creswell and Creswell (2020), quantitative descriptive research involves the systematic collection and analysis of numerical data to describe phenomena and examine relationships among variables. This approach is appropriate for the study as it provides a comprehensive understanding of how Quipper School functions as an e-learning platform within the educational context. Through the use of quantitative data gathered from respondents, the study aims to determine the effectiveness and usability of Quipper School, as well as identify factors that influence its implementation. This research design supports a systematic evaluation of Quipper School as a Learning Management System and provides insights that may contribute to improving technology-based teaching and learning practices.

Sampling Design

The study employed purposive sampling to select Grade 10 student-respondents from Madrid National High School, Union National High School, and Parang National High School during the School Year 2020–2021. This sampling method was used to ensure that participants had sufficient exposure and experience with the Quipper School Learning Management System, allowing them to provide relevant information regarding its effectiveness, awareness, and challenges. The respondents were selected based on specific inclusion criteria, including grade level, school enrollment, and section assignment under Science classes. Focusing on Grade 10 students enabled the study to gather meaningful perspectives from learners who had experienced the platform for an extended period, supporting a more comprehensive assessment of Quipper School's role in enhancing learning outcomes.

Research Locale

The study was conducted in selected public secondary schools within the Madrid and Cantilan Districts, namely Madrid National High School, Union National High School, and Parang National High School. These schools offer Junior and Senior High School programs and serve learners from the local communities. The respondents of the study were composed of Science teachers and students from the identified schools. Madrid National High School offers various curricula, including the Engineering and Science Education Program (ESEP), Revised Basic Education Curriculum (RBEC), and Technical and Vocational Education (TechVoc), and is equipped with computer facilities provided through the Department of Education's Computerization Program (DCP). The study assessed the awareness, perceptions, effectiveness, and challenges encountered by teachers and learners in using Quipper School as a Learning Management System in science instruction.

Research Participants

This study included Grade 10 students enrolled at Madrid National High School, Union National High School, and Parang National High School during the School Year 2020–2021. The respondents were selected through purposive sampling based on their exposure and experience with the Quipper School Learning Management System, which had been integrated into their curriculum for three years. The selection of Grade 10 students allowed the study to gather relevant data regarding their awareness, perceptions, and experiences in utilizing Quipper as an e-learning platform.

Research Instrument

The study utilized a researcher-made survey questionnaire to collect data on the awareness, perceptions, advantages, disadvantages, and challenges associated with the use of Quipper School as a Learning Management System. The instrument included items measuring respondents' awareness of Quipper's features and their perceptions of its benefits and limitations. It was validated by Science Coordinators from Madrid National High School and Parang National High School with experience in using Quipper. A reliability test yielded a Cronbach's Alpha coefficient of 0.984, indicating excellent internal consistency. The survey was administered with the approval of school authorities and in compliance with ethical research standards and data privacy regulations.

Data Gathering Procedure

The researcher obtained approval from the school administrators of Madrid National High School, Union National High School, and Parang National High School before conducting the study. An orientation

was provided to the Science teachers regarding the research procedures, implementation of lessons, and administration of research instruments. The necessary materials, including questionnaires, lesson guides, and assessment tools, were distributed through online platforms. Data were gathered through surveys assessing respondents' awareness and perceptions of Quipper School, along with pretest and posttest assessments conducted before and after the implementation of Quipper-based Science instruction. The researcher monitored the implementation process to ensure proper conduct and address challenges encountered. After the intervention period, the collected data were organized, analyzed, and interpreted to determine the effectiveness and usability of Quipper School as a Learning Management System.

Results and Discussions

Research Question 1: What is the level of respondents' awareness and experience in using Quipper School in terms of the number of months of usage and electronic gadgets available at home used for accessing the platform?

Table 1. Frequency Distribution of Learners based on Profile

Number of Months in using Quipper	Students		Teachers	
	Frequency	Percentage	Frequency	Percentage
1-3	10	33.33	1	33.33
4-6	20	66.67	2	66.66
Total	30	100	3	100
Electronic Gadgets Available at Home Used in Quipper				
Laptop	15	50	3	100
personal computer	10	33.33	2	40
android cellphone	30	100	2	100
tablet	3	10	2	40

Table 1 presents the frequency distribution of learners based on their profile, particularly their duration of Quipper School usage and the electronic gadgets used in accessing the platform. The findings revealed that most students (66.67%) had been using Quipper for 4 to 6 months, while 33.33% reported 1 to 3 months of usage, indicating that learners had moderate exposure to the platform. No students reported using Quipper for 7 months or more, suggesting the need for continuous implementation and support to strengthen familiarity and maximize its benefits. In terms of devices used, android cellphones obtained the highest frequency (100%), followed by laptops (50%), personal computers (33.33%), and tablets (10%), showing that smartphones were the primary means of accessing Quipper among learners. Among teachers, laptops and android cellphones were commonly used, while some also utilized personal computers and tablets. These findings indicate the importance of ensuring device accessibility, platform compatibility, and continuous digital support to enhance the effective utilization of Quipper School as a Learning Management System.

Research Question 2: What is the level of teachers and students' awareness in using Quipper?

Table 2. Level of the teachers and students' awareness in using Quipper

Statement	Students			Teachers		
In using Quipper, I am aware that...	Mean	Standard Deviation	Qualitative Description	Mean	Standard Deviation	Qualitative Description
1. The Quipper School App can be download in the device but are only available for Android Devices.	3.23	1.21	Neutral	4.5	1	Totally aware
2. Q-CREATE can be easily created to customize the topic in the list of Contents in the Quipper School. You can easily make your own though Q-Create.	4.20	0.79	Totally aware	4.75	0.5	Totally aware
3. To start using Quipper, both teachers and students are required to	4.68	0.53	Totally aware	5	0	Totally aware

	sign up for an account.						
4.	Facebook account or create a new, free Quipper accounts.	4.53	0.51	Totally aware	5	0	Totally aware
5.	To get a free account, teachers and students need only to provide an email address, telephone number, and the name of the school.	4.65	0.58	Totally aware	5	0	Totally aware
6.	If the school has already registered in the Quipper database, teachers then can make a request to the Quipper ambassador at the school to assign their account into the virtual classroom.	4.33	0.89	Totally aware	5	0	Totally aware
7.	After registration, users can then log in into the system with the username and password they have already created.	4.83	0.38	Totally aware	5	0	Totally aware
8.	There are two roles for users: teachers and students. Each of these roles allows different access to Quipper's three main features, which are 'creation', 'Assessment', and 'Learning	4.45	0.60	Totally aware	5	0	Totally aware
9.	The 'assessment' feature facilitates teachers' use of the learning materials (lessons and quizzes) and assigning them to students.	4.55	0.60	Totally aware	4.75	0.75	Totally aware
10.	Learners then access these learning materials on the 'learning' feature	4.58	0.50	Totally aware	5.00	0	Totally aware
11.	The three main features, Quipper provides a help facility (displayed as a question mark icon) to help teachers and students to understand the functions of each menu	4.60	0.59	Totally aware	5.00	0	Totally aware
12.	The 'curriculum' menu offers two options for teachers regarding the learning materials;	4.45	0.64	Totally aware	5.00	0	Totally aware
13.	On the Quipper database, they can develop their own materials and use them to teach their students	4.45	0.71	Totally aware	4.75	0.5	Totally aware
14.	The 'manage' menu allows teachers to select course participants, group the students, and invite other colleagues to teach collaboratively within the virtual classroom.	4.45	0.68	Totally aware	4.75	0.5	Totally aware
15.	The 'students' role is limited to accessing Quipper's learning features, three main menus on the student dashboard include assignments, messages and study notes.	4.45	0.60	Totally aware	5.00	0	Totally aware
16.	The assignment menu informs students about tasks that need to be completed.	4.78	0.42	Totally aware	5.00	0	Totally aware

17. The menu also notifies them about the tasks they have already done and their level of mastery.	4.79	0.56	Totally aware	5.00	0	Totally aware
18. The other study note menu allows students to write personal notes related to a topic or an assignment.	4.53	0.72	Totally aware	5	0	Totally aware
Grand mean	4.47		Totally aware	4.90		Totally aware

Table 2 shows that both teachers and students demonstrated a high level of awareness regarding the use of Quipper School. Among the students, the highest mean scores were recorded in signing up for a Quipper account ($M = 4.68$), using the Help facility ($M = 4.60$), accessing learning materials ($M = 4.58$), assigning tasks and assessments ($M = 4.55$), and creating content through Q-Create ($M = 4.20$). Teachers likewise obtained very high mean scores in signing up for an account ($M = 5.00$), using the Help facility ($M = 5.00$), downloading the Quipper School application ($M = 4.50$), accessing learning materials ($M = 4.75$), creating content through Q-Create ($M = 4.75$), and assigning tasks and assessments ($M = 4.75$). These results indicate that both groups are highly familiar with the platform's basic and advanced functions, enabling them to utilize Quipper effectively for teaching and learning. However, slightly lower mean scores were observed in advanced functions such as managing course participants and collaborative activities, suggesting the need for additional training to maximize the platform's full capabilities. These findings support previous studies which emphasized that greater awareness and familiarity with educational technologies contribute to more effective implementation and improved learning experiences (Lee & Tsai, 2021; Hsieh & Huang, 2022; Chen & Wang, 2020).

Research Question 3: What is the level of teachers' and students' perceptions of Quipper in terms of its perceived advantages and perceived disadvantages?

Table 3. The level of teachers' and students' perceptions of Quipper in terms of its perceived advantages

Statement		Students		
		Mean	Standard Deviation	Qualitative Description
1. Quipper School gain me more material from its application		4.44	0.75	Strongly Agree
2. Quipper School help me for studying another subject.		4.54	0.68	Strongly Agree
3. Quipper School is clear and it is easy for understanding the material		4.51	0.64	Strongly Agree
4. Quipper School can make study more enjoyable.		4.44	0.64	Strongly Agree
5. Quipper School help me in learning achievements		4.33	0.62	Strongly Agree
6. Quipper School makes learning time become narrower		4.33	0.70	Strongly Agree
7. Quipper School is free to use with flexibility in time and place.		4.54	0.64	Strongly Agree
8. Quipper School keep interaction between teacher and student in and out of classroom.		4.56	0.75	Strongly Agree
Over-All Mean		4.46	0.68	Strongly Agree
Awareness		Teachers		
		Mean	Standard deviation	Qualitative description
1. Quipper School reduces teachers' workload by making assignment management easier.		4.75	.50	Strongly Agree
2. Quipper school enables teachers to give out and		5.00	.00	Strongly Agree

	analyze efficiently.	homework			
3.	Quipper school give more attention to individual students.	4.25	.96		Strongly Agree
4.	Quipper school empowers teachers to focus on providing quality education to our future generations.	5.00	.00		Strongly Agree
5.	Quipper can send assignments and practice examinations.	5.00	.00		Strongly Agree
6.	In Quipper, educational content can be created If something is missing, & teachers can edit the existing content or create whole new lessons and quiz questions from scratch.	4.75	.00		Strongly Agree
7.	In Quipper, analytics can be viewed and download analytics like student progress, and it is instantly synced between learn and link, giving teachers access to a goldmine of information on their students' work rate, attainment, strengths and weaknesses.	4.75	.50		Strongly Agree
8.	Quipper School made teachers easy to evaluate the students as the system provided them with the teaching materials that were based current curriculum.	5	.00		Strongly Agree
9.	It's able to open by using smart phone, laptop or even school's computers.	5	.00		Strongly Agree
10.	It also allows teachers to evaluate in more accurate and easier way as the students' works had been analyzed and graded by the system	4.75	.50		Strongly Agree
11.	Quipper School keep interaction between teacher and student in and out of classroom.	5	.00		Strongly Agree
Over-All Mean		4.84	0.27		Strongly Agree

Table 3 shows that both students and teachers have a highly positive perception of Quipper School, particularly regarding its advantages in supporting teaching and learning. Students perceived Quipper as an effective platform for improving communication, interaction, and access to learning resources, while teachers viewed it as beneficial in enhancing instructional delivery and reducing workload. Although areas related to personalized learning and direct improvement of academic achievement received slightly lower ratings, these were still positively perceived, indicating the platform's overall usefulness. These findings suggest that Quipper School contributes to improved learner engagement, teaching efficiency, and technology-supported instruction. This is consistent with previous studies emphasizing that educational technology platforms promote collaboration, enhance instructional effectiveness, and support learner-centered approaches in the classroom (Mulyono, 2019; Chen & Wang, 2020; Lee & Tsai, 2021).

Table 4. The level of teachers' and students' perceptions of Quipper in terms of its perceived disadvantages

Statement	Students			Teachers		
	Mean	Standard Deviation	Qualitative Description	Mean	Standard Deviation	Qualitative Description
1. Quipper school is challenging in the classroom when it has limited facilities (computer) that support learning by using Quipper School,	3.87	0.83	Agree	5	0.00	Strongly Agree
2. Quipper School requires good electric facilities to being use in classroom	4.03	0.90	Agree	5	0.00	Strongly Agree
3. Quipper School requires stable internet connection to be in use in classroom	4.36	0.78	Strongly Agree	5	0.00	Strongly Agree
4. Presentation using Quipper School facility is difficult than without Quipper School facilities.	3.18	1.07	undecided	3	0.82	Undecided
5. Quipper School facilities is very costly since it requires laptop, tablet, phone and internet connectivity.	3.33	0.98	Undecided	1.75	0.96	Strongly disagree
6. Quipper School is not effective because lack of interaction between students and instructor	2.15	0.78	Disagree	1.25	0.50	Strongly disagree
7. Quipper School makes the material unrepresented well by the teacher	2.05	0.83	Disagree	1.5	0.58	Strongly disagree
8. Quipper School is lack of support for learning process because the information in material untransferred.	2.18	0.88	Disagree	1.25	0.50	Strongly disagree
Over-all Mean	3.14		undecided	2.96		undecided

Table 4 shows the perceived disadvantages of using Quipper School among students and teachers. The highest mean score was obtained by the statement "Quipper School requires a stable internet connection to be used in the classroom" with students ($M = 4.36$) and teachers ($M = 5.00$), indicating that internet connectivity is considered the primary challenge in the effective implementation of the platform. Meanwhile, the lowest mean score was recorded for the statement "Quipper School makes the material unrepresented well by the teacher" with students ($M = 2.05$) and teachers ($M = 1.25$), suggesting that respondents generally disagree that Quipper negatively affects the presentation of learning materials. These findings imply that while Quipper is perceived as an effective learning tool, its successful utilization depends on reliable technological resources, particularly internet access, as well as continuous support and training for teachers to ensure effective integration in classroom instruction.

Research Question 5: Is there a significant relationship between the respondent's perception on the use of Quipper school and their level of awareness on the use of online tool as a learning platform?

Table 5. Correlation between Awareness in Using Quipper and Respondents Perception about the advantages and disadvantages of Quipper

	Awareness in Using Quipper		
	r-value	p-value	Decision
Perceptions about the advantages and disadvantages of Quipper	.196	.201	Accept Null hypothesis

Table 5 shows the relationship between respondents' awareness of using Quipper and their perceptions of its advantages and disadvantages. The results revealed a weak positive relationship between awareness and perception, with an r -value of 0.196 and a p -value of 0.201. Since the p -value is higher than the 0.05 level of significance, the null hypothesis was accepted, indicating that there is no significant relationship between awareness of Quipper and users' perceptions of its advantages and disadvantages. This means that being knowledgeable about Quipper's features and functions does not directly influence how students and teachers perceive its benefits and limitations. Their perceptions may be influenced by other factors, such as personal experiences, usability, accessibility, and learning needs. The findings suggest that successful adoption of Quipper requires consideration of factors beyond awareness, including user experiences, technological support, and continuous improvement of platform implementation.

Research Question 6: Is there a significant difference between the pre-post-tests results of the students/output before and after Quipper application?

Table 6. The significant difference between the pre-post-tests results of the students/output before and after Quipper application

	t-value	p-value	Decision
Pretest - posttest	-9.333	.000	Reject null hypothesis

Table 6 shows the significant difference between the pretest and posttest scores of the students after the implementation of Quipper School as a learning management system. The results revealed a t -value of -9.333 with a p -value of 0.000, which is lower than the 0.05 level of significance. Therefore, the null hypothesis was rejected, indicating a statistically significant difference between the pretest and posttest results. This finding suggests that the use of Quipper School contributed to the improvement of students' learning outcomes after the intervention. The significant increase in students' performance indicates that Quipper can serve as an effective instructional tool in enhancing understanding and mastery of science concepts. This result supports previous findings that e-learning platforms like Quipper can positively influence students' academic performance by providing interactive learning materials, continuous assessment, and opportunities for independent learning. Thus, the findings highlight the effectiveness of integrating technology-based learning approaches in improving educational outcomes. Providing additional exercises, guidance, and alternative strategies can help students overcome these challenges and improve their overall proficiency in editing tasks.

Research Question 7: What are the problems met by both teachers and students in the utilization of Quipper?

Table 7. The problems met by both teachers and students in the utilization of Quipper

Problems			Students		Teachers	
			Frequency	Percentage	Frequency	Percentage
1.	Intermittent Internet Connection		30	100	3	100
2.	Use of mobile data only at home		20	25	0	0
3.	Use of android phone only		25	50	0	0
4.	Power interruption		30	100	3	100
5.	limited facilities (computer) that support learning by using Quipper school,		30	100	3	100
6.	no speaking material which it could be implemented in Quipper school.		30	100	3	100

Table 7 shows the problems encountered by students and teachers in utilizing Quipper School. The findings revealed that the most common challenges experienced by both groups were intermittent internet connection, limited availability of facilities such as computers, power interruptions, and lack of speaking materials within the platform, with all indicators reported by 100% of students and teachers. These results indicate that technological and infrastructural limitations remain the major barriers affecting the effective implementation of Quipper School. Unstable connectivity, inadequate access to devices, and unreliable

power supply may disrupt students' access to learning materials and teachers' ability to deliver instruction effectively. Additionally, the limited availability of specific learning resources suggests the need for continuous improvement of platform content to address diverse learning needs. The findings emphasize the importance of strengthening digital infrastructure, providing adequate technological resources, and enhancing learning materials to maximize the effectiveness of Quipper as an e-learning platform.

Research Question 8: Based on the findings of the study, what intervention could be proposed?

The intervention that can be proposed is the Enhancement of Quipper School Integration in the Classroom through Teacher Orientation, ICT Capacity Building, Success Sharing, and Technical Assistance. This intervention aims to address the identified concerns related to teachers' awareness, technical skills, limited access to technological resources, and challenges encountered in utilizing Quipper School as a learning management system. Through structured orientation sessions, capability-building activities, sharing of effective practices, and continuous technical support, the intervention seeks to strengthen teachers' confidence and competence in integrating Quipper School into classroom instruction. By improving teachers' ability to maximize the features and functions of the platform, schools can promote more engaging, interactive, and technology-driven learning experiences that support the digitalization initiatives of the Department of Education and enhance students' learning outcomes.

Ethical Considerations

This study adhered to ethical standards in educational research by ensuring the protection, privacy, and welfare of all participants. Necessary permissions were obtained from school authorities, and informed consent was secured after explaining the study's purpose, procedures, and participants' right to voluntary participation. Confidentiality and anonymity were maintained through the use of codes, and all collected data were used solely for research purposes and securely managed. The study minimized potential risks by limiting activities to academic assessments and questionnaires related to Quipper School. All procedures upheld the principles of fairness, privacy, voluntary participation, and academic integrity in compliance with the Data Privacy Act of 2012 (Republic Act No. 10173).

Conclusion

The study concluded that the integration of Quipper School contributes positively to the teaching and learning process by enhancing students' learning experiences and supporting teachers' instructional practices. The findings showed that both students and teachers demonstrated a high level of awareness regarding the features and functions of Quipper, indicating their readiness to utilize digital learning platforms in the classroom. The study also revealed that respondents perceived Quipper as an effective tool in improving science instruction and student engagement. Although challenges such as unstable internet connectivity, limited access to devices, and power interruptions were identified, these barriers can be addressed through continuous technical support, improved technological resources, and professional development programs for teachers. Strengthening the implementation of Quipper School can maximize its potential as an educational tool, promote effective technology integration, and support the development of a more engaging and digitally responsive learning environment.

Recommendations

Based on the findings of the study, it is recommended that the Department of Education and school administrators strengthen the implementation of Quipper School through continuous teacher training, improved technological resources, and sustained technical support. Teachers are encouraged to enhance their digital competencies and maximize Quipper's features to create meaningful and engaging learning experiences, while students should actively participate in technology-based activities to develop digital skills. Collaboration among educators, parents, technology specialists, and other stakeholders is also encouraged to ensure effective monitoring, support, and improvement of Quipper implementation. These recommendations aim to promote effective technology integration, address existing challenges, and maximize the role of Quipper School in enhancing teaching and learning outcomes.

References

Alagaran, J.R. (2009). In keeping with the Digital Age: Planning and Adoption of ICT among Communication Educators in the Philippines. Unpublished Dissertation. University of the

- Philippines Diliman. Ally, M., & Wark, N. (2020). Transforming Education with E-Learning Platforms. *Educational Technology Research and Development*, 68(2), 159-178.
- Ally, M., & Wark, N. (2020). Transforming education with e-learning platforms. *Educational Technology Research and Development*, 68(2), 159-178. <https://doi.org/10.1007/s11423-019-09722-4>
- Al-said, F. (2015). Beyond the classroom walls: Edmodo in Saudi secondary school EFL instruction, attitudes and challenges. *English Language Teaching*, 8(1), 189-204. <https://doi.org/10.5539/elt.v8n1p189>
- Amineh, R. J., & Asl, H. D. (2021). Review of constructivist theory of learning. *International Journal of Educational Research and Innovation*, 15, 111-118.
- Arayata, M. C. (2017). *DepEd to boost ICT in schools starting 2018*. Philippine News Agency. <https://www.pna.gov.ph/articles/1018975>
- Archambault, L., Wetzel, K., Foulger, T. S., & Williams, M. K. (2016). Professional development 2.0. *Journal of Digital Learning in Teacher Education*, 32(1), 4-12. <https://doi.org/10.1080/21532974.2010.10784651>
- Babbie, E. R. (2010). *The practice of social research* (12th ed.). Wadsworth Cengage.
- Balasubramanian, K., Jaykumar, V., & Fukey, L. N. (2014). A study on student preference towards the use of Edmodo as a learning platform to create responsible learning environment. *Procedia – Social and Behavioral Sciences*, 144, 416-422. <https://doi.org/10.1016/j.sbspro.2014.07.3>
- Bond, M., Marín, V. I., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2021). Teachers' perceptions of e-learning technologies. *Educational Technology & Society*, 24(1), 15-27.
- Bonifacio, A. L. (2013). *Developing information technology (ICT) curriculum standards for K to 12 schools in the Philippines*. <https://linc.mit.edu/linc2013/proceedings/session7/session7Bonifacio.pdf>
- Brown, M., Irving, J., & Keating, M. (2021). Equity in educational technology: Addressing the digital divide. *Educational Technology Research and Development*, 69(2), 511-533. <https://doi.org/10.1007/s11423-021-09972-8>
- Brown, T., & Thomas, S. (2023). Gamification in education: Enhancing student motivation and engagement. *Journal of Educational Technology*, 15(1), 45-62.
- Cakrawati, L. M. (2017). Students' perceptions on the use of online learning platforms in EFL classroom. *English Language Teaching and Technology Journal*, 1(1), 22-30.
- Chen, L., & Wang, Y. (2022a). Digital inequality and its impact on online learning during the COVID-19 pandemic. *International Journal of Educational Development*, 86, 102594. <https://doi.org/10.1016/j.ijedudev.2022.102594>
- Chen, L., & Wang, Y. (2022b). Integration of multimedia resources in e-learning platforms for science education. *Journal of Educational Multimedia and Hypermedia*, 31(1), 45-62.
- Chen, Y., & Wang, Y. (2020). Investigating the factors influencing the acceptance of augmented reality in education: A structural equation modeling approach. *Educational Technology & Society*, 23(4), 52-67.
- Cherry, K. (2016). *A closer look at personal construct theory*. [About.com](https://www.about.com) Health.
- Christensen, D. (2009). Frameworks for sharing teaching practices. *Educational Technology and Society*, 8(3), 162-175.
- Conrado, I., Dotong, E., De Castro, J., Dolot, M., & Prenda, M. T. (2016). Barriers for educational technology integration in contemporary classroom environment. *Asia Pacific Journal of Education, Arts and Sciences*, 3(2), 1-10.
- Correos, C. (2014). Teacher's ICT literacy and utilization in English language teaching. *ICT & Innovations in Education International Electronic Journal*, 2(1), 1-25.
- Dar, C. C. (2017). *DepEd intensifies use of ICT school and office management*. Philippine Information Agency. <https://pia.gov.ph/news/articles/1002520>
- Dawson, K., Cavanaugh, C., & Ritzhaupt, A. (2008). Leveraging laptops initiatives and its impact on teaching practices. *University of North Carolina at Wilmington*, 41(2), 143-238.
- Dela Cruz, E. T., Gonzalez, L. C. M., Tuayon, R. A. C., Duncano, V. L. P., Cano, J. C., Sumampong, A. J., & Teves, L. L. (2023). Assessment of Quipper as learning management system of Saint Paul University Surigao. *International Journal of Current Science Research Review*, 6(9), 6397-6415. <https://doi.org/10.47191/ijcsrr/V6-i9-29>
- Dela Rosa, J. A. (2016). Moving from the old to the new. *Review of Educational Research*, 2(1), 1-25.
- Drayson, B., Falk, J. K., Stroud, R., Hobbs, K., & Hammerman, J. (2010). After installation: Ubiquitous computing and high school science in three experienced, high technology schools. *Journal of Technology, Learning, and Assessment*, 9(3).
- Eady, M. J., & Lockyer, L. (2013). Tools for learning: Technology and teaching strategies. In *Learning to teach in the primary school*. Queensland University of Technology.
- Gallaire, H. (2014). *21st century technologies: Promises and perils of a dynamic future*. OECD. <https://www.oecd.org>

- Gaspar, J. R., & Ramon, A. (2015). *What do ICT stats say about the Philippines?* Rappler.
- Gorder, L. M. (2008). A study of teacher perceptions of instructional technology integration in the classroom. *Delta Pi Epsilon Journal*, 50(2), 63–76.
- Hosman, L., & Cvetanoska, M. (2013). Technology, teachers, and training: Combining theory with Macedonia's experience. *International Journal of Education and Development using Information and Communication Technology*, 9(3), 28–29.
- Hsieh, Y. H., & Huang, Y. H. (2022). Exploring university faculty members' intention to use mobile learning: A structural equation modeling approach. *Computers & Education*, 180, 105000. <https://doi.org/10.1016/j.compedu.2022.105000>
- Huang, S. C., Lin, Y. R., & Huang, Y. M. (2021). Investigating university students' acceptance of mobile learning: The role of self-directed learning and contextual factors. *Computers & Education*, 170, 104231. <https://doi.org/10.1016/j.compedu.2021.104231>
- Johnson, R., & Anderson, K. (2021). Collaborative teaching through digital platforms. *Educational Innovations Review*, 29(4), 321–335.
- Khoboli, B., & O'Toole, J. M. (2011). The Concerns-Based Adoption Model: Teacher's participation in action research. *Systemic Practice and Action Research*, 25, 137–148. <https://doi.org/10.1007/s11213-011-9212-z>
- Kirana, S. A. (2017). Students' perception of Quipper as an online practice tool for the English Computer-Based National Examination. *IJET*, 6(2), 1–10.
- Koh, J. H., & Frick, T. W. (2009). Instructor and student classroom interactions during technology skills instruction for facilitating pre-service teachers' computer self-efficacy. *Journal of Educational Computing Research*, 40(2), 211–228.
- Kongchan, C. (2012). How a non-digital-native teacher makes use of Edmodo. In *International Conference: ICT for Language Learning* (5th ed.). Florence.
- Kusumawardani, A. D., & Faizah, A. (2017). Teachers and students voices toward the use of Quipper School on English subject in SMPN 40 Semarang. In *UNNES-TEFLIN National Seminar* (pp. 47–55).
- Lachica, L. P. (2015). Classroom communication and ICT integration: Public high school teacher's notions. *International Journal on Integrating in Education*, 4(2), 1–15.
- Lee, S., & Kim, H. (2023). Customized learning through e-learning portals. *Computers & Education*, 165, 104134. <https://doi.org/10.1016/j.compedu.2023.104134>
- Lee, Y. H., & Tsai, C. C. (2021). Exploration of university students' acceptance of mobile learning based on an extended UTAUT2 model. *Interactive Learning Environments*, 1–16. <https://doi.org/10.1080/10494820.2021.1943699>
- Lin, H. F., Chen, H. G., & Wang, Y. S. (2021). Exploring university students' acceptance of mobile learning in China: An extended TAM approach. *Interactive Learning Environments*, 1–14. <https://doi.org/10.1080/10494820.2021.1943699>
- Liu, T. C., Lin, Y. J., & Tsai, M. J. (2023). Effects of reciprocal peer tutoring on students' achievement and cognitive load in e-learning. *Computers & Education*, 169, 104177. <https://doi.org/10.1016/j.compedu.2023.104177>
- Longman. (2011). *Research methods in public administration and non-profit management: Quantitative and qualitative approaches* (2nd ed.). M.E. Sharpe.
- Manowong, H. (2016). Undergraduate students' perceptions of Edmodo as a supplementary learning tool in an EFL classroom. *Silpakorn University Journal of Social Sciences, Humanities, and Arts*, 16(2), 137–161.
- Means, B. (2010). Technology and education change: Focus on student learning. *Journal of Research on Technology in Education*, 42(3), 285–307.
- Michalak, K. (2015). Online localization of Zooniverse citizen science projects – On the use of translation platforms as tools for translator education. *Teaching English with Technology*, 15(3), 61–70. <http://tewtjournal.org/issues/volume-2015/volume-2015-issue-3/>
- Mouza, C. (2008). Learning with laptops: Implementation and outcomes in an urban, underprivileged school. *Journal of Research on Technology in Education*, 40(4), 447–472.
- Mulyono, H. (2016). Using Quipper as an online platform for teaching and learning English as a foreign language. *Teaching English with Technology*, 16(1), 59–70.
- Mulyono, H. (2019). Quipper School: A complete review. *Journal of Educational Technology Systems*, 47(4), 543–556. <https://doi.org/10.1177/0047239518823948>
- Mustafa, M. B. (2015). One size does not fit all: Students' perceptions about Edmodo at Ain University of Science and Technology. *Journal of Studies in Social Sciences*, 13(2), 135–160.
- Nikou, S. A., & Economides, A. A. (2017). Mobile-based assessment: Investigating the factors that influence behavioral intention to use. *Computers & Education*, 109, 56–73. <https://doi.org/10.1016/j.compedu.2017.02.006>

- Park, C. N., & Son, J. B. (2009). Implementing computer assisted language learning in the EFL classroom: Teachers' perceptions and perspectives. *International Journal of Pedagogy and Learning*, 5(1), 1–15.
- Picciano, A. G. (2021). The challenges and opportunities of e-learning in education. *Journal of Educational Technology Systems*, 49(1), 5–24. <https://doi.org/10.1177/0047239520955343>
- Purnawarman, P., Sundayana, W., & Susilawati. (2016). The use of Edmodo in teaching writing in a blended learning setting. *Indonesian Journal of Applied Linguistics*, 5(2), 242–252. <https://doi.org/dx.doi.org/10.17509/ijal/v5i2.1348>
- Redding, S., & Walberg, H. J. (2012). *Promoting learning in rural schools*. Center on Innovation & Improvement.
- Ricciardi, F., Romano, G., & De Paolis, L. T. (2018). A comprehensive review of serious games in health professions. *International Journal of Computer Games Technology*, 2018, 1–12. <https://doi.org/10.1155/2018/9596725>
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54–67.
- Sabzian, F., Gilakjani, A. P., & Sodouri, S. (2013). Use of technology in classroom for professional development. *Journal of Language Teaching and Research*, 4(4), 684–692. <https://doi.org/10.4304/jltr.4.4.684-692>
- Saptani, D. A. (2017). Teachers' perception towards the use of Quipper School in teaching English. *Advances in Social Science, Education and Humanities Research*, 82, 1–10.
- Sayfour, N. (2016). Evaluation of the learning management system using students' perceptions. *Medical Journal of the Islamic Republic of Iran*, 30, 460.
- Scherer, R., Siddiq, F., & Teo, T. (2015). Becoming more specific: Measuring and modeling teacher's received usefulness of ICT in the context of teaching and learning. *Computers & Education*, 88, 202–214.
- Scherer, R., Siddiq, F., & Tondeur, J. (2021). Technology Acceptance Model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education*, 161, 104083. <https://doi.org/10.1016/j.compedu.2020.104083>
- Selwyn, N., & Facer, K. (2022). Global trends in e-learning and future directions. *Learning, Media and Technology*, 47(3), 321–335. <https://doi.org/10.1080/17439884.2022.2034567>
- Shapely, K. S., Maloney, C., & Caranikas-Walker, F. (2010). Evaluating the implementation fidelity of technology immersion and its relationship with student achievement. *Journal of Technology, Learning and Assessment*, 9(4), 1–2.
- Sipacio, P. J. F. (2014). Confronting challenges in implementing e-portfolio via Facebook in a Philippine University. *Indonesian Journal of Applied Linguistics*, 4(2), 44–55.
- Smith, A., Johnson, B., & Williams, C. (2020). Personalized learning in K to 12 education: A comprehensive review. *Journal of Educational Technology*, 42(3), 210–225.
- Smith, A., Taylor, S., & Jones, K. (2023). Exploring the impact of technology support on teachers' perceptions and practices in remote learning contexts. *Computers & Education*, 177, 104394. <https://doi.org/10.1016/j.compedu.2023.104394>
- Suherdi, D. (2012). *Towards the 21st century English teacher education: An Indonesian perspective*. Celtic Press.
- Sulisworo, D., Sulistivo, E. N., & Akhsan, R. N. (2017). The motivation impact of open educational resources utilization on physics learning using Quipper School App. *Turkish Online Journal of Distance Education*, 18(4), 120–128.
- Sun, J. C. Y., & Zhang, S. (2020). Examining the acceptance of mobile learning in Chinese higher education: An extended UTAUT model. *Educational Technology & Society*, 23(3), 104–116.
- Trucano, M. (2014). *Surveying ICT use in education in Asia*. EduTech, The World Bank. <https://blogs.worldbank.org/edutech/surveying-ict-use-education-asia>
- Valdez, P. N. (2010). Reflections on using the digital portfolio in academic writing in a Philippine University: Problems and possibilities. *Philippine ESL Journal*, 5, 160–170.
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2021). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178.
- Wang, S., & Tahir, R. (2020). Impact of e-learning platforms on student performance. *Computers & Education*, 144, 103697. <https://doi.org/10.1016/j.compedu.2019.103697>
- Wu, B., Wu, C., Li, W., & Kuo, C. (2024). Effects of mobile learning on learning motivation and performance: A meta-analysis. *Educational Technology & Society*, 27(1), 87–101.
- Yang, S. C., Chou, Y. C., & Chen, M. P. (2023). Understanding university students' intention to use mobile learning: A novel integration of cognitive load theory and technology acceptance model. *Interactive Learning Environments*, 1–17. <https://doi.org/10.1080/10494820.2023.2200748>