

Exploring Shifts in Learning Patterns Through Tablet Use among Undergraduate Students in Southern Thailand

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Abstract:

Background and Objectives: The rapid integration of digital technologies into higher education has transformed how students access information, communicate, and manage their learning. Tablets offer portability, connectivity, and access to diverse educational applications; however, limited research has examined how they reshape everyday learning practices among undergraduate students in regional contexts. This study explores shifts in learning patterns associated with tablet use among undergraduate students in Southern Thailand, focusing on tablet usage, application preferences, learning practices, and strategies for developing digital skills.

Methods: An exploratory qualitative research design was employed. A focus group interview was conducted with five female first-year undergraduate students from the same academic major at a university in Southern Thailand. The participants had an average age of 19.8 years and had used tablets for an average of 4.6 years. The approximately one-and-a-half-hour interview was guided by a semi-structured questionnaire addressing tablet-based learning patterns, applications and tools, digital learning experiences, skill development, challenges, and recommendations. Data were audio-recorded, supplemented by researcher notes, and analyzed using qualitative content analysis involving familiarization, coding, categorization, and interpretation.

Results: Four major themes emerged: (1) tablet usage, (2) application preferences, (3) learning patterns for two main purposes, and (4) skill development strategies. Tablets, particularly iPads, had become central to participants' academic activities because of their portability, convenience, and connectivity. Participants reported a shift from traditional reliance on laptops and personal computers toward tablets for classroom and independent learning. They primarily preferred free or pre-installed applications, including GoodNotes, Google Suite, Canva, and YouTube, while also frequently using AI-supported tools such as ChatGPT, Grammarly, and QuillBot. Two broad learning purposes were identified: self-directed learning and academic coursework. Self-directed learning involved pursuing personal learning goals, particularly language learning, through educational and entertainment-oriented digital content. For academic coursework, three learning patterns emerged: information searching–critical thinking–academic production; note-taking–information searching–self-study–academic production; and note-taking–information searching–self-study–peer discussion–academic production. These patterns demonstrate the increasing integration of digital resources, AI tools, self-regulated learning, and online collaboration into students' academic practices.

Application of the Study: The findings suggest that educators and institutions should provide structured digital literacy training, hands-on workshops, peer mentoring, and clear guidance on the ethical use of AI. Institutional initiatives should also address affordability, access to devices and software, and reliable internet connectivity to reduce digital inequality.

Conclusions: Tablet integration represents a significant shift in learning practices among the participating undergraduate students in Southern Thailand. Tablets have become central tools for self-directed, hybrid, AI-supported, and collaborative learning. However, realizing their educational potential requires stronger institutional support, digital literacy development, ethical guidance, and attention to equitable access. Given the small and homogeneous sample, the findings are exploratory and provide a foundation for future research involving larger and more diverse student populations.

Keywords: Learning Patterns; Tablet-Based Learning; Undergraduate students; Southern Thailand

Introduction

The rapid advancement of digital technologies has significantly influenced educational practices worldwide, reshaping how students access information, engage with content, and interact with educators. In Thailand, the government has actively promoted the use of digital tools, including tablets, as part of its broader strategy to enhance learning outcomes and bridge educational disparities [1]. Southern Thailand, with its unique cultural, linguistic, and socioeconomic context, presents an interesting case study for examining the impact of tablets on undergraduate education through context-specific and exploratory inquiry.

Tablets offer a versatile platform for accessing educational resources, facilitating interactive learning, and enabling personalized study experiences. They provide students with instant access to e-books, online lectures, and collaborative tools, fostering a more dynamic and flexible learning environment [2]. However, the effectiveness of tablets in education depends on several factors, including digital literacy, infrastructure, and institutional support [3]. While tablets have been widely adopted in primary and secondary education, their integration into higher education remains underexplored, particularly in developing regions like Southern Thailand and in relation to students' evolving learning practices rather than learning outcomes alone.

The COVID-19 pandemic accelerated the adoption of digital learning tools worldwide, including in Thailand. With the sudden shift to online and hybrid learning models, tablets became essential for accessing educational resources and participating in virtual classrooms [4]. In Southern Thailand, where internet connectivity and digital infrastructure are often limited, the reliance on tablets highlighted both the potential and limitations of technology-enhanced education. For instance, while tablets enabled continuity in learning during school closures, they also exposed disparities in access to technology and digital skills among students [5] underscoring the need to examine how learners adapt their study behaviors under such constraints.

Despite the growing use of tablets in education, there is limited research on their impact on undergraduate students, particularly in regional contexts. Most studies have focused on primary and secondary education or on urban areas with better infrastructure [6]. This gap in the literature underscores the need for a deeper understanding of how tablets are reshaping learning patterns among undergraduate students in Southern Thailand through qualitative, context-sensitive investigation.

This study seeks to address this gap by exploring how tablets are influencing learning behaviors, engagement, and academic performance among undergraduate students in Southern Thailand from an exploratory qualitative perspective. By analyzing the benefits and challenges associated with tablet-based learning, this research aims to

contribute to the broader discourse on technology-enhanced education and inform policy decisions in the region by providing insight into students' lived learning practices rather than generalized outcomes. The findings will provide valuable insights for educators, policymakers, and institutions seeking to optimize the use of tablets in higher education, ensuring equitable access and effective implementation.

The adoption of tablets in higher education has the potential to revolutionize learning experiences, but it also presents significant challenges, particularly in regions with uneven access to resources and infrastructure. In Southern Thailand, where educational resources and digital infrastructure are unevenly distributed, the integration of tablets into undergraduate education has raised concerns about equity, effectiveness, and the digital divide. While tablets offer numerous benefits, such as enhanced access to learning materials, interactive tools, and opportunities for self-directed learning, their implementation has not been without obstacles, particularly at the level of everyday learning practices.

One of the primary challenges is the disparity in digital literacy among students. Many undergraduate students in Southern Thailand lack the necessary skills to fully utilize tablet-based learning tools, which limits their ability to engage with digital content effectively [7]. This digital literacy gap is particularly pronounced in rural areas, where students may have had limited exposure to technology prior to entering university. Without adequate training and support, these students are at risk of being left behind in the transition to digital learning, reinforcing existing educational inequalities.

Another significant issue is the uneven distribution of digital infrastructure. While urban areas in Southern Thailand may have reliable internet access and sufficient technological resources, rural areas often face connectivity issues and limited access to devices [8]. This digital divide exacerbates existing educational inequalities, as students in rural areas are less likely to benefit from tablet-based learning compared to their urban counterparts. Furthermore, the cost of tablets and data plans can be prohibitive for low-income families, creating additional barriers to access and limiting consistent participation in digital learning practices.

Speaking of accessibility to educational technologies, students are not alone in that struggle but educators as well. Even in technologically advanced contexts such as the United States, some instructors—particularly from older generations—exhibit reservation or risk aversion toward integrating digital technologies into established teaching practices [9]. This attitude can result in classroom dynamics where educators are not only uncomfortable using technology but also skeptical of its pedagogical value, leading to resistance toward technological change and slower institutional adaptation.

The shift to tablet-based learning has also altered traditional classroom dynamics, posing challenges for both students and educators. Some educators struggle, even when willing to take the risk, to adapt their teaching methods to the new technology, leading to a mismatch between instructional practices and student needs [9]. For example, while tablets enable interactive and collaborative learning, not all educators are equipped to design lessons that leverage these capabilities effectively. This can result in underutilization of the technology and missed opportunities for enhancing student engagement and learning outcomes even if the educators have a positive attitude of technology in the classroom even when educators hold generally positive attitudes toward technology use.

Further, another concern that comes with utilizing technology such as tablets in class can cause another problem: distraction. Tablets being such integrated devices might make students prone to multitasking, some of which involves off-task usages. Digital distractions are one of the most distracting elements of a modern classroom that requires proper monitoring or it would further hinder student's learning [10]. Without addressing and managing digital distractions in digital pedagogy, tablet-based learning can do more harm than good.

Additionally, the reliance on tablets for learning has raised concerns about data privacy and security. Students and educators may be unaware of the risks associated with using digital tools, such as data breaches and unauthorized access to personal information [11]. Without proper safeguards and awareness programs, the use of tablets in education could compromise the privacy and security of sensitive data and undermine trust in digital learning systems.

These challenges highlight the need for a comprehensive understanding of how tablets are influencing learning patterns among undergraduate students in Southern Thailand. While tablets have the potential to enhance learning experiences, their effectiveness depends on addressing issues related to digital literacy, infrastructure, accessibility, and pedagogical adaptation. Without targeted interventions, the benefits of tablet-based learning may remain unrealized, exacerbating existing educational inequalities and limiting the potential for transformative change within regional higher education contexts.

This study aims to explore these challenges in depth and identify strategies to optimize the use of tablets in higher education through an exploratory qualitative examination of student experiences. By examining the experiences of undergraduate students in Southern Thailand, this research seeks to provide actionable recommendations for policymakers, educators, and institutions to ensure equitable access and effective implementation of tablet-based learning tools while laying groundwork for future large-scale studies.

Objective

The objectives of this study are fourfold:

1. to examine the impact of tablet usage on learning patterns among undergraduate students in Southern Thailand, with a particular focus on engagement, collaboration, and self-directed learning.
2. to identify the challenges associated with tablet-based learning, including issues related to digital literacy, infrastructure, and accessibility; third, to assess the effectiveness of tablets in enhancing academic performance and overall learning outcomes in higher education.
3. to explore how tablets influence students' learning behaviors and practices rather than to evaluate causal learning outcomes.
4. to provide practical recommendations for policymakers, educators, and academic institutions to optimize the integration of tablets into undergraduate education, ensuring equitable access and effective implementation.

Methodology

Design and Participants

The study adopted a qualitative approach to investigate the evolving learning patterns among Thai undergraduate students using tablets within a specific regional and institutional context. Focus group interviews were utilized as an effective method for gaining insights into participants' behaviors and the underlying motivations behind their learning practices [12-13].

A focus group comprising five female first-year students from the same academic major was selected through convenience sampling as part of an exploratory, pilot-phase study to facilitate dynamic group interaction and gather rich qualitative data [14]. The use of a small and homogeneous group enabled in-depth discussion of shared learning experiences and emergent patterns rather than statistical generalization.

The participants had an average age of 19.8 years, had been using tablets for an average of 4.6 years. While their average GPA in the previous semester was 3.89, this information is reported for descriptive context only and was not used as an evaluative measure of learning effectiveness. Their average GPA in the previous semester was 3.89, reflecting a high level of academic performance.

Table 1. Socio-demographic Data of Participants

Code	Gender	Age	Duration of possessing tables (years)	Numbers of applications for learning	Daily Duration of using tables for learning	GPA
K1	F	19	3	7	3	4.00
K2	F	18	5	11	5	3.92
K3	F	22	8	3	7	4.00
K4	F	20	5	7	3	3.67
K5	F	20	2	8	10	3.88

Data Collection

The focus group interview was conducted using a semi-structured questionnaire developed by the research team based on the study's research questions and existing literature, following guidelines by Gill & Baillie [13]. Five participants were invited to join the session, which was held in a cozy and convenient location near their campus to promote comfort and open discussion. The date and time of the interview were arranged based on the participants' availability. Prior to their arrival, the research team prepared all necessary equipment. The primary researcher provided informed consent forms outlining the study's purpose, participants' autonomy, potential benefits and risks, privacy measures, voluntary participation, and confidentiality. Each participant was given time to read the form and confirmed their consent by signing it before the interview began, in accordance with ethical research practices.

The focus group interview lasted one and a half hours and was recorded with the participants' permission. It was structured around six key topics: (1) background information, (2) tablet usage of learning patterns, (3) applications and tools, (4) digital learning experience and effectiveness, (5) skill development and adaptation, and (6) challenges and recommendations. The interview employed open-ended questions to encourage in-depth discussion and spontaneous sharing. The relaxed environment and group dynamics allowed participants to reflect on their learning experiences, exchange ideas, and build upon each other's responses, enriching the quality of data collected [1213-]. The interview was conducted without interruption.

Data Analysis

The research team employed two effective techniques for data collection: notetaking and audio recording, as recommended by Dilshad and Latif [15]. One researcher was assigned to take detailed notes during the focus group, while two digital devices were used to ensure accurate voice recordings and minimize data loss.

The qualitative data were analyzed using content analysis, following a systematic process of familiarization, coding, categorization, and interpretation through iterative discussion among the research team to enhance transferability, confirmability, and credibility [16]. Guided by White and Marsh [17], the study aimed to uncover a comprehensive understanding of the emerging phenomenon—shifts in learning patterns through tablet use among undergraduate students in Southern Thailand.

The analysis resulted in five major thematic categories that captured the conceptual depth of the data and reflected the diverse experiences and perspectives of the participants.

Research Results

average age of 19.8 years and were classified as belonging Generation Alpha, which is commonly defined as individuals born approximately between 1997 and 2012. This generation is characterized by digital fluency, having been raised in an environment surrounded by technology and electronic devices from an early age. Their technological literacy sets them apart from previous generations, including many of their current university educators [18].

The study aimed to explore the shifting learning patterns among Generation Alpha students, particularly in their use of tablets for academic purposes within an exploratory qualitative framework. The findings revealed four main themes: (1) Usage of tablets, (2) Application preference, (3) Learning patterns for two main purposes, and (4) Skill development strategies. These themes reflect how students integrate digital tools into their learning and how their habits and preferences are shaping new academic practices.

1. Theme 1: Usage of Tablets

The study revealed a notable transition in digital learning preferences among Thai undergraduate students, with a marked shift from traditional use of personal computers (PCs) and laptops toward greater reliance on tablets as the primary devices for academic activities. This change reflects a significant evolution in learning habits and technological engagement. Tablets have emerged as the preferred learning devices among students due to their portability and multifunctionality, effectively encompassing many of the core capabilities traditionally associated with computers. All participants shared similar sentiments, exemplified by K4's statement and K1's:

"Mostly, I use my iPad and smartphone for my study. Every day I use it. Because it is portable and easy to access where I am." (K4)

"It will be zero percentage for using laptops in normal classes. Because it is hard to bring it to the class, lasting over one hour, although it is fast and easy to type." (K1)

While tablets were the primary category discussed, iPads emerged as the most favored brand among Thai undergraduate students. Although participants did not explicitly articulate the reasons behind this preference, they expressed a strong inclination toward iPads over other tablet brands. Notably, all participants estimated that over 90% of their peers used iPads, indicating a widespread and pronounced brand preference within their academic environment. Participant K3:

"It (iPad) is convenient. It is easy. It connects to everything because I've used my iPhone for many years."

This highlights the ease of use and ecosystem compatibility as key factors influencing device choice. Ironically, despite expressing limited financial capacity to purchase paid applications or subscribe to iCloud storage services, all participants demonstrated a strong desire to own iPads. This preference persisted even though iPads are generally more expensive than other brands and offer fewer free applications compared to Android-based devices, highlighting a tension between perceived value and financial constraint.

2. Theme 2: Application Preference

Table 2 displays the participants' application preferences. During the interview, each participant was asked to list learning-related applications on individual Post-it notes. The researchers then categorized these notes and compiled a table to analyze the preferences, supported by the participants' statements from the interview.

As seen in **Table 2**, Thai undergraduate students exhibited a frugal approach toward spending on paid applications. They preferred to rely on pre-installed and free applications for their learning activities, emphasizing cost-efficiency and accessibility in their digital learning choices.

Table 2. The applications which participants use for their learning

Categories	Applications (N)	Categories	Applications (N)
Searching	ChatGPT (5), Safari (2)	Note-taking	Goodnotes (5)
Hybrid Learning	YouTube (5), TikTok (3) Line (2), Instagram (3) Cake (3), Netflix (5), BBC news (1), TEDex (4)	Presentation	Canva (5), PowerPoint (2)
Language	Hello Talk (1), Audible (1) Dualingo (1), Quizlet (1) Memrise (1),	Writing and Reading	Docs (5), MS Word (1) Grammarly (1), QuillBot (1) Medium (1)
Communication	Line (5), Messenger (5) Instagram (3)	Group Communication	Webex (5), Google meets (5)
Video	Capcut (1), Kahoot (1), Premier (1), iMovie (2)	Academic Products	Google Suite (5), Drive (5), Numbers (2), Excel (1)

Note: (N) = Number of the participants stated application during the interview.

Notably, all participants reported a shift away from Microsoft Office, which had long been considered a foundational suite in education, toward the use of built-in online applications for learning. Microsoft Office (MS) was viewed as increasingly outdated, now used primarily as a last resort for creating documents or presentations. Participant K5 pinpointed this pattern by the statement:

“Microsoft Word or PowerPoint is very outdated for a long time. It is classic application. However, Google Suite provides similar applications for studying in documents, and Canva can replace the PowerPoint.”

The participants reported using Google Suite and Canva for their academic work due to the ease of access and user-friendly interfaces on tablets. Despite most of their professors continuing to rely on Microsoft Office in classroom instruction, Thai undergraduate students have largely transitioned to built-in or free applications available on their tablets.

Additionally, the participants shared that they frequently utilized artificial intelligence (AI) tools—such as ChatGPT, Grammarly, and QuillBot—for various academic purposes, including information gathering, writing support, and English language proofreading. Some participants stated this points:

“I am using Google Translator, Grammarly, and ChatGPT to study language while reading the contents in social media or writing. It is very helpful and convenient. These provide me information which I am looking for and correct my writings.” (K5)

“I often use QuillBot. It is an AI tool for academic writing. I am using the free version, although there are better tools and version. I should pay for it.” (K2)

Lastly, the participants stressed the four essential applications for their learning in education, Goodnote, ChatGPT, Google Suite, Canva, and YouTube. All four participants agreed with the statement by K3:

“I think that GoodNote is the first main tool in the classroom. ChatGPT is followed for academic searching. Both applications are very important. And it should include Google Suite as we use it for our learning, like Docs, Drive, Sheet, Meets, etc. Oh. Canva is also essential to present. Lastly, YouTube cannot be deleted for my learning.”

3. Theme 3: Learning patterns for two main purposes

The current research found that all participants had different learning patterns for the two main educational purposes: self-directed learning and academic coursework as an exploratory study with a small, homogenous sample, these findings are intended to illustrate emerging patterns rather than to offer generalizable claims. The current

research revealed that all participants adopted distinct learning approaches depending on the educational purpose, differentiating clearly between self-directed learning and formal academic coursework through tablets.

3.1. Self-directed learning

All participants reported engaging in self-directed learning to pursue their personal learning goals, primarily using their tablets as the main tool for accessing resources and managing their independent study. They reported using 3–11 applications (with an average of 7.2; across the five participants; see **Table 1**) on their tablets for learning, as tablets offer enhanced connectivity through the internet and greater portability, minimizing spatial constraints. The participants reported spending an average of 5.6 hours per day on learning using their tablets, with usage ranging from 3 to 10 hours (see **Table 1**). Participant K2 illustrated this pattern by stating:

"Most of my application is for language English, Korean, and Chinese. This is my personal learning goals. I use Goodnotes application for memorize the new vocabularies by using the flash card function on it." (K2)

A notable finding was the integration of entertainment into students' personal educational goals, resulting in a hybrid learning approach. For instance, participants combined watching videos with academic study, blurring the line between learning and leisure. This pattern was particularly evident in language learning, where entertainment-based content seamlessly supported skill acquisition. This hybridization suggests a shift from traditional linear learning models toward more fluid and self-regulated learning practices enabled by tablet technologies. This learning pattern was well described by K4's statement:

"I love to watch shorts, YouTube videos, TikTok for language learning by my iPad. It is short videos, so I don't get bored. It is fun and easy to follow and to copy the sentences. Also, I watch movies through my iPad to learn new words, idioms, and useful sentences in daily life."

This reflects a strong inclination toward self-directed language learning supported by specific tablet applications.

3.2. Academic coursework

Undoubtedly, tablets have become the primary educational tool among Thai undergraduate students in the classroom. As emphasized by all key informants, these devices facilitate notetaking, mind-mapping, information retrieval, communication with peers, and presentation of academic work. The study identified three distinct patterns of tablet usage in academic coursework, based on participants' reports and mutual agreement. **Figure 1** illustrates these patterns.

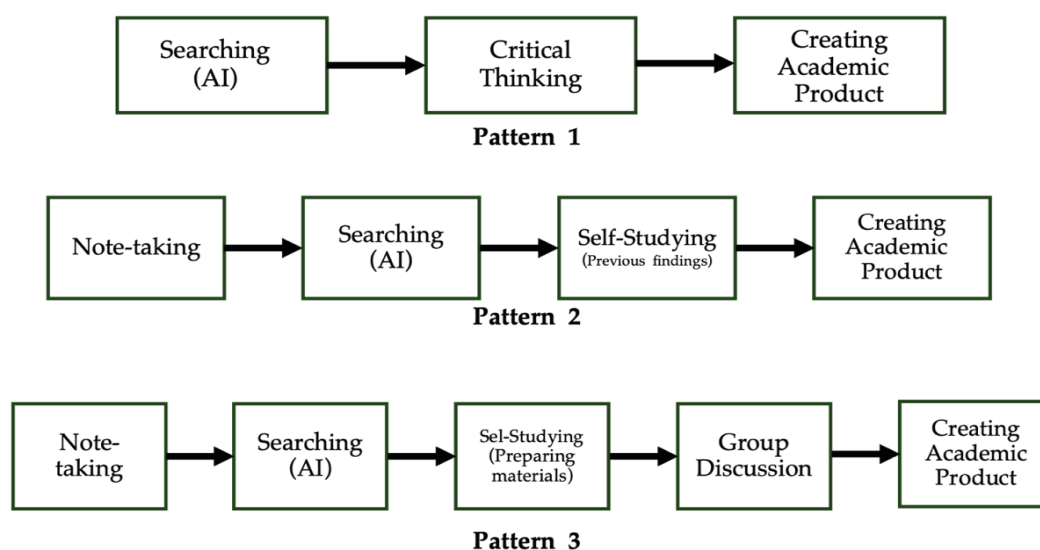


Figure 1. Three learning patterns through using tablets

While these patterns share common core stages—information search, evaluation, and production—they differ in the degree of collaboration and sequential complexity.

Pattern 1. It reflects a relatively straightforward learning process, consisting of three steps for completing academic coursework and assignments: **(1) searching**, students begin by searching for information using AI applications, primarily ChatGPT; **(2) critical thinking**, next, they organize and reevaluate the acquired information through reflective analysis; **(3) creating academic product**, finally, they produce outputs or assignments aligned with their course requirements, mainly through Google Suites. K3 illustrated this learning approach by explaining:

“Yeah, I will put all the assignment in ChatGPT and look for the idea first. And then I will criticize the information and add my own ideas on the task. Sequentially, I will produce my own academic work through Google Suite, like Docs and Drive.”

Pattern 2. It represents the primary approach agreed upon by all participants for completing their academic responsibilities. This process involves four sequential steps: **(1) note-taking**, where students annotate PDF files provided by their lecturers or based on their academic interests using applications like Goodnotes; **(2) information searching**, where additional content is gathered through search engines or AI tools; **(3) self-studying**, in which students verify the accuracy of the collected information and engage in critical thinking to align it with their academic goals; and **(4) academic production**, where they apply their understanding to create required academic outputs. Compared to pattern 1, this approach places greater emphasis on iterative note review and content verification. K2 demonstrated this learning process by stating,

“Normally, I take notes on the pdf file through Goodnotes in class. If lecturers ask us to do assignments, I search for the information based on the notes through ChatGPT or Safari. Sequentially, I look up all the materials and rearrange those by my study through my iPad. Finally, I start to write or to prepare the presentations through my iPad or notebook. I put all things in my Google Drive.”

All participants agreed that this learning pattern represents their primary approach for completing coursework and assignments.

Pattern 3. It demonstrates a more dynamic approach to academic tasks, particularly in contexts that require active learning through group assignments or collaborative projects. This pattern builds upon Pattern 2 by adding an additional step between self-studying and academic production. After verifying and critically analyzing information during the self-study phase, students engage in online discussions with their peers using virtual meeting applications provided by their university. This additional step highlights the role of tablets as collaborative mediating tools rather than solely individual study devices. K1 described this learning pattern as follows:

“Yeah. I just want to add one more thing to my learning pattern through tablets for my coursework. I would like to suggest a five-step model. It’s very similar, but it includes a step for group discussion, since we often have academic work to complete in groups. We hold meetings for our tasks where we can share roles, responsibilities, and information from our self-studying, and then finalize our presentations together.”

These online meetings, conducted via tablets, allow for collaborative idea-sharing and task coordination, which support the final step of producing academic outputs. All participants reported that this collaborative stage is essential when completing group-based academic tasks.

Overall, this research identified three distinct learning patterns through tablet use among undergraduate students for academic coursework, each comprising different steps that reflect varying levels of individual and collaborative engagement in completing academic tasks.

4. Theme 4: Skill development strategies

The final theme emerging from the qualitative data focused on how Thai undergraduate students develop their skills in using educational applications and digital tools. All participants shared that they had never received formal training or attended workshops to learn these tools. Instead, they built their digital skills informally—either through hands-on, trial-and-error experiences or by observing how their peers use applications, often by simply watching over their shoulders during study sessions. This informal skill acquisition process may reflect the assumption that digitally native students require minimal structured support—an assumption that warrants further scrutiny. Participant K4 stated:

“I have never taken any training to gain these skills. I accidentally learned from my friends. While sitting in class, I noticed how my friend used the application, and I just tried to do it by myself.”

Additionally, all participants echoed a shared sentiment, stating simultaneously: *“Just do it, and learn by myself. No training at all,”* highlighting their reliance on self-exploration and peer observation rather than formal instruction.

The participants emphasized the need for training sessions or workshops to improve their skills in using tablet-based applications and tools, as they felt their current abilities were limited. They preferred these learning opportunities to differ from traditional classroom instruction, favoring interactive, hands-on, and engaging formats that would better support their academic performance and motivation.

Conclusion and Discussion

The findings of this study highlight the transformative role of tablets in reshaping learning patterns among undergraduate students in Southern Thailand. The shift from traditional devices like laptops and PCs to tablets—particularly iPads—underscores the growing preference for portable, multifunctional tools that support both academic and self-directed learning. However, this transition also reveals critical challenges related to digital literacy, institutional support, and equitable access, which must be addressed to maximize the potential of tablet-based learning in higher education contexts.

Tablets as primary learning tools

The study confirms that tablets have become the dominant device for academic tasks, valued for their portability and versatility. This aligns with global trends where mobile devices increasingly replace traditional computers in education [19].

The strong preference for iPads—despite their higher cost and limited free applications—suggests that peer influence, brand perception, and perceived academic utility outweigh financial considerations. This phenomenon may be driven by the social status associated with Apple products or the seamless integration of iPads with other Apple devices, which enhances user experience and learning efficiency. However, this preference raises concerns about affordability and equitable access, particularly for low-income students who may struggle to afford premium devices. Future research should explore the socioeconomic factors influencing brand loyalty in educational technology adoption within higher education.

Changing Application Preferences

Students' reliance on free, pre-installed applications (e.g., Google Suite, Canva, GoodNotes) over paid software like Microsoft Office reflects a pragmatic adaptation to financial constraints. The widespread use of AI tools (e.g., ChatGPT, Grammarly) further demonstrates how students integrate emerging technologies into their workflows for academic support. While these tools enhance efficiency, their uncritical use—without formal guidance—may risk fostering dependency or ethical concerns, as noted by Facer and Selwyn [20]. For instance, the reliance on ChatGPT for information gathering and writing support could undermine critical thinking and originality if not properly monitored. Educators must address these challenges by incorporating digital literacy training that emphasizes ethical AI use and source evaluation as part of formal instruction.

Self-Directed and Hybrid Learning

Tablets facilitate self-directed learning by enabling access to diverse resources, but the blending of educational and entertainment content (e.g., language learning via videos) illustrates a hybrid approach that challenges traditional boundaries between study and leisure. This aligns with Tafonao et al. [18], who highlight Generation Alpha's innate digital fluency and preference for multimodal learning. However, the lack of structured training in digital skills suggests that students may not fully leverage these tools' potential, echoing concerns raised by Techakosit and Nilsook [21] about digital literacy gaps. The study also reveals that students develop their digital skills informally through peer observation and trial-and-error, which may result in uneven competency levels. Institutions should consider implementing mandatory digital literacy workshops to standardize skills across the student body and reduce such disparities.

Collaborative and AI-Driven patterns

The three identified learning patterns (search-critical thinking-creation, note-taking-collaboration-production, and peer-discussion-integration) reveal how tablets support both individual and collaborative work. The centrality of AI tools in these patterns underscores their transformative impact, yet the absence of institutional guidance on their ethical use poses risks, such as over-reliance or academic misconduct [10].

For example, while AI can streamline research and writing, it may also encourage superficial engagement with material if students rely too heavily on automated solutions. Additionally, the study highlights the importance of collaborative tools (e.g., Google Meet, Line) for group work, suggesting that tablets are reshaping traditional classroom dynamics by enabling virtual teamwork. However, the effectiveness of these tools depends on reliable internet access, which remains a challenge in rural areas of Southern Thailand and similar regions.

Implications for Practice and Policy

For educators, there is a pressing need for professional development to enhance digital competencies, enabling effective integration of tablets into teaching. Workshops focusing on AI tools, interactive applications like GoodNotes and Canva, and hybrid teaching methods can help bridge the gap between traditional pedagogy and modern technology. Curriculum should be adapted to include assignments that utilize tablet functionalities such as multimedia presentations and collaborative projects, while also emphasizing critical thinking to counterbalance over-reliance on AI. In addition, ethical guidelines on AI use should be clearly defined, including citation standards for AI-generated content to prevent academic misconduct and ensure academic integrity.

Institutions play a vital role in this transformation by offering structured training programs in digital literacy, covering tablet applications, online research, and ethical AI use. Peer mentoring initiatives can further support students in adopting best practices. To promote equity, universities should consider providing subsidized tablets or establishing loaner programs for students from low-income backgrounds. Collaborations with tech companies may help secure discounted devices or free software licenses. Equally important is investment in infrastructure, particularly enhancing internet connectivity on rural campuses to ensure all students can fully engage in tablet-based learning environments.

Policymakers are encouraged to launch funding initiatives, such as government grants or subsidies, to support tablet access for underserved students—building on past initiatives like the “One Tablet Per Child” policy, but tailored to higher education needs. National digital inclusion strategies should prioritize the development of rural infrastructure, especially broadband expansion, to reduce regional disparities. Furthermore, offering research incentives for longitudinal studies on the effectiveness of tablet integration in higher education will help guide data-driven policy reforms and sustainable implementation.

Limitations and Future Research

This study's qualitative design and small, homogenous sample—limited to five female first-year students from a single major—restricts the generalizability of its findings. The experiences captured may not represent those of male students, upperclassmen, or learners from other academic disciplines. Additionally, reliance on self-reported data

introduces potential biases, as participants may have overstated the benefits of tablet-based learning or minimized challenges such as digital distractions and overreliance on technology during interviews.

To address these limitations, future research should consider large-scale quantitative studies across multiple universities to capture broader trends in tablet usage, application preferences, and their impact on academic outcomes. Longitudinal designs could provide insights into the long-term effects of tablet use on learning habits, including the risk of diminishing critical academic skills like note-taking or independent research. Comparative studies between urban and rural contexts would be valuable for identifying infrastructural disparities and guiding equitable technology implementation. Moreover, given the increasing integration of AI tools in education, further investigation is warranted into their effects on students' critical thinking, academic integrity, and the evolving dynamics between learners and educators in higher education contexts.

Conclusion

The integration of tablets into higher education in Southern Thailand represents a significant shift in learning paradigms, driven by technological advancement and the evolving needs of digital-native students. This study has illuminated how tablets—particularly iPads—have become central to academic workflows, reshaping how students engage with content, collaborate with peers, and manage their learning processes. However, while the benefits of tablet-based learning are evident, the findings also underscore critical challenges that must be addressed to ensure equitable and effective implementation across institutions.

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