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ABSTRACT

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Computer Self-Efficacy and Effectiveness of Quipper Learning Management System

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INTRODUCTION

Most institutions have increasingly adopted online learning to facilitate teaching and learning as a continuum to the traditional face-to-face approach. Most of these institutions utilize Learning Management Systems, which contain features intended to make students active participants by delivering learning resources to learners and providing the environment for effective interaction in the learning process. It has been implemented in some universities worldwide to help connect students and lecturers without the confines of the traditional classroom. It is an environment with digital software designed to manage user learning interventions and deliver learning content and resources to students (Adzharuddin, 2013). Several studies have proven the effectiveness of LMS on undergraduate courses, specifically Information Technology courses (Nel, 2010), Engineering courses (Kurata, 2017), and English courses (Salahuddin & Saira, 2020). Vesin et al. (2009) and Chaubey et al. (2015) highlighted the role of LMS in specific programs, such as vocational education and programming in Java, in promoting active and cooperative learning and providing access and flexibility in higher education. Further, Rahman et al. (2019) and Lasmanawati et al. (2021) emphasized the potential of LMS to enhance learning by providing a user-friendly interface, facilitating independent and creative learning, and enabling learning anytime and anywhere however; other studies have opposing views on the effectiveness of learning management systems, highlighting its features are underutilized by students. However, students face several challenges preventing them from actively participating in online learning. There is a lack of individualized feedback, a lack of depth of learning, and a lack of interpersonal interactions using LMS (Reed, 2014; Araka et al., 2021).

Students' computer self-efficacy can influence their use

This quantitative study aimed to determine the relationship between computer selfefficacy and the effectiveness of the Quipper learning management system among senior high school students. The study utilized a descriptive-correlational design. Data on computer self-efficacy and Quipper LMS effectiveness were collected from 290 senior high school students using survey questionnaires. The results showed high overall computer self-efficacy (M=4.18, SD=0.652) and high effectiveness of the Quipper LMS (M=3.97, SD=0.622) among students. A significant positive correlation (r=0.414, p=.000) between computer self-efficacy and Quipper LMS effectiveness indicates a low positive relationship between the two variables. Computer self-efficacy has a direct relationship with the effectiveness of the Quipper LMS. As computer self-efficacy increases, the effectiveness of the Quipper LMS also increases among senior high school students.

> of the LMS. Students with high computer self-efficacy will find using computers easily and be more inclined to use them. In contrast, students with low computer self-efficacy lack confidence in their computer skills and may avoid using computers (Binyamin et al., 2018). This suggests that computer self-efficacy would influence students' perception of e-learning since it is a critical predictor of perceived learning (Algurashi, 2019). It is also a key predictor in accepting e-learning (Tarhini et al., 2015; Fathema et al., 2015). Even in the attitude toward artificial intelligence of university students, self-efficacy has a significant effect (Obenza, 2023). Additionally, computer self-efficacy was discovered to be a significant predictor of student satisfaction in LMS (Ghazal et al., 2018; Hammouri & Abu-Shanab, 2018). As students' computer self-efficacy grows, so does their perception that the system is simple to use and, therefore, their level of satisfaction with the learning management system (Ghazal et al., 2018).

> Several studies have examined the effectiveness of the Quipper Learning Management System (LMS) and its benefits for both teachers and students. Morron (2015) stated that Quipper LMS is an effective online platform for improving student educational performance. Supporting this, Ghilay (2017) found that users view the LMS as useful for convenient learning and positive assistance in the learning process. Jamil et al. (2019) also noted that students see Quipper School as a useful learning tool, as it activates interest in learning English more and interacting with the language. Additionally, Mahariyanti and Suyanto (2018) found Quipper School enables students to enhance their knowledge and assess their aptitude and understanding through provided questions. It increased student engagement and eagerness to learn in their study. The selection of a learning management system is critical to student success. That selection needs to be based on

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the online course's objectives and the student's needs. The LMS must have components allowing the instructor to create a course emphasizing active learning experiences (Lewis *et al.*, 2005). There are numerous studies investigating the effectiveness of LMS per se. However, the researchers have not found studies specifically about Quipper LMS. There is also limited research correlating computer self-efficacy and the effectiveness of LMS. Thus, the researchers are motivated to pursue this research that may contribute to the existing knowledge about the learning management system. This may provide substantial data that would encourage the developers to improve the platform to a standard suited to the needs of the students.

Theoretical Framework

The study is anchored on the Technology Acceptance Model developed by Davis (1986). The goal of TAM is to explain the general causes of computer acceptance, which will lead to a better understanding of users' behavior across a wide range of end-user computing technologies and user groups. Further, this study is also anchored on the First Learning Effectiveness Model developed by Lee (2008). The study suggested that the effectiveness of a learning platform can be determined by the willingness of the student to participate in any learning. Also, it highlights the importance of the learning platform's educational task content and the amount of support given by the organization. Moreover, this study is supported by the proposition of Yusoff (2009), who postulated that computer self-efficacy, a significant factor relating to achieving information and computing literacy skills, can lead to the ease of educational technology.

Research Questions

This study aimed to determine the relationship between computer self-efficacy and the effectiveness of the Quipper learning management system on senior high school students in a non-sectarian private institution.

Specifically, this research study sought to answer the following research questions:

1.What is the level of computer self-efficacy of senior high school students in terms of:

- 1.1. Basic Computer skills;
- 1.2. Media Related skills; and
- 1.3. Web-Based skills?

2. What is the level of effectiveness of the Quipper learning management system on senior high school students in terms of:

- 2.1. Perceived self-efficacy;
- 2.2. Perceived satisfaction;
- 2.3. Perceived usefulness;
- 2.4. Behavioral intention;
- 2.5. e-learning system quality;
- 2.6. Interactive learning activities;
- 2.7. E-learning effectiveness; and
- 2.8. Multimedia instruction?

3. Is there a significant relationship between computer

self-efficacy and the effectiveness of the Quipper learning management system on senior high school students?

MATERIALS AND METHODS

This research used a descriptive-correlational quantitative design. Correlational research is used in research studies to determine a relationship between two or more variables and the degree of the relationship. In the correlational research design, researchers use the statistical correlation test to describe and measure the extent of association (or relationship) between two or more variables or sets of scores (Creswell, 2012). Simon and Goes (2011) also stated that descriptive and correlational studies examine variables in their natural environment and do not include treatments required by researchers. In this study, the researchers aimed to determine the relationship between computer self-efficacy and the effectiveness of the Quipper learning management system of senior high school students.

A simple random sampling was used to determine the respondents for this study. In this type of sampling, the respondents are selected randomly and purely by chance. Hence, the selection quality is not affected as every member has an equal chance of being selected in the sample. This type of sampling is best for a highly homogenous population (Bhardwaj, 2019). Specifically, the respondents of this study were 290 grade 11 and 12 students from Accountancy, Business, and Management Strand (ABM), Humanities and Social Sciences Strand (HUMSS), and Science, Technology, and Mathematics Strand (STEM).

To evaluate the relationship between Computer selfefficacy and Effectiveness of the Quipper Learning management system, the researchers used an adapted modified survey questionnaire from the study of Amankwah *et al.* (2017) titled: Computer Self-Efficacy Among Senior High School Teachers in Ghana and the Functionality of Demographic Variables on their Computer Self-efficacy, for computer self-efficacy survey questionnaire. Also, the researchers used an adapted modified survey questionnaire from the study of Liaw and Huang (2007) titled: Investigating Students' perceived satisfaction, behavioral intention, and Effectiveness of e-learning: A case study of the Blackboard System, for the Effectiveness of Quipper learning management system survey questionnaire.

In addition, the researchers performed a pilot test to assess the credibility and reliability of the questionnaire before the questionnaire was distributed for the conduction of the survey. Also, the researchers selected 50 individuals to participate and answer the questionnaire, and its preparation for the actual administration and survey was validated. This was made sure through the use of Cronbach's Alpha. The result for Computer selfefficacy is 0.764, which signifies acceptable and reliable (11) questions within computer self-efficacy's indicators. Moreover, the result for the effectiveness of the Quipper learning management system is 0.959, which means it is excellent, reliable, and internally consistent with



(26) questions within the effectiveness of the Quipper learning management system's indicators.

To conduct the study, the researchers wrote a permission letter to the Senior High School Principal and questionnaires the respondents would fill out. The researchers asked the respondents to sign an informed consent before starting each survey; this form indicated their authorization to be included as respondents in the research study. The researchers ensured that the respondents understood their rights and the implications of participating. The survey questionnaires were distributed to the target respondents, grade 11 and 12 senior high school students. The role of the researchers then was to organize, present, and analyze the questionnaire data accordingly. The datagathering process followed proper procedures to collect quality data.

The researchers used the following statistical tools to assess and evaluate data:

Mean

This statistical concept is useful in figuring out the overall trend of a data set or presenting a rapid image of your data, generally referred to as average. This was used to measure the level of students' computer self-efficacy and the Quipper learning management system.

Standard Deviation

It refers to the measurement of the gap of the determined values from the mean (Ilola, 2018). As used in this study, this tool was used to measure the dispersion of a dataset relative to the computed mean on the level of student's computer self-efficacy and the Quipper learning management system.

Pearson-r Correlation Coefficient (r-value)

It is a statistical measure of the strength of the relationship among two variables. A typical correlation coefficient ranging from -1.00 to 1.00 shows a strong negative and effective association (Ganti, 2020). This was used to measure the significant relationship between Computer Self-Efficacy and the Effectiveness of the Quipper Learning Management System on Senior High School Students.

RESULTS AND DISCUSSION

Level of Computer Self-Efficacy

The data presented in Table 1 shows the level of computer self-efficacy of Senior high school students as regards basic computer skills, media-related skills, and web-based skills.

 Table 1: Level of Computer Self-Efficacy

Indicators	x	SD
Basic Computer Skills	4.38	0.692
Media Related Skills	3.70	0.804
Web-based Skills	4.43	0.684
Overall	4.18	0.652

The results in Table 1 revealed a high overall level of computer self-efficacy among students, with a mean score of 4.18 (SD = 0.652). Students expressed the greatest confidence in their web-based skills (M=4.43, SD=0.684), while media-related skills received the lowest scores (M=3.70, SD=0.804). Basic computer skills were rated highly (M=4.38, SD=0.692). These findings support previous research on computer self-efficacy. Binyamin *et al.* (2018) found that students with high computer self-efficacy are likelier to use computers easily, while those lacking confidence may avoid using them. Hammouri and Abu-Shanab (2018) underscored that self-confidence with technology affects perceptions of difficulty and usefulness. Moreover, Khan (2018) noted that computer use enables efficient assessment and online learning.

Level of Effectiveness of Quipper Learning Management System

The data gathered from the survey corresponds to the level of effectiveness of the Quipper learning management system in terms of perceived self-efficacy, perceived satisfaction, perceived usefulness, behavioral intention, e-learning system quality, interactive learning activities, e-learning effectiveness, and multimedia instruction among senior high school students are presented in table 2.

Table 2: Level of Computer Se	elf-Efficac
Table 2: Level of Computer Set	elt-Ethcac

Indicators	x	SD
Perceived Self-efficacy	4.09	0.762
Perceived Satisfaction	4.00	0.658
Perceived Usefulness	4.21	0.676
Behavioral Intention	4.14	0.691
e-Learning system quality	3.78	0.740
Interactive learning activities	3.82	0.752
e-Learning effectiveness	3.93	0.715
Multimedia Instruction	3.61	0.818
Overall	3.97	0.622

Table 2 presented an overall high level of effectiveness for the Quipper LMS, with a mean of 3.97 (SD = 0.622). All indicators have a high descriptive level. Perceived usefulness got the highest level, with a mean of 4.21 and a standard deviation of 0.676. Moreover, multimedia instruction has the lowest level, with a mean of 3.61 and a standard deviation of 0.818. Perceived self-efficacy got a mean of 4.09 and a standard deviation of 0.762. Perceived satisfaction got a mean of 4.00 and a standard deviation of 0.658. Behavioral intention got a mean score of 4.14 and a standard deviation of 0.691.

Furthermore, e-learning system quality obtained a mean of 3.78 and a standard deviation of 0.740. Interactive learning activities got a mean of 3.82 and a standard deviation of 0.752. And e-Learning effectiveness got a mean of 3.93 and a standard deviation of 0.715. Prior research aligns with the current findings, which



demonstrate the effectiveness of the Quipper LMS for enhancing student learning, engagement, and performance through its interactive features and resources. Morron (2015) found that the Quipper LMS is an effective online platform for improving students' academic performance. Ghilay (2017) added that users find the LMS helpful for the convenience of learning and that it positively contributes to the learning process. Moreover, Jamil *et al.* (2019) stated that Quipper School is an effective learning tool because it triggered students' interest in learning English. Mahariyanti and Suyanto (2018) also stated that Quipper School allows students to enhance their knowledge of topics and assess their understanding of information through teacher-provided materials and questions.

Significant Relationship between Computer Self-Efficacy and Effectiveness of Quipper Learning Management System

Table 3 shows that the computed r-value of computer self-efficacy and effectiveness of the Quipper learning system is 0.414 (p-value=.000). This means a significant relationship exists between the two at a five percent level of significance. Further, the computed r-value of Computer self-efficacy to the effectiveness of the Quipper learning management system is 0.414, which indicates a low positive relationship. This shows that there is a direct relationship between the two variables, which means that Computer self-efficacy increases, the effectiveness of the Quipper learning management system increases as well, and vice versa. The result supports Algurashi (2019), who stated that computer self-efficacy levels influence students' perception of e-learning benefits since selfefficacy is a critical predictor of perceived learning. Also, Ghazal et al. (2018) found that as students' computer self-efficacy increases, so does their perception that the learning management system is easy to use. Moreover, the result aligns with the proposition of Yusoff (2009), who postulated that computer self-efficacy, an important factor in achieving information and computing literacy, can lead to ease in using educational technology.

Table	3:	Significant	Relationship	between	Computer
Self-Ef	fica	icy and Quip	oper Learning	Managem	ent System

Variables	r – value	p-value
Computer Self-Efficacy	.414	.000
Effectiveness of Quipper		
Learning Management System		

CONCLUSION

This study found that senior high school students in a non-sectarian private institution have a generally good level of computer self-efficacy. This includes competence in basic computer skills, media-related skills, and webbased skills. Students find computer use straightforward and generally understand computing concepts and abilities. Additionally, the effectiveness of the Quipper learning management system received a satisfactory rating from the students. They were pleased with Quipper LMS' functions, contents, and multimedia instruction. This indicates the students have the knowledge and skills to use Quipper effectively as a learning management system. Moreover, there is a low but significant positive correlation between senior high school students' computer selfefficacy and the effectiveness of the Quipper learning management system. This shows that there is a direct relationship between the two variables, which means that computer self-efficacy increases, and the effectiveness of the Quipper learning management system increases as well, and vice versa.

RECOMMENDATION

Based on the results of this study, the following recommendations can be made:

• Continue using the Quipper learning management system in senior high schools, as students find it satisfactory and effective overall. The system should be maintained and updated regularly to ensure optimal performance.

• Provide training and support for teachers on fully utilizing all features and content of the Quipper LMS to enhance instruction and student engagement.

• Develop supplemental digital literacy programs to further build students' computer self-efficacy, particularly in web-based skills.

• Share study findings with other senior high schools to encourage Quipper LMS adoption and highlight its benefits for supporting student learning and self-efficacy.

• Consider research on the relationship between computer self-efficacy and learning management system effectiveness in other educational contexts and age groups

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