Generative AI adoption among tech-savvy: examining moderated mediated model of knowledge sharing

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Abstract

This study investigates factors influencing AI adoption in education, focusing on the roles of Digital Touchpoints, Tech Savvy, and knowledge-sharing practices among students and instructors. Using an explanatory quantitative design, data were collected from 213 business students through a digital survey. The model measures Digital Touchpoints, Tech Savvy, Gen. AI Adoption, Instructor KS, and Student KS, with a 7-point Likert scale used for responses. Data analysis involved descriptive statistics and PLS-SEM for model evaluation and hypothesis testing. The results show that Digital Touchpoints positively impact both Gen. AI Adoption and Tech Savvy, with Tech Savvy further enhancing AI adoption. Student KS significantly moderates the Digital Touchpoints-Tech Savvy relationship, whereas Instructor KS does not. Mediation analysis reveals that Tech Savvy mediates the effect of Digital Touchpoints on Gen. AI Adoption, though mediated moderation effects are not significant. These findings underscore the importance of digital engagement and peer interactions in promoting tech skills and AI adoption in educational settings.

Keywords: *IT use frequency, IT competencies, IT experience, generative AI, AI adoption.*

Introduction

As of November 2024, specific data on the number of generative AI users in Indonesia is limited; however, there are strong indications of the country's engagement with AI technologies across multiple sectors. A study by IBM in early 2024 highlighted that 62% of Indonesian companies in financial services, insurance, and manufacturing are piloting AI initiatives, with nearly a quarter of them already incorporating AI into their business functions. Similarly, the generative AI market in Indonesia is anticipated to reach approximately $204.6 million by the end of 2024, with an impressive annual growth rate of 46.48%, potentially expanding to $2.02 billion by 2030 (Statista, 2024). This market growth could yield a significant economic impact, unlocking as much as $243.5 billion in productive capacity—around one-fifth of the country's GDP in 2022 (Access Partnership, 2025). Major investments in AI infrastructure also signal strong support for AI development; for instance, Microsoft's commitment of $1.7 billion in April 2024 aims to boost digital infrastructure and train over 840,000 individuals in AI skills over four years.

Together, these investments and projections underscore Indonesia's expanding interest in AI and its economic potential, though detailed data on individual generative AI users remains scarce. Notably, while corporate and infrastructural engagement is well-

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documented, understanding the impact of generative AI in specific domains, such as academia, requires further exploration. As mentioned previously, the rise in generative AI use by professionals may suggest a parallel increase in adoption among students and educators, pointing to a broader, yet under-researched, trend in the academic context.

Generative AI use is growing rapidly in Indonesia, with applications like ChatGPT becoming especially popular. As of 2024, around 45% of Indonesian workers and employers report using AI tools, with ChatGPT being utilized by 52% of these respondents (Tjahyana, 2024). This broader adoption reflects a rising familiarity with AI technologies, which likely extends into academic contexts. Although specific data on generative AI use in Indonesian universities is limited, this trend indicates that students and educators are increasingly aware of, and potentially engaged with, generative AI tools in their academic practices. The integration of these technologies into education could enhance learning experiences, streamline research processes, and encourage innovative methods of knowledge sharing. Further research is needed to investigate the specific usage patterns and impacts of generative AI within Indonesian higher education institutions.

Prior research reveals a substantial gap in understanding the influence of knowledge sharing and tech-savviness on generative AI adoption, particularly in complex mediated and moderated contexts. Tjahyana (2024) underscores that prior knowledge significantly shapes the engagement between Gen-Z users and AI chatbots, with experienced users interacting more meaningfully than novices. This suggests that knowledge-sharing practices among tech-savvy individuals could play a crucial role in AI adoption, but the mechanisms of this influence remain underexplored. Similarly, Sáiz-Manzanares et al. (2023) emphasize the need for customized training plans to facilitate adaptation to advanced learning technologies, hinting at the specific challenges faced by tech-savvy users in the Gen AI domain. This points to a research gap concerning the navigation of knowledge-sharing dynamics by individuals who are already adept with technology, yet may encounter unique hurdles in leveraging AI tools effectively. Additionally, Wanyama et al. (2020) calls attention to the importance of examining both mediated and moderated relationships within the realm of technological resources and performance, rather than relying on direct-effect models alone. This aligns with the need to investigate the interplay between digital engagement, tech-savviness, and knowledge-sharing practices on generative AI adoption in a more nuanced framework. Collectively, these studies highlight an important gap: while prior knowledge, tailored training, and complex interaction effects are recognized as influential, further research is required to understand how these elements intersect specifically for tech-savvy users adopting generative AI in learning and professional settings.

The primary aim of this study is to explore how knowledge sharing and tech-savviness influence the adoption of generative AI among tech-savvy individuals, particularly within complex mediated and moderated contexts. Prior studies suggest that while prior knowledge, tailored training, and interaction effects play essential roles in AI engagement, there remains a significant gap in understanding how these factors interact to shape generative AI adoption specifically for individuals with a high level of digital competence. This research aims to address this gap by examining the roles of digital engagement, tech-savviness, and knowledge-sharing practices within a framework that includes both mediation and moderation effects, providing a comprehensive view of the factors

influencing generative AI adoption.

This research contribution of this study study lies in its focus on the nuanced interplay between knowledge-sharing dynamics and tech-savviness, exploring how these elements jointly impact AI adoption in a mediated-moderated model. By targeting tech-savvy users and analyzing their unique interactions with generative AI tools, this research advances existing literature beyond direct-effect models, offering insights that are particularly relevant for educational and professional environments where AI tools are increasingly prevalent. To comprehend the proposed question above, we thus develop the following framework and hypotheses development.

Digital touchpoints, characterized by frequent interactions with information technology in academic tasks, play a vital role in fostering technology mastery or "tech-savviness." This relationship aligns with well-established learning theories that suggest knowledge acquisition is progressively strengthened through repetition and habitual engagement (Kim & Ritter, 2015; Mitchell et al., 2018). As students repeatedly use digital tools, they not only develop familiarity but also deepen their technical competence over time, transitioning from conscious learning to more automatic, skillful behavior through pattern recognition and implicit learning processes. Generational factors also contribute to this development; both millennials and Generation Z are accustomed to rapid advancements in technology, as they grew up during a time of significant IT innovation (Combes, 2021). This generational familiarity with technology fosters tech-savviness through routine exposure to digital platforms, reinforcing cognitive skills that support the proficient use of technology. Therefore, based on the notion that frequent engagement with digital touchpoints enhances technical capability, we hypothesize that:

H1: Digital touchpoints significantly affect the technology savviness

Our study suggests that digital touchpoints, characterized by frequent and diverse engagement with information technology, significantly influence the adoption of generative AI. Regular interactions with digital tools for academic tasks foster familiarity, reducing the time needed to complete these tasks and enabling students to delve deeper into knowledge acquisition. These digital engagements not only make students more efficient but also allow them to explore new technologies, such as generative AI, with greater ease and confidence. Frequent exposure to technology enhances users' comfort with digital tools, thus lowering perceived barriers to adopting advanced technologies (Wecks et al., 2024; Yusuf et al., 2024). Given that frequent digital engagement provides practical experience and affect skill development, we hypothesize that:

H2: Digital touchpoints significantly affects generative AI adoption

Our findings also show that tech-savviness, or competence and confidence in using technology, plays a critical role in generative AI adoption. Individuals who are tech-savvy are more likely to engage with advanced tools like generative AI, as they possess foundational digital skills and a reduced sense of intimidation toward new technology (Horowitz et al., 2024; McElheran et al., 2023). This proficiency enables tech-savvy individuals to navigate, explore, and effectively utilize AI tools in academic and professional contexts, as their familiarity with technology makes it easier for them to integrate new tools. Thus, tech-savviness serves as a key enabler in bridging the gap between digital literacy and AI utilization. Therefore, we hypothesize that:

H3: Technology Savviness significantly affects generative AI adoption

Building on the role of Instructor Knowledge Sharing (KS), instructors who actively facilitate discussions and offer guidance on technological tools can create an enriched learning environment that supports students' tech skill development. When instructors engage students in conversations about effective digital practices or share best practices for using technology, they can provide structured and strategic insights that students might not gain solely through peer interactions (Schindler et al., 2017). Such instructor-led knowledge exchange can complement the informal learning from peers, helping students bridge any gaps in their understanding and apply digital tools more effectively .

Instructor KS, therefore, may reinforce the impact of Digital Touchpoints by providing students with professional insights and frameworks that elevate their tech-savvy abilities. This influence can be particularly beneficial in helping HEI's students understand the broader applications and potential pitfalls of technology, especially in contexts requiring more complex digital literacy skills (Tondeur et al., 2023). Thus, while peer knowledge sharing addresses immediate, practical technology needs, instructor knowledge sharing adds depth and structure, guiding students toward a more comprehensive understanding and use of digital tools in HEI's (Coffin Murray et al., 2022; Lynch et al., 2021)

H4a: Student knowledge sharing significantly strengthen the effect of digital touchpoints on technology savviness

H4b: Instructor knowledge sharing significantly strengthen the effect of digital touchpoints on technology savviness

Our study indicates that tech-savviness mediates the relationship between Digital Touchpoints and Generative AI Adoption, acting as a bridge that transforms digital engagement into practical readiness for advanced tools. Digital touchpoints, measured by the frequency and diversity of IT interactions, foster familiarity and confidence, gradually building tech savviness. This tech savviness then enables individuals to feel more capable and confident in exploring advanced tools like generative AI. Frequent technology use allows students to acquire and build investigative knowledge, both consciously and unconsciously (Watermeyer et al., 2024). Consistent with prior studies, knowledge builds gradually through repetition, pattern recognition, and eventually automaticity and implicit learning (Kim & Ritter, 2015; Mitchell et al., 2018). This progression also applies to the adoption of generative AI, where meaningful interactions with technology not only increase the likelihood of adopting new tools but also facilitate faster adoption.

H5a: Technology savviness mediates the association between digital touchpoints on generative AI adoption

The study's findings indicate that Student Knowledge Sharing (KS) enhances the relationship between Digital Touchpoints and Tech Savvy, suggesting that peer interactions amplify the impact of digital engagement on students' technology skills. When students actively share knowledge with their peers, they are likely to benefit more from their digital experiences, which supports the development of practical tech skills through collaborative learning (Demssie et al., 2023; Heidari et al., 2021). This shared learning environment encourages students to build confidence and adapt to technology more readily, as they support each other in navigating digital tools. Moreover, the study shows that Instructor

Knowledge Sharing (KS) is also recognized to influence this relationship. Building on the role of Instructor Knowledge Sharing (KS), instructors who actively facilitate discussions and offer guidance on technological tools can create an enriched learning environment that supports students' tech skill development. When instructors engage students in conversations about effective digital practices or share best practices for using technology, they can provide structured and strategic insights that students might not gain solely through peer interactions (Pedersen et al., 2024; Qureshi et al., 2023). Such instructor-led knowledge exchange can complement the informal learning from peers, helping students bridge any gaps in their understanding and apply digital tools more effectively.

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H5b: Student Knowledge Sharing strengthens the mediation of Tech Savvy between Digital Touchpoints and Generative AI Adoption.

H5c: Instructor Knowledge Sharing strengthens the mediation of Tech Savvy between Digital Touchpoints and Generative AI Adoption.

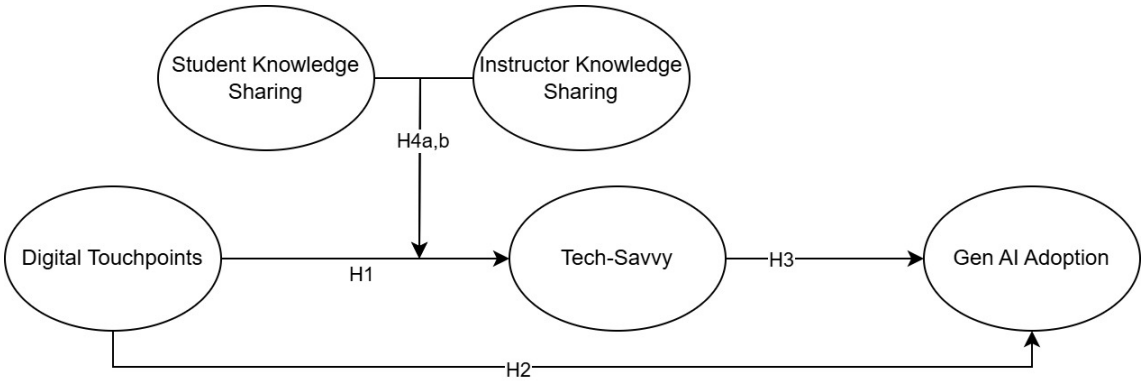

Figure 1. Research Framework

Research Methods

To answer the research question proposed in the previous section, this study adopts an explanatory quantitative design as recommended by the previous study. This study employs a digital distributed survey form as a data collection method involving 213 respondent of business students. As we've defined before, this study comprehends the model measuring Digital touchpoint adopted by Vo et al. (2024); Tech Savvy by Mustroph and Steinbock (2024); Generative AI Adoption from Saidakhror (2024) and Sullivan et al. (2023); Instructor Knowledge Sharing (KS) from Delgado and McGill (2023); and Student KS from Kesici et al. (2021). Moreover, the data analysis in this research is twofold. First, we examine the descriptive respondent data covering the demographic profile of respondents and the central value of their responses to the questionnaire. Second, to test the hypotheses testing, this study employs an SEM-PLS method covering the model evaluation (validity and

reliability check), as well as structural model evaluation consisting of hypotheses testing of direct, mediation, and moderation (Hair et al., 2014; Zamrudi & Yulianti, 2020).

Result and Finding

The results in this section of this study consist of respondent demographic profile, model measurement evaluation, and structural model evaluation (hypotheses testing results). First, based on Table 1, among the 213 respondents, 51.6% are male and 48.4% female. Most respondents are aged 21–23 (37.6%), followed by 23–25 (28.2%), 18–20 (23.5%), and a smaller group over 25 (10.8%). A majority (79.8%) are undergraduates, with 20.2% pursuing master's degrees. In terms of tech exposure, 42.3% use technology 3–6 hours daily, 32.9% for 1–3 hours, and 24.8% for over 6 hours. Regarding AI tools, 46.9% use text generators, 37.6% use image generators, and 15.5% use other tools, indicating a high interest in content creation and visual applications.

Table 1. Respondent Demographic Profile

Demographic Profile		Frequencies	Percent
Gender	Male	110	51.60%
	Female	103	48.40%
Age Group	18 – 20	50	23.50%
	21 – 23	80	37.60%
	23 – 25	60	28.20%
	> 25	23	10.80%
Grade	Undergraduate	170	79.80%
	Master	43	20.20%
Tech Exposure	1 – 3 hours	70	32.90%
	3 – 6 hours	90	42.30%
	> 6 hours	53	24.80%
AI Use	Text Generator	100	46.90%
	Image Generator	80	37.60%
	Others	33	15.50%

Second, from the measurement model evaluation in Table 2, indicates that all variable within the models shows high reliability and validity across all constructs in the PLS-SEM analysis. Tech. Savvy and Digital Touchpoints have exceptionally high factor loadings (0.858–0.997) and strong internal consistency, with Cronbach's Alpha and Composite Reliability (CR) above 0.98. Both constructs have AVE values (0.935–0.99) that confirm excellent convergent validity. Gen. AI Adoption also displays strong reliability (Alpha = 0.905, CR = 0.934) and validity (AVE = 0.779). Instructor KS and Student KS constructs similarly demonstrate high loadings, Alpha, CR, and AVE values, supporting the constructs' internal consistency and convergent validity. Overall, the model is reliable and valid for further structural analysis.

Table 2. Results of Measurement Model Evaluation

Code	Items	loadings	Alpha	CR	AVE
Tech. Savvy			0.997	0.997	0.99
X11	I feel confident using various IT tools to complete academic tasks.	0.996			
X12	I have the necessary skills to effectively use IT systems for learning.	0.997			
X13	I am capable of solving common IT-related issues independently.	0.997			
X14	I can learn new IT software or platforms with minimal guidance.	0.990			
Digital Touchpoints			0.986	0.988	0.935
X22	My previous experiences with IT have improved my ability to adapt to new technologies.	0.858			
X23	I frequently rely on my past IT experiences to solve current problems.	0.990			
X24	I have experience using a wide range of IT tools and platforms in my studies.	0.987			
X25	I frequently engage with digital learning resources or platforms.	0.986			
X26	I utilize IT tools regularly for communication with my instructors and peers.	0.987			
X27	I often access and interact with digital content for my studies.	0.987			
Gen. AI Adoption			0.905	0.934	0.779
Y11	I actively use generative AI tools to assist with my academic tasks.	0.913			
Y12	Generative AI technologies are integrated into my regular learning routine.	0.855			
Y13	I frequently explore new generative AI tools to enhance my research and assignments.	0.881			
Y14	Generative AI tools have become essential for improving my academic performance.	0.880			
Instructor KS			0.976	0.984	0.954

Z11	Instructors in my courses are open to discussing different ways to use technology for learning.	0.979			
Z12	I receive valuable IT-related advice from my instructors on how to enhance my studies.	0.974			
Z13	My instructors encourage the use of technology and share best practices in academic settings.	0.978			
Student KS			0.924	0.952	0.868
Z21	I regularly exchange IT-related knowledge with my colleagues to improve learning outcomes.	0.939			
Z22	My colleagues introduce me to new digital tools or platforms useful for academic purposes.	0.928			
Z23	I benefit from IT-related discussions with my peers during collaborative work.	0.928			

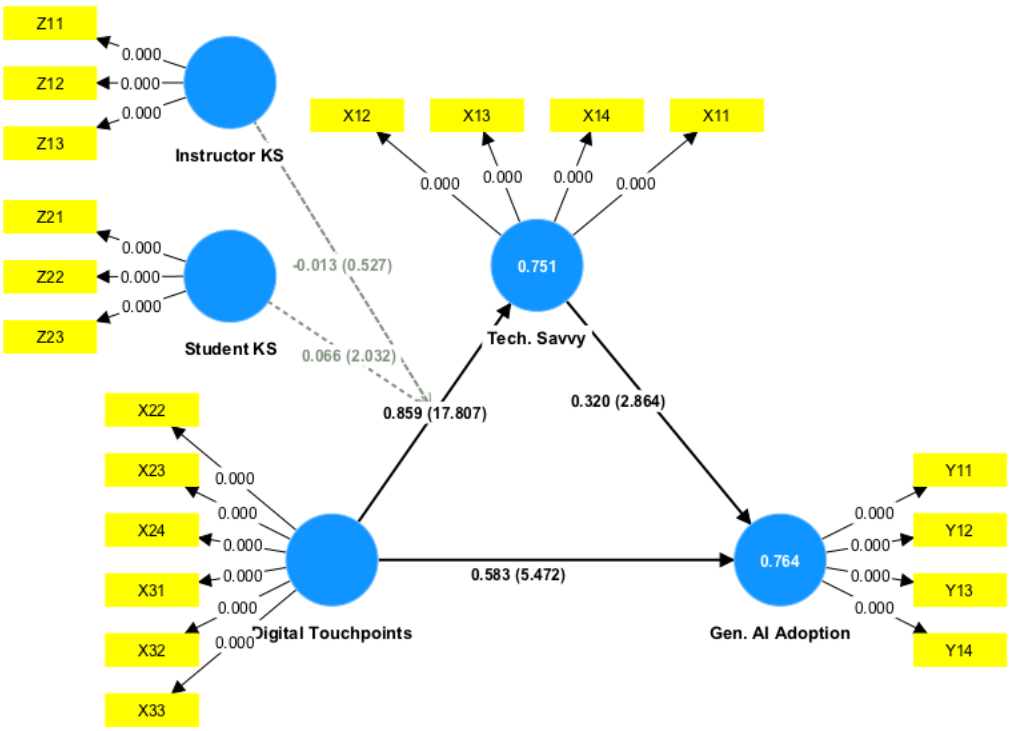

Figure 2. Structural Model Evaluation

The hypothesis testing results reveal several significant relationships between constructs, highlighted by the values of original sample estimates and significance levels. For direct effects, Digital Touchpoints significantly and positively influence both Gen. AI

Adoption (O = 0.583*, T = 5.472, p < 0.001) and Tech. Savvy (O = 0.859*, T = 17.807, p < 0.001), indicating that greater digital engagement is associated with both increased AI adoption and enhanced tech-savvy levels. Additionally, Tech. Savvy has a positive effect on Gen. AI Adoption (O = 0.32*, T = 2.864, p = 0.004), suggesting that individuals with higher technical skills are more inclined to adopt AI tools.

In terms of moderation, Student Knowledge Sharing (KS) significantly moderates the relationship between Digital Touchpoints and Tech. Savvy (O = 0.066*, T = 2.032, p = 0.042), showing that peer interactions amplify the impact of digital engagement on tech skills. However, Instructor KS does not significantly moderate this relationship (O = -0.013, T = 0.527, p = 0.598), suggesting that peer influence may be more impactful than instructor guidance in this context.

Table 3. Hypotheses Testing

Direct Effect	Original sample (O)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Results
Digital Touchpoints -> Gen. AI Adoption	0.583	0.107	5.472	0.000	Supported
Digital Touchpoints -> Tech. Savvy	0.859	0.048	17.807	0.000	Supported
Tech. Savvy -> Gen. AI Adoption	0.320	0.112	2.864	0.004	Supported
Moderation Effect					
Student KS x Digital Touchpoints -> Tech. Savvy	0.066	0.032	2.032	0.042	Supported
Instructor KS x Digital Touchpoints -> Tech. Savvy	-0.013	0.025	0.527	0.598	Not Supported
Mediation					
Digital Touchpoints -> Tech. Savvy -> Gen. AI Adoption	0.275	0.097	2.837	0.005	Supported
Instructor KS x Digital Touchpoints -> Tech. Savvy -> Gen. AI Adoption	-0.004	0.009	0.482	0.630	Not Supported
Student KS x Digital Touchpoints -> Tech. Savvy -> Gen. AI Adoption	0.021	0.014	1.55	0.121	Not Supported

Regarding mediation, Tech. Savvy significantly mediates the relationship between Digital Touchpoints and Gen. AI Adoption (O = 0.275*, T = 2.837, p = 0.005), indicating that digital engagement indirectly fosters AI adoption by enhancing tech skills. However, neither Instructor KS nor Student KS shows a significant mediated moderation effect on Gen. AI Adoption through Tech. Savvy (Instructor KS: O = -0.004, T = 0.482, p = 0.63; Student KS: O

= 0.021, T = 1.55, p = 0.121), suggesting that while peer interactions strengthen tech skills, they do not indirectly influence AI adoption through this pathway.

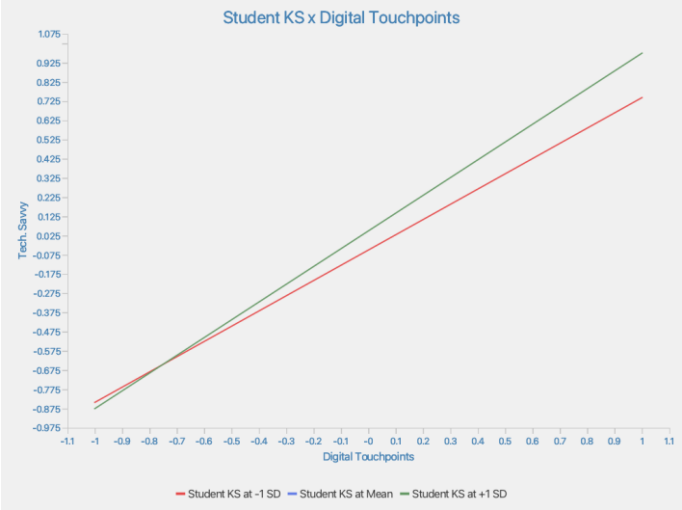

Figure 3. Simple Slope of Student KS and Digital Touchpoints

Moreover, to comprehend the results, Figure 3 present simple slope analysis illustrates the moderating effect of Student Knowledge Sharing (KS) on the relationship between Digital Touchpoints and Tech Savvy. The analysis shows that as Digital Touchpoints increase, Tech Savvy also increases, but the strength of this relationship depends on the level of Student KS. For individuals with high levels of Student KS (represented by the green line), the positive effect of Digital Touchpoints on Tech Savvy is more pronounced, as indicated by the steeper slope. This suggests that students who frequently share knowledge with peers experience a stronger boost in tech-savvy skills from digital engagement. In contrast, individuals with lower levels of Student KS (red line) exhibit a weaker relationship between Digital Touchpoints and Tech Savvy.

Discussion

Examining key factors influencing AI adoption in educational settings, especially in business & management student context, highlighting the roles of digital engagement, tech skills, and knowledge-sharing practices. This section discusses how Digital Touchpoints, Tech Savvy, and peer interactions impact AI use, offering theoretical and practical implications for fostering technology integration in learning environments.

First of all, our study find that digital touchpoints reflected by frequent use of information technology tools for daily academic works will generate technology mastery, which in our study we called as tech-savvy. This finding has been long admitted that repetition does create masterization. Masterization itself is a process of acquiring and internalizing knowledge that may derived from habit in using technology. Our finding also inline with previous research that the built of knowledge is gradually develop from repetition, pattern recognition, to automaticity and implicit learning (Kim & Ritter, 2015; Mitchell et al., 2018). Young generation, both millennials and z generation is raised in rapid development of information technology. We assume that this condition is beneficial for the technology developed in at this decades is mostly developed by their generation. We may

refer to another research that each of generation is generically have the same characteristics in rational thinking (Combes, 2021). Thus, we argue that tech savviness within generation is due to sufficient exposure to digital touchpoints.

Moreover, our study indicates that both of the digital touchpoints and tech savvy are positively affecting the generative AI adoption. First, Our finding indicates that the importance of digital touchpoints reflected by the digital engagement throughout the frequent use of technology and perceived experience is the crucial aspect that makes student adopt generative AI. Higher frequency of information and technology in for everyday academic tasks has been admitted to not only reduce time in working with the tasks Liang et al. (2023); Wecks et al. (2024); Yusuf et al. (2024), but also beneficial for students as it enable them to spend time for studying body of knowledge in the topics being investigated (Chen et al., 2020; Wecks et al., 2024). Second, our findings also indicate that tech savviness significantly influences generative AI adoption within the context of knowledge acquisition and application. This result aligns with existing literature suggesting that individuals who possess higher levels of digital literacy and confidence in using technology are more likely to engage with advanced technological tools, such as AI (Horowitz et al., 2024; McElheran et al., 2023). Thus we argue that, tech-savvy individuals have developed the foundational skills necessary to explore, understand, and utilize AI systems effectively. Their comfort with technology reduces the perceived complexity and intimidation often associated with adopting new tools, enabling a smoother transition to AI utilization in their academic or professional practices.

However, comparing those two effects, the effect of digital touchpoints shows greater effect on generative AI adoption rather than that off technology savviness. The stronger impact of digital touchpoints on generative AI adoption, compared to tech savviness, can be attributed to continuous exposure and practical experience. Frequent interaction with IT tools fosters familiarity and confidence, making individuals more comfortable exploring new technologies like AI. Unlike general tech savviness, which reflects basic competence, ongoing digital engagement reinforces practical application in daily tasks, reducing perceived barriers to AI use (Ng et al., 2023; Sergeyuk et al., 2024). Additionally, rich digital experiences help users understand AI's benefits and limitations, enhancing their readiness to adopt it. This experiential knowledge, built through diverse tool usage, equips individuals with problem-solving skills and adaptability, making them more confident and capable of exploring and applying AI across various contexts. Nevertheless, we argue that relying on the habitual itself without sufficient learning leads to a lack of self-competence by means of a lack of tech-savviness, which is going to be dangerous for generative AI abusive use in the near future. This also has been predisposed by prior studies that mentioned the danger of using excessive use of generative AI (Bengio et al., 2024; Kharrufa & Johnson, 2024; Michel-Villarreal et al., 2023).

In the next investigation, the moderation analysis shows that Student Knowledge Sharing (KS) positively strengthened the relationship between Digital Touchpoints and Tech Savvy. This suggests that students who actively share knowledge with their peers experience a greater impact from their digital engagement, enhancing their tech-savvy skills. Peer interactions likely facilitate practical applications of digital experiences, as students support each other in learning and adapting to new technologies (Demssie et al., 2023; Heidari et al., 2021). This collaborative environment amplifies the benefits of digital touchpoints, making

it easier for students to develop confidence and skills in technology use. In contrast, Instructor Knowledge Sharing (KS) does not significantly strengthen this relationship. This may be because peer interactions, which are typically more frequent and directly relevant to students' digital needs, play a more immediate role in building tech skills (Ben Youssef et al., 2015; Indrawati et al., 2023). While instructors provide valuable guidance, students may find that learning from peers who share similar experiences is more relatable and effective for day-to-day technology use. Another point of view that may cause the insignificant condition can arise due to the instructor's lack of knowledge about the technical and ethical use of generative AI. The contextual and technical ability of lecturers/instructors on technology savviness, especially that related to the use of AI, may be the fundamental aspect of inducing the use of generative AI (Ogunleye et al., 2024; Ruediger et al., 2024).

Last but not least, the tech savviness mediates the relationship between digital touchpoints and generative AI adoption by acting as a bridge that transforms frequent digital engagement into practical readiness for AI. Digital touchpoints measured by the frequency and richness of interactions with IT tools foster familiarity and confidence, gradually building tech savviness. This tech savviness then enables individuals to feel more capable and confident in exploring advanced tools like generative AI.

The aforementioned mediation results reveal that tech savviness functions as an essential link between digital touchpoints and generative AI adoption. Frequent use of technology allows students to acquire and build investigative knowledge, both consciously and unconsciously (Watermeyer et al., 2024). As noted in prior studies, knowledge builds gradually through repetition, pattern recognition, and eventually automaticity and implicit learning (Kim & Ritter, 2015; Mitchell et al., 2018)This progression also applies to the adoption of generative AI. Individuals with regular, meaningful interactions with technology are not only more likely to adopt new tools like AI but also more quickly. This indicates that tech-savviness developed from digital touchpoints accelerates and strengthens the process of AI adoption, creating a smoother pathway for integrating innovative technology into knowledge-intensive tasks.

Additionally, still in the mediation results, our finding from mediated moderation testing shows insignificant findings. This outcome suggests that while knowledge sharing can be beneficial for enhancing tech-savvy skills in general, it does not strengthen or change the specific process by which digital engagement leads to AI adoption via tech skills. In other words, the development of tech savviness through direct interaction with digital tools appears to be a self-sufficient process that is not heavily influenced by additional guidance or knowledge sharing from others. The impact of digital touchpoints on AI adoption through tech savviness relies more on individual experiences with technology than on external inputs from instructors or peers (Michaeli et al., 2023).

One possible explanation for this finding is that generative AI adoption requires a certain level of independent tech competency that is primarily built through personal, hands-on experience (Wood & Moss, 2024). While students may benefit from shared knowledge in other aspects of learning, adopting complex tools like generative AI may depend more on self-driven exploration and direct familiarity with digital technology, which knowledge sharing alone cannot adequately enhance (Kharrufa & Johnson, 2024).

Conclusion

The findings from this study highlight the significant role of digital touchpoints and tech savviness in driving generative AI adoption among students in business and management fields. Frequent digital engagement not only builds essential technology skills but also increases confidence in using advanced tools like AI, reinforcing the importance of digital interactions in business learning contexts. The study also reveals that peer knowledge sharing amplifies the impact of digital engagement on tech-savvy skills, emphasizing the value of collaborative learning among students. Interestingly, while both digital touchpoints and tech savviness positively influence AI adoption, digital engagement shows a stronger effect, suggesting that continuous exposure to technology enhances AI readiness more effectively than tech skills alone.

This study makes several contributions to the field. It provides empirical evidence on the impact of digital engagement on AI adoption, underscoring digital touchpoints as a key enabler of tech savviness and AI readiness. By exploring the role of peer and instructor knowledge sharing, this research also sheds light on how collaborative learning environments can enhance digital literacy and technology adoption in business and management educational contexts (Dolmark et al., 2022). The findings offer valuable insights for educators and policymakers, emphasizing the need to create supportive environments that encourage digital engagement and peer interactions to build tech-savvy students who are prepared for AI integration.

However, this study has certain limitations. The reliance on self-reported data could lead to biases, as respondents may overestimate or underestimate their digital habits and tech savviness. Additionally, the cross-sectional design limits the ability to infer causality between digital engagement and AI adoption, as the study captures only a snapshot of these relationships at one point in time. Finally, the focus on a specific sample of students may limit the generalizability of the findings to other populations or educational contexts.

Future research should consider longitudinal studies to observe how digital engagement and tech savviness develop over time and influence AI adoption in the long term. Investigating additional moderating variables, such as individual learning styles, organizational support (Kizilcec, 2024), and access to digital resources (Almaiah et al., 2022), could also provide a more nuanced understanding of the factors that facilitate or hinder AI adoption. Expanding the sample to include diverse educational or professional settings would further enhance the generalizability of the findings, contributing to a more comprehensive understanding of how digital engagement fosters AI readiness across different contexts.

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