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Technological skills and readiness of the students on the utilization of digital application June 2023

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Abstract

This study is entitled Technological Skills and Readiness of the Students On the Utilization of Digital Application. The respondents of the study were composed of fifty-five (55) Grade 10 students in Liceo De Los Banos. The quantitative method of research was used to find out the technological skills and the level of readiness of the Grade 10 students in the utilization of Digital Applications. The main instrument used in this study was a questionnaire that was disseminated to the respondents through Google Forms. As the responses were converted into data, mean, and Pearson r correlation tests were used for statistical treatment. The analysis of the Pearson r coefficient, it was found that there is no significant relationship between the level of technological skills and the level of readiness of the students in utilization of digital application. The use of technical instruments, such as computers, tablets, and the internet, to enhance learning and teaching is referred to as technology integration in education. Students' preparedness for using digital applications is also greatly influenced by their access to technology, motivation, self-regulation abilities, learning style, social presence, teacher assistance, and the caliber of online course content.

Keywords: Digital Application; Readiness; Technological skills; Utilization; Internet

1. Introduction

Technology skills are now an essential component of a student's education in the ever-changing digital world of today. The way we live, work, and communicate has changed as a result of technological improvements, so it is essential for students to have the technical abilities required to succeed in contemporary society.

When it comes to using digital tools and applications effectively, students require a diverse range of technological skills. These skills include proficiency in computer usage, internet navigation, productivity tools, understanding digital security and privacy, and adaptability to evolving technology. Acquiring these skills is essential for future employment opportunities and academic achievements.

The learner's proficiency in using digital tools is of utmost importance. Digital applications serve as valuable resources that enhance students' studying experience by providing effective and efficient learning opportunities. These applications encompass educational platforms, online collaborative tools, multimedia resources, virtual learning environments, and more.

Being digitally prepared involves possessing the necessary skills, mindset, and comfort level to fully leverage these digital tools. It entails having a solid understanding of various digital applications, knowing how to access and evaluate online information, and being adaptable to learning new technologies as they are developed.

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The availability of technology and internet connectivity, instruction in digital literacy, motivation to learn about and experiment with new technologies, support from teachers and parents, and other factors all affect how prepared children are to use digital applications.

Objectives of the study

This study aims to;

- Identify the Level of technological skills of the students on the Utilization of Digital Applications in terms of Digital Literacy and Integration of technology,
- Determine the Level of readiness of the students on the Utilization of Digital Applications in terms of Students' Readiness and Access to technology, and
- Find out the relationship between the level of technological skills and the level of readiness of the students on the utilization of digital applications.

2. Materials and methods

2.1. Design

Creswell (2018) explains that a quantitative approach to data analysis involves making specific assumptions and using data collection methods to confirm or challenge those assumptions. In this study, a quantitative research method will be employed to assess the level of technological skills and readiness of the students in utilizing digital applications. According to Bhandari (2020), quantitative research involves gathering and interpreting numerical data. It allows for the identification of trends and averages, formulation of hypotheses, examination of causality, and extrapolation of findings to larger populations. Given that statistical analysis will be conducted in this study, the researchers have determined that the quantitative research method is the most appropriate. This method will enable the researchers to conduct proper statistical analysis, interpretation, and comparisons to reveal the relationships between the variables under study.

2.2. Participants

A population refers to the entire group of individuals that the researcher wants to draw conclusions about. In this study, the population consists of Grade 10 students at Liceo De Los Baños. The total population of Grade 10 students is sixty-four (64).

To determine the sample size for the study, the researchers used Slovin's Formula with a 5% margin of error. Based on the formula, the required sample size is fifty-five (55) Grade 10 students.

The respondents involved in this study are Grade 10 students from Liceo De Los Baños. It requires fifty-five (55) Grade 10 students to study.

2.3. Data Collection and Analysis

After the validation of the instrument, the researcher received a letter for data gathering to conduct the research from the students at Liceo De Los Baños and to be part of the study as respondents. The researcher reviewed the list of respondents included in the scope to determine the total population of the respondents.

Table 1 Range of Likert Scale of the Survey

Range	Value	Interpretation	Description
1.00 – 1.79	1	Very Low	Strongly Disagree
1.80 – 2.59	2	Low	Disagree
2.60 – 3.39	3	Moderate high	Moderately Agree
3.40 – 4.19	4	High	Agree
4.20 – 5.00	5	Very high	Strongly Agree

Then, the researcher developed a Google Form with a prepared survey questionnaire that would be delivered online to the respondents for data gathering. The goal of the study was conveyed to the respondents by the researcher. The survey questionnaire was used by the researcher to collect data, which was then assessed.

3. Results and discussion

Table 2 Mean level of Technological Skills of the Student's in utilization of Digital Application in terms of Digital Literacy

	Mean	Interpretation
Level of Technological Skills of the Students in the Utilization of Digital Applications in Terms of Digital Literacy.	3.60	High level

The overall mean of 3.60 suggests that students possess a high level of technological skills in utilizing digital applications, particularly in terms of digital literacy. Digital literacy encompasses the ability to navigate online resources and access the vast amount of information available on the internet. It empowers students to critically evaluate the credibility and reliability of online sources. Moreover, students with strong technological skills can collaborate and interact using digital tools and platforms, fostering creativity and self-expression.

As the digital landscape constantly evolves due to technological advancements, digital literacy also encompasses knowledge and skills related to online safety and security. Students gain awareness of the risks associated with online activities and learn how to protect their personal information, prevent fraud, and engage in safe online behavior.

Integrating digital literacy into mathematics education is crucial. It opens up new opportunities for problem-solving, communication, improved reading fluency, and access to a diverse range of resources. Digital literacy can transform mathematics into an engaging game, competition, or practice for students, making the learning process more interactive and enjoyable (National Council of Supervisors, 2018).

Table 3 Mean level of Technological Skills of the Student's in utilization of Digital Application in terms of Integration of Technology

	Mean	Interpretation
Level of Technological Skills of the Students in the utilization of Digital Applications on terms of Integration of technology.	3.76	High level

Overall mean of 3.76 implies that the student's technological skills on the Utilization of Digital Applications in terms of Integration of technology are high level.

Integrating technology into the classroom helps students develop digital literacy skills. Students now have access to a wealth of resources and knowledge thanks to technology. With the help of technology, learning can be individualized and adjusted to the needs of each learner. Technology enables student cooperation and communication. Educational software, adaptive learning platforms, and online tests can identify students' strengths and weaknesses and provide focused feedback and adaptable content to enhance their learning journey. Students have access to tools and venues through technology to demonstrate their original thinking and creative expression. Technology has the ability to make learning more engaging and motivating for students, preparing them for future employment.

According to Picha, G. (2018), when planning to integrate technology into a lesson, educators can take into account the technology knowledge the students will need, the mathematics content knowledge they'll need, and the best practices for teaching both the technology and the math. This process is extremely important because without it, the technology may be integrated in a way that is pedagogically inappropriate for mathematics instruction.

Table 4 Mean level of Student's Readiness on the Utilization of Digital Applications in terms of readiness

	Mean	Interpretation
Level of Student's Readiness on the Utilization of Digital Applications in terms of readiness	3.60	High level

The Overall mean of 3.60 implies that the student's readiness on the utilization of digital applications is High level.

Readiness among students influences their utilization of digital applications. Factors such as access to technology, digital literacy skills, motivation, support, adaptability, and curriculum integration all contribute to students' ability to effectively use digital applications for learning purposes. Educational institutions should strive to address these factors to ensure students are well-prepared and equipped to make the most of digital tools and technologies.

According to Norman H, et al. (2018), "Assessing Students' Readiness for e-Learning" explores the readiness of students to engage in e-learning environments and identifies factors that influence their readiness. It examines students' attitudes, computer self-efficacy, and technology acceptance as indicators of readiness.

Table 5 Mean level of Student's Readiness on the Utilization of Digital Applications in terms of access of technology

	Mean	Interpretation
Level of Student's Readiness on the Utilization of Digital Applications in terms of access of technology.	4.0	High level

The Overall mean of 4.0 implies that the student's readiness on the utilization of digital applications in terms of the Access of Technology is High level.

Access to technology has significant implications for students in various aspects of their education and overall development, including information and knowledge acquisition, learning opportunities, collaboration and communication, digital literacy, creativity and innovation, equal opportunities, and flexibility and adaptability. However, it's important to note that access to technology alone does not guarantee positive outcomes. Adequate training and guidance from educators are essential to maximize the benefits and ensure responsible use of technology among students.

Studies suggest that access to technology, such as computers, tablets, and smartphones, plays a crucial role in enhancing student readiness to utilize digital applications. According to a study by Wang and Chen (2021), students who had greater access to digital technology were more likely to be prepared for the use of digital applications. The study found that students with higher levels of access to digital technology had better computer and internet skills, as well as greater digital literacy, which contributed to their readiness to use digital applications.

Table 6 The significant relationship between the level of technological skills and the level of readiness of the students in utilization of digital application

	Computed r-value	t-value	p-value	Remarks
Relationship between the level of technological skills and the level of readiness of the students in utilization of digital application	0.27847	0.11078	0.039504	Significant

Table 6 presents the significant relationship between the level of technological skills and the level of readiness of the students in the utilization of digital applications.

Based on the results presented in Table 3, the computed r-value is 0.27847, and the computed t-value is 2.11078. It further shows that the p-value of 0.039504 is less than the 0.05 level of significance. It indicates that the test hypothesis is false or should be rejected.

The proficiency of students in using technology does not necessarily translate into their readiness or ability to effectively utilize digital applications. This suggests that other factors might be influencing their readiness, such as motivation, access to resources, or instructional support. It indicates that students with varying levels of technological skills may require additional support and guidance to effectively utilize digital applications. Technology proficiency might not be the main determinant of pupils' willingness to use digital apps. More important elements can be excitement, experience with particular apps, or help from the instructor.

The denial of a meaningful relationship does not imply that technological expertise is useless or irrelevant. Simply put, it indicates that there was no statistically significant link between the two variables in the study. Other research may provide different findings or discover a strong association in various circumstances or scenarios.

Therefore, there's significant relationship between the technological skills and the level of readiness of the students in utilization of digital application.

4. Conclusion

The study has concluded the following based on the aforementioned findings: (1) The level of technological skills of the students in the utilization of digital applications, in terms of digital literacy and integration of technology, is high. Based on the results, the mean level of technological skills in terms of digital literacy is 3.60, and the mean level of technological skills in terms of integration of technology is 3.76, which was interpreted as high level, (2) The level of student readiness for the utilization of digital applications, in terms of readiness and access to technology, is high. Based on the results, the mean level of students' readiness in terms of readiness is 3.60, and the mean level of students' readiness in terms of access to technology is 4.00, which was interpreted as high level, (3) The relationship between the level of technological skills and the level of readiness of the students in the utilization of digital applications is considered to be statistically significant. (4) Technological skills enhance learning opportunities, allowing students to leverage technology to access online resources. Improved digital literacy enables students to become proficient in using digital tools. Increased engagement and motivation are observed as students actively participate in learning. Innovative teaching and learning practices are facilitated through the use of technology to design interactive lessons, (5) The combination of high readiness and access suggests that students are well-positioned to make effective use of digital applications. They possess the necessary skills, knowledge, and resources required to engage with technology in their educational pursuits. This conclusion highlights the positive state of student readiness and access in utilizing digital applications, and (6) The relationship between the level of technological skills and the level of readiness of the students in the utilization of digital applications is not supported by the data analysis. The hypothesis that there is a relationship between these variables is rejected based on the findings.

Recommendation

In light of the above findings and conclusion, the following recommendations are respectfully endorsed:

- Students should actively engage in developing digital literacy skills, including computer basics, internet navigation, and proficiency in software applications. Exploring coding and programming languages can enhance problem-solving and creativity. It is important for students to utilize online learning resources, participate in collaborative online projects, and stay updated with emerging technologies to continuously improve their technological skills,
- Math teachers should embrace technology as a tool to enhance their teaching and learning practices. They can incorporate technology in various ways, such as using interactive presentations, leveraging online resources and educational apps, utilizing virtual manipulatives, and promoting online collaboration among students. These tools provide engaging, accessible, and adaptive learning experiences for students in the mathematics classroom, and
- Further studies on the extent of students' technological skills and readiness in utilizing digital applications are recommended for future researchers. This will contribute to a deeper understanding of the topic and provide insights into effective strategies for supporting students in developing their technological skills and readiness.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

- [1] A Wijaya (2020) J. Phys.: Conf. Ser. 1581 012069

- [2] Archer, K., et al., (2018). 'Examining the effectiveness of technology use in classrooms: A tertiary meta-analysis.' *Computers & Education: an international journal*. VOL. 78, 140149
- [3] Brinkerhoff, J. (2018). Effects of a Long-Duration, Professional Development Academy on Technology Skills, Computer Self-Efficacy, and Technology Integration Beliefs and Practices. <https://www.tandfonline.com/doi/abs/10.1080/15391523.2006.1078241>
- [4] Cahyono, A. N. (2018, November 1). Teaching and Learning Mathematics around the City Supported by the Use of Digital Technology. <https://www.ejmste.com/article/teaching-and-learning-mathematics-around-the-city-supported-by-the-use-of-digital-technology-5614>
- [5] Christopher, and Mims (2019). Strategies use of technology
- [6] Cuhadar, C. (2018, January 15). Contemporary Educational Technology October 24, 2022, <https://www.cedtech.net/article/investigation-of-pre-service-teachers-levels-of-readiness-to-technology-integration-in-education-6211>
- [7] Dahlan, T et al. (2022) How Digital Applications as Mathematics Learning Media in the Automation Era. *Journal of Positive Psychology and Wellbeing*, 6 (2). pp. 199-211.
- [8] Deborah K. Reed, Iowa Reading Research Center (2018), <https://www.readingrockets.org/article/responsibly-incorporating-technology-literacy-instruction>
- [9] Dick and Hollebrands, (2018). Strategies use of technology. <https://www.nctm.org/Standards-and-Positions/Position-Statements/Strategic-Use-of-Technology-in-Teaching-and-Learning-Mathematics/>
- [10] Dofková, R., et al. (2019). IDENTIFICATION OF READINESS TO USE DIGITAL TECHNOLOGIES BY PROSPECTIVE PRIMARY
- [11] Eze, S. C., et al. (2018). The utilisation of e-learning facilities in the educational delivery system of Nigeria: A study of M-University. *International Journal of Educational Technology in Higher Education*, 15(34), <https://doi.org/10.1186/s41239-018-0116-z>
- [12] Gadanidis and Geiger, (2018). Strategies use of technology. <https://www.nctm.org/Standards-and-Positions/Position-Statements/Strategic-Use-of-Technology-in-Teaching-and-Learning-Mathematics/>
- [13] Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3, 275–285. <https://doi.org/10.1016/j.susoc.2022.05.004>
- [14] Huang, Y. (2022). The role of digital readiness innovative teaching methods in music art e-learning students' satisfaction with entrepreneur psychological capital as a mediator: Evidence from music entrepreneur training institutes. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.979628>
- [15] İliç, U. (2022). The impact of ICT instruction on online learning Readiness of Pre-Service teachers. *Journal of Learning and Teaching in Digital Age*, 7(1), 116–126. <https://doi.org/10.53850/joltida.1007868>
- [16] Kennisgeving voor omleiding. (October 24, 2022). <https://www.google.com/url?sa=t>
- [17] Kim, H. S., Hong, A. J., & Song, H. (2019). The roles of academic engagement and digital readiness in students' achievements in university e-learning environments. *International Journal of Educational Technology in Higher Education*, 16(1). <https://doi.org/10.1186/s41239-019-0152-3>
- [18] Liu, F., Ritzhaupt, A. D., Dawson, K., & Barron, A. E. (2018). Explaining technology integration in K-12 classrooms: a multilevel path analysis model. *Educational Technology Research and Development*, 65(4), 795–813. <https://doi.org/10.1007/s11423-016-9487-9>
- [19] Martin, A. and Grudziecki, A. (2018). DigEuLit: Concepts and Tools for Digital Literacy Development <https://www.tandfonline.com/doi/full/10.11120/ital.2006.05040249>
- [20] Mcdaniel, R. (2019, July 20). From the Students' View: Thoughts on Technology and Learning. Vanderbilt University. <https://cft.vanderbilt.edu/articles-and-essays/the-teaching-forum/from-the-students-view-thoughts-on-technology-and-learning/>
- [21] Moore, R. (2018). High School Students' Access to and Use of Technology at Home and in School. *Insights in Education and Work*. <https://eric.ed.gov/?id=ED593126>
- [22] Norman H, Ally M, Nordin N. Use of social media and social network analysis for mobile learning. *Mobile and Ubiquitous Learning*, 2018. (pp. 249-259). Springer, Singapore.

- [23] NR: The New 5G Radio Access Technology. (2018, December 1). IEEE Journals & Magazine | IEEE Xplore. <https://ieeexplore.ieee.org/document/8258595>
- [24] Open Campus, The University of the West Indies, West Indies. (n.d.). *International Journal of Education and Development using ICT - Vol. 9, No. 1 (2013)*. <http://ijedict.dec.uwi.edu//viewarticle.php?id=1541>
- [25] Pham, L., et al. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education*, 16(7), 1–26. <https://doi.org/10.1186/s41239-019-0136-3>
- [26] Picha, G. (2018, October 17). *Effective technology uses in math class*. Edutopia. <https://www.edutopia.org/article/effective-technology-use-math-class/?fbclid=IwAR1d1DI5KintEuJDi-9XeTecAdhxoj8KgaJjLdV-aAQefryv-3XwnmbMUZc>
- [27] Rasouli, A. et al. (2018). Students' Readiness for E-Learning Application in Higher Education. *Malaysian Online Journal of Educational Technology*, v4 n3 p51-64 2016
- [28] Rhonda Christensen and Gerald Knezek (2018). Reprint of Readiness for integrating mobile learning in the classroom: Challenges, preferences and possibilities *Computers in Human Behavior*, Volume 78, January 2018, Pages 379-388. <https://www.sciencedirect.com/science/article/abs/pii/S0747563217304259?via%3Dihub>
- [29] Seraji, F. (2018). Identification and categorising the skills needed for the virtual student. *Journal of Training and Learning Researches*, 2, 75-90.
- [30] Strategic Use of Technology in Teaching and Learning Mathematics <https://www.nctm.org/Standards-and-Positions/PositionStatements/Strategic-Use-of-Technology-in-Teaching-and-Learning-Mathematics/>
- [31] Talae, E. (2019, October 6). Re-Conceptualization of “Digital Divide” among Primary School Children in an Era of Saturated Access to Technology. <https://www.iejee.com/index.php/IEJEE/article/view/872>
- [32] Viberg, O., et al. (2020). Integrating digital technology in mathematics education: a Swedish case study. *Interactive Learning Environments*, 1–12. <https://doi.org/10.1080/10494820.2020.1770801>
- [33] Wang LH, Chen B, Hwang GJ, Guan JQ, Wang YQ. Effects of digital game-based STEM education on students' learning achievement: A meta-analysis. *International Journal of STEM Education*. 2022;9(1):1–13. doi: 10.1186/s40594-022-00344-0. [CrossRef] [Google Scholar]