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EXPLORING THE INFLUENCE OF TEACHERS' DISPOSITIONS AND EXPERIENCE ON THEIR READINESS TO ADOPT TECHNOLOGY-BASED ASSESSMENT STRATEGIES IN CROSS RIVER STATE SECONDARY SCHOOLS USING SEM TECHNIQUE

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Abstract

This study explored the influence of teachers' dispositions and experience on their readiness to adopt technology-based assessment strategies in secondary schools in Cross River State, Nigeria, using Structural Equation Modelling (SEM). Four hypotheses guided the study. A correlational survey design was used. The study's population comprised 4, 578 Public Secondary Schools teachers in the State. A sample of 200 teachers drawn through a multi-stage sampling procedure responded using the Teachers' Dispositions toward Technology-Adoption Questionnaire (TDtTAQ) and Questionnaire on Teachers' Readiness to Adopt Technology-Based Assessment Strategies (QTRATBAS), validated by three experts. After trial-testing, strong reliability estimates of 0.79 and 0.81 were obtained for TDtTAQ and QTRATBAS, respectively, using Cronbach's alpha. The SEM analysis was done using Warp-PLS. The study's findings, among others, revealed a meaningful model involving the influence of teachers' dispositions (technological anxiety, perceived self-efficacy, openness to change, willingness to learn, and perceived relevance) and experience on their readiness to adopt technology-based assessment strategies. It also showed a significant ($p < 0.05$) direct influence of the exogenous variables on the endogenous (criterion) variable. Hence, it was recommended, among others, that professional development programmes that focus on building in-service teachers' confidence and preparedness in using technology should be encouraged by relevant education stakeholders.

Keywords: Teachers' dispositions, Technology-based assessment strategies, Structural equation modelling (SEM)

Introduction

The adoption of technology in education has become a critical element in shaping modern learning environments, particularly in secondary schools, where digital transformation holds great promise for improving teaching and learning processes. However, the transition towards integrating technology-based assessment strategies in most public secondary schools in Nigeria has not been without challenges. According to Anderson and Dron (2023), technology-based assessment strategies refer to the integration of digital tools and platforms to evaluate student performance, enhance feedback mechanisms, and support learning processes. These strategies leverage technologies such as Learning Management Systems (LMS), automated grading tools, digital portfolios, and online assessments to assess student learning in a more flexible, interactive, and data-driven manner (Davis & Roblyer, 2021). One of the core advantages of technology-based assessments is their ability to provide real-time feedback, allowing both students and teachers to monitor learning progress continuously.

Technology-based assessment strategies, such as quizzes, simulations, and peer reviews, not only enable immediate scoring but also facilitate personalised learning experiences by adapting to the individual learner's pace and needs (Torrance & Gorman, 2020). The strategies support the integration of formative assessment strategies, which are crucial in identifying learning gaps and adjusting instruction accordingly (Anderson & Dron, 2023). Papanastasiou (2021) noted that the assessment strategies can incorporate a variety of question formats, such as multiple-choice, essay, and drag-and-drop, which promote deeper learning and critical thinking, moving beyond traditional rote memorisation.

Despite these advantages, challenges such as the digital divide and lack of teachers' readiness to adopt tech-based assessment strategies remain critical barriers (Eke, 2024; Ofem et al., 2025; Papanastasiou, 2021). Many teachers in Nigerian public secondary schools remain hesitant to incorporate these technologies into their assessment practices (Oni et al., 2019; Chukwuemeka & Aregbesola, 2025). This hesitance is rooted in a combination of teachers' dispositions and their teaching experience, both of which can significantly influence their readiness to adopt new educational technologies.

Teachers' dispositions towards technology are pivotal in determining their readiness to embrace technology-based assessment strategies. Dispositions such as technological anxiety, perceived self-efficacy, openness to change, willingness to learn, and perceived relevance have been identified as critical factors shaping educators' attitudes and behaviours towards technology adoption (Akinfolarin et al., 2020). Technological anxiety, in particular, has been widely recognised as a significant barrier to technology adoption in educational settings. According to Aslan and Zhu (2021), technological anxiety refers to the apprehension or fear teachers may experience when using technology, which can stem from a lack of familiarity or perceived lack of competence in using digital tools. This fear can lead to resistance to integrating technology into teaching practices, even when there are clear advantages to doing so. Alshammari (2022) further suggests that technological anxiety inhibits innovation in

teaching practices, making teachers more likely to stick to traditional, non-technological methods that they feel more comfortable with. This supports the assertion by Chai et al. (2013) that teachers with high levels of technological anxiety often perceive technology as a threat to their authority and teaching role, further contributing to their reluctance to adopt new methods. Thus, overcoming technological anxiety is essential for fostering a culture of technological innovation in schools.

Perceived self-efficacy refers to the belief in one's ability to perform tasks successfully. This has been positively linked to increased technology adoption rates in education (Tondeur et al., 2020). Teachers with high levels of self-efficacy are more likely to experiment with new teaching methods (Bandura, 1997), like integrating technology-based assessment strategies into their classroom practices. As noted by Ertmer and Ottenbreit-Leftwich (2013), teachers with strong self-efficacy are more confident in their ability to use technology to enhance their teaching, leading to more successful integration of technological tools. On the other hand, teachers who perceive themselves as less capable in using technology may shy away from adopting technology-based assessments, further perpetuating their reluctance. Self-efficacy is thus a critical factor that not only influences adoption but also impacts how effectively teachers can implement and utilise these tools to their advantage (Mueller et al., 2008).

Openness to change and willingness to learn new methods are also crucial in determining whether teachers are ready to embrace technology-based assessments. According to Davis and Roblyer (2021), teachers who are open to change are more likely to seek out and embrace new tools and methods, including technology. Some scholars also suggest that individuals' willingness to adopt new technologies is directly related to their openness to change (Falemu & Akinwumi, 2023; Frei-Landau, Muchnik-Rozanov, & Avidov-Ungar, 2022; Uzumcu & Acilmis, 2024). In education, this means that teachers who are receptive to new ideas, pedagogical approaches, and tools are more likely to incorporate technology-based assessments into their teaching strategies. Similarly, a willingness to learn, which involves the eagerness to acquire new knowledge and adapt to evolving educational practices, is a fundamental disposition for technology adoption (Tondeur et al., 2021). Some scholars (Vannatta & Fordham, 2004; Eke, 2024) highlight that teachers who engage in continuous professional development and learning are better prepared to utilise technology in innovative ways, making them more ready to adopt and integrate technology-based assessment strategies.

Perceived relevance of technology-based assessment strategies also plays a significant role in shaping teachers' readiness to adopt such methods. Shin and Kwon (2019) maintained that teachers are more likely to embrace technology-based assessments if they perceive them as relevant to their students' learning needs and beneficial for their own teaching practices. The relevance of technology is often tied to the teachers' understanding of its impact on learning outcomes (Thompson et al., 2020) and their ability to see its advantages in improving educational quality (Zhao et al., 2021). In essence, when teachers recognise that technology-based assessments can provide immediate feedback, promote personalised learning and support diverse learning styles, they are more likely to be inclined to adopt these strategies. Trilling and Fadel (2009) reinforce

this by showing that when teachers understand the positive outcomes of integrating technology in their assessment strategies, they are more likely to engage with these tools.

Together, the above-noted dispositions serve as a foundation for understanding teachers' readiness to adopt technology-based assessment strategies. However, Teo (2011) asserted that technological anxiety, self-efficacy, openness to change, willingness to learn and perceived relevance do not operate in isolation but are interrelated. Thus, each disposition is capable of influencing and being influenced by others, further emphasising the need for a holistic approach when assessing teachers' readiness for technology adoption.

Experience, too, plays a crucial role in shaping teachers' readiness to integrate technology into their assessment practices. Some studies suggest that teachers with more years of experience or those who have participated in professional development programmes are generally more open to adopting new technological tools (Chukwuemeka & Aregbesola, 2025; Hennessy et al., 2020; Oni et al., 2019). However, the influence of experience is often complicated, with teachers' comfort levels and prior exposure to educational technologies serving as key factors in determining how they respond to technology-based innovations (Baylor & Ritchie, 2022). In the context of secondary schools in Cross River State, it is important to explore how the interaction between teachers' professional experience and their dispositions affects their readiness to adopt technology-based assessment strategies.

The readiness of teachers to adopt technology-based assessment strategies is a multifaceted construct that encompasses psychological, pedagogical, and contextual dimensions. Teacher readiness extends beyond the mere availability of technological resources to include teachers' beliefs, attitudes, and self-efficacy regarding the integration of technology into teaching and assessment practices (Ertmer & Ottenbreit-Leftwich, 2010; Teo, 2011). Research has consistently demonstrated that teachers' beliefs about technology and their confidence in using digital tools play a critical role in determining whether technological innovations are meaningfully integrated into classroom assessment. In addition to individual dispositions, institutional conditions such as access to digital infrastructure, professional development opportunities, and administrative support significantly shape teachers' capacity to implement technology-based assessment strategies (Tondeur et al., 2017). A systematic review of formative assessment technologies in primary and secondary education further highlights that even when teachers demonstrate positive attitudes toward digital tools, implementation may remain limited if schools lack adequate technological infrastructure or institutional support mechanisms (Douglas et al., 2023).

Consequently, teacher readiness should be understood as a dynamic interaction between individual competencies and contextual conditions. Teachers may demonstrate strong motivational readiness, including positive attitudes and self-efficacy, yet adoption may still be constrained by inadequate technological infrastructure or limited organizational support. Conversely, the mere presence of technological infrastructure does not guarantee effective adoption if teachers experience anxiety, lack digital

pedagogical skills, or perceive limited instructional value in modifying their existing assessment practices (Mishra & Koehler, 2006; Teo, 2011).

From the foregoing, it is imperative to mention that the problem of inadequate adoption of technology-based assessment strategies in Cross River State secondary schools can result in a disconnection between the global push for digital literacy and the reality of classroom practices. This may have occasioned the notable gap in the readiness of teachers to implement technology in their assessment strategies in the state, despite the widespread recognition of technology's potential to revolutionise education. This issue is compounded by inadequate comprehensive studies that examine the relationship between teachers' dispositions, experience and their readiness to adopt technology-based assessments.

While some studies have explored individual factors influencing technology adoption (Akinfolarin et al., 2020; Chai et al., 2013; Ertmer & Ottenbreit-Leftwich, 2013), few studies have combined these factors within a cohesive framework that considers both personal dispositions and professional experience simultaneously (Teo, 2011; Tondeur et al., 2020). Many studies have also focused on descriptive surveys of teachers' ICT proficiency or general attitudes toward ICT (Oshiotse, 2019; Adepoju, 2021; Omodara et al. 2025) but rarely examined the interactive and latent relationships among teachers' dispositions, professional experience, and contextual supports.

For instance, Omodara et al. (2025) report that while ICT facilities were available in many schools, they were neither functional nor utilised, yet they do not integrate teacher dispositions or experience as predictors in a multivariate model. Similarly, Okolo (2019), in a comparative study of public and private schools in the FCT Abuja, highlights availability differences, but lacks analytical depth into how those differences relate to teacher readiness or behavioural intentions. Important to note is that, without modelling latent constructs and mediation or moderation effects, these studies did not adequately capture the complex pathways through which dispositions and experience influence readiness to adopt technology-based assessments. Consequently, several critical limitations emerged that challenge the robustness of extant findings, thereby calling for the adoption of a more sophisticated, advanced multivariate modelling technique such as Structural Equation Modelling (SEM).

Structural Equation Modelling (SEM) offers a powerful tool for investigating the complex relationships among multiple variables simultaneously (Schumacker & Lomax, 2010; Agah et al., 2022). It allows simultaneous estimation of multiple direct and indirect effects, accommodates measurement error in latent constructs, and hence provides more rigorous evidence of interrelationships than conventional bivariate or regression approaches (Avkiran & Ringle, 2018). This, therefore, informed the adoption of SEM as an ideal technique for this study that sought to explore the influence of teachers' dispositions and experience on their readiness to adopt technology-based assessment strategies in secondary schools in Cross River State, Nigeria.

Research Questions

The following research questions guided the study:

1. What is the most parsimonious causal model for explaining the influence of teachers' dispositions (technological anxiety, perceived self-efficacy, openness to change, willingness to learn, and perceived relevance) and their experience on their readiness to adopt technology-based assessment strategies?
2. What is the magnitude of the direct influence of teachers' dispositions and their experience on their readiness to adopt technology-based assessment strategies?
3. What are the exogenous variables with significant indirect influence on teachers' readiness to adopt technology-based assessment strategies?
4. What is the proportion (%) of composite influence of the exogenous variables on the criterion variable in the model?

Hypotheses

The following hypotheses were formulated for the study and were tested at 0.05 level of significance.

Ho_1: The magnitudes of direct influence of teachers' dispositions and their experience on their readiness to adopt technology-based assessment strategies are not statistically significant.

Ho_2: The proportion (%) of composite influence of the exogenous variables on the criterion variable in the model is not statistically significant.

Methodology

This study utilised a correlational survey design and was carried out in Cross River State, Nigeria. The study's population comprised all the 4,578 teachers in the 269 Public Secondary Schools in the State, for the 2024/2025 academic year. A sample of 200 teachers was drawn for the study through a multi-stage sampling procedure. Teachers' Dispositions toward Technology Adoption Questionnaire (TDtTAQ) and Questionnaire on Teachers' Readiness to Adopt Technology-Based Assessment Strategies (QTRATBAS), adapted by the researchers, were used for data collection. The instruments had two sections: Section A and Section B. Section A elicited personal information of the respondents, such as the teacher's gender (Male or Female) and years of experience (Below 5 years, 6-10years, 11-20 years, 21 years and above), while Section B contained the item statements that were used as measures of the various variables. The students were requested to express their level of agreement or otherwise to items of each of the items of the instruments based on a four-point Likert-type scale with response options as Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD), with numerical values or points of 4, 3, 2, and 1, respectively. Three experts face-validated the instruments. After trial-testing, the internal consistency of the instruments was estimated using the Cronbach Alpha method, and reliability estimates of 0.79 and 0.81 were obtained for TDtTAQ and QTRATBAS, respectively.

The researcher and three research assistants, who were adequately briefed, engaged with respondents, established rapport, and distributed the questionnaires directly and collected them immediately upon completion to maximise the response return rate and ensure data quality. The data gathered were sorted, coded, screened, and analysed

using WarpPLS computer-based statistical software. All the research questions and null hypotheses were addressed based on the evaluation of the measurement and structural aspects of the estimated (empirical) causal model. The measurement model was evaluated using the convergent and discriminant validity indices. The convergent validity was determined using i) item loadings, ii) composite reliability index and iii) the average variances extracted (AVE); whereas the discriminant validity was evaluated using the square root of AVE (acceptable if the square root of AVE for each latent variable is greater than the correlations involving all the latent variables). The structural model was evaluated using Stone-Georgas's Q2 (Q2 < 0) and the path coefficients (β) (Avkiran & Ringle, 2018). The direct effects were determined using effect size (f^2), values≥ 0.35, 0.15, and 0.02 implying large, medium, and small effect sizes, respectively, of exogenous variable(s) on an endogenous variable. The Adjusted R-square coefficient was used to describe the magnitude of variance in the endogenous variables that is accounted for by the exogenous variables. Lastly, the model fit indices, Average Path Coefficient (APC), Average R-squared (ARS), Average Adjusted R-squared (AARS) and Standardized root mean squared residual (SRMR) were evaluated to determine the degree of fitness of the model (Kock, 2020). All the null hypotheses were tested at 0.05 level of significance ($\alpha<.05$).

Results

The results from data analysis are presented thus:

Research Question One: What is the most parsimonious causal model for explaining the influence of teachers' dispositions (technological anxiety, perceived self-efficacy, openness to change, willingness to learn and perceived relevance) and their experience on their readiness to adopt technology-based assessment strategies?

After the development of the model, the indicators of the variables in the model were assessed for convergent and discriminant validities. Based on the recommended threshold, the convergent validities obtained were evaluated by considering the loadings of the items (loading ≥ 0.50) and the Average Variance Extracted (AVEs) using the Fornell and Larcker (1981) criteria, which states that the values of the AVEs should be greater than or equal to 0.40 (AVE > 0.40). The result of the trimmed model is presented in figure 1.

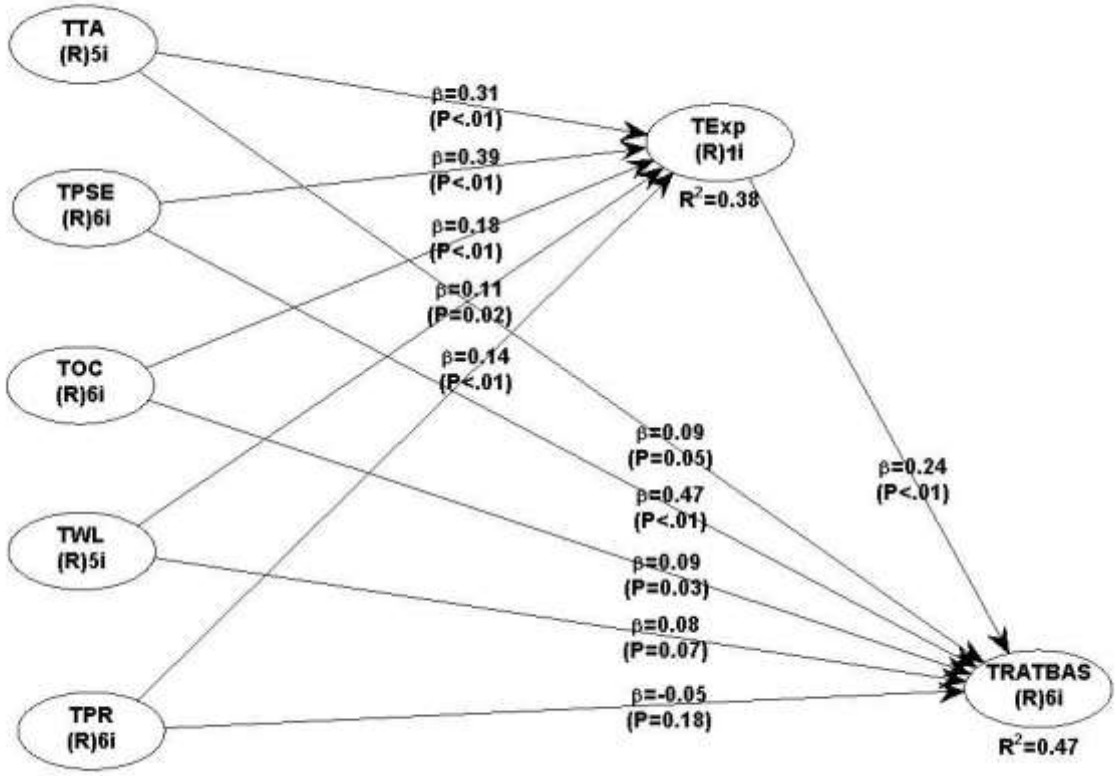

Figure 1: The Trimmed PLS-SEM Model

Figure 1 shows the analysis of the fitness of the trimmed hypothetical model to the empirical model involving the influence of teachers' dispositions; technological anxiety (TTA), perceived self-efficacy (TPSE), openness to change (TOC), willingness to learn (TWL), perceived relevance (TPR) and their experience (TExp) on their readiness to adopt technology-based assessment strategies (TRATBAS). The model indicates the strength of each of the variables and their indicators. Following the evaluation of the measurement model, the convergent validity was determined using i) item loadings, ii) composite reliability index and iii) the average variances extracted (AVE), while the discriminant validity was evaluated using the square root of AVE (acceptable if the square root of AVE for each latent variable is greater than the correlations involving all the latent variables). All these were satisfactory after trimming of unsatisfactory loadings of some of the various latent variables. In the assessment of the structural model, out of the 11 paths that formed the structural model, nine paths were significant. This is because the p-values associated with the t-values obtained for the paths were less than or equal to 0.05 level of significance ($p \leq 0.05$). This means that the nine paths significantly explain their direction of influence in the model. Consequently, the nine paths were retained in the model. Conversely, two paths were not statistically significant because the p-values associated with the t-values obtained for the paths were greater than 0.05 level of significance ($p > 0.05$). Therefore, the two did not significantly explain their direction of

influence in the model. As such, the paths were deleted as they are not important in explaining their direction of influence in the model. Accordingly, the model was modified, re-specified and re-estimated to achieve the parsimonious (meaningful) causal model presented in Figure 2.

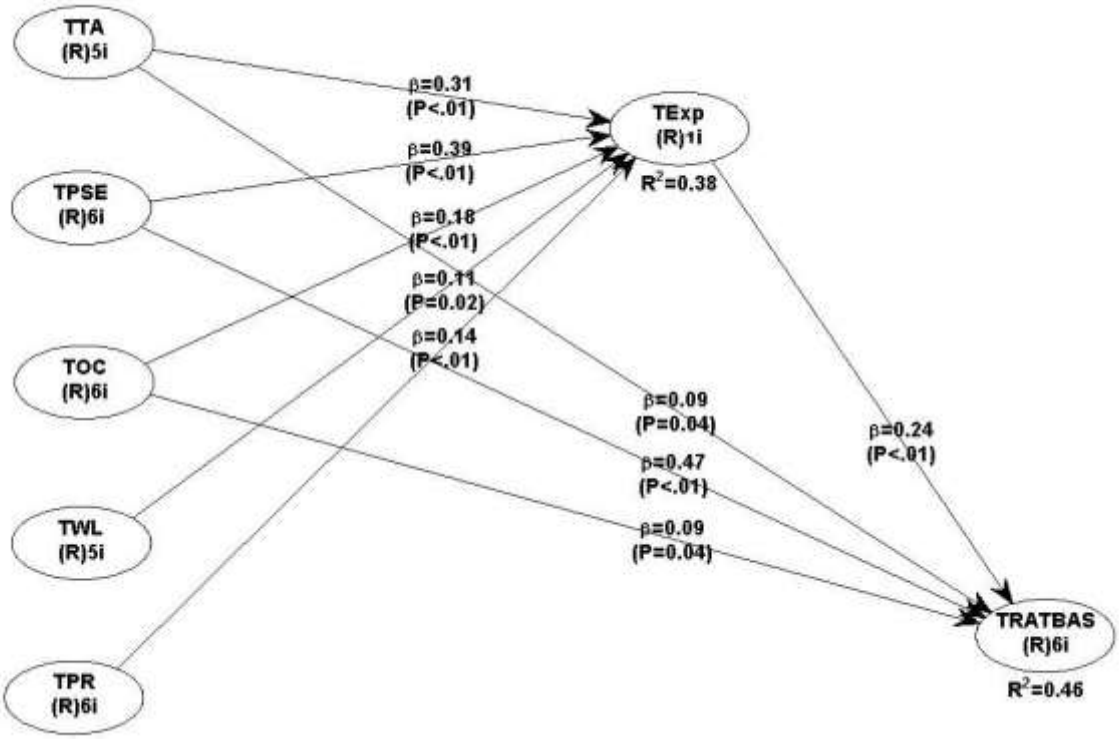

Figure 2: The Empirically Validated (Parsimonious) PLS-SEM Model

Figure 2 provides a graphical explanation of the influence of teachers' dispositions; technological anxiety (TTA), perceived self-efficacy (TPSE), openness to change (TOC), willingness to learn (TWL), perceived relevance (TPR), and their experience (TExp) on their readiness to adopt technology-based assessment strategies (TRATBAS). Observably, all the paths in the model were significant ($p \leq 0.05$). In the same vein, the model demonstrates significant fit, as evidenced by the following key indices: Average Path Coefficient (APC = 0.223, $p < 0.001$), Average R-squared (ARS = 0.421, $p < 0.001$), Average Adjusted R-squared (AARS = 0.414, $p < 0.001$), and Standardized root mean squared residual (SRMR = 0.072, acceptable if <= 0.1). The p-value for APC indicates that the influence of the exogenous variables on endogenous variables in the model is statistically significant. This is because the p-values associated with the various path coefficients and model quality indices are less than or equal to the 0.05 level of significance at which the result was being tested. Therefore, Figure 2 provides a parsimonious explanation of the influence of teachers' dispositions (technological anxiety, perceived self-efficacy, openness to change, willingness to learn, and perceived relevance) and their experience on their readiness to adopt technology-based assessment strategies.

Research Question Two: What is the magnitude of direct influence of teachers' dispositions and their experience on their readiness to adopt technology-based assessment strategies?

Table 1: *Magnitude of direct influence of teachers' dispositions and their experience on their readiness to adopt technology-based assessment strategies*

S/N	Path	β	Standard Error	Effect Size (f^2)	Magnitude of influence	t-values	p-values	Decision
1.	TTA > TExp	0.31	0.05	0.15	Moderate	6.19	0.00	S
2.	TPSE > TExp	0.39	0.05	0.20	Moderate	7.91	0.00	S
3.	TOC > TExp	0.18	0.05	0.09	Small	3.49	0.00	S
4.	TWL > TExp	0.11	0.05	0.05	Small	2.11	0.02	S
5.	TPR > TExp	0.14	0.05	0.07	Small	2.71	0.00	S
6.	TTA > TRATBAS	0.09	0.05	0.03	Small	1.79	0.04	S
7.	TPSE > TRATBAS	0.47	0.05	0.29	Moderate	9.85	0.00	S
8.	TOC > TRATBAS	0.09	0.05	0.03	Small	1.78	0.04	S
9.	TExp > TRATBAS	0.24	0.05	0.12	Small	4.77	0.00	S

Note: β = Beta coefficient, S= Significant, NS = Not Significant; $f^2 \geq 0.35$ implies Large effect, ≥ 0.15 implies
Moderate effect, and ≥ 0.02 implies a small effect

The result in Table 1 shows that teachers' perceived self-efficacy (TPSE) had the strongest direct influence on their readiness to adopt technology-based assessment strategies (TRATBAS) with a path coefficient (β) of 0.47 (f^2= 0.29). This means that a unit change in TPSE will result in a 0.47 (moderate) change in their readiness to adopt technology-based assessment strategies. The next variable was teachers' experience (TExp), which had a considerable direct influence on TRATBAS, with a path coefficient of 0.24 (f^2= 0.12). This means that a unit change in TExp would account for a 0.24 change in their readiness to adopt technology-based assessment strategies. Teachers' technological anxiety (TTA) and their openness to change (TOC) both recorded a substantial path coefficient of 0.09 (f^2= 0.03), indicating that a unit change in the variables would account for a 0.09 change in their readiness to adopt technology-based assessment strategies. On the whole, it can be deduced that teachers' dispositions and their experience have a substantial direct influence on their readiness to adopt technology-based assessment strategies.

H0₁: The magnitudes of direct influence of teachers' dispositions and their experience on their readiness to adopt technology-based assessment strategies are not statistically significant.

Results in Table 1 also indicate that the magnitudes of direct influence of teachers' dispositions, technological anxiety, perceived self-efficacy, and openness to change (TOC) and teaching experience (TExp) on their readiness to adopt technology-based assessment strategies (TRATBAS) in the parsimonious model developed are statistically significant. This is because the p-values associated with the t-values obtained for the paths are less than or equal to 0.05 ($p < 0.05$), the level of significance at which the hypothesis was tested. Therefore, the null hypothesis was rejected; as such, the inference drawn was that the magnitudes of direct influence of teachers' dispositions and their experience on their readiness to adopt technology-based assessment strategies are statistically significant.

Research Question Three: What are the exogenous variables with significant indirect influence on teachers' readiness to adopt technology-based assessment strategies?

Table 2: *Indirect influences of the exogenous variables on the criterion variable (teachers' readiness to adopt technology-based assessment strategies)*

S/N	Path	β	Standard Error	Effect Size (f^2)	Magnitude of influence	p-values	Decision
1.	TTA > TExp > TRATBAS	0.07	0.04	0.03	Small	0.02	S
2.	TPSE > TExp > TRATBAS	0.09	0.04	0.06	Small	0.01	S
3.	TOC > TExp > TRATBAS	0.04	0.04	0.02	Small	0.13	NS
9.	TWL > TExp > TRATBAS	0.03	0.04	0.01	Small	0.24	NS
10.	TPR > TExp > TRATBAS	0.03	0.04	0.01	Small	0.19	NS

Note: β = Beta coefficient, S= Significant, NS = Not Significant; $f^2 \geq 0.35$ implies a large effect, $\geq$ 0.15 implies

Moderate effect, and $\geq$ 0.02 implies a small effect

The result in Table 2 reveals that significant indirect influences are evident only in the paths from teachers' technological anxiety (TTA) and their perceived self-efficacy (TPSE), respectively, through their experience to their readiness to adopt technology-based assessment strategies (TRATBAS). This is because the p-values associated with the various path coefficients and model quality indices are less than or equal to the 0.05 level of significance at which the result was being tested. In other words, a 1 unit change in teachers' technological anxiety (TTA) and their perceived self-efficacy (TPSE)

through the influence of teachers' experience will result in a substantial change in their readiness to adopt technology-based assessment strategies.

Research Question Four: What is the proportion (%) of composite influence of the exogenous variables on the criterion variable in the model?

Table 3: The proportion (%) of the composite influence of the exogenous variables on the criterion variable in the model.

Composite influence	R-Square	Adjusted R-Square	Average R-squared (ARS)	p-value
TRATBAS	0.46	0.45	0.42	$p < 0.001$

The result in Table 3 and Figure 2 shows that the R-square value obtained was 0.46, which implies that 46.0% of the variance in teachers' readiness to adopt technology-based assessment strategies (TRATBAS) is explained collectively by the exogenous variables (teachers' technological anxiety, perceived self-efficacy, openness to change, willingness to learn, perceived relevance, and their experience.

H0$_2$: The proportion (%) of composite influence of the exogenous variables on the criterion variable in the model is not statistically significant.

The result in Table 3 also revealed that there is a significant ($p < 0.001$) composite influence of the exogenous variables on the criterion variable (teachers' readiness to adopt technology-based assessment strategies) in the model. This is given the fact that the bootstrap p-value associated with the Average R-Square ($R^2 = 0.46$) for the exogenous variables in relation to the teachers' readiness to adopt technology-based assessment strategies (TRATBAS) is statistically significant ($p < 0.05$). Therefore, null hypothesis two was rejected, and it was concluded that the proportion (%) of composite influence of the exogenous variables on the criterion variable in the model is statistically significant.

Discussion

The study aimed to explore the influence of teachers' dispositions and experiences on their readiness to adopt technology-based assessment strategies in Cross River State, Nigeria. Using Structural Equation Modeling (SEM), the findings revealed that a complex interplay of various aspects of teachers' dispositions, such as technological anxiety, perceived self-efficacy, openness to change, willingness to learn, and perceived relevance, and their years of teaching experience, directly influence their readiness to adopt technology-based assessment strategies. The parsimonious model developed shows that teachers' dispositions are critical predictors of their readiness to adopt technology-based assessment strategies.

Specifically, perceived self-efficacy was found to have the strongest direct influence on readiness to adopt technology-based assessments, which supports findings by Tondeur et al. (2020) and Ertmer and Ottenbreit-Leftwich (2013), who argued that teachers with higher self-efficacy are more likely to embrace new technologies. This

finding stresses the importance of building teachers' confidence in their ability to use technology, a crucial factor in overcoming barriers to adoption (Bandura, 1997).

Technological anxiety was another significant predictor, with the study confirming that anxiety about using technology often acts as a barrier to adoption. This result corroborates the findings of Alshammari (2022), who highlighted that technological anxiety inhibits innovation in teaching practices, making teachers more inclined to stick with traditional methods. Moreover, the study emphasises that openness to change and willingness to learn also play pivotal roles in determining whether teachers are prepared to integrate technology into their assessment strategies. These factors resonate with previous research by Falemu and Akinwumi (2023), who found that teachers' willingness to adopt new tools correlates strongly with their openness to change and eagerness to engage in continuous professional development.

The study's findings regarding experience align with existing literature that suggests teachers with greater professional experience tend to be more ready to adopt new technologies (Chukwuemeka & Aregbesola, 2025; Hennessy et al., 2020). The study showed that teachers with more years of experience had higher readiness to adopt technology-based assessments, possibly due to their familiarity with educational practices and comfort with integrating new tools. However, as noted by Baylor and Ritchie (2022), the influence of experience on technology adoption can be complex. While experience often increases openness to technology, it can also foster resistance if teachers are not adequately supported in transitioning to new methods.

The direct and indirect influences of the exogenous variables on the readiness to adopt technology-based assessment strategies are particularly notable. The study found that technological anxiety and perceived self-efficacy had significant indirect effects, mediated through teachers' experience. This finding reinforces the work of Papanastasiou (2021), who identified the digital divide and readiness issues as key barriers to technology integration. The study also revealed that teachers' dispositions significantly contributed to explaining the variance in their readiness to adopt technology-based assessment strategies, with 46% of the variance in readiness being accounted for by these variables. This result supports previous studies by Tondeur et al. (2021), which found that the integration of technology into teaching practices is significantly influenced by teachers' psychological readiness. Furthermore, the model fit indices confirmed that the model provided an excellent fit, validating the strength and reliability of the relationships between the studied variables. These findings are consistent with previous studies using SEM, such as Kock (2020), who demonstrated that SEM is an effective method for analysing the complex relationships between variables in educational contexts.

Conclusion and Recommendations

Based on the findings of this study, it is concluded that teachers' dispositions, such as technological anxiety, perceived self-efficacy, openness to change, willingness to learn and perceived relevance, alongside teachers' experience, significantly influence their readiness to embrace technology for assessment purposes. The study provides robust

evidence of the direct and indirect influences these variables have on the adoption process, with self-efficacy and experience emerging as the most influential factors. The model developed demonstrates a meaningful fit, explaining a substantial proportion of the variance in teachers' readiness to adopt technology-based assessments.

Based on the findings of the study, the following recommendations are made:

1. Educational stakeholders should prioritise designing professional development initiatives that specifically address teachers' technological anxiety and enhance their self-efficacy, ensuring that teachers feel more confident and competent in using technology for assessment.
2. Schools should foster a culture of openness to change by providing opportunities for teachers to engage with new teaching tools and pedagogies, facilitating their willingness to learn and adapt to evolving educational technologies.
3. The government, through both state and federal ministries of education, should invest in the necessary technological infrastructure and resources, ensuring that all teachers have access to functional digital tools and platforms that enable them to integrate technology-based assessments effectively.
4. Strategies should be tailored and developed to account for the diverse experiences and backgrounds of teachers.

References

Agah, J. J., Oguguo, B. C.E., Ene, C. U., Asor, L. J & Andor, S. E. (2022). Mediating influence of lecturers and students' characteristics on acquisition of research skills among postgraduate students. *Springer; Interchange.* DOI: 10.1007/s10780-022-09481-5.

Akinfolarin, A., Ojo, A., & Alabi, A. (2020). The role of teachers' disposition towards ICT in enhancing teaching and learning in secondary schools. *International Journal of Education and Development using Information and Communication Technology, 16*(3), 38-52

Alshammari, M. (2022). Examining the role of technological anxiety in teachers' resistance to technology in education. *Educational Technology Research and Development*, *70*(1), 35-50

Anderson, T., & Dron, J. (2023). Technology-based assessment strategies in education: A theoretical and practical overview. *Journal of Educational Technology and Pedagogy, 18*(2), 99-113.

Aslan, A., & Zhu, C. (2021). Exploring teachers' anxiety towards the use of technology in education: An overview. *Education and Information Technologies*, *26*(4), 4401-4419.

Avkiran, N. K., & Ringle, C. M. (2018). *Partial least squares structural equation modeling: Recent advances in banking and finance* (Vol. 267, International Series in Operations Research & Management Science). Springer

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman and Company.

Baylor, A. L., & Ritchie, D. (2022). What factors facilitate teacher technology integration? *Journal of Educational Computing Research, 38*(3), 257-273.

Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2013). A review of the research on teachers' beliefs and technology integration. *Educational Technology & Society*, *16*(2), 61-77.

Chukwuemeka, E. J., & Aregbesola, B. G. (2025). *Secondary school teachers' proficiency in integrating technology within their subject-matter contexts in Nigeria. Ilorin Journal of Education, 45*(2), 125-136.

Davis, T., & Roblyer, M. D. (2021). Teachers' readiness for technology-based teaching: Examining the impact of experience and professional development. *Journal of Research on Technology in Education*, *53*(2), 146-163.

Eke, O. E. (2024). Assessing the readiness and attitudes of Nigerian teacher educators towards adoption of artificial intelligence in educational settings. *Journal of Educational Technology and Online Learning, 7*(4), 473-487.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2013). Teacher technology change: How knowledge, confidence, and beliefs impact implementation. *Journal of Research on Technology in Education*, *46*(1), 60-82.

Falemu, F. A., & Akinwumi, I. O. (2023). Teachers' readiness for information and communication technology in teaching of Biology in secondary schools in Ekiti State, Nigeria. *International Journal of Library and Information Science Studies, 9*(7), 26-38.

Frei-Landau, R., Muchnik-Rozanov, Y., & Avidov-Ungar, O. (2022). Using Rogers' diffusion of innovation theory to conceptualize the mobile-learning adoption process in teacher education in the COVID-19 era. *Education and Information Technologies*, *27*(9), 12811–12838.

Hennessy, S., Harrison, D., & Wamakote, L. (2020). Teacher factors influencing classroom use of ICT in sub-Saharan Africa: A review of the literature. *Education and Information Technologies*, 15(3), 135-147.

Kock, N. (2020). Using indicator correlation fit indices in PLS-SEM: Selecting the algorithm with the best fit. *Data Analysis Perspectives Journal, 1*(4), 1-4.

Mueller, J., Wood, L., & Tandon, S. (2008). The influence of teacher beliefs on technology use in classrooms. *International Journal of Technology in Teaching & Learning*, 4(1), 1-12.

Ofem, E., Obasi, I. C., & Adebayo, A. (2025). Technology readiness and the adoption of AI-based learning tools among Nigerian secondary school teachers. *International Journal of Educational Technology, 12*(3), 211-229.

Omodara, A., Onwunali, M.R.O., & Ifeakor, M.-R.N. (2025). Adoption Levels of Information and Communication Technology Facilities in Teaching Secondary Schools Agricultural Science in Northwest Nigeria. *Zaria Journal of Educational Studies (ZAJES), 25*(1), 77–85.

Oni, C., Amugo, J., & Oshiotse, J. (2019). Assessment of Information Communication Technology Proficiency of Secondary School Teachers in Edo State, Nigeria. *European Journal of Computer Science and Information Technology, 7*(1), 47 56

Papanastasiou, E. (2021). Barriers to the integration of technology in assessment: A review of the digital divide and teacher readiness. *Educational Technology & Society, 24*(1), 15-30.

Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). Routledge.

Shin, N., & Kwon, J. (2019). The role of perceived relevance in technology adoption among teachers. *Educational Technology Research and Development*, 67(3), 555-572.

Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test. *Computers & Education, 57*(4), 2432-2440.

Thompson, G., Copeland, S., & Hinton, D. (2020). Teachers' perceptions of technology-based assessment tools and their implications for student learning. *Computers & Education, 144*, 103704.

Tondeur, J., van Braak, J., & Ertmer, P. A. (2020). The influence of teachers' beliefs on the integration of ICT in education: A review of the literature. *Computers & Education, 56*(1), 1-12.

Torrance, H., & Gorman, T. (2020). Formative assessment and personalized learning: How technology-enhanced strategies foster deeper learning in the digital age. *Learning, Media and Technology, 45*(3), 245-262.

Uzumcu, O., & Acilmis, H. (2024). Do innovative teachers use AI-powered tools more interactively? A study in the context of diffusion of innovation theory. *Technology, Knowledge and Learning, 29*(2), 1109–1128.

Vannatta, R., & Fordham, R. (2004). Teachers' attitudes toward technology integration: A comparison of teachers in high and low access schools. *Journal of Research on Technology in Education*, 36(3), 89-112.

Zhao, Y., Pugh, K., & Sheldon, S. (2021). Conditions for classroom technology use and impact on student learning: A meta-analysis. *Journal of Research on Technology in Education*, 53(4), 469-482.