Social Science and Human Research Bulletin

ISSN(e): 3050-5542
ISSN(p): 3050-5534

Vol. 02(07): 357-366, July 2025

Home Page: https://sshrb.org/

Digital Competence, Self-Efficacy, and Time Management among Senior High School Students

Allison Andales[1], Juliet Sevilla[2], Jhennyvic Galvez[3], Jean Mahomas[4], Joanna Paula Paquiao[5], Jovenil Bacatan[6]

[1,2,3,4,5,6] Senior High School Department, UM Peñaplata College, Island Garden City of Samal, Davao del Norte, Philippines

Article DOI: 10.55677/SSHRB/2025-3050-0711 **DOI URL: https://doi.org/10.55677/SSHRB/2025-3050-0711**

KEYWORDS: digital competence, self-efficacy, time management, senior high school students

Corresponding Author:
Jovenil R. Bacatan

Published: July 11, 2025

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

ABSTRACT: This study aimed to determine whether digital competence and self-efficacy significantly influence time management among senior high school students. Stratified random sampling was used, which included 240 students. Through non-experimental quantitative descriptive-correlational research technique, validated questionnaire, Mean, Pearson-Product Moment Correlation Coefficient (Pearson-r), and Multiple Linear Regression Analysis, results revealed that digital competence, self-efficacy, and time management among students were high or oftentimes manifested. The results also showed that digital competence and self-efficacy were significantly correlated with time management. Additionally, digital competence and self-efficacy were significant predictors of time management. However, self-efficacy exhibited a more substantial influence, reinforcing its critical role in time management. The findings suggest that while technical skills contribute to efficient time use, psychological factors such as self-belief play a more decisive role in effective time management. Future studies may investigate the long-term effects of combined digital competence and self-efficacy interventions using longitudinal and experimental designs, including randomized controlled trials (RCTs).

1. INTRODUCTION

Time management is efficiently planning and distributing one's time to prioritize duties, obligations, and activities. It balances work, education, leisure, and personal obligations while optimizing productivity, efficiency, and goal attainment (Powell et al., 2020). Effective time management is essential for students since it improves their academic performance, lowers stress levels, and gives them a sense of control over their everyday activities (Al-Yami et al., 2021). Nevertheless, despite its significance, many students find it difficult to efficiently manage their time, particularly in situations that call for multitasking, including juggling work, extracurricular activities, and academic obligations (Pregoner et al., 2020). This difficulty is made worse by the digital age, when incorporating technology into daily life and school necessitates that students acquire new skills like self-efficacy and digital competence to manage their obligations successfully

The troublesome aspect is the interaction of students' self-efficacy, digital competence, and time management. Even while time management is well acknowledged as a predictor of academic achievement, less is known about it relating to digital competence and self-efficacy, especially for specific populations like senior high school students in the Island Garden City of Samal, Davao del Norte. Effective use of digital tools and technology, or digital competence, is becoming increasingly critical in today's classrooms (Marusic & Viskovic, 2018). Likewise, self-efficacy or the conviction that one can carry out tasks successfully is essential for inspiring students to reach their objectives (Bandura, 1997). Even though there is an increasing number of studies on each category separately, empirical studies do not look at how they interact or affect time management.

The connection of digital competence and self-efficacy to academic and personal achievement highlights the significance of researching these factors. According to earlier research, students with greater levels of digital competence can better manage their time since they can use technology to efficiently access resources and organize tasks (Suwanroj et al., 2017). Self-efficacy has also been associated with better time management because students who believe in themselves are more likely to prioritize their work, create objectives, and persevere through difficulties (Lee & Wilder, 2017). There is a gap in how these relationships appear in non-Western contexts, like the Philippines, as these studies have mainly been carried out in Western settings.

This study was anchored on Bandura's (1997) Self-Efficacy Theory, which holds that their beliefs influence people's motivation, behavior, and performance in their talents, serves as the theoretical cornerstone of this investigation. This theory offers a framework for comprehending how students' self-efficacy affects their capacity for efficient time management. To assess digital competence, the DigComp Framework (Ferrari & Punie, 2013) is incorporated, with its five core domains (see Table 1) mapped to these indicators: *command* (technical proficiency), *privileging* (strategic tool selection), *appropriation* (adaptive use), and *reintegration* (collaborative knowledge-sharing). The study also used the Technological Pedagogical Content Knowledge (TPACK) framework, which stresses the integration of technology, pedagogy, and content knowledge in instruction (Herring et al., 2016). The investigation of digital competence as a crucial component of students' ability with digital tools and resources for academic success is supported by this framework. Additionally, students prioritize tasks (rocks), manage less urgent but necessary activities (pebbles), and allot time for smaller tasks (water) using the Pickle Jar Theory of Time Management (Thakkar, 2022). When combined, these theories offer a solid framework for analyzing the connections among the variables in the study.

Table 1. ***DigComp Framework Domains and Study's Indicators***

DigComp Domain	Description	Study's Indicator	Relevance
1. Information Literacy	Browsing, evaluating, and managing data	Command	Technical ability to navigate digital resources efficiently
2. Communication	Interacting via digital tools	Reintegration	Sharing knowledge and collaborating in digital spaces
3. Content Creation	Developing digital materials	Appropriation	Adapting tools creatively for academic tasks
4. Safety	Privacy, security, and ethical awareness	Privileging	Selecting tools based on reliability and ethical considerations
5. Problem-Solving	Resolving technical/ challenges	Command/ Appropriation	Troubleshooting and innovating with digital solutions

Three main factors comprise this study's conceptual framework: time management is the dependent variable, while digital competence and self-efficacy are the independent variables. Information organization, technology adoption, and cybersecurity awareness are all components of digital competence, which involves good use of digital tools, platforms, and software (Marusic & Viskovic, 2018).

Self-efficacy is conceptualized as students' confidence in their ability to use digital tools (digital self-efficacy) and manage their time effectively (time management self-efficacy) (Lee & Wilder, 2017). Time management is operationalized through goal setting, task prioritization, and strategies to meet deadlines (Nasrullah & Khan, 2017).

The research gap addressed by this study lies in the lack of empirical research examining the relationships between digital competence, self-efficacy, and time management in the context of senior high school students in Samal Island, Davao del Norte. While previous studies have explored these constructs individually or in pairs, there is a dearth of research investigating their collective impact, particularly in non-Western educational settings. This study is unique in its focus on a specific locale and its integration of multiple theoretical frameworks to comprehensively understand the factors influencing students' time management skills.

The primary objective of this study is to determine the significant relationships between digital competence, self-efficacy, and time management among senior high school students. Specifically, the study aims to answer the following research questions:

1. What is the level of digital competence among senior high school students in terms of command, privileging, appropriation, and reintegration?
2. What is the level of self-efficacy among senior high school students?
3. What is the level of time management among senior high school students?
4. Is there a significant relationship between digital competence and time management?
5. Is there a significant relationship between self-efficacy and time management?
6. Do digital competence and self-efficacy significantly influence time management?

The significance of this study is multifaceted. Globally, it contributes to the growing body of literature on digital competence, self-efficacy, and time management, providing insights into how these constructs interact in a non-Western context. Locally, it offers practical implications for educators, policymakers, and students in the Island Garden City of Samal. The findings can inform students about strategies to improve time management skills, enhance digital literacy, and build self-efficacy. For teachers, the study provides insights into how to support students in developing these competencies. For future researchers, the study serves as a foundation for further exploration of these variables in similar contexts.

II. METHOD

Research Respondents

The respondents of this study are the Samal Senior High School Students. The respondents were selected using a stratified random sampling method. Stratified random sampling is particularly effective when the population is divided into distinct groups or strata, ensuring that each subgroup is proportionally represented in the sample (Parsons, 2014). The strata comprised students from different strands and grade levels: Technical-Vocational-Livelihood (TVL) 11 (n=48), Technical-Vocational-Livelihood (TVL) 12 (n=43), Science, Technology, Engineering and Mathematics (STEM) 11 (n=27), Science, Technology, Engineering and Mathematics (STEM) 12 (n=40), General Academic Strand (GAS) 11 (n=46), and General Academic Strand (GAS) 12 (n=36), totaling 240 respondents. The inclusion criteria for respondents were as follows:

a. Students enrolled in the STEM, GAS, or TVL strands at Samal Senior High School.
b. Students aged 16–19 years, regardless of civil status, ethnicity, or religion.

Students outside the 16-19 age range were excluded to maintain developmental homogeneity. While this study focuses on typical senior high school students, the researchers acknowledged confounding variables like unequal technology access, socio-economic disparities, and varying educational backgrounds that may influence digital competence and time management. These limitations suggest that future research should incorporate stratified sampling by socio-economic status and include covariate analyses to control these factors better.

Material and Instrument

Three sets of questionnaires were adapted from authors of different studies, which experts in questionnaire construction validated. The adapted standardized questionnaire is valid in content as it underwent a series of modifications to classify the most reliable and valid questions. Further, it was already tested and proven by the authors per se. The questionnaire was comprehensively designed with expert input to ensure clarity and ease of response.

The first part of the instrument deals with the digital competence scale, with 22 items adapted from the work of Conde-Jimenez and Jesus (2018). The second part of the instrument used to measure the respondents' self-efficacy, consisting of 13 items, was adapted from the study of Kosimov (2021). The last part of the instrument utilized was adapted from the study of Razali et al. (2018), containing 17 items measuring the time management of the respondents. The overall validity index of the questionnaires is *4.14 or Very Good*. All items in the three scales were evaluated using a 5-point Likert-type scale, with response options ranging from 1 (Very Low) to 5 (Very High). Negatively worded items were reverse-coded before analysis.

Design and Procedure

Research Design. This study utilized a non-experimental quantitative, descriptive-correlational method of research to determine the students' level of digital competence, self-efficacy, and time management. The relationship among the variables was also sought. A correlational study is a research design examining the relationship between two or more variables. Correlational studies are non-experimental, meaning the researcher does not manipulate or control any variables (Cherry, 2023).

Data Gathering Procedure. The researcher sought approval from the Dean of the College and the School Principal of UM Peñaplata College. After the approval, the letter was sent to the School Principal of the Samal Senior High School before the administration of the research instruments. Consent was also sought from the respondents for voluntary participation. Respondents were given ample time to complete the tool. The instrument was retrieved immediately after the respondents had answered the tool entirely. After gathering the necessary data, these were tabulated, subjected to statistical treatment, and interpreted accordingly.

*Statistical Treatment***.** In treating the data gathered, the following tools were utilized:

*Mean***.** This was used to determine the students' level of digital competence, self-efficacy, and time management.

*Pearson Product-Moment Correlation Coefficient***.** This was used to determine the relationship among digital competence, self-efficacy, and time management.

Multiple Linear Regression. This was used to determine if digital competence and self-efficacy significantly influence time management.

*Ethical Consideration***.** The study followed ethical considerations during the research process, including voluntary participation, privacy and confidentiality, recruitment, risks, benefits, safety, plagiarism, fabrication, falsification, conflict of interest, deceit, permission from the organization, and authorship.

III. RESULTS

Digital Competence of the Senior High School Students

The findings of the students' degrees of digital competence are shown in Table 2. The total mean score (M = 3.75, SD = 0.57) indicates a high degree of digital competence, which implies that students regularly exhibit the abilities and behaviors linked to digital proficiency. These results are consistent with the work of Kwon (2021) and Eger et al. (2018), which highlighted that students are better prepared to fulfill the demands of today's digital society if they can efficiently generate, manage, and transmit digital information and solve technological issues. Additionally, Guillen et al. (2020) emphasize that students' capacity to succeed academically and professionally, adjust to societal demands, and handle future issues depends heavily on their digital competence.

The European Commission unveiled the DigComp framework in 2013, which offers a thorough road map for comprehending and enhancing digital competency. It highlights essential elements that describe the knowledge, abilities, and dispositions needed for digital proficiency, such as information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving (Ferrari & Punie, 2013). The high degree of digital competency shown in this study indicates students' favorable opinions of their skills in various domains, especially in communication and teamwork, as well as information and data literacy (Zhao et al., 2021).

Table 2. ***Digital Competence of Senior High School Students***

Indicators	*SD*	*M*	Descriptive Level
Command	.71	3.58	High
Privileging	.69	3.87	High
Appropriation	.75	3.81	High
Reintegration	.75	3.73	High
Overall Mean	.57	3.75	High

Note: N = 240, M = Mean, SD = Standard Deviation

When examining each metric in detail, *command* (M = 3.58, SD = 0.71) showed a high level of proficiency with digital tools, consistent with research by Ferrari and Punie (2013) that highlighted operational skills as the cornerstone of digital literacy. Furthermore, in line with van Deursen & Van Diepen (2013) findings, who recognized information assessment as a vital component of digital competency, *privileging* (M = 3.87, SD = 0.69) demonstrated advanced critical appraisal of digital resources. Furthermore, *appropriation* (M = 3.81, SD = 0.75) demonstrated successful technology integration into instruction, corroborated by Hatlevik & Christophersen's (2013) research on using adaptive digital tools in classrooms. Finally, *reintegration* showed agility in solving problems in new situations (M = 3.73, SD = 0.75), which aligned with Engen et al. (2015), who emphasized transferability as a crucial indicator of digital competency. These findings support earlier studies on multifaceted digital literacy frameworks and collectively validate high levels of digital competency.

Self-Efficacy among Senior High School Students

Table 3 presents the results of the students' self-efficacy levels. The overall mean score (M = 4.11, SD = 0.65) indicates a high level of self-efficacy, suggesting that students frequently demonstrate confidence in their abilities to achieve their goals and overcome challenges. This finding aligns with the work of Kosimov (2021), who emphasizes that self-efficacy is a critical determinant of students' motivation, behavior, and performance. Similarly, Ahmad and Safaria (2013) argue that students with high self-efficacy are likelier to set and achieve ambitious goals, contributing to their academic success and personal well-being. Bandura (1982) further supports this by stating that individuals with high self-efficacy better understand their capabilities, plan their activities, and persist in the face of difficulties.

Table 3. ***Self-Efficacy among Senior High School Students***

Statements	*SD*	*M*	escriptive Level
1. I can learn what is being taught in class this year.	.87	4.08	High
2. I can figure out anything if I try hard enough.	.92	4.08	High
3. If I practice every day, I could develop just about any skill.	.88	4.23	Very High
4. Once I've decided to accomplish something that's important to me, I keep trying to accomplish it, even if it is harder than I thought.	.95	4.05	High
5. I am confident that I can achieve the goal that I set for myself.	1.01	4.05	High
6. When I'm struggling to accomplish something difficult, I focus on my progress instead of feeling discouraged.	.89	4.05	High
7. I will succeed in whatever career path I chose.	.95	3.99	High
8. I will succeed in whatever college major I chose.	.99	3.89	High
9. I believe hard work pays off.	.92	4.33	Very High
10. My ability grows with effort.	.93	4.33	Very High
11. I believe that the brain can be developed like muscle.	.93	4.20	Very High
12. I think that no matter who you are, you can significantly change your level of talent.	.85	4.26	Very High
13. I can change any basic level of ability considerably.	1.01	3.94	High
Overall Mean	.65	4.11	High

Note: N = 240, M = Mean, SD = Standard Deviation

Looking at each statement, students exhibit strong confidence in their capacity for learning and skill development**,** as evidenced by their agreement with statements such as "*I can learn what is being taught in class this year*" (M = 4.08, SD = 0.87) and "*If I practice every day, I could develop just about any skill*" (M = 4.23, SD = 0.88), aligning with Bandura's (1997) theory of self-efficacy, which emphasizes belief in one's ability to master tasks. Additionally, their goal achievement and persistence are reflected in responses like "*Once I've decided to accomplish something important, I keep trying, even if it is harder than I thought*" (M = 4.05, SD = 0.95), resonating with Duckworth et al.'s (2007) work on grit as a predictor of long-term success. Furthermore, a growth mindset is evident in statements such as "*My ability grows with effort*" (M = 4.33, SD = 0.93) and "*I believe that the brain can be developed like a muscle*" (M = 4.20, SD = 0.93), supporting Dweck's (2006) findings that viewing intelligence as malleable fosters resilience and academic improvement. These findings highlight students' self-assurance in learning, perseverance in challenges, and belief in incremental ability development.

Time Management of Senior High School Students

Table 4 reveals that students exhibit a high level of time management (*M* = 3.77, *SD* = 0.63), indicating consistent use of structured planning and goal-setting strategies. Notably, the highest-rated statements reflect proactive habits: *"I believe that there is room for improvement in the way I manage my time"* (*M* = 4.15, SD = 0.94) and *"I have a set of goals for the quarter/semester"* (*M* = 4.05, SD = 0.92), suggesting students prioritize self-assessment and long-term planning, a finding aligned with Claessens et al. (2007), who linked such behaviors to reduced stress and greater perceived control over time. Similarly, *"I set deadlines for myself"* (*M* = 3.86, SD = 1.04) and *"I schedule my best hours for demanding work"* (*M* = 3.84, SD = 1.02) highlight intentionality, resonating with Macan et al. (1990) assertion that time control correlates with higher job satisfaction and academic performance.

Conversely, lower but still "high" scores such as *"I make a list of things to do each day"* (*M* = 3.54, *SD*=1.22) and *"I continue unprofitable routines"* (*M* = 3.54, SD = 1.09) hint at potential gaps in daily execution or inefficiencies, echoing Pehlivan's (2013) observation that even high performers struggle with distractions and procrastination. The latter item, alongside *"I often do things that interfere with schoolwork because I hate to say 'no' to people"* (*M* = 3.75, *SD* = 1.05), may reflect social or procrastination-related barriers, supporting Lay and Schouwenburg's (1993) argument that well-structured deadlines mitigate such tendencies.

Table 4. ***Time Management of Senior High School Students***

Statements	*SD*	*M*	Descriptive Level
1. When I have several things to do, I think it is best to do a little bit of work on each one.	.85	4.04	High
2. I have a set of goals for each week ready at the beginning of the week.	.98	3.73	High
3. I spend time each day planning.	1.11	3.66	High
4. I make a list of the things I have to do each day.	1.22	3.54	High
5. I make the schedule of activities I have to do on schooldays/workdays.	1.16	3.65	High
6. I have a clear idea of what I want to accomplish during the next week.	.97	3.73	High
7. I set deadlines for myself for completing work.	1.04	3.86	High
8. I try to schedule my best hours for my most demanding work.	1.02	3.84	High
9. I keep my important dates (e.g. exam dates research paper due dates, etc.) on a single calendar.	1.11	3.72	High
10. I have a set of goals for the quarter/semester.	.92	4.05	High
11. Each week I do things as they naturally occur to me, without an effort to make a plan in advance and compulsively.	.93	3.79	High
12. I believe that there is room for improvement in the way I manage my time.	.94	4.15	High
13. I able to make minor decisions quickly.	1.05	3.71	High
14. Generally, I can usually accomplish all my goals for a given week.	.98	3.64	High
15. I often find myself doing things which interfere with my school work simply because I hate to say "no" to people.	1.05	3.75	High
16. I find myself waiting a lot without anything to do.	1.05	3.73	High
17. I continue unprofitable routines or activities.	1.09	3.54	High
Overall Mean	.63	3.77	High

Note: N = 240, M = Mean, SD = Standard Deviation

These results affirm Nasrullah and Khan's (2015) claim that time management is pivotal for academic success, as it enhances productivity and reduces stress. The high overall mean suggests institutional or cultural reinforcement of these skills. Yet, the variance in item-level scores highlights opportunities for targeted interventions such as training on prioritization (Claessens et al., 2007) or assertiveness (Pehlivan, 2013) to address specific weaknesses while sustaining strengths.

Correlation Matrix of the Measures of Digital Competence and Time Management

The analysis reveals a statistically significant positive relationship between digital competence and time management ($r = 0.625$, $p = .000$), indicating that students with higher digital competence demonstrate superior time management capabilities. This finding aligns with contemporary research emphasizing the critical role of technological proficiency in academic self-regulation (Galindo-Domínguez & Bezanilla, 2021). The strong correlation suggests that digital tools and competencies enable effective time allocation, task prioritization, and workflow optimization in academic settings.

Breaking down the dimensions of digital competence, the command of digital tools ($r = .531$, $p < .05$ shows the strongest association with time management, supporting Hatlevik and Christophersen's (2013) assertion that technical mastery reduces the cognitive load in routine tasks. Privileging ($r = .506$, $p = .000$) demonstrates how strategic selection of digital resources enhances focus and minimizes distractions, consistent with Hwang et al.'s (2015) findings on technology-mediated attention management. The appropriation dimension ($r = .437$, $p = .000$) highlights the importance of personalizing digital solutions, echoing Krumsvik's (2014) work on customized digital strategies for self-regulated learning. Lastly, reintegration ($r = .487$, $p = .000$) emphasizes the collaborative benefits of digital platforms in maintaining accountability, as noted in Cabi's (2018) research on shared digital workflows.

Table 5. ***Correlation Matrix of the Measures of Digital Competence and Time Management***

Digital Competence	**Time Management**
	Overall
Command	.531* (.000)
Privileging	.506* (.000)
Appropriation	.437* (.000)
Reintegration	.487* (.000)
Overall	**.625*** **(.000)**

**p<.05 – Significant*

These findings carry significant theoretical and practical implications. From a theoretical perspective, they support the Resource-Based View (Barney, 1991) by positioning digital competence as a valuable personal resource that enhances productivity. The results suggest that educational institutions should prioritize digital literacy programs targeting time management applications. Implementing structured training on productivity tools (e.g., calendar applications, task managers) and digital workflow optimization could substantially improve students' academic performance and stress management (Engen et al., 2015).

Correlation Matrix of the Measures of Self-Efficacy and Time Management

The analysis reveals a statistically significant, moderate positive relationship between self-efficacy and time management ($r = 0.684$, $p = .000$), indicating that individuals with higher self-efficacy tend to demonstrate better time management skills. This finding aligns with Bandura's (1997) social cognitive theory, which posits that self-efficacious individuals are more likely to use effective self-regulation strategies, including proficient time management. The strength of this association suggests that beliefs about one's capabilities substantially influence how individuals organize, prioritize, and execute tasks within temporal constraints.

The current results corroborate previous research by Galindo-Domínguez and Bezanilla (2021), which identified significant positive correlations between time management and perceived self-efficacy among university students. Similarly, Çevik (2021) found that self-efficacious students exhibited more structured approaches to time allocation, particularly when engaging in free-time activities. These findings collectively suggest that self-efficacy is a psychological resource that enhances individuals' capacity to implement effective time management strategies across various domains.

The mechanisms underlying this relationship can be understood through three key dimensions of time management: planning, organizing, and monitoring (Claessens et al., 2007). Self-efficacious individuals demonstrate greater competence in these areas due to their enhanced belief in their ability to: (1) develop realistic plans (planning), (2) structure tasks efficiently (organizing), and (3) adjust strategies based on feedback (monitoring). This tripartite framework aligns with Zimbardo and Boyd's (1999) temporal perspective theory, emphasizing how personality traits influence time attitudes and management behaviors.

Table 6. ***Correlation Matrix of the Measures of Self-Efficacy and Time Management***

Self-Efficacy	**Time Management**
	Overall
Overall	.684* (.000)

p<. 05 – Significant*

Furthermore, the integration of Information and Communication Technologies (ICT) in time management practices, as Mandal (2020) examined, reveals how technological tools can amplify the relationship between self-efficacy and time management. Digitally proficient individuals with high self-efficacy are better equipped to leverage productivity tools, creating a positive feedback loop that enhances both constructs. This technological mediation effect warrants further investigation, particularly in educational and professional settings where digital tools are increasingly ubiquitous.

Regression Analysis for Variables Predicting Students' Time Management

The regression analysis revealed that digital competence and self-efficacy significantly predict students' time management skills. The model's significance (F = 120.466, p = .000) and the substantial R^2 value of .500 indicate that these two variables can explain 50% of the variance in time management. Following Cohen's (2013) guidelines, this R^2 represents a significant practical effect ($f^2 = 1.00$), emphasizing the significant influence of digital competence and self-efficacy. Such a strong explanatory power suggests that interventions targeting these factors could markedly improve students' time management abilities. This finding aligns with prior research suggesting that digital competence enhances efficiency in task completion (Hatlevik & Christophersen, 2013), while self-efficacy fosters better planning and persistence in academic tasks (Bandura, 1997; Britton & Tesser, 1991).

Self-efficacy exhibited a more substantial influence (β = .466, p = .000), reinforcing its critical role in time management. This aligns with Zimmerman's (2000) self-regulated learning theory, which posits that students with high self-efficacy set more challenging goals and persist despite distractions. Additionally, research by Claessens et al. (2007) found that self-efficacious individuals exhibit better prioritization skills, a key component of time management.

The positive regression weight (β = .301, p = .000) suggests that students with higher digital competence manage their time more effectively. This is consistent with studies indicating that digitally proficient students utilize productivity tools (e.g., calendars, task managers) more efficiently, reducing time wastage (Ng, 2012). Furthermore, digital literacy enables quicker access to information, minimizing procrastination, a common barrier to effective time management (Tuckman, 2003).

Table 7. ***Regression Analysis for Variables Predicting Students' Time Management***

Independent Variables	Time Management		
	β	t	Sig.
Constant	.727	3.615	.000
Digital Competence	.301	4.124	.000*
Self-Efficacy	.466	7.350	.000*
R	.710		
R^2	.500		
F	120.466		
p	.000*		
Cohen's f^2	1.00		

*p<.05**

IV. CONCLUSION AND RECOMMENDATION

Conclusion

Based on the findings above, the following conclusions were drawn:

The study revealed that senior high school students demonstrate strong digital competence, with particular strengths in critically evaluating digital resources and integrating technology into their learning. Their self-efficacy levels were notably high,

especially in their belief that effort leads to growth and their confidence in overcoming challenges. Time management skills were also well-developed, particularly in setting long-term goals and self-assessment. However, there were indications that students could improve daily task execution and minimize distractions. These findings highlight that students possess foundational skills for academic success in digital environments bolstered by their confidence and structured planning habits.

The analysis confirmed significant relationships between the key variables. Digital competence was positively associated with time management, suggesting that students using digital tools better organize their tasks and prioritize responsibilities. Self-efficacy showed an even stronger link to time management, reinforcing that students who believe in their capabilities are more likely to plan proactively and persist in their work. Together, these findings suggest that while technical skills contribute to efficient time use, psychological factors such as self-belief play a more decisive role in effective time management. The results align with the theoretical expectation that digital proficiency and self-efficacy are essential for optimizing productivity.

The study's findings support integrating self-efficacy theory, the TPACK model, and the Pickle Jar Theory of time management. The strong influence of self-efficacy highlights Bandura's emphasis on personal agency in goal achievement. At the same time, the role of digital competence aligns with the TPACK framework's focus on integrating technological, pedagogical, and content knowledge for effective learning. The time management results also resonate with the Pickle Jar Theory, which prioritizes identifying and focusing on high-value tasks, a skill evident in students' goal-setting strengths. However, the gaps in daily task execution suggest opportunities for further training in prioritization and focus.

Recommendation

After a careful review of the conclusions, the following recommendations were offered:

Teachers may integrate digital competence explicitly into classroom instruction by teaching technical skills and guiding students in evaluating online sources critically and using digital platforms ethically. Since self-efficacy significantly predicts time management ability, educators can foster this through scaffolded digital tasks, mastery-based feedback, and structured routines. Demonstrating time planning using tools like calendars or *Trello* (a project management tool) and introducing time management frameworks such as the Pickle Jar Theory can further enhance students' organizational behaviors and digital productivity.

Students may adopt self-regulated learning practices by setting SMART goals, breaking tasks into manageable steps, and using digital tools like *Focus To-Do* or *Forest* to minimize distractions. Self-efficacy is positively associated with time management, so building persistence and adaptability can strengthen academic outcomes rather than seeking perfection. Joining peer study groups with shared accountability can also improve time management and digital problem-solving skills, promoting collective learning and motivation.

Parents may enhance their children's self-efficacy by reinforcing a growth mindset and praising effort and perseverance rather than innate ability while modeling balanced time use and responsible digital habits at home. Setting consistent study hours, limiting unstructured screen time, and discussing online information critically help students apply time and digital skills across contexts. Accessing credible digital resources and having open conversations about goal-setting and procrastination can extend academic self-regulation beyond the classroom.

Policymakers may strengthen the integration of digital literacy, time management, and self-efficacy development as core competencies in the K–12 curriculum. Funding could support TPACK-based teacher training and scalable time management programs grounded in evidence, such as the Pickle Jar Theory. Ensuring equitable infrastructure and digital access is essential, particularly for underserved communities. Incentivizing partnerships between schools and researchers could generate longitudinal evidence on the effectiveness of these interventions, guiding future educational policy decisions.

Future studies may investigate the long-term effects of combined digital competence and self-efficacy interventions using longitudinal and experimental designs, including randomized controlled trials (RCTs). Exploring students' real-world adaptations of time management strategies through qualitative methods could provide nuanced insights while examining sociocultural and economic moderators may help tailor interventions for diverse populations. These approaches enhance causal inference and contribute to more equitable, evidence-based educational practices.

VI. ACKNOWLEDGMENTS

The overall success and completion of this research will be impossible without the Divine Guidance of our Almighty God. The authors also wish to thank the UM Peñaplata College Research and Publication Center, the panel of examiners, and the respondents.

VII. DISCLOSURE

The author reports no conflict of interest in this work.

REFERENCES

1. Ahmad, A., & Safaria, T. (2013). Effects of self-efficacy on students' academic performance. *Journal of Educational, Health and Community Psychology*, *2*(1), 22-29.
2. Al-Yami, A. A., Abdulwahed, A., Azhar, A., Binsaddik, A., & Bafaraj, S. M. (2021). Impact of Time-Management on the student's Academic Performance: A Cross-Sectional Study. *Creative Education*, *12*(03), 471–485.
3. Bandura, A. (1997). *Self-efficacy: The exercise of control*. Macmillan.
4. Bandura, A. (1982). Self-efficacy mechanism in human agency. *American psychologist*, *37*(2), 122.
5. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, *17*(1), 99-120.
6. Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of educational psychology*, *83*(3), 405.
7. Cabı, E. (2018). The impact of the flipped classroom model on students' academic achievement. *International review of research in open and distributed learning*, *19*(3).
8. Çevik, Ü. (2021). THE RELATIONSHIP BETWEEN TIME MANAGEMENT, SELF-EFFICACY AND ACADEMIC SUCCESS LEVELS OF NURSING AND MIDWIFERY STUDENTS AND VARIOUS VARIABLES. *Samsun Sağlık Bilimleri Dergisi*, *6*(1), 128-135.
9. Claessens, B. J., Van Eerde, W., Rutte, C. G., & Roe, R. A. (2007). A review of the time management literature. *Personnel review*, *36*(2), 255-276.
10. Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. routledge.
11. Conde-Jiménez, J. (2018). Digital competence as an indicator of the impact of ICT educational policies: Validation of a theoretical model using PLS. *Research on Education and Media*, *10*(2), 37-44.
12. Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *Journal of personality and social psychology*, *92*(6), 1087.
13. Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random house.
14. Eger, L., Klement, M., Tomczyk, L., Pisonová, M., & Petrová, G. (2018). Different User Groups of University Students and Their ICT Competence: Evidence from Three Countries in Central Europe. *Journal of Baltic Science Education*, *17*(5), 851-866.
15. Engen, B. K., Giæver, T. H., & Mifsud, L. (2015). Guidelines and regulations for teaching digital competence in schools and teacher education: A weak link?. *Nordic Journal of Digital Literacy*, *10*(Jubileumsnummer), 172-186.
16. Ferrari, A., & Punie, Y. (2013, April). *DIGCOMP: A framework for developing and understanding digital competence in Europe*.
17. Galindo-Domínguez, H., & Bezanilla, M. J. (2021). Promoting time management and self-efficacy through digital competence in university students: A mediational model. *Contemporary Educational Technology*, *13*(2), ep294.
18. Gaumer Erickson, A. S., Soukup, J. H., Noonan, P. M., & McGurn, L. (2018). *Self-efficacy formative questionnaire technical report*.
19. Guillén-Gámez, F. D., Mayorga-Fernández, M. J., & Álvarez-García, F. J. (2020). A study on the actual use of digital competence in the practicum of education degree. *Technology, Knowledge and Learning*, *25*(3), 667-684.
20. Hatlevik, O. E., & Christophersen, K. A. (2013). Digital competence at the beginning of upper secondary school: Identifying factors explaining digital inclusion. *Computers & education*, *63*, 240-247.
21. Herring, M. C., Koehler, M. J., & Mishra, P. (Eds.). (2016). *Handbook of technological pedagogical content knowledge (TPACK) for educators* (Vol. 3, pp. 189-200). New York: Routledge.
22. Hwang, G. J., Lai, C. L., & Wang, S. Y. (2015). Seamless flipped learning: a mobile technology-enhanced flipped classroom with effective learning strategies. *Journal of computers in education*, *2*, 449-473.
23. Kosimov, A. (2021). The impact of self-efficacy in enhancing English proficiency among Uzbek high school students. *British View*, *6*(1).
24. Krumsvik, R. J. (2014). Teacher educators' digital competence. *Scandinavian Journal of Educational Research*, *58*(3), 269-280.
25. Kwon, D. (2021). *Digital competence of students with disabilities using a mobile device in a post-secondary transition program for potential employment*. The University of Alabama.
26. Lay, C. H., & Schouwenburg, H. C. (1993). Trait procrastination, time management. *Journal of social Behavior and personality*, *8*(4), 647-662.
27. Lee, C., & Johnston-Wilder, S. (2017). The construct of mathematical resilience. In *Understanding emotions in mathematical thinking and learning* (pp. 269-291). Academic Press.
28. Macan, T. H., Shahani, C., Dipboye, R. L., & Phillips, A. P. (1990). College students' time management: Correlations with academic performance and stress. *Journal of educational psychology*, *82*(4), 760.

29. Mandal, S. (2020). ICT exposure and its relationship with academic self-efficacy and achievement of adolescent students: The field-level study in India and Fiji. *Digitalisation and Development: Issues for India and Beyond*, 407-434.
30. Ng, W. (2012). Can we teach digital natives digital literacy?. *Computers & education*, *59*(3), 1065-1078.
31. Marusic, T., & Viskovic, I. (2018). ICT competencies of students. *A Journal for Information Technology, Education Development and Teaching*, *115*(56), 13.
32. Nasrullah_PhD, S., & Khan_PhD, M. S. (2015). The impact of time management on the students' academic achievements. *Journal of Literature, Languages and Linguistics*, *11*, 66-71.
33. Parsons, V.L. (2017). Stratified Sampling. In Wiley StatsRef: Statistics Reference Online (eds N. Balakrishnan, T. Colton, B. Everitt, W. Piegorsch, F. Ruggeri and J.L. Teugels). https://doi.org/10.1002/9781118445112.stat05999.pub2
34. Pehlivan, A. (2013). The effect of the time management skills of students taking a financial accounting course on their course grades and grade point averages. *International Journal of Business and Social Science*, *4*(5).
35. Ph, Z., & Boyd, J. N. (1999). Putting Time in Perspective: A Valid, Reliable Individual-Differences Metric. *Journal of Personality and Social Psychology*, *77*(6), 1271-1288.
36. Powell, J. W., Pharris, L. J., & Hardy, M. M. (2020). A Comparison of time management skills among accounting, business, and information systems students by age and gender. *Issues in Information Systems*, *21*(3), 1-10.
37. Pregoner, J. D., Accion, N., Buraquit, D., & Amoguis, A. (2020). The Experiences of working while studying: A phenomenological study of senior high school students.
38. Razali, S. N. A. M., Rusiman, M. S., Gan, W. S., & Arbin, N. (2018, April). The impact of time management on students' academic achievement. In *Journal of Physics: Conference Series* (Vol. 995, p. 012042). IOP Publishing.
39. Suwanroj, T., Leekitchwatana, P., Pimdee, P. (2017). Investigating digital competencies for undergraduate students at Nakhon Si Thammarat Rajabhat University. In *DRLE 2017 The 15th international conference faculty of industrial education and technology King Mongkut's Institute of Technology Ladkrabang* (vol. 27, No. 2, pp.11–19).
40. Thakkar, J. J. (2022). Human Issues in Project Management. In *Project Management: Strategic and Operational Planning* (pp. 369-386). Singapore: Springer Nature Singapore.
41. Tuckman, B. W., & Tuckman, B. W. (2003). The Effect of Learning and Motivation Strategies Training on College Studentsi Achievement. *Journal of College Student Development*, *44*(3), 430-437.
42. van Deursen, A. J., & Van Diepen, S. (2013). Information and strategic Internet skills of secondary students: A performance test. *Computers & Education*, *63*, 218-226.
43. Zhao, Y., Sánchez Gómez, M. C., Pinto Llorente, A. M., & Zhao, L. (2021). Digital competence in higher education: Students' perception and personal factors. *Sustainability*, *13*(21), 12184.
44. Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary educational psychology*, *25*(1), 82-91.