

Investigating the Influence of Anxiety and Readiness on Behavioural Intention towards Generative Artificial Intelligence Adoption among Open and Distance Learning Students

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Abstract

This study examines the influence of Generative Artificial Intelligence (GenAI) anxiety and readiness on students' behavioural intention to adopt GenAI in an open and distance learning (ODL) context. As GenAI becomes increasingly integrated into education, understanding the factors that shape students' adoption is essential. A quantitative research design was employed using an online survey to collect data from 460 students in an ODL institution in Malaysia. Multiple regression analysis was conducted to examine the relationships between anxiety, readiness, and behavioural intention, and the moderating effect of prior GenAI experience. The findings showed that anxiety reduced students' willingness to adopt GenAI while readiness increased it. Prior experience with GenAI did not change these relationships. The mixed findings highlight how emotional barriers and capability-related factors shape adoption, and that simple exposure alone is not enough to affect the adoption pathways. In conclusion, this study provides evidence that both reducing anxiety and enhancing readiness are critical for supporting the effective integration of GenAI in education. The findings offer insights for educators and institutions seeking to promote meaningful and sustained adoption of GenAI in ODL environments.

Keywords: adult learners, anxiety, behavioural intention, generative artificial intelligence, Malaysia, prior experience, readiness

1. Introduction

As generative artificial intelligence (GenAI) continues to advance and becomes increasingly embedded in professional practices, the ability to use it critically, effectively, and ethically is emerging as an important workforce competency. The Organisation for Economic Co-operation and Development (2023) reported that the skills required to adopt, use, and interact with AI applications are becoming increasingly important across occupations. Higher education institutions therefore have an important role in preparing students for AI-supported working environments by providing appropriate opportunities and guidance for the responsible use of GenAI. However, the availability of GenAI does not necessarily lead to its adoption, as students may differ in their willingness and preparedness to engage with the technology. Understanding the factors associated with students' behavioural intention to use GenAI is therefore important for designing institutional strategies that support its informed, effective, and responsible integration into learning.

This need is particularly relevant in open and distance learning (ODL). ODL students are geographically separated from their instructors and undertake a substantial proportion of their learning independently. Although ODL students routinely use learning management systems and online instructional technologies, familiarity with established digital platforms does not necessarily indicate preparedness to use GenAI effectively. When used appropriately, GenAI may complement existing instructional support by providing on-demand explanations, feedback, language assistance, and other forms of support during independent learning (Chan & Hu, 2023; Noroozi et al., 2024). Its educational contribution, however, depends partly on whether students are willing to adopt it and possess the capabilities required to use it responsibly.

Behavioural intention refers to an individual's willingness or planned effort to engage with a particular technology and is commonly regarded as a proximal indicator of subsequent technology use (Davis et al., 1989). In the present study, behavioural intention refers to ODL students' willingness to adopt GenAI applications for learning-related purposes. Students' intentions may vary according to their emotional responses, perceived preparedness, and previous experience with the technology.

Two individual-level conditions that may be especially relevant are GenAI anxiety and GenAI readiness. GenAI anxiety refers to apprehension, uncertainty, or discomfort associated with learning about, interacting with, or considering the consequences of AI technologies (Banerjee & Banerjee, 2023; Wang & Wang, 2022). Anxiety may discourage students from using GenAI by reducing their confidence, increasing uncertainty, and encouraging avoidance. In contrast, GenAI readiness reflects the extent to which students perceive themselves as possessing the knowledge, ability, ethical awareness, and understanding required to use AI effectively and responsibly (Karaca et al., 2021; Wang et al., 2023). Readiness may therefore enable adoption by strengthening students' perceived preparedness to engage with GenAI.

Despite their relevance to GenAI adoption, the relationships between anxiety, readiness, and behavioural intention remain insufficiently understood. Previous studies have reported inconsistent relationships between AI anxiety and behavioural intention, while readiness has been found to influence intention through both direct and indirect pathways (Li & Thien, 2025; Migdadi et al., 2024; Nurtanto et al., 2025; Rehman et al., 2025). Moreover, anxiety and readiness have generally been examined through separate explanatory pathways. This may provide an incomplete explanation because students can possess the capabilities required to use GenAI while remaining apprehensive about its risks and consequences. Conversely, low anxiety does not necessarily indicate that students are adequately prepared to use GenAI effectively and responsibly. Drawing on the Dual-Factor Theory of Technology

Use (Cenfetelli, 2004; Cenfetelli & Schwarz, 2011), this study therefore examines GenAI anxiety as an affective inhibitor and GenAI readiness as a capability-related enabler of behavioural intention.

Prior GenAI experience may further condition these relationships because experienced and inexperienced students may rely on different information when forming their behavioural intentions (Venkatesh et al., 2003). Although experience has been recognised as an important contextual factor in technology adoption, limited research has examined whether it moderates the anxiety–intention and readiness–intention relationships, particularly among ODL students. Consequently, insufficient theoretically integrated evidence explains how GenAI anxiety and readiness simultaneously predict ODL students' behavioural intention and whether these relationships vary according to their prior GenAI experience. Hence, this study aims to address the empirical, theoretical, and contextual gaps through the following research objectives:

1. To examine whether GenAI anxiety negatively predicts behavioural intention toward GenAI among ODL students.
2. To examine whether GenAI readiness positively predicts behavioural intention toward GenAI among ODL students.
3. To determine whether prior GenAI experience moderates the relationship between GenAI anxiety and behavioural intention among ODL students.
4. To determine whether prior GenAI experience moderates the relationship between GenAI readiness and behavioural intention among ODL students.

By addressing these objectives, the study provides a more comprehensive and context-sensitive examination of GenAI adoption among ODL students. Theoretically, it extends the contextual application of Dual-Factor Theory by examining an affective inhibitor and a capability-related enabler simultaneously and by introducing prior GenAI experience as a proposed boundary condition. Practically, the findings may inform differentiated institutional support that mitigates anxiety, addresses students' legitimate concerns, strengthens GenAI readiness, and responds to different levels of prior experience. Such support is important for enabling ODL students to benefit from GenAI while managing concerns relating to accuracy, ethics, privacy, overdependence, and academic integrity.

2. Literature Review and Hypothesis Development

In recent years, there has been a growing body of literature on the use of GenAI in education. Studies show that GenAI can enhance learning outcomes by creating personalised content and utilising adaptive learning methods (Borah et al., 2024; Noroozi et al., 2024). Despite GenAI's effectiveness, insufficient attention has been given to ODL students' GenAI adoption. This literature review explores the existing research on the influence of anxiety and readiness regarding the behavioural intention to adopt GenAI in education.

Behavioural intention refers to an individual's willingness or planned effort to engage with a particular technology and is commonly treated as a proximal indicator of subsequent technology use (Davis et al., 1989; Venkatesh et al., 2003). Recent research has shown that higher education students generally demonstrate favourable intentions towards using GenAI. Strzelecki (2024), for example, found that students' intention to use ChatGPT was shaped by their perceptions of its usefulness and ease of use. Similarly, Mizanur et al. (2025) reported that university students used GenAI for various academic activities, including clarifying concepts, paraphrasing, and translation. Besides, Rafsanjani et al. (2025) also found that students demonstrated strong behavioural intention to use AI when they perceived it as useful and easy to integrate into learning.

This study draws on the Dual-Factor Theory of Technology Use, which distinguishes between factors that enable technology acceptance and those that inhibit it. Technology-adoption research has traditionally focused on enabling beliefs, such as usefulness, ease of use, reliability, and flexibility. However, Cenfetelli (2004) argued that a comprehensive explanation of technology use must also consider inhibitors that discourage use and contribute to technology rejection. Enablers and inhibitors are theoretically distinct rather than opposite ends of a single continuum. The presence of an enabler does not necessarily eliminate the effect of an inhibitor, and the absence of an inhibitor does not automatically encourage adoption. Cenfetelli and Schwarz (2011) further demonstrated that enabling and inhibiting factors can coexist and make separate contributions to technology-usage intention. Thus, examining only the factors that encourage acceptance may provide an incomplete explanation of why individuals decide to use or avoid a technology.

This study examines GenAI readiness and GenAI anxiety as two distinct individual-level conditions shaping students' behavioural intention to adopt GenAI. Drawing on Dual-Factor Theory, GenAI readiness is conceptualised as a capability-related enabler, whereas GenAI anxiety is conceptualised as an affective inhibitor. GenAI readiness reflects students' perceived knowledge, ability, ethical awareness, and understanding of AI's potential and limitations (Karaca et al., 2021), whereas GenAI anxiety encompasses apprehension related to learning about AI, job replacement, sociotechnical consequences, and increasingly human-like AI configurations (Wang & Wang, 2022).

Previous studies have generally identified anxiety as an inhibitor of technology adoption. Anxiety may increase perceived uncertainty and difficulty, reduce users' confidence, and encourage avoidance of unfamiliar technologies. In the context of AI, Nurtanto et al. (2025) found that AI anxiety negatively predicted university students' behavioural intention to use AI. Li and Thien (2025) similarly reported that AI anxiety was associated with usage intention, although its effects operated through perceived usefulness and perceived ease of use. Nevertheless, the empirical evidence is not entirely consistent. Migdadi et al. (2024) identified a positive relationship between AI anxiety and intention to use AI among nursing students. These divergent findings may reflect differences in populations, educational settings, AI applications, levels of prior experience, or the dimensions of anxiety examined. Despite this inconsistency, Dual-Factor Theory conceptualises inhibiting conditions as factors that discourage technology use. In an ODL environment, apprehension concerning the complexity, reliability, ethical acceptability, and consequences of GenAI may reduce students' willingness to engage with the technology, especially when immediate support is limited. Therefore, the present study expects GenAI anxiety to function as an affective inhibitor of behavioural intention.

- i. H1: GenAI anxiety negatively predicts ODL students' behavioural intention to adopt GenAI.
GenAI readiness is expected to positively predict behavioural intention because students who possess the necessary knowledge, abilities, ethical awareness, and understanding of AI's potential and limitations are more likely to feel capable of incorporating GenAI into their learning. Maxwell et al. (2025) found that higher education students' perceived readiness was associated with their comfort in using GenAI. Similarly, Liu (2025) reported that AI readiness played a significant role in explaining university teachers' behavioural intention to adopt AI. These findings indicate that readiness may strengthen behavioural intention. From the perspective of Dual-Factor Theory, GenAI readiness therefore functions as a capability-related enabler that is expected to increase ODL students' intention to adopt GenAI.
- ii. H2: GenAI readiness significantly and positively predicts ODL students' behavioural intention to adopt GenAI.

Prior experience has been recognised as an important factor in technology adoption because users with greater familiarity can draw on actual interactions with a technology when forming their behavioural intentions (Venkatesh et al., 2003). Research has also shown that GenAI use experience can influence students' perceptions and condition certain relationships within the technology-adoption process (Xia et al., 2025). However, limited research has examined whether prior GenAI experience moderates the relationships between GenAI anxiety and behavioural intention and between GenAI readiness and behavioural intention. This represents an important gap because the enabling effect of readiness and the inhibiting effect of anxiety may not operate uniformly among experienced and inexperienced users. To address this gap, the present study introduces prior GenAI experience as a contextual boundary condition within the Dual-Factor Theory of Technology Use. In doing so, the study extends the contextual application of the theory by examining not only whether an affective inhibitor and a capability-related enabler predict behavioural intention, but also whether the strengths of these relationships vary according to students' prior experience with GenAI.

- iii. H3: Prior experience in using GenAI significantly moderates the relationship between GenAI anxiety and ODL students' behavioural intention to adopt GenAI.
- iv. H4: Prior experience in using GenAI significantly moderates the relationship between GenAI readiness and ODL students' behavioural intention to adopt GenAI.

3. Research Method

3.1. Research Design

The current study employed a quantitative research design using an online survey to collect data and multiple regression analysis to analyse the data. The aim of the study was to examine the relationship between two independent variables, GenAI anxiety and GenAI readiness, and the dependent variable, GenAI behavioural intention, among students from an ODL institution in Malaysia. Descriptive statistics and multiple regression analysis were used to examine the relationships between the independent and dependent variables, ensuring a comprehensive analysis of the research questions. Additionally, GenAI prior experience was examined as a potential moderator in the relationships between GenAI anxiety and GenAI readiness with GenAI behavioural intention. The inclusion of a moderator was to account for the heterogeneity in ODL students' responses towards GenAI.

3.2. Population and Sample

A total of 484 students responded to the online survey; however, only 460 responses were retained after removing cases affected by straight-lining and outliers. Outlier detection was conducted in SPSS using Mahalanobis distance with a significance threshold of $p < .001$ as recommended for multivariate survey data (Hair et al., 2018). This step was taken to ensure that any extreme response patterns would not distort the parameter estimates. The cleaned dataset was then imported into SmartPLS for subsequent analysis. The student respondents were randomly sampled across four faculties of the university: School of Business and Administration, School of Technology and Engineering Science, School of Education, Humanities and Social Sciences, and School of Digital Technology (the newest faculty). The demographic profile indicates that 56.96% of the sample were women, with a mean age of 34 years. A large proportion of respondents (68.04%) reported little to no experience in using GenAI. Participants were informed of the study's purpose and that their responses would be aggregated during data analysis, thereby ensuring confidentiality. The study also received approval from the university's Research Ethics Board.

3.3. Instrument and Measures

The study used a questionnaire consisting of two sections. The first section collected demographic information (7 items), while the second section included items measuring GenAI anxiety (19 items), GenAI readiness (18 items), and behavioural intention (3 items). Face and content validity of the questionnaire were established through the involvement of four experts, whose feedback was incorporated to refine the instrument.

The dependent variable, behavioural intention, was adapted from Lai and Lee (2020). Respondents were asked to rate their level of agreement with the behavioral intention items using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). These items demonstrated good validity and reliability (loadings = 0.924 to 0.942, average variance extracted = 0.868, heterotrait–monotrait ratio < 0.9, Cronbach's alpha = 0.924). Variance inflation factor values were below 5, indicating no multicollinearity issues.

The independent variables comprised GenAI anxiety and GenAI readiness. The GenAI anxiety items were adapted from Wang and Wang (2022) and Banerjee and Banerjee (2023). Based on both studies, GenAI anxiety was measured across four dimensions of AI configuration (fear of managing and adapting GenAI tools to their learning needs), job replacement (fear of losing jobs or displacement of human skills), learning (difficulty in learning AI tools), and sociotechnical blindness (concerns about underestimating risks or misusing GenAI tools). Besides that, the GenAI readiness items were adapted from Wang et al. (2023) and Karaca et al. (2021). GenAI readiness was operationalised across four dimensions of ability (confidence in using digital skills), cognition (ability to understand and apply GenAI outputs), ethics (awareness of using GenAI responsibly), and vision (having a strategic outlook regarding GenAI integration into learning). This multidimensional approach ensured construct validity and contextual relevance for ODL students.

Respondents rated their level of agreement with these items using the same five-point Likert scale. All items for GenAI anxiety (loadings = 0.924 to 0.942, average variance extracted = 0.481, Heterotrait–Monotrait ratio < 0.9, Cronbach's Alpha = 0.765) and GenAI readiness (loadings = 0.803 to 0.918, average variance extracted = 0.765, Heterotrait–Monotrait ratio < 0.9, Cronbach's Alpha = 0.898) demonstrated acceptable validity and reliability. Variance inflation factor values for all predictors were below 5, indicating no multicollinearity issues.

3.4. Data Analysis

Data screening was first carried out in SPSS. The cleaned dataset was then imported into SmartPLS 4 for analysis of descriptive statistics and multiple regression. The analysis involved several tests, including normality (to assess data distribution), multicollinearity (to examine correlations among predictor variables), heteroscedasticity (to assess the equality of error variance), and multiple linear regression analysis (to examine the relationship between the independent and dependent variables). This multistage approach enabled a comprehensive analysis of the data, providing insights into the effects of GenAI readiness and GenAI anxiety on students' behavioural intention (Basco et al., 2022). Moderation analysis was also conducted in SmartPLS 4 to examine whether prior GenAI experience influenced the strength of the relationships between anxiety and readiness, and behavioural intention. The multiple regression with product indicator interaction terms was used. Prior GenAI experience was modelled as a single-item latent variable, and moderating effects were created for the paths from anxiety and readiness to behavioural intention. Bootstrapping was used to test the significance of the interaction terms, thus, enabling the examination of whether prior experience strengthened or weakened the predictors' influence. The multi-group analysis (MGA) was not conducted as the group sizes were significantly

uneven (e.g., low (1-2) = 313, moderate (3) = 102, and high (4-5) = 45); thus, there may not have been enough statistical power.

4. Findings and Discussion

4.1. Descriptive Statistics

The measurement items in the questionnaire represented respondents' general perceptions of their GenAI anxiety and GenAI readiness in relation to their behavioural intention to adopt GenAI. The interpretation of the mean values was based on the guidelines provided by Selvanathan et al. (2020) (see Table 1).

Table 1

Mean Value Interpretation

Mean Value	Interpretation
1.00 – 2.33	Low
2.34 – 3.66	Medium
3.67 – 5.00	High

The descriptive statistics results (see Table 2) indicated that the overall mean score of 3.296 for GenAI anxiety reflected ODL university students' neutral stance towards GenAI. Students were most concerned about sociotechnical blindness (M=3.782) and least anxious about learning to use GenAI (M=2.821). Similar findings were reported by Wen et al. (2024), who found that secondary school students had the highest mean for sociotechnical blindness and the lowest mean for AI anxiety. These concerns may arise due to rapid advancement, lack of transparency, and the concentration of control among large technology companies. This could lead students to perceive GenAI as risky. Conversely, the low mean for learning anxiety suggests students were open to engage with GenAI tools.

The mean values for job replacement (M=3.461) and AI configuration (M=3.120) were moderate. Students acknowledged risks such as dependency and job displacement, but did not view them as immediate. Likewise, moderate AI configuration anxiety may reflect limited exposure to humanoid GenAI products, which are not yet widely used (Wen et al., 2024).

On the other hand, the overall mean score for GenAI readiness was high (M=3.726). Students expressed confidence in adopting GenAI, particularly in using it ethically (M=3.823) and leveraging its feedback capabilities (M=3.763). They also demonstrated awareness of both its potential and limitations. These findings echoed those reported by Martha et al. (2025) in Indonesia and Maxwell et al. (2025) in the United States, where higher education students similarly reported high readiness to integrate GenAI into learning.

In general, ODL university students indicated a high level of intention to adopt GenAI (M=3.882). This aligns with several international studies (Mizanur et al., 2025; Rafsanjani et al., 2025; Strzelecki, 2024), which reported strong behavioural intention among higher education students which are driven by perceptions of ease of use and usefulness. For example, Mizanur et al. (2025) reported that students used AI for clarifying understanding (76.1%), paraphrasing (71.6%), and academic translation (71.0%).

Table 2

Respondents' General Perception of GenAI Anxiety, Readiness, and Behavioural Intention

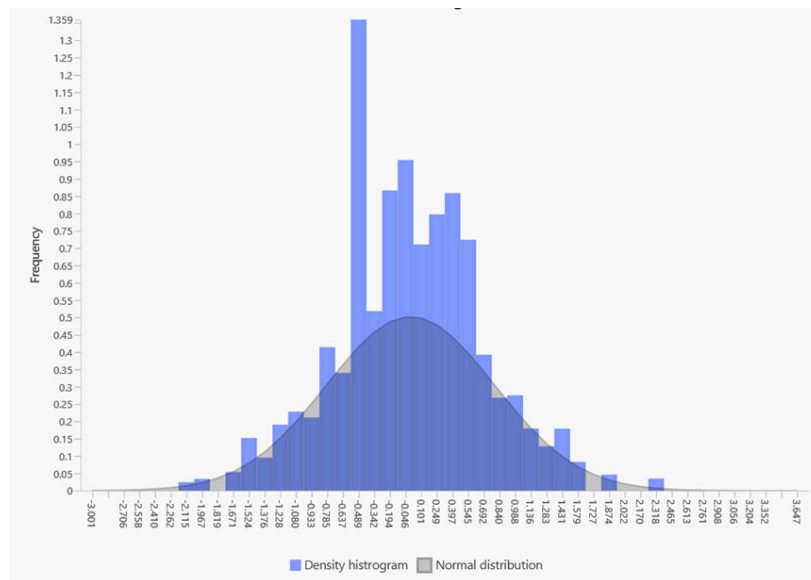
Measurement item		Mean	Std Dev	Excess Kurtosis	Skewness	Mean level interpretation
GenAI Anxiety	AI Configuration	3.120	1.168	-0.725	-0.061	Medium
	Job Replacement	3.461	1.211	-0.702	-0.416	Medium
	Learning	2.821	1.175	-0.737	0.099	Medium
	Sociotechnical Blindness	3.782	1.088	-0.088	-0.697	High
	Overall GenAI Anxiety:	3.296	1.161	-0.543	-0.318	Medium
GenAI Readiness	Ability	3.763	0.903	0.529	-0.625	High
	Cognition	3.583	0.964	0.057	-0.484	Medium
	Ethics	3.823	0.916	0.367	-0.611	High
	Vision	3.763	0.920	0.540	-0.661	High
	Overall GenAI Readiness:	3.726	0.926	0.373	-0.595	High
Behavioural Intention		3.882	0.895	0.133	-0.552	High

4.2. Multiple Regression

Multiple regression analysis was used to examine students' behavioural intention regarding GenAI, where GenAI anxiety and GenAI readiness acted as predictor variables. The first test conducted was the normality test to analyse the data distribution of behavioural intention (mean=0.000, median=0.056, standard deviation=0.609, excess kurtosis=1.516, skewness=-0.545). The data indicated a reasonably normal distribution, allowing further statistical analysis to be carried out (see Figure 1).

Figure 1

Residual Histogram



The multicollinearity test was then conducted to identify whether there were any collinearity issues between the predictor variables. The variance inflation factor (VIF) for both GenAI readiness and GenAI anxiety was the same at 1.002, which met the criterion of 5 or

less. This finding indicated that there was no evidence of collinearity between GenAI readiness and GenAI anxiety, suggesting that both variables were independent of one another. Next, the heteroscedasticity test was conducted using the Breusch–Pagan test (test statistic = 62.172, df = 2). The absence of heteroscedasticity within the dataset was evidenced by the non-significant p-value ($p > 0.05$). This finding indicated that the variance across the data was constant, satisfying a key assumption for the reliability of the regression analysis.

Finally, the multiple regression analysis was conducted (see Figure 2 and Table 3). The dependent variable (behavioural intention) was regressed on the predictor variables, GenAI anxiety and GenAI readiness. The independent variables (based on their latent variable values) significantly predicted behavioural intention towards GenAI, $F(2,457)=134.738$, $p<0.001$, indicating that the two variables examined in this study had a significant impact on behavioural intention towards GenAI. Additionally, the R^2 value for the research model was 0.371, suggesting that 37.1% of the variance in behavioural intention was explained by GenAI anxiety and GenAI readiness. The coefficients were further assessed to determine the impact of each of the independent variable (GenAI Anxiety and GenAI Readiness) on the dependent variable (behavioural intention) (see Table 3).

Figure 2

Research Model Summary

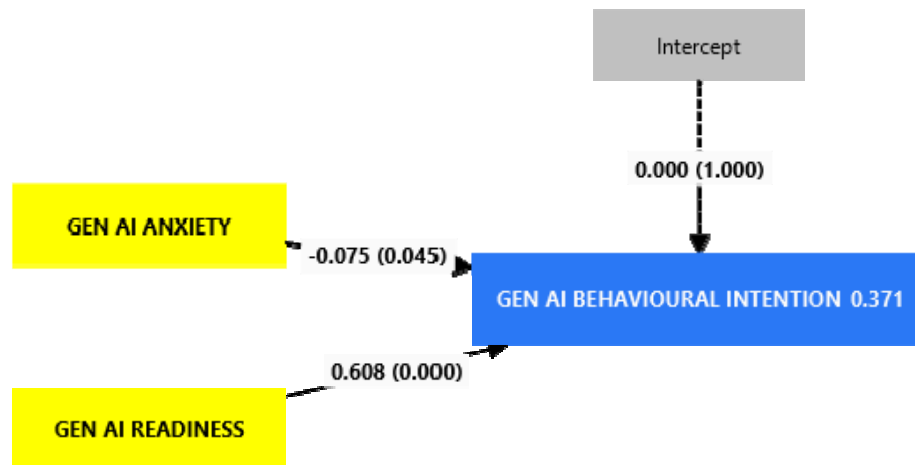


Table 3

Regression of Behavioural Intention on Study Predictors

Hypotheses	Regression Weights	B	t-value	p-value	Results
H1	GAIA → BI	-0.075	2.012	0.045	Supported
H2	GAIR → BI	0.608	16.367	0.000	Supported
R^2	0.371				
$F(2, 457)$	134.738				

Note. GAIA = GenAI Anxiety; GAIR = GenAI Readiness; BI = Behavioural Intention

H1 evaluated whether GenAI anxiety significantly and negatively influenced students' behavioural intention towards GenAI. The results confirmed this relationship ($\beta=-0.075$, $p<0.05$); thus, H1 was supported. This might have been explained by the inhibiting role of anxiety, as heightened feelings of uncertainty and discomfort could reduce students' motivation and willingness to engage with GenAI. When compared with previous studies,

mixed results were observed. Some studies reported that AI anxiety negatively influenced behavioural intention, whereas others found a positive relationship. For instance, Nurtanto et al. (2025), based on a sample of 2,894 university students in Indonesia, also reported a negative relationship between AI anxiety and behavioural intention. In contrast, Migdadi et al. (2024), in a study involving 140 nursing students in Jordan, found a significant moderate positive relationship between AI anxiety and behavioural intention to use AI technology. The authors suggested that anxiety might act as a motivator, where students with higher levels of anxiety demonstrated stronger intention to use AI in order to overcome their concerns and build confidence in using the technology. This inconsistency might have been attributed to the complex relationship between these variables. The relationship between AI anxiety and behavioural intention might not have been direct, but rather was influenced by other factors. For example, Li and Thien (2025) reported that the relationship was mediated by perceived usefulness and perceived ease of use. Within the Dual-Factor Theory of Technology Use, these findings reinforce the role of anxiety as an affective inhibitor that constrains adoption. ODL students mainly comprise working adults. As such, inhibitors may be particularly important as these students often juggle professional responsibilities and study commitments, which makes them less willing to experiment with GenAI tools that may create uncertainty or discomfort.

H2 evaluated whether GenAI readiness significantly and positively influenced students' behavioural intention towards GenAI. The results confirmed this relationship ($\beta=0.608$, $p<0.001$); thus, H2 was supported. This finding suggested that students with higher levels of readiness were more confident and capable of engaging with GenAI, which enhanced their intention to adopt it. When compared with previous studies, the findings demonstrated partial alignment. For instance, Krishnanrwar and Ismail (2025) reported that technology readiness did not directly influence intention, but operated through perceived functionality. Similarly, Rehman et al. (2025) found that readiness influenced perceived ease of use, which subsequently shaped attitudes towards AI. Rather than contradicting prior research, these differences suggest that the influence of readiness on behavioural intention might not always have been direct, but could operate through different mechanisms. While prior studies highlighted indirect pathways through cognitive factors, the present study demonstrated that readiness could also exert a direct effect on behavioural intention. From the perspective of the Dual-Factor Theory, readiness functions as a capability-related enabler that strengthens adoption. In the ODL context, readiness is especially critical for working adults who must integrate GenAI into both academic and professional tasks. Confidence in ethical use and competence in applying GenAI tools allow them to adopt these technologies without excessive disruption to their already demanding schedules.

4.3. Moderating Effect

The moderating effect of prior GenAI experience on the relationship between GenAI anxiety and readiness towards behavioural intention was assessed based on the multiple regression model in SmartPLS 4. First, the latent variable scores were generated and standardised. In Model 1, only the main effects were included (anxiety, readiness, and prior experience) to predict behavioural intention (see Figure 3). This baseline model provided the initial R^2 and path coefficients that show readiness as the strongest positive predictor, while anxiety was a small but significant negative predictor. However, prior experience was not significant in its relationship with behavioural intention (see Table 4). In Model 2, interaction terms were created by multiplying the standardised scores of anxiety and readiness with prior experience. These data were then added to the regression model. The inclusion of these terms enabled testing whether prior GenAI experience interaction altered the strength of the main relationships of anxiety and readiness towards behavioural intention. The findings showed that the anxiety x prior experience interaction ($\beta=-0.021$, $p>0.05$) and readiness x prior experience ($\beta=-0.007$, $p>0.05$) interactions were both not significant.

Comparison of R² and adjusted R² between the two models showed insignificant differences, further reinforcing the lack of a moderating effect.

Figure 3

Moderation Analysis Findings

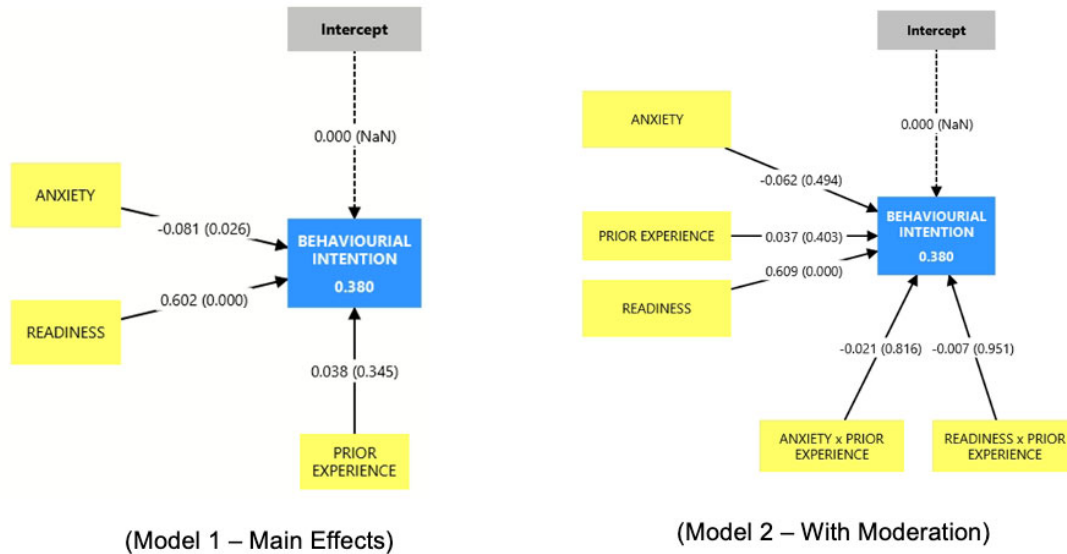


Table 4

Moderation Analysis Findings

Effects	Model 1 (main effects)			Model 2 (with moderation)			Results
	B	t-value	p-value	β	t-value	p-value	
Anxiety	-0.081	2.221	0.026	-0.062	0.684	0.494	
Readiness	0.602	12.859	0.000	0.609	5.046	0.000	
Prior Experience	0.038	0.945	0.345	0.037	0.836	0.403	
Anxiety x Prior Experience		-		-0.021	0.233	0.816	Rejected
Readiness x Prior Experience		-		-0.007	0.061	0.951	Rejected
R ²		0.380			0.380		
R ² Adjusted		0.375			0.373		

Two hypotheses were developed to examine whether prior experience in using GenAI significantly moderates the relationships between GenAI anxiety and behavioural intention to adopt GenAI (H3), and between GenAI readiness and behavioural intention to adopt GenAI (H4), within the context of ODL students. Through the lens of the Dual-Factor Theory of Technology Use, prior experience was conceptualised as potentially strengthening or weakening the inhibiting effect of anxiety and the enabling effect of readiness. However, the findings did not support either hypothesis of H3 ($\beta=-0.021$, $p>0.05$) and H4 ($\beta=-0.007$, $p>0.05$).

The absence of moderation effects suggests that having exposure alone may not be sufficient to change the psychological factors driving technology adoption among ODL students. Although prior experience is often recognised as an important factor in technology adoption (Venkatesh et al., 2003), and can shape students' perception (Xia et al., 2025), in this current study, it did not alter how anxiety or readiness influenced behavioural intention.

A possible explanation could be that the use of GenAI has now become a necessity in ODL learning contexts. Students must engage with it regardless of prior experience, echoing Garcia-Murillo et al. (2023) who found similar patterns in higher education faculty adoption of Moodle. Another possible explanation could be due to the students' tendency to overestimate their ability when using GenAI. Even with limited exposure, students are often overconfident in their skills (Kelly et al., 2023). Some misjudge their own understanding due to the ease of generating AI outputs (Kumar et al., 2026). Similarly, Rismanchian et al. (2026) reported a gap between students' perceived competence and their actual demonstrated knowledge of GenAI. As such, these findings suggest that prior experience may boost confidence without reducing anxiety or enhancing readiness. It further emphasises that exposure alone cannot support the moderation effects in this study.

Additionally, further likely explanation as to why the moderating effect of prior GenAI experience was not significant could be due to the uneven distribution of prior GenAI experience among ODL students. In this study, the majority of respondents reported no or limited prior experience (scores 1-2; $n=313$) while only a small proportion of the respondents reported high experience (scores 4-5; $n=45$). This imbalance reduces the moderating effect of prior GenAI experience as it lacked sufficient variance to meaningfully alter the strength of the relationships between anxiety/readiness and behavioural intention. According to Hair et al. (2018), moderating effects in regression require adequate variability in the moderator in order to generate reliable interaction terms. When most of the respondents are found at one end of the scale, the statistical power to detect conditional effects is reduced even without conducting multi-group analysis. The finding is consistent with Venkatesh et al. (2003) who argued that experience influences behavioural intention mainly when users have gathered substantial interactions with a technology.

5. Conclusion

In conclusion, this study provided valuable insights into the influence of GenAI anxiety and readiness on students' behavioural intention to adopt GenAI. The findings indicated that anxiety and readiness exerted significant, yet contrasting, effects on ODL students' intentions. Taken together, these findings suggest that effective integration of GenAI in education requires a balanced approach that simultaneously reduces anxiety and strengthens readiness. From a theoretical perspective, this study extended the Dual-Factor Theory of Technology Use by integrating both affective inhibitors (anxiety) and capability-related enablers (readiness) into the adoption process. While prior research has largely focused on cognitive determinants, the present findings highlighted that technology adoption is not solely driven by rational evaluation but is also shaped by emotional responses and perceived capability. Importantly, the hypothesised moderating role of prior GenAI experience was not supported. This finding suggested that exposure alone does not alter the strength of these relationships. This reinforces the view of experience potentially functioning as a direct predictor rather than an interactive condition, and that institutional support and structured training are more critical in achieving adoption outcomes. Practically, these findings imply that educators and institutions should create supportive learning environments that minimise uncertainty and discomfort, while simultaneously equipping students with necessary skills and competencies to use GenAI effectively. Structured guidance, hands-on training, clear ethical guidelines, and confidence building activities could reduce anxiety and enhance readiness. Curriculum design should integrate GenAI in ways that encourage capability development and address affective concerns to ensure adoption is both effective and sustainable. Importantly, the findings caution against assuming that prior experience alone will enhance adoption. Instead, intentional pedagogical strategies are needed to build meaningful readiness and mitigate anxiety. Future research should explore the quality and depth of prior GenAI experience rather than frequency alone, as guided and pedagogical

structured exposure may have stronger moderating effects than casual use. Additionally, comparative studies could be conducted on whether the non-significant moderation observed in this study is context-specific to ODL students or across diverse educational settings or multiple institutions to enhance the generalisability of the findings. Qualitative studies applying the current framework could yield richer insights into how these relationships operate and evolve.

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