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University Students' Perceptions on Note-Taking and Its Impact on Academic Performance

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ABSTRACT
This study investigated university students' perceptions of note-taking and its potential impact on academic performance, as well as the factors influencing their note-taking decisions. The participants included 150 students, comprising 75 Thai and 75 non-Thai students enrolled at Asia-Pacific International University, Thailand, during the second semester of the 2023-2024 academic year. The research instrument was a survey questionnaire featuring a five-point Likert scale and an open-ended question to assess students' perceptions of the relationship between note-taking and academic performance, along with the factors affecting their note-taking decisions. The results indicated a widespread belief in the effectiveness of note-taking among participants, suggesting a consensus on its positive role in academic achievement. Additionally, the open-ended responses revealed perceived benefits of note-taking for memory enhancement, improved comprehension, academic achievement, and content simplification. This study highlights the need for further exploration of the nuanced factors influencing student academic success.

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INTRODUCTION

Note-taking is a fundamental study practice that plays a crucial role in strengthening the foundation of a student's education. It is widely used in higher education to enhance learning and boost academic performance (Chen, 2019; Wu, 2020). Strategic note-taking is viewed as an essential skill in college settings, providing students with a structured approach to learning and contributing to better academic outcomes (Salame & Thompson, 2020). A common belief about the benefits of note-taking is its effectiveness in helping students retain information from lessons (Tindale & Winget, 2017). Students who take notes generally score higher in both immediate and delayed examinations compared to those who do not (Kiewra et al., 1991).

Numerous studies (e.g., Almaagbh, 2020; Chen, 2019; Salame & Thompson, 2020; Tindale & Winget, 2017) indicate that students who engage in note-taking demonstrate enhanced academic performance. Students who created and reviewed their own notes achieved higher academic performance compared to those who relied solely on notes provided by the lecturer (Fisher & Harris, 1973, as cited in Beck, 2014). Beck's study revealed that students who participated in note-taking during a lecture retained a larger proportion of crucial information than their counterparts who merely listened to the lecture. Bui et al. (2013) found that computer note-takers both recorded more information and performed better on immediate recall and short answer tests. Almaagbh's (2020) study indicated that the impact of strategic note-taking significantly influences the academic performance of English as a Foreign Language (EFL) learners. Active listening and note-taking enable students to mentally process information, leading to a deeper understanding of the subject matter they are learning. A significant advantage of note-taking is that students can actively participate in a lecture by attentively listening to the instructor, summarizing essential information in their own words. Salame and Thompson (2020) highlighted that this active engagement through note-taking enhances learning and boosts comprehension. Reviewing notes while composing an essay led to strong performance in an exam that requires a thorough understanding of the text at a deep level (Slotte & Lonka,1999 as cited in Haghverdi et al., 2010). This is attributed to the advantage of having concise summaries readily available for efficient review within a short timeframe.

While note-taking serves as a valuable tool for students to efficiently review and consolidate their learning, there exists a disparity in the adoption of this learning strategy. A considerable number of students fail to recognize the significance of note-taking, leading to a lack of summarized materials for exam preparation. Students who inadequately document information are prone to facing challenges in their courses, potentially resulting in a decline in their academic performance (Marashi & Sadinezhad, 2022; Salame & Thompson, 2020). Nevertheless, Al-musalli (2015) argued that learners find note-taking during lectures difficult due to the rapid pace of information delivery.

Despite existing research exploring the influence of note-taking on students' academic performances, there is a notable absence of studies that specifically examine this phenomenon within the unique context of an international university, characterized by a diverse student population. This research sought to address this gap by investigating how note-taking practices and their perceived impact on academic performance vary among students enrolled in an international university. Therefore, this study explored university

students' perceptions of note-taking and its potential impact on their academic performance, as well as the factors influencing their decisions regarding note-taking.

LITERATURE REVIEW

Note-taking and Its Significance

Note-taking involves documenting information from reading, listening, or observing, either on paper or electronic devices. The notes are usually more concise than the original content, yet they retain the core significance and value of the information (Bahrami & Nosratzadeh, 2017). According to the Cambridge English Dictionary, taking a note is defined as "to write something down or remember it carefully" (Cambridge English Dictionary, 2024). It is also defined as the concise recording of information to aid in later recall and serves as a method for documenting information for future reference and memory (Robinson, 2018; Sembiring, 2022). According to Bahrami and Nosratzadeh (2017), the process of note-taking is complex, involving both physical and mental behaviors. Furthermore, this process often occurs within the constraints of time pressure.

Note-taking is a widely utilized educational approach employed across various academic disciplines (Fanguy et al., 2023). Researchers (e.g., Wu, 2020; Salame & Thompson, 2020) view note-taking as a strategic tool and a significant skill in the field of education. In higher education, note-taking is acknowledged as an effective strategy for enhancing student learning (Wu, 2020). It serves as a cognitive processing tool, enabling students to better retain information from lectures (Salame & Thompson, 2020). As note-taking is seen as essential for academic success, it becomes a prerequisite for effective engagement in studies. As reported by Courtney et al. (2022), the notes created during collaborative activities serve as valuable learning tools for students to remember course content and prepare for exams or practical applications. Additionally, Savitri, Asrori, & Chakim (2019) state that note-taking is a crucial skill in numerous situations involving the transmission of information.

Note-taking on Academic Performance

Within the realm of higher education, students commonly integrate note-taking into their study practices, employing it as a tool for recalling information during subsequent review sessions (Robinson, 2018). This practice underscores its significance as a method for facilitating effective retention and revisitation of course material. Scholars have identified and highlighted the benefits associated with the practice of note-taking. Note-taking enables students to save time on extensive textbook reading for exams or presentations, enhancing attention to written and spoken content and improving comprehension (Bahrami & Nosratzadeh, 2017). The benefit of taking notes in the learning process lies in the ability of students to revisit and review their notes when preparing for exams (Witherby & Tauber, 2019). Note-taking aids students in remembering specific details from the subjects covered and fosters a heightened ability to focus during lectures (Roy et al., 2016, as cited in Özçakmak, 2019). In addition, taking notes is not just recognized for enhancing information retention but has also been demonstrated to enhance students' concentration on the class material they are learning (Kane et al., 2017). Moreover, Savitri and Chakim (2019) state that taking notes alleviates the burden on working memory, enhancing memory recall. It

aids in retaining crucial information and is particularly beneficial at the university level, enabling students to capture details from various sources for future academic use (Witherby & Tauber, 2019). This practice proves time-efficient for exam preparation and other academic needs, surpassing the necessity to re-read all textbooks or articles.

According to *Collins English Dictionary* (2024), the term 'academic' is used to describe things that relate to the work done in schools, colleges, and universities, especially work that involves studying and reasoning rather than practical or technical skills. The term 'performance' is defined as how successful someone or something is, or how well they do something. Academic performance encompasses various aspects of a student's educational journey, including their grades, test scores, class participation, attendance, and overall engagement in learning activities (Kabigting, 2022). Academic success holds significant importance within the realm of education, serving as a fundamental objective across cultures. It stands as a crucial avenue through which adolescents explore and understand their skills, talents, and capabilities, integral to shaping their career aspirations (Illahi & Khandai, 2015). Essentially, academic performance reflects the intellectual capacity of the person. The attainment of short- or long-term educational goals is quantifiable through a student's academic performance (Marashi & Sadinezhad, 2022; Yigermal, 2017). Evaluation methods typically involve continuous assessment or the calculation of cumulative grade point average (CGPA) (Talib & Sansgiry, 2012). Taking notes before starting to write an academic paper is important, as it helps in constructing a strong research topic, arranging a lengthier piece, and correctly referencing sources (Ravaliya, 2022).

Students Perception on Note-taking

Note-taking stands out as a prominent study method, especially in higher education, serving as a valuable resource for students to retrieve and review acquired knowledge. Numerous studies express positive perspectives on note-taking, acknowledging its role in enhancing their overall academic endeavors. Previous research (see Savitri & Chakim, 2019) has explored students' perceptions of note-taking, revealing positive viewpoints and its impact on academic performance. The study found that 91% of participants acknowledged the importance of capturing crucial information from their reading materials to enhance their learning. Additionally, 90% of students expressed confidence in their note-taking proficiency, believing in their ability to read and comprehend their own notes upon revisiting them. Moreover, an overwhelming 87% of participants reported consistently finding success in reading and understanding their notes effectively. Courtney et al. (2022) reported in their study that students engaging in online note-taking in a collaborative format with instructors and peers during video lectures can enhance their intention and promote more effective interaction with the course material.

As previously highlighted, note-taking is crucial in education for improved comprehension and time-saving during exam review. Unfortunately, some students neglect it due to misconceptions about its importance. Addressing these misconceptions is vital to promoting effective note-taking habits. Siegel (2024), stated that the learning technique of note-taking can pose difficulties for students, particularly when they need to simultaneously listen and document information, a challenge often heightened for those learning English as a second language or as a foreign language. While certain students find note-taking

enjoyable, it is crucial to recognize that others might feel uneasy and disinterested in this practice. Some students contend that note-taking is impractical and time-consuming.

Nevertheless, while existing studies highlight the advantages of note-taking and the consequences of neglecting this practice, there remains a noticeable gap concerning students' perspectives on note-taking and its implications for academic performance within multicultural international university settings. Therefore, the present study is guided by the following research questions:

1. What are university students' perceptions regarding note-taking?
2. How do students perceive the influence of note-taking on their academic performance?

METHOD

Participants and Setting

Table 1. Demographic Characteristics of Participants (N = 150)

Variable	N	%
Gender		
Male	85	43.3
Female	65	56.7
Nationality		
Thai	75	50.0
Non-Thai	75	50.0
Faculty		
Arts and Humanities	31	20.7
Business Administration	27	18.0
Education	22	14.7
Information Technology	16	10.7
Nursing	23	15.3
Religious Studies	14	9.3
Science	17	11.3
Grade Point Average (GPA)		
below 2.00	3	2.0
2.01-2.50	15	10.0
2.51-3.00	36	24.0
3.01-3.50	54	36.0
3.51-4.00	41	27.3

The study was conducted at Asia-Pacific International University, located in Muak Lek district, Saraburi province, Thailand. It involved a diverse group of 150 participants, consisting of 75 Thai and 75 non-Thai students, including 85 males and 65 females, ranging from freshmen to seniors. The participants were selected using a convenience sampling method, which allows researchers to efficiently gather data from readily accessible individuals. As Dörnyei (2007) asserts, convenience sampling is often used when participants meet practical criteria such as geographical proximity, availability, accessibility, or a

willingness to volunteer. The participants were drawn from six distinct faculties: The Faculty of Arts and Humanities, the Faculty of Business Administration, the Faculty of Education and Psychology, the Faculty of Nursing, the Faculty of Religious Studies, and the Faculty of Science. The demographic characteristics of the participants are presented in Table 1.

Instruments

This research employs a primarily quantitative approach, complemented by qualitative insights from an open-ended question to provide additional depth. Data was collected through a research questionnaire consisting of three sections: (1) personal information, (2) a closed-ended questionnaire, and (3) an open-ended section.

Closed-Ended Questionnaire

The closed-ended questions consisted of twelve items designed to assess students' attitudes toward note-taking. These items were adapted from Haghverdi, Biria, and Karimi (2010) and structured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The adaptation process involved reviewing and modifying the original questionnaire items to ensure their relevance and applicability to the current study's context. Specifically, the wording and phrasing were refined to align with the target population's educational background and language proficiency while maintaining the original constructs. To ensure content validity, three independent experts (excluding the research team) evaluated the questionnaire through an item-objective congruence (IOC) assessment. Initially, the questionnaire contained 20 items; however, based on expert feedback and IOC results, only 12 items were retained. These items met the criteria for both content and construct validity, with all three experts agreeing on their appropriateness.

Open-Ended Question

In addition to the closed-ended items, an open-ended question was incorporated to elicit students' perspectives on note-taking. The qualitative analysis of these responses facilitated the identification of recurring themes, providing deeper insights into students' attitudes and experiences.

Reliability and Validity of the Research Instruments

The reliability of the questionnaire was assessed using Cronbach's alpha to measure internal consistency, yielding a reliability coefficient of $\alpha = 0.88$, which indicates a high level of reliability. To enhance the reliability of the qualitative data coding, the researchers collaboratively developed and applied a coding scheme. Inter-coder reliability was established at 85%, with any discrepancies resolved through discussion and consensus. These procedures ensured the validity and reliability of the research instruments, aligning with established methodological practices in educational research.

Procedures

A convenience sampling method was employed to distribute the survey questionnaire to participants. After collecting the completed questionnaires, the data were analyzed using descriptive statistics, focusing on mean scores (M) and standard deviations (SD) to evaluate

perception levels. The five-point Likert scale scores were interpreted as follows: 1.00–1.80 (Strongly Disagree), 1.81–2.60 (Disagree), 2.61–3.40 (Unsure), 3.41–4.20 (Agree), and 4.21–5.00 (Strongly Agree). To interpret the mean scores for students' perceptions on note-taking, the researchers adopted the interpreting procedure of Abu-Baker et al. (2019), as demonstrated in Table 2.

Table 2. Interpretation of mean score for the students' attitude level towards note-taking

Scale	Meaning	perception Level	Score Range
5	Strongly agree	Very high	4.21 - 5.00
4	Agree	High	3.41 - 4.20
3	Unsure	Average	2.61 - 3.40
2	Disagree	Low	1.81 - 2.60
1	Strongly disagree	Very low	1.00 - 1.80

QUALITATIVE DATA ANALYSIS

The qualitative data were analyzed using thematic analysis, following the approach outlined by Braun and Clarke (2006), to identify categories that emerged during the coding process. The aim of this analysis was to explore students' perceptions of the potential impact of note-taking on their academic performance, as indicated by their responses to the open-ended question. The thematic analysis was conducted in six distinct phases, as illustrated in Figure 1.

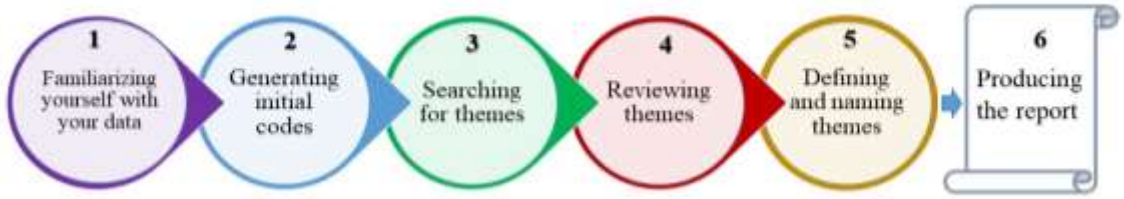

Figure 1. Thematic analysis as introduced by Braun and Clarke (2006)

ETHICAL CONSIDERATION

Adhering to ethical standards is crucial to protect both the researcher and participants. The researcher took all necessary steps to prevent any potential harm to participants, consistently prioritizing their welfare. Participants gave informed consent after the consent form was fully explained to them, ensuring they thoroughly understood their involvement before signing and participating in the study. To maintain their anonymity, participants' names were replaced with numerical codes, ensuring data confidentiality.

FINDINGS

To respond to the first research question, *what are the perceptions of university students regarding note-taking*? the result in Table 3 demonstrated that the overall mean score for perceive effectiveness was 4.20 with standard deviation of 0.70. This suggested that, on

average, students held a high perception of the effectiveness of note-taking in aiding their learning process and academic achievement.

Table 3. Mean score and standard deviation of the perceptions of university students regarding note-taking

The perceptions of university students regarding note-taking	N = 150				
	M	SD	%	Perception Level	Interpretation of mean score
Q1.Taking notes while studying improves academic performance.	4.31	0.81	86.20	Very high	Strongly agree
Q2. Comparing class notes with the course content enhances academic achievement.	4.13	0.66	82.60	High	Agree
Q3. Using a specific method for taking notes contributes to academic success.	4.30	0.70	86.00	Very high	Strongly agree
Q4. Using abbreviations while taking notes improves academic performance.	3.87	0.73	77.40	High	Agree
Q5. Asking questions while taking notes enhances academic achievement.	4.17	0.75	83.40	High	Agree
Q6. Underlining important points in notes helps increase academic performance.	4.33	0.86	86.60	Very high	Strongly agree
Q7. Summarizing concepts from notes improves academic achievement.	4.38	0.79	87.60	Very high	Strongly agree
Q8. Separating important points while taking notes can enhance academic success.	4.26	0.81	85.20	Very high	Strongly agree
Q9. Note-taking is NOT necessary for academic achievement.	2.50	1.23	50.00	Low	Disagree
Q10. Taking notes on key points improves academic performance.	4.02	0.75	80.40	High	Agree
Q11. There is NO relationship between organizing notes and academic achievement.	2.54	1.09	50.80	Low	Disagree
Q12. Comparing one's own notes with those of classmates has NO effect on academic performance.	2.87	1.06	57.40	Average	Unsure

Table 3 presents university students' perceptions of note-taking strategies, highlighting significant trends in effectiveness. Notably, 87.6% of participants agreed or strongly agreed that summarizing key concepts in notes enhances academic achievement (Item 7: M = 4.38, SD = 0.79). This indicates that students view summarizing the concepts in their notes as highly beneficial for their academic achievement. Secondly, about 87% agree and strongly agree that underlining the important points in notes helps increase academic performance (Item 6: M = 4.33, SD = 0.86). This suggests that underlining key points assists their learning and comprehension. Thirdly, the participants (86.2%) agree and strongly agree that taking notes while studying improves academic performance (Item 1: M = 4.31, SD = 0.81). The findings further reveal that 86% of participants agree and strongly

agree that "Using a specific method for taking notes contributes to academic success." (Item 3: M = 4.30, SD = 0.70), Similarly, about 85% agree and strongly agree that "Separating important points while taking notes can enhance academic success" (Item 8: M = 4.26, SD = 0.81). Other items (see items 5, 2, 10, and 4, respectively) also show strong support for the role of note-taking. "Asking questions while taking notes enhances academic achievement" scored a mean of 4.17 (SD = 0.75), and "Comparing class notes with the course content enhances academic achievement" had a mean of 4.13 (SD = 0.66), both indicating a high perception level with over 80% agreement. Additionally, "Taking notes on key points" (M = 4.02, SD = 0.75) and "Using abbreviations while taking notes" (M = 3.87, SD = 0.73) were rated positively, with students agreeing that these methods also contribute to academic achievement.

Items 9, 11, and 12 were phrased negatively, suggesting that note-taking and related strategies are not beneficial for academic success. The lower scores for these items indicate disagreement, implying that students generally view note-taking and note organization as advantageous for their academic performance. For example, Item 9 shows that students generally disagree with the statement that "Note-taking is NOT necessary for academic achievement" (M = 2.50, SD =1.23). This indicates that students tend to believe that notetaking is important for their academic success. The standard deviation suggests some variation in the responses, but the overall consensus is that note-taking plays an important role in academic achievement. For Item 11, the mean score reflects that most students disagree with the claim that "There is NO relationship between organizing notes and academic achievement" (M = 2.54, SD = 1.09). This indicates that students generally recognize the importance of organizing their notes as a contributing factor to their academic performance. Lastly, in Item 12, the score is higher than the other two negative statements but still below the midpoint, indicating that students are more divided but generally lean towards believing that comparing notes is beneficial (M = 2.87, SD = 1.06).

We may assert that the overall trend from the negative statements suggest that students generally disagree with the notion that note-taking and organizing notes are unrelated to academic achievement. However, when it comes to comparing notes with classmates, there is more uncertainty, with students being less confident about whether this practice contributes positively to their success. To determine whether Thai and non-Thai students perceived note-taking differently, we conducted an independent samples t-test to analyze the data. The results of the analysis are presented in Table 4.

An independent samples t-test was conducted to compare note-taking perceptions between Thai and non-Thai students across 12 items, with significant differences found in five items (7–12). In item 7, Thai students (M = 4.56, SD = 0.50) rated the importance of summarizing notes higher than non-Thai students (M = 4.20, SD = 0.97), t(148) = 2.851, p = 0.005. Similarly, in item 8**,** Thai students (M = 4.53, SD = 0.62) placed more emphasis on separating key points compared to non-Thai students (M = 3.99, SD = 0.88), t(148) = 4.400, p = 0.000**.** For item 9, Thai students (M = 2.84, SD = 1.23) were more likely to disagree that note-taking is unnecessary for academic achievement than non-Thai students (M = 2.16, SD = 1.13), t(148) = 3.528, p = 0.001. In item 10, Thai students (M = 4.15, SD = 0.63) rated the act of recording key points as more beneficial than non-Thai students (M = 3.89, SD = 0.83), t(148) = 2.103, p = 0.037**.** Lastly, for items 11 and 12**,** Thai students

were more likely to disagree with statements that organizing notes and comparing notes with classmates have no effect on academic achievement, scoring higher than non-Thai students in both cases ($t(148) = 6.737$, $p = 0.000$ for item 11 and $t(148) = 5.781$, $p = 0.000$ for item 12).

Table 4. Independent Samples t-Test Comparing Thai and Non-Thai Students' Perceptions of Note-Taking

Item	Group	N	M	SD	t	df	*p*
Q1. Taking notes while studying improves academic performance.	Thai	75	4.24	0.82	-1.107	148	0.270
	Non-Thai	75	4.39	0.8			
Q2. Comparing class notes with the course content enhances academic achievement.	Thai	75	4.21	0.53	1.486	148	0.140
	Non-Thai	75	4.05	0.77			
Q3. Using a specific method for taking notes contributes to academic success.	Thai	75	4.39	0.57	1.518	148	0.131
	Non-Thai	75	4.21	0.81			
Q4. Using abbreviations while taking notes improves academic performance.	Thai	75	3.92	0.69	0.786	148	0.433
	Non-Thai	75	3.83	0.76			
Q5. Asking questions while taking notes enhances academic achievement.	Thai	75	4.23	0.65	0.872	148	0.385
	Non-Thai	75	4.12	0.84			
Q6. Underlining important points in notes helps increase academic performance.	Thai	75	4.36	0.83	0.472	148	0.638
	Non-Thai	75	4.29	0.9			
Q7. Summarizing concepts from notes improves academic achievement.	Thai	75	4.56	0.5	2.851	148	0.005
	Non-Thai	75	4.20	0.97			
Q8. Separating important points while taking notes can enhance academic success.	Thai	75	4.53	0.62	4.400	148	0.000
	Non-Thai	75	3.99	0.88			
Q9. Note-taking is NOT necessary for academic achievement.	Thai	75	2.84	1.23	3.528	148	0.001
	Non-Thai	75	2.16	1.13			
Q10. Taking notes on key points improves academic performance.	Thai	75	4.15	0.63	2.103	148	0.037
	Non-Thai	75	3.89	0.83			
Q11. There is NO relationship between organizing notes and academic achievement.	Thai	75	3.07	1.12	6.737	148	0.000
	Non-Thai	75	2.01	0.76			
Q12. Comparing one's own notes with those of classmates has NO effect on academic performance.	Thai	75	3.32	1.04	5.781	148	0.000
	Non-Thai	75	2.41	0.87			

From the findings, we can observe notable differences in the perceptions of note-taking between Thai and non-Thai students. Thai students tend to place greater emphasis on practices such as summarizing, separating key points, and organizing notes, which they strongly associate with academic success. In contrast, non-Thai students appear to regard these practices as less critical, possibly preferring a more flexible approach to studying. This difference may be influenced by cultural expectations: in Thai educational settings,

structured note-taking is emphasized as a key part of effective studying, while non-Thai contexts may favor independent or diverse self-study habits.

To explore the second research question regarding students' perceptions of the influence of note-taking on academic performance, the researchers applied the thematic analysis framework outlined by Braun and Clarke (2006). Creswell's coding model (2012) was used, and the coding process is shown in Figure 2.

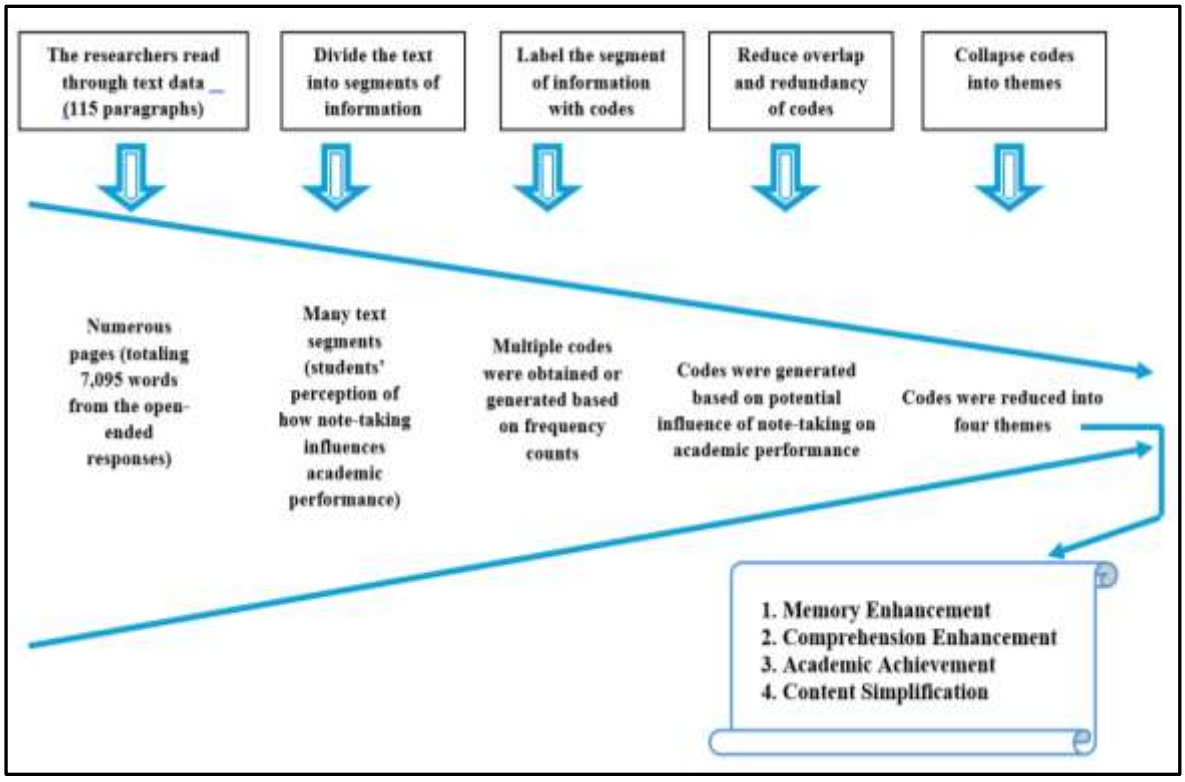

Figure 2. A model of the coding process

Qualitative data analysis revealed four distinct themes, arranged in order of frequency from highest to lowest. The numbers in square brackets indicate the frequency of occurrence for each corresponding code: (1) Memory Enhancement [48], (2) Comprehension Enhancement [35], (3) Academic Achievement [26], and (4) Content Simplification [21]
Table 5-8 describes how note-taking influences academic performance, along with additional explanations of emerging themes and examples from students' responses.

(1) Memory Enhancement

Memory is essential to the learning process, as it encompasses not only the acquisition of information but also its retention for future use, which is the core function of memory (Avneet, Pal Singh, & Siddhraj, 2018). Table 5 presents examples of this theme and its associated codes, along with relevant excerpts from the informants.

Table 5. Memory Enhancement

Code	Informant's Code	Example of Informant's Responses
Easier to remember the lesson content	ST11-NT	"…Taking notes allows us to come back and review after studying in class, making it easier to remember the lesson content of homework that needs to be submitted…"
Remember what we learn	ST83-TH	"… When we listen and take notes, we can remember what we learn faster and able to catch up with the lecturer…"
Recall the details of the lectures	ST75-NT	"…Personally, I think when I take notes, I can easily recall the details of the lectures…"

Note: ST11-NT = Student#11 (Non-Thai); ST83-TH = Student#83 (Thai)

(2) Comprehension Enhancement

Comprehension enhancement involves not only understanding material but also enables the absorption of information, fosters critical thinking, and facilitates the application of knowledge (Garrison & Hynds, 1991; Zwaan, 1995; Spivey, 1990). Table 6 provides examples of this theme and its corresponding codes, accompanied by relevant excerpts from the informants.

Table 6. Comprehension Enhancement

Code	Informant's Code	Example of Informant's Responses
Gain more understanding of the lesson	ST13-TH	"… When we take notes, it will make us come back and review it again to gain more understanding and learn to be more self-disciplined…"
Easily understand the teacher's lectures	ST25-NT	"…Taking notes while studying makes us summarize the content learned in a language that we can easily understand the teacher's lectures quickly…"
Grasp the complex concepts	ST32-NT	"…I think we can grasp the complex concepts after reviewing the material several times through note taking…"

(3) Academic Achievement

Academic achievement refers to performance outcomes that indicate the extent to which an individual has accomplished specific goals targeted during instructional activities, particularly in schools, colleges, and universities (Ricarda et al., 2015). Table 7 provides examples of this theme and its corresponding codes, accompanied by relevant excerpts from the informants.

Table 7. Academic Achievement

Code	Informant's Code	Example of Informant's Responses
Obtain higher grades	ST27-NT	"…It's a positive perspective. Most or all of my friends who obtain higher grades take note in the class…"
Improve learning outcomes	ST59-TH	"… For some students, note-taking is not important, but many students think note-taking helps improve learning outcome. I agree with this for myself…"
Successful learning to improve study	ST102-TH	"…What I notice from good students, they take notes and review them for successful learning to improve their study…"

(4) Content Simplification

Taking notes helps students summarize lessons in their own words. This practice enables them to distill complex ideas into simpler terms (Graham, 2006; Rasheed et al., 2020). Simplifying concepts allows students to understand the core messages without being overwhelmed by excessive information. Table 8 presents examples of this theme, along with its corresponding codes and relevant excerpts from the informants.

Table 8. Content Simplification

Code	Informant's Code	Example of Informant's Responses
Simplify information	ST64-NT	"… Taking notes while studying allows learners to simplify information presented in classes, enabling them to comprehend difficult subjects…"
Simplify ideas when time is limited	ST97-TH	"…When teachers lecture, we take notes to help us simplify ideas later, especially when time is limited in preparation for tests or exams..."
Make content easier to understand	ST109-NT	"…Many times, we take notes while listening to the teachers because we want to make content easier to understand for lesson review…"

In the present study, four themes emerged, highlighting the influence of note-taking on academic performance. Notably, some of these themes correspond with findings from previous research. For instance, Bahrami and Nosratzadeh (2017) reported that note-taking enhances reading comprehension, while Savitri and Chakim (2019), Robinson (2018), and Kene et al. (2017) found that it aids in improving students' working memory capacity and information recall.

DISCUSSION

Results from Table 3 were analyzed to assess university students' perceptions of note-taking through a quantitative survey. The findings indicate that a majority of students agree or strongly agree on the efficacy of note-taking as a beneficial academic practice, underscoring

its role as a key component of educational development and academic learning. This aligns with previous research identifying strategic note-taking as an essential college skill, offering a structured approach to learning and enhancing academic achievement (Salame & Thompson, 2020). Additionally, studies have shown that note-taking improves students' retention of lesson content (Tindale & Winget, 2017), and those who engage in it tend to achieve higher scores on both immediate and delayed exams compared to those who do not take notes (Kiewra et al., 1991). Qualitative analysis in our study further supports this, suggesting that note-taking is perceived to enhance learning outcomes and academic success. For example, ST59-TH expressed that "…note-taking helps improve learning outcomes…" and ST102-TH added that "…good students take notes and review them for successful learning to improve their study." Interestingly, while a substantial portion of students strongly believe in the benefits of note-taking, some expressed differing views, indicating a more complex relationship between attitudes toward note-taking and actual academic performance. This nuanced perspective challenges the assumption that a positive outlook on note-taking universally correlates with improved academic outcomes.

The findings indicate significant differences in perceptions of note-taking between Thai and non-Thai students (see Table 4). Thai students showed a stronger preference for summarizing key points, separating important information, and organizing their notes. The higher mean scores for these items among Thai students (e.g., M = 4.53 for separating key points) suggest that they view structured note-taking as essential for improving their understanding and retention of lecture content. This emphasis on structured note-taking aligns with educational practices in Thailand, which prioritize detailed study methods and thorough review (Kitjaroonchai, 2013; Loo, Maidom, & Kitjaroonchai, 2019). In contrast, non-Thai students reported lower mean scores for these same items (e.g., M = 3.99), indicating a more flexible approach to note-taking that may reflect different cultural attitudes toward learning and self-study. Thai students' lower agreement with statements that note-taking is unnecessary could also indicate a belief that well-organized notes aid in understanding and retaining information, aligning with common study practices in Thailand that prioritize detail-oriented approaches. In contrast, non-Thai students rated these aspects as less critical, which might suggest a preference for different learning methods or a view that note-taking is a less vital component of academic success. These differences highlight varying educational values and practices across cultures, possibly influenced by educational systems, instructional methods, and students' experiences within their respective academic environments (Fanguy et al., 2023; Haghverdi et al., 2010; Savitri & Chakim, 2019).

In terms of students' perceptions of how note-taking influences academic performance, the results indicate that it plays a crucial role in improving academic outcomes. Four main themes emerged from the data: memory enhancement, improved comprehension, academic achievement, and content simplification. Each theme highlights specific benefits of note-taking and contributes to a nuanced understanding of its impact on learning outcomes.

Memory enhancement emerged as a prominent theme, with students frequently highlighting note-taking as a strategy that significantly improves their retention of lecture content. For instance, ST11-NT expressed that "taking notes allows us to come back and review after studying in class, making it easier to remember the lesson content." Similarly, ST75-NT

shared that notes help them "recall the details of the lectures," underscoring the role of note-taking in reinforcing memory and facilitating the recall of key information. These findings align with prior research, such as Robinson (2018) and Marashi and Sadinezhad (2022), which underscore the role of note-taking in strengthening information retention by offering a tangible reference for subsequent review.

Secondly, comprehension enhancement emerged as a key benefit of note-taking. Participants indicated that the process of taking notes facilitated a deeper understanding of complex concepts. For instance, ST32-NT noted, "…we can grasp the complex concepts after reviewing the material several times through note-taking." By summarizing and rephrasing information in their own words, students reported an increased ability to understand challenging ideas. This finding aligns with Bahrami and Nosratzadeh (2017) and Beck (2014), who demonstrated that note-taking enhances comprehension by enabling students to process information actively.

The theme of academic achievement highlights the positive association between note-taking and academic success. Students noted that those who engaged in note-taking often received higher grades. For instance, ST27-NT stated, "...most or all of my friends who obtain higher grades take notes in class...". This observation suggests that note-taking may indirectly enhance academic outcomes by fostering better study habits and facilitating more effective review of materials. The notion that structured note-taking practices can lead to improved performance aligns with findings from Haghverdi et al. (2010) and Kene et al. (2017), who demonstrated similar results.

Lastly, content simplification was highlighted as a valuable strategy for breaking down complex information. Students described using note-taking as a method for simplifying intricate concepts into manageable points, particularly helpful when time was limited. However, while the majority of participants expressed a belief in the positive impact of note-taking, some responses indicated a more complex relationship. Not all students viewed note-taking as essential, suggesting that individual preferences and study styles may influence its effectiveness. This variation challenges the assumption that positive attitudes toward note-taking universally correlate with academic success and underscores the importance of recognizing diverse learning strategies.

CONCLUSION

This study highlights the significant impact of note-taking on academic success, as evidenced by key themes such as memory enhancement, improved comprehension, academic achievement, and simplified content understanding. Students' perspectives indicate that note-taking is more than just a study method; it is a strategic tool that enhances long-term retention, aids in understanding complex material, and contributes to higher academic performance. These results align with prior research indicating that structured note-taking practices help students process and retain information, ultimately contributing to improved grades and a more effective learning experience (Robinson, 2018; Marashi & Sadinezhad, 2022). An interesting distinction also emerged between Thai and non-Thai students, reflecting cultural differences in educational practices and attitudes toward structured learning. This suggests that students' backgrounds play a role in how

they perceive the usefulness of note-taking, pointing to the importance of considering cultural factors when developing academic support tools and resources.

IMPLICATIONS

This study shows that university students see note-taking as essential to academic success, aiding memory, comprehension, and performance. Differences between Thai and non-Thai students suggest that cultural backgrounds influence attitudes toward note-taking. These insights offer a basis for refining academic support to meet diverse learner needs. The following implications outline ways educators and institutions can apply these findings to improve outcomes across various learning contexts.

First, in *educational practice,* the study highlights the need for educators to promote structured note-taking as a fundamental skill, particularly in university settings. Incorporating note-taking training into academic programs could empower students to enhance their retention and comprehension, thereby supporting their academic development. Second, in *personalized learning,* acknowledging the diverse attitudes students have toward note-taking, educators and institutions should employ flexible approaches that accommodate varying learning styles. Offering alternative study strategies in addition to note-taking can better meet individual needs and enhance academic success. Finally, in *cross-cultural awareness*, the variations in note-taking perceptions between Thai and non-Thai students emphasize the importance of cross-cultural awareness in educational support. Tailoring learning resources to address cultural differences can help ensure that all students, regardless of background, feel supported in their academic pursuits.

The findings invite further investigation into how note-taking practices could be adapted or expanded for students with different cultural and educational backgrounds. Future studies could explore other dimensions of note-taking, such as digital versus handwritten methods, to better understand how different approaches may affect learning outcomes.Additionally, researchers could examine how individual differences in learning styles, study habits, and cognitive abilities interact with attitudes towards note-taking to impact academic success.

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