

Digital Skills of Mathematics Education Students in a State University: Psychological Basis for an Action Plan

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Abstract

The internet penetration rate in the Philippines was forecast to increase continuously, indicating a high-level digital technology adoption among Filipino students. Considering that mathematics education students are being educated to demonstrate 21st-century skills, stressing the role of digital skills in their education is more important than ever. As a result, this study assessed the digital skills among mathematics education students in a state university in Eastern Visayas region. This descriptive cross-sectional study used the Measure of Internet Skills (MOIS) questionnaire with data analyzed using mean and standard deviation. Using Raosoft sample size calculator, 145 out of 220 served as respondents, with 4.76 margin of error. Moreover, proportionate stratified random sampling was applied in identifying the number of respondents per year level. Data showed that mathematics education students have a high level of digital skills. They are notable for their strong information navigation, social, mobile, operational, and creative skills. This finding shows that students have a high level of digital technology penetration. Although these students are technologically creative, they appear to lack the skill of designing a website and applying types of licenses to online content. Moreover, there is still a need to improve students' way of navigating information online.

Index Terms— Digital Literacy, ICT, Non-experimental Design, Higher Education, Digital Transformation

Introduction

In today's rapidly advancing digital era, acquiring digital skills has become increasingly vital for students in various fields of education, including mathematics. Republic Act No. 11927 or known as Philippine Digital Workforce Competitiveness Act, highlighted that Filipinos must prioritize the development of their digital skills and foster a competitive mindset to effectively navigate the evolving landscape of the modern workforce. With the rapid acceleration of digitalization and the advancements in technologies like artificial intelligence and automation across various industries and sectors, it is crucial for individuals to adapt and stay ahead. This applies especially to the field of education, where embracing these changes is vital for progress and growth. According to Kryukova et al. (2022), digital skills are imperative in a technology-driven society, and they argue that possessing these skills is nearly indispensable for younger generations. Likewise, Miliou and Angeli (2021) emphasized that Gen Z students have readily adopted informal digital learning using internet-based technologies beyond the confines of formal education. Nonetheless, it is crucial to augment their involvement with these technologies to ensure they obtain the essential knowledge and skills required for proficient internet usage in higher education. Furthermore, there exists diversity in their level of familiarity with digital tools and devices. Furthermore, Garmendia et al. (2021) noted that the majority of minors possess digital skills and competencies primarily focused on using digital devices for recreational purposes.

Van Laar et al. (2017) highlighted that digital skills are rooted in Information and Communication Technology (ICT), which are narrower in scope compared to 21st-century skills. Furthermore, Van Deursen et al. (2016) conducted a comprehensive study that identified five distinct categories of internet skills, namely operational, social, navigational, mobile, and creative. They also developed a reliable and internationally consistent measurement instrument to assess individuals' digital skills. Onwu and Abah (2019) employed this instrument to investigate the digital proficiency of mathematics education students in Nigeria, uncovering a notable proficiency in digital skills among the participants. In a separate study conducted by Foong (2018), it was observed that most young individuals exhibited a strong proficiency in operational, social, and mobile digital skills. However, there

was a need to enhance their creative and information navigation skills. Furthermore, their study indicated that there were no notable discrepancies in overall digital skills based on gender or location. However, a significant disparity in creative skills was identified between rural and urban youth. Van Laar et al. (2019) underscored the significance of six interconnected 21st-century digital skills that build upon one another in a sequential manner. According to their model, information and communication skills serve as the fundamental basis, followed by critical thinking, collaboration, and creative digital skills. Ultimately, these skills culminate in problem-solving digital skills. In a study conducted by Vodă et al. (2022), it was discovered that social science students exhibited a higher prevalence of critical thinking, communication, digital technical and problem-solving skills. Conversely, humanities students demonstrated a greater dominance in creativity and information skills. Moreover, the study brought attention to the fact that, apart from problem-solving and creativity skills, the educational level of students had a significant influence on the development of their digital skills. Lastly, Surian and Sciandra (2019) demonstrated a positive correlation between digital skills and academic achievement.

However, Iordache et al. (2017) have pointed out that there is an imbalance in the emphasis placed on specific digital skills and competencies, particularly operational, information-searching, and communication skills. Furthermore, Jara et al. (2015) have identified crucial determinants that contribute to the growth of digital skills. These determinants encompass accessibility to personal computers, linguistic aptitude, socioeconomic status, and the number of years of computer experience. The researchers have also discovered a positive correlation between high scores on digital skills assessments and the ability of students to concentrate and maintain focus on their academic tasks when utilizing the Internet. In a related study conducted by Atoy et al. (2020), there is a positive relationship between students' strategies and their digital literacy when searching for information online. This highlights the significant role of digital competence in effectively navigating and utilizing online resources.

Moreover, it is crucial to acknowledge the challenges associated with integrating digital skills into mathematics education. In a study conducted by Bobkina and Romero (2023), it was discovered that around 40% of students expressed discontentment regarding their proficiency in digital communication skills. They identified that the physical, linguistic, and socio-emotional dimensions of communication were areas impacted by this dissatisfaction. In a related study, Ben Youssef et al. (2022) emphasized four important findings. Firstly, they found that there is an adverse effect on student outcomes resulting from insufficient investment in information and communication technology (ICT). Secondly, they discovered that ICT training provided by universities has limited influence on student results. Thirdly, they highlighted that innovative and collaborative use of ICTs enhances student performance. Finally, they found a positive relationship between students' academic achievement and their acquisition of digital skills. These findings not only highlight the ongoing existence of the digital divide but also raise concerns regarding the efficacy of educational policies in France. To address these issues, they recommended that universities undergo organizational changes to enable the effective utilization of ICT resources and tools.

According to Aris et al. (2022), educators can improve their instructional methods by gaining a comprehensive understanding of the digital competency framework and the capabilities of their learners. This understanding empowers educators to formulate assessments which are aligned to the learning activities and objectives that effectively assist students in acquiring these skills. Furthermore, Buchi et al. (2017) emphasize that digital skills serve as a crucial foundation for effective public policies related to users' self-help in protecting their privacy. To ensure that graduates possess an adequate level of digital proficiency, Barboutidis and Stiakakis (2023) proposed that educational institutions should revise their curricula. They recommended the creation of customized courses that specifically strengthen skills associated with digital competence. Furthermore, they emphasized the importance of addressing influential factors such as technology usage and learner's age through suitable educational practices. More so, Aris et al. (2022) argue that digital skills should be seamlessly integrated into the curricular program as indispensable competencies for graduates preparing to enter the job market. Recognizing the importance of addressing the skills gap, higher education institutions should establish evaluation procedures to guide policy formulation and the allocation of training resources for undergraduate students (Miliou & Angeli, 2021). McCosker et al. (2021) initiated a program called "Be Connected" which demonstrated a significant and statistically meaningful influence on multiple facets of participants' digital skills and knowledge. The program positively influenced participants' foundational digital skills and knowledge, boosting their confidence in using digital technologies. Additionally, it had a positive effect on participants' social connectedness, reducing feelings

of loneliness. Furthermore, the program also addressed online safety, enhancing participants' ability to navigate the online environment securely.

Despite the numerous studies conducted about students' digital skills, many were conducted in foreign countries. To the researcher's knowledge, no study was conducted about identifying the digital skills among mathematics education students in Tacloban City. Hence, it is necessary to conduct this study because the findings will serve as a basis for crafting an action plan to improve students' areas of digital skills.

Statement of the Problem

This study determined the digital skills of mathematics education students who were enrolled for school year 2022–2023 in a state university in Eastern Visayas. Specifically, the study sought to answer the following questions:

1. What is the level of digital skills among mathematics education students?
 - a. Social Skills;
 - b. Operational Skills;
 - c. Mobile Skills; and
 - d. Information Navigation Skills;
 - e. Creative Skills
2. What are the strengths and weaknesses of mathematics education students in terms of their digital skills?
3. What action plan could be derived from the findings of the study?

Methodology

Research Design

This study employed a descriptive cross-sectional research design. Johnson (2001) noted that this research design is appropriate if the research objective is mainly descriptive with the time dimension of cross-sectional. For this study, it described students' level of digital skills in a state university in Eastern Visayas region for the school year 2022-2023. Also, the strengths and weaknesses of mathematics education students with digital skills were described, particularly their social, operational, mobile, information navigation and creative skills. Moreover, this study was cross-sectional as a time dimension of data collection in which the data were gathered through Google form, which was opened from April 20, 2023, to May 5, 2023.

Respondents and Sampling Strategy

Based on the data given of the Management and Information System (MIS) of the university in Tacloban City, the population of all mathematics education students in school year 2022 – 2023 is 220. Of these, the desired sample size is 141 after employing Raosoft sample size calculator. However, the researcher decided to have a sample of 145 with 4.76 margin of error. More so, proportionate stratified random sampling was applied in identifying the number of respondents per year level which was shown below.

Year Level	Actual Number of Students per Year Level	Desired Number of Respondents Per Year Level
First Year	51	34
Second Year	73	48
Third Year	32	21
Fourth Year	64	42
Total	220	145

Research Locale

The study was conducted at a state university located in the province of Leyte. This public university has a rich history, being established in 1921. Guided by its vision, the university's mission is to cultivate top-performing professionals in the field of education who possess the essential knowledge and technical skills necessary to make meaningful contributions to the overall development of society. The university offers a diverse range of

undergraduate programs encompassing areas such as arts and sciences, teacher education, management, and entrepreneurship. Additionally, it provides graduate and postgraduate degrees in various disciplines including education, teaching, management, arts, social work, and information technology. Furthermore, the university remains steadfast in its commitment to continually elevate and uphold the highest standards of instruction. In recognition of its exceptional performance, the Commission on Higher Education (CHED) has awarded the university the prestigious designation of being a Center of Excellence for Teacher Education in Region VIII from 2008 to 2011. This recognition affirms the university's dedication to delivering excellent teacher education programs and sets it apart as a leader in the region.

Research Instrument and Statistical Treatment of Data

The study employed the Measuring Digital Skills instrument, which was created by research experts, van Deursen, Helsper, and Eynon (2014) and they contextually validated it. Moreover, the instrument was pilot tested to a group of science students for the reliability analysis. The value of Cronbach alpha is 0.893 which indicates that the instrument is reliable in the context of the study. Furthermore, this comprehensive survey questionnaire consists of 35 items with 6 indicators for social skills, 10 items for operational skills, 3 indicators for mobile skills, 8 items for information navigation skills, and 8 items for creative skills. Van Deursen, Helsper, and Eynon (2014) employed a five-point Likert-type scale in the instruments, ranging from "1=Not at all true of me" to "5=Very true of me" for all items. It is important to highlight that the eight items within the information navigation subscale are formulated in a negative manner. Consequently, during data analysis, these items are reverse-coded to ensure precise interpretation of the results.

The first research question was answered utilizing the mean, and standard deviation to describe students' level of digital skills. These statistical measures provide insights into the average level and the extent of variation in digital skills within the student population. Additionally, Onwu and Abah (2019) proposed that a mean rating scale score of 3.0 and above indicates a high level of digital skills, whereas a mean score below 3.0 suggests a low level of digital skills. This criterion can be used to interpret the findings related to research question one and evaluate the overall proficiency of mathematics education students in digital skills.

In addressing the second research question, the mode was employed to identify the most prevalent strengths and weaknesses of digital skills among students. By ranking these strengths and weaknesses based on the number of responses, a clear understanding of the common areas of proficiency and areas requiring improvement can be obtained.

Finally, for the third research question, an action plan was proposed, drawing upon the pertinent results of the study. These findings could provide valuable insights into the specific areas that need attention and improvement. By formulating an action plan, educational stakeholders can develop targeted interventions, resources, and strategies to enhance the digital skills of mathematics education students effectively.

Results and Discussion

Table 1.
Level of Digital Skills Among Mathematics Education Students

	Mean (<i>M</i>)	Standard Deviation (<i>SD</i>)	Interpretation
Social Skills	4.48	0.82	High
Operational Skills	4.56	0.83	High
Mobile Skills	4.38	0.94	High
Information Navigation Skills	3.05	1.08	High
Creative Skills	3.28	1.14	High
Cluster Mean	3.95		High

Table 1 shows the level of digital skills among mathematics education students which has been assessed in five different areas: social, operational, mobile, information navigation, and creative skills. It can be gleaned in the table that students have high level of social skills ($M=4.48$, $SD=0.82$). This is particularly important for mathematics education students, as they need to be able to work collaboratively and communicate effectively with their peers in order to be successful in their future careers. The operational skills of students ($M=4.56$, $SD=0.83$) indicate that there is a high level of proficiency in this area. This implies that these students are well-equipped to handle digital tools, which is crucial in the field of mathematics education where technology is becoming increasingly important. Moreover, students have high level of mobile skills ($M=4.38$, $SD=0.94$). This is important as mobile devices are becoming increasingly important in both education and the workplace. Furthermore, there is a high level of the information navigation skills of students ($M=3.05$, $SD=1.08$). However, the higher standard deviation suggests that there is more variability in the students' abilities in this area. This could indicate a need for further training to ensure that all students have the necessary skills to navigate digital information effectively. With regard to creative skills, students have high level of proficiency ($M=3.28$, $SD=1.14$). Looking its standard deviation, this implies that there is more variability in the students' abilities. This may indicate a need for additional training or support to help students develop their creative skills.

Table 2.
Social Skills Among Mathematics Education Students

	Mean	Standard Deviation	Interpretation
"I know how to remove friends from my contact lists."	4.59	0.75	High
"I know how to change who I share content with (e.g. friends, friends of friends or public)."	4.56	0.78	High
"I am careful to make my comments and behaviors appropriate to the situation I find myself in online."	4.52	0.79	High
"I know when I should and shouldn't share information online."	4.46	0.83	High
"I feel comfortable deciding who to follow online (e.g. on services like Twitter or Tumblr)."	4.38	0.86	High
"I know which information I should and shouldn't share online."	4.34	0.89	High
Cluster Mean	4.48		High

Table 2 shows the social digital skills of mathematics education students. The result shows that students have high level of social skills with cluster mean of 4.48. This implies that students can effectively collaborate with their peers and educators. Moreover, students would be able to communicate their mathematical ideas and findings more effectively through digital platforms.

Table 3.
Operational Skills Among Mathematics Education Students

Components	Mean	Standard Deviation	Interpretation
"I know how to open downloaded files."	4.77	0.65	High

<i>"I know how to download/save a photo I found online"</i>	4.76	0.65	High
<i>"I know how to use shortcut keys (e.g. CTRL-C for copy, CTRL-S for save)"</i>	4.33	1.00	High
<i>"I know how to open a new tab in my browser."</i>	4.68	0.75	High
<i>"I know how to bookmark a website."</i>	4.25	1.02	High
<i>"I know where to click to go to a different webpage."</i>	4.46	0.87	High
<i>"I know how to complete online forms."</i>	4.55	0.83	High
<i>"I know how to upload files."</i>	4.72	0.68	High
<i>"I know how to adjust privacy settings."</i>	4.34	0.86	High
<i>"I know how to connect to a WIFI network"</i>	4.75	0.68	High
Cluster Mean	4.56		High

Table 3 provides insights into the operational skills among mathematics education students. Based on the mean scores provided, it can be interpreted that the students possess a high level of operational skills in the majority of the tasks assessed. Among of these ten components of operational skills, the statement "I know how to open downloaded files" has the highest mean of 4.77 and standard deviation of 0.65 signifying that students possess a high level of proficiency in basic file management skills. By knowing how to open downloaded files, students can independently retrieve and access digital documents, worksheets, textbooks, or other learning materials. This ability allows them to engage with various formats of mathematical content, such as PDFs, spreadsheets, or interactive software.

Table 4.
Mobile Skills Among Mathematics Education Students

	Mean	Standard Deviation	Interpretation
<i>"I know how to install apps on a mobile device."</i>	4.65	0.74	High
<i>"I know how to download apps to my mobile device."</i>	4.68	0.72	High
<i>"I know how to keep track of the costs of mobile app use."</i>	3.80	1.05	High
Cluster Mean	4.38		High

Table 4 shows the mobile skills among mathematics education students. Based on the result, students have high level of mobile skills (M=4.38). This suggests that students can leverage mobile devices and apps to access mathematical resources, allowing for seamless learning beyond the boundaries of the classroom. Moreover, students have the opportunity to leverage mobile devices to capture real-world mathematical scenarios, apply mathematical concepts to practical situations, and cultivate a deeper understanding of the significance and practicality of mathematics in their everyday lives.

Table 5.
Information Navigation Skills Among Mathematics Education Students

Components	Mean	Standard Deviation	Interpretation
<i>"I find it hard to decide what the best keywords are to use for online searches."*</i>	2.94	1.14	Low
<i>"I find it hard to find a website I visited before."*</i>	3.23	1.18	High
<i>"I get tired when looking for information online."*</i>	2.91	1.05	Low
<i>"Sometimes I end up on websites without knowing how I got there."*</i>	3.17	1.22	High
<i>"I find the way in which many websites are designed confusing."*</i>	2.87	0.99	Low
<i>"All the different website layouts make working with the internet difficult for me."*</i>	3.19	1.01	High
<i>"I should take a course on finding information online."*</i>	3.13	1.02	High
<i>"Sometimes I find it hard to verify information I have retrieved."*</i>	2.95	1.00	Low
Cluster Mean	3.05		High

*Items are reverse-coded.

Table 5 shows the overview of information navigation skills among mathematics education students. Among of these 8 components, four of which indicate that students have low level of information navigation skills. Based on the results, it was observed that mathematics education students encounter challenges in determining the most effective keywords for online searches ($M=2.94$, $SD=1.14$). They also experience tiredness during the process of searching for information online ($M=2.91$, $SD=1.05$) and find the design of many websites confusing ($M=2.87$, $SD=0.99$). Furthermore, at times, they encounter difficulties in verifying the accuracy of retrieved information ($M=2.95$, $SD=1.00$). Despite these challenges, it is noteworthy that students demonstrate a high overall level of information navigation skills (Cluster Mean=3.05). This finding aligns with the earlier study by Onwu and Abah (2019), which revealed that mathematics students in Nigeria possess a high level of information navigation skills.

Table 6.
Creative Skills Among Mathematics Education Students

Components	Mean	Standard Deviation	Interpretation
<i>"I know how to create something new from existing online images, music or video."</i>	3.91	1.02	High
<i>"I know how to make basic changes to the content that others have produced."</i>	3.76	1.07	High
<i>"I know how to design a website."</i>	2.68	1.18	Low

<i>"I know which different types of licenses apply to online content."</i>	2.94	1.05	Low
<i>"I would feel confident putting video content I have created online."</i>	3.02	1.04	High
<i>"I know which apps/software are safe to download."</i>	3.65	1.00	High
<i>"I am confident about writing a comment on a blog, website or forum."</i>	3.14	1.09	High
<i>"I would feel confident writing and commenting online."</i>	3.10	1.10	High
Cluster Mean	3.28		High

Table 6 illustrates the overview of the creative skills among mathematics education students. It can be gleaned that students have high level of creative skills ($M=3.28$). This implies that mathematics education students can develop innovative teaching approaches that incorporate digital tools and resources. They can design interactive lessons, create simple educational games and simulations, and develop visually appealing materials to engage students in mathematical exploration and problem-solving. Moreover, students can create engaging and interactive learning environments that foster mathematical creativity, critical thinking, and conceptual understanding. Although students have high level of creative skills, there is a need for them to know how to design a website ($M=2.68$, $SD=1.18$) and knowing different types of licenses apply to online content ($M=2.94$, $SD=1.05$).

Table 7.
Mathematics Education Students' Strengths in Digital Skills

Indicators	Type of Digital Skills	Frequency	Rank
<i>"I know how to download/save a photo I found online."</i>	Operational	140	1
<i>"I know how to open downloaded files."</i>	Operational	139	2.5
<i>"I know how to connect to a WIFI network."</i>	Operational	139	2.5
<i>"I know how to upload files."</i>	Operational	138	4
<i>"I know how to install apps on a mobile device."</i>	Mobile	136	5.5
<i>"I know how to download apps to my mobile device."</i>	Mobile	136	5.5
<i>"I know how to open a new tab in my browser."</i>	Operational	134	7.5
<i>"I know how to remove friends from my contact lists."</i>	Social	134	7.5
<i>"I know how to change who I share content with (e.g. friends, friends of friends or public)."</i>	Social	133	9
<i>"I am careful to make my comments and behaviors appropriate to the situation I find myself in online."</i>	Social	132	10

As shown in Table 7, the strengths of digital skills of mathematics education students are found in the areas of operational, mobile, and social skills. The data presented in the table indicates that a majority of students are proficient in downloading and saving photos they find online (Mode=140). Additionally, it is evident that they possess a strong understanding of how to install and download apps on their devices. Regarding to social skills, the finding implies that students are adept at managing their social interactions and privacy settings in digital platforms. This proficiency indicates a level of digital literacy and responsible online citizenship.

Table 8.
Mathematics Education Students' Weaknesses in Digital Skills

Indicators	Type of Digital Skills	Frequency	Rank
<i>"I find the way in which many websites are designed confusing."</i>	Information Navigation	36	1
<i>"I know which different types of licenses apply to online content."</i>	Creative	37	2.5
<i>"I know how to design a website."</i>	Creative	37	2.5
<i>"Sometimes I find it hard to verify information I have retrieved."</i>	Information Navigation	39	4.5
<i>"I get tired when looking for information online."</i>	Information Navigation	39	4.5

Table 8 provides an overview of mathematics education students' weaknesses in digital skills. It can be gleaned that the weakest skill perceived by students is on finding way in which many websites are designed confusing. This difficulty can hinder their online research and information gathering, as they struggle to find the specific content or resources they need. Students may encounter challenges in locating important information, understanding site structures, or intuitively navigating through menus and links. Moreover, students have difficulty in identifying different types in licenses apply to online content, and designing website. This implies that their limited understanding of licenses may lead to unintentional copyright infringements when using or sharing online resources, hindering their ability to engage in ethical and responsible practices. Also, the challenges in web designing can limit their ability to create visually appealing and user-friendly online platforms, impacting their communication and collaboration opportunities in the digital realm. Moreover, this difficulty may hinder their participation in online mathematics communities, limiting their exposure to diverse perspectives and valuable feedback.

Conclusion and Recommendation

Mathematics education students in a state university in Tacloban City possess a high level of digital skills, specifically in social, operational, mobile, information navigation and creative skills. These skills enable them to effectively use digital tools and platforms for learning, collaboration, and creative expression. However, there is a need for improvement in certain areas. In addition, these students have difficulty in navigating confusing website designs, identifying different types of licenses that apply to online content, and designing websites. Addressing these areas of weakness is crucial to enhance their digital literacy and proficiency. By providing instruction and resources focused on website usability, license awareness, and web design principles, students can enhance their ability to navigate websites, respect intellectual property, and create user-friendly online platforms. Furthermore, there is a need to continue to develop and refine digital skills training to ensure that all mathematics education students are well-prepared for the digital demands of their future careers. With comprehensive digital skills, mathematics education students in Tacloban City will be better equipped to leverage technology effectively and contribute to the digital landscape in a meaningful and responsible manner.

Most importantly, the researcher crafted an action plan which was based on the findings of the study. This could be integrated in the extension program of the mathematics teachers as they are encouraged to extend their services to their students and other stakeholders. This action plan focuses on nurturing students' knowledge about Information and Communication Technology and improving creativity and navigation skills in the digital platform. Hence, the researcher proposed a project TEKNO. The term "tekno" is commonly used to refer to technology or the technological field. It is a shortened form of the word "technology" and is often used in informal contexts or in certain communities to describe various aspects of the digital world, including electronic devices, software applications, digital innovations, and advancements in science and engineering. In this study, **TEKNO** stands for **T**ransforming and **E**mpowering students who nurture **K**nowledge, **C**reativity and **N**avigation Skills in the **O**nline platform. With this project, mathematics teachers are guided as to what to focus in their extension

program. Moreover, it will improve mathematics education students' digital skills that could be integrated into their teaching in education 4.0.

Project T.E.K.N.O.

Transforming and Empowering students who nurture Knowledge, Creativity and Navigation Skills in the Online platform)

The rationale behind conducting Project TEKNO (Transforming and Empowering students who nurture Knowledge, Creativity, and Navigation Skills in the Online platform) is to address the evolving needs of students in the digital age. As technology continues to shape our lives, it is essential to equip students with the necessary skills and competencies to thrive in an online platform. The project aims to transform and empower students by focusing on three key areas: knowledge, creativity, and navigation skills. By nurturing knowledge, students will gain a deeper understanding of digital tools, information literacy, and critical thinking in the online realm. Encouraging creativity will enable students to explore innovative ways of utilizing technology, promoting problem-solving and originality. Navigation skills will empower students to effectively navigate and evaluate online content, ensuring responsible and ethical digital practices. Ultimately, Project TEKNO seeks to prepare students for the digital landscape, equipping them with the essential skills to succeed in the online platform and become active, informed, and responsible digital citizens.

Title of the Activity	Persons Involved	Time Frame	Resources	Success Indicators
Building Better Digital Literacy for Math Educators <i>The main objective of this activity is to improve students' knowledge and skills with regard to the digital literacy in response to the practical and ethical issues of Education 4.0.</i>	Math teachers Math students Speaker	August 2023	Bond paper Projectors Laptops ICT resources	Students gained a deeper understanding of digital tools, information literacy, and critical thinking in the online realm which equipped them to become responsible digital citizen.
Designing Website in Mathematics Education 4.0 <i>The primary objective of this activity is to develop an engaging and educational website specifically designed to empower mathematics students in enhancing their creativity and navigation skills.</i>	Math teachers Math students Speaker	October 2023	Bond paper Projectors Laptops ICT resources	Creative output from math students about designing educational websites using Weebly, Winx, Google Sites, and other web applications

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