

International Journal of Learning, Teaching and Educational Research
 Vol. 25, No. 9, pp. 451-472, September 2026
<https://doi.org/10.26803/ijlter.25.9.18>
 Received Jun 30, 2026; Revised Aug 27, 2026; Accepted Aug 28, 2026

Vietnamese Secondary School Teachers' Intention to Implement Differentiated Instruction: A PLS-SEM Analysis of DI-Specific Self-Efficacy

Duy Duc Phan^{ID}, Khai Minh Truong^{ID}
 University of Education, Hue University,
 Hue City, Vietnam

Van Dinh Pham^{ID}
 Ho Chi Minh City University of Education,
 Ho Chi Minh City, Vietnam

Citation:
 Phan, D, D., Truong, M, K., & Pham, V, D. (2026). Vietnamese Secondary School Teachers' Intention to Use Differentiated Instruction: A PLS-SEM Analysis of DI-Specific Self-Efficacy. *International Journal of Learning, Teaching and Educational Research*, 25(9), 451-472. <https://doi.org/10.26803/ijlter.25.9.18>

Abstract. In the context of Vietnam's 2018 General Education Curriculum, differentiated instruction (DI) is increasingly emphasized in competency-based education. However, its classroom implementation remains demanding. While previous studies acknowledge contextual barriers, little is known about how internal capabilities (DI-specific self-efficacy), external support (facilitating conditions), social influence, and acceptance beliefs are jointly associated with teachers' intention to implement DI. This study tested an extended Unified Theory of Acceptance and Use of Technology–Theory of Planned Behavior model in which perceived behavioral control was specified through DI-specific self-efficacy as an internal capability factor and facilitating conditions as an external support factor. The model also adapted perceived usefulness and perceived ease of use to a pedagogical innovation context and included perceptions of DI as an antecedent of these acceptance beliefs. Using convenience sampling, a cross-sectional survey was conducted with 739 Vietnamese secondary school teachers, and the data were analyzed using partial least squares structural equation modeling (PLS-SEM). The measurement model demonstrated adequate reliability and validity. The structural model explained 75.4% of the variance in behavioral intention, 72.5% in attitude, 56.3% in perceived usefulness, and 20.4% in perceived ease of use. DI-specific self-efficacy was the strongest direct predictor of behavioral intention ($\beta = .469$, $p < .001$), followed by attitude ($\beta = .348$, $p < .001$) and facilitating conditions ($\beta = .129$, $p < .001$). Perceptions of DI positively predicted perceived ease of use and perceived usefulness, while perceived usefulness and subjective norm positively predicted attitude. Taken together, the findings indicate that teachers' intention to

*Corresponding author: Khai Minh Truong; tmkhai.dhsp23@hueuni.edu.vn

implement DI is associated with both internal capability and external support, together with their perceptions and evaluations of DI. Professional development should therefore strengthen teachers' DI-specific self-efficacy while providing practical and institutional support for implementation.

Keywords: behavioral intention; differentiated instruction; PLS-SEM; self-efficacy; UTAUT-Theory of Planned Behavior (TPB)

1. Introduction

Differentiated instruction (DI) is an instructional approach for responding to differences among students in readiness, interests, prior knowledge, learning pace, motivation, and support needs. Rather than applying a single teaching strategy to all students, teachers can adjust content, learning processes, products, and the learning environment according to students' needs and available assessment evidence (Tomlinson, 2000, 2014). In this sense, DI is closely related to competency-based education because both approaches require teachers to recognize learner differences and create appropriate opportunities for students to develop their potential. Effective DI therefore depends not only on teachers' knowledge of the approach but also on their willingness and capability to adapt instruction in real classrooms.

Recent international research shows that DI remains an important but demanding area of classroom practice. Kupers et al. (2024) showed that teachers' behavioral intentions toward inclusive DI can be explained through motivational and control-related factors. Dulfer et al. (2025) reported that class composition and teachers' beliefs were related to how differentiated strategies were enacted in practice, while Gibbs (2025) emphasized the role of school leadership and professional learning in supporting teachers' use of DI. More recent studies have focused directly on teachers' capability beliefs. Bi et al. (2026) found that teachers' self-efficacy was associated with differentiated practice both directly and indirectly through collaboration and attitude, and Gibbs et al. (2026) developed and validated a scale specifically for teachers' perceived capability to implement DI. Together, these studies suggest that DI implementation is shaped by teacher beliefs, professional support, and classroom conditions rather than by knowledge of differentiation alone.

In Vietnam, DI is consistent with the orientation of the 2018 General Education Curriculum. The curriculum represents a shift from an emphasis on content transmission toward the development of students' qualities and competencies and promotes learner-centered teaching that responds to individual differences and supports each student's potential (Vietnam Ministry of Education and Training, 2018). These principles provide a policy basis for adapting teaching to differences in students' readiness, progress, and learning needs. However, curriculum expectations do not automatically result in consistent classroom implementation. Huong (2025) reported that Vietnamese teachers generally recognized the value of DI, but its application remained inconsistent, particularly in the differentiation of instructional processes and learning products. Similar

implementation difficulties have been reported in other contexts, including limited planning time, large classes, workload, insufficient resources, and limited school support (Lavania & Mohamad Nor, 2021; Shareefa et al., 2019). Thus, current DI practice can be uneven across teachers and schools even when the approach is supported in principle.

To address these implementation inconsistencies, DI can be viewed as a complex pedagogical innovation because teachers must judge both its educational value and its feasibility under classroom and school conditions (Khotimah et al., 2025). TPB is therefore useful for explaining teachers' intention through attitude, subjective norm, and perceived behavioral control (Ajzen, 2020), but it does not fully capture judgments of instructional usefulness, ease of implementation, and external support. Although Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) were originally developed for technology adoption, DI is not treated as a technological system in this study. Instead, perceived usefulness and perceived ease of use are adapted as acceptance beliefs reflecting the instructional value and practical feasibility of DI, while facilitating conditions represent the external support needed for implementation (Davis, 1989, 1993; Venkatesh et al., 2003, 2012). This adaptation is also consistent with educational studies applying acceptance models to teachers' adoption (Nguyen et al., 2025; Teo, 2011).

The proposed model extends the UTAUT-TPB framework in three ways. First, perceived behavioral control is specified as DI-specific self-efficacy representing internal capability and facilitating conditions representing external support. General self-efficacy may be insufficient to explain teachers' readiness for DI because DI involves complex instructional demands, including designing varied learning activities and assessing differentiated learning processes and products. Second, TAM/UTAUT acceptance constructs are adapted from technology adoption to DI as a pedagogical innovation. Third, perceptions of DI are added as an antecedent of perceived usefulness and perceived ease of use. These extensions address a gap in previous DI research, which has often examined attitude, general self-efficacy, contextual barriers, or differentiated practice separately.

1.1 Research Questions

The study aimed to:

- examine whether teachers' behavioral intention to implement DI differs across age, subject group, and gender;
- test the proposed extended UTAUT-TPB model and examine the direct and indirect relationships among its constructs;
- examine the roles of DI-specific self-efficacy as an internal capability factor and facilitating conditions as an external support factor in explaining teachers' behavioral intention to implement DI; and
- provide theoretical and practical implications for understanding teachers' intention to implement DI, teacher professional development, and school-level support within the context of Vietnam's 2018 General Education Curriculum.

Based on these objectives, the study addressed the following research questions:

RQ1: Are there significant differences in teachers' behavioral intention to implement DI across age, subject group, and gender?

RQ2: To what extent do attitude, DI-specific self-efficacy, and facilitating conditions directly predict Vietnamese secondary school teachers' behavioral intention to implement DI?

RQ3: How do perceptions of DI, perceived ease of use, perceived usefulness, and subjective norm contribute to behavioral intention through perceived usefulness and attitude?

2. Literature Review

Past research indicates that teachers' intention to implement DI is influenced by motivational, social, capability-related, and contextual factors. Studies using the TPB have shown that attitude, subjective norm, and perceived behavioral control are relevant to teachers' intentions toward differentiated or individualized teaching practices (Knauder & Koschmieder, 2019; Kupers et al., 2024). Letzel et al. (2020) likewise showed that teachers' attitudes are closely related to their use of DI. These findings suggest that teachers' willingness to implement DI depends not only on their knowledge of differentiation, but also on how they evaluate the approach, the social support they perceive, and their confidence in carrying out differentiated practices.

Recent studies have given greater attention to self-efficacy in DI. Bi et al. (2026) found that teachers' self-efficacy was directly and indirectly associated with differentiated practice through collaboration and attitude, while Gibbs et al. (2026) developed and validated a scale specifically for teachers' perceived capability to implement DI. Khotimah et al. (2025) also identified teacher self-efficacy and teacher acceptance as important for differentiated learning readiness. However, general teacher self-efficacy may not adequately explain readiness for DI, which requires specific skills in designing varied activities, using assessment evidence, managing diverse learning needs, and evaluating differentiated learning. DI-specific self-efficacy may therefore provide a more precise representation of teachers' internal capability to implement DI.

A second issue concerns the role of contextual conditions. Previous studies have repeatedly identified limited planning time, large classes, workload, insufficient resources, and limited school support as barriers to DI implementation (Lavania & Mohamad Nor, 2021; Shareefa et al., 2019). More recent research shows that these contextual conditions are multifaceted. Gibbs (2025) emphasized the role of school leadership and professional learning in supporting teachers' capacity to differentiate, whereas Dulfer et al. (2025) found that class composition and teachers' beliefs were related to differentiated teaching processes. Bi et al. (2023) also demonstrated the importance of contextual factors in differentiated practice. Despite this evidence, contextual support and teachers' internal capability are often examined separately. This study therefore considers DI-specific self-efficacy

together with facilitating conditions to distinguish teachers' perceived capability from the external support available for implementation.

Teachers' acceptance of DI is another important part of the implementation process. Although the TAM and the UTAUT were originally developed for technology adoption, DI is not treated as a technological system in this study. Instead, perceived usefulness and perceived ease of use are adapted as acceptance beliefs reflecting teachers' judgments of the instructional value and practical feasibility of DI, while facilitating conditions represent the external support needed for implementation (Davis, 1989, 1993; Venkatesh et al., 2003, 2012). This adaptation is consistent with educational studies that have used acceptance models to explain teachers' adoption decisions in instructional contexts (Nguyen et al., 2025; Teo, 2011). For DI, these constructs are relevant because teachers must judge whether the approach can improve teaching and learning, whether it is manageable in classroom practice, and whether sufficient support is available before they form an intention to implement it.

The theoretical components in the present study therefore serve different but complementary functions. TPB explains the motivational and social pathway through attitude and subjective norm; TAM contributes teachers' evaluations of usefulness and practical feasibility; UTAUT contributes facilitating conditions as external implementation support; and DI-specific self-efficacy represents internal capability. Perceptions of DI are positioned before the acceptance beliefs because teachers' understanding of DI principles, learner diversity, curriculum alignment, and assessment-informed adaptation may shape how useful and feasible they perceive DI to be. Integrating these components provides a coherent explanation of behavioral intention rather than a simple combination of unrelated theoretical concepts.

Taken together, the literature suggests an unresolved need to explain teachers' intention to implement DI through an integrated model that connects pedagogical perceptions, acceptance beliefs, social influence, internal capability, and external support. Existing studies have commonly examined attitudes, general self-efficacy, contextual barriers, or differentiated practice separately. Fewer studies have tested DI-specific self-efficacy as a direct predictor of behavioral intention together with perceived usefulness, perceived ease of use, subjective norm, and facilitating conditions within one structural model. This gap is particularly relevant in Vietnam, where DI is consistent with the 2018 General Education Curriculum but classroom implementation remains uneven (Huong, 2025; Vietnam Ministry of Education and Training, 2018).

2.1 Hypothesis Development

Based on the previous studies, this study proposes an extended UTAUT-TPB model to explain Vietnamese teachers' behavioral intention regarding DI implementation. While the foundational UTAUT relies on performance expectancy and effort expectancy, this study measures these dimensions by adopting the core TAM variables – particularly, perceived usefulness and perceived ease of use – that originally informed the formulation of the UTAUT

framework (Davis, 1989; Venkatesh et al., 2003). Figure 1 summarizes the proposed conceptual framework and the hypothesized relationships among the study constructs.

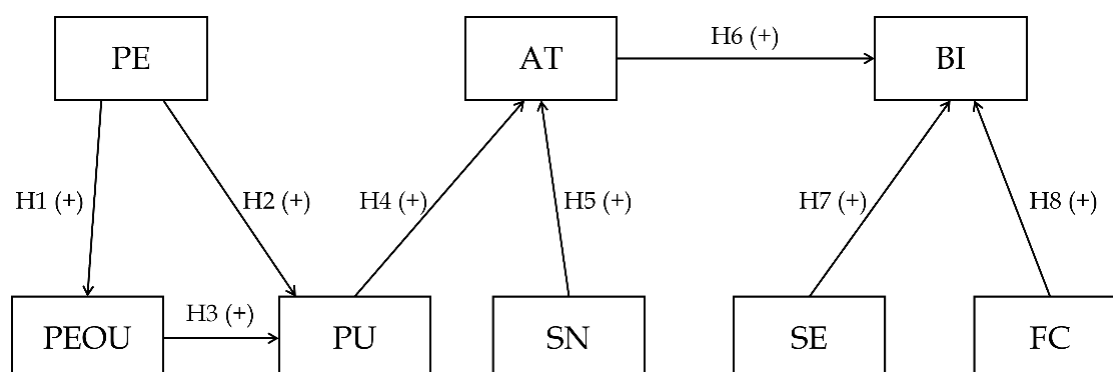


Figure 1: Proposed conceptual framework

Note. PE = perceptions of differentiated instruction; PU = perceived usefulness; PEOU = perceived ease of use; AT = attitude toward differentiated instruction; SN = subjective norm; FC = facilitating conditions; SE = self-efficacy; BI = behavioral intention.

In this study, perceptions of DI refer to teachers' self-reported perceptions of DI principles, learner diversity, curriculum alignment, and assessment-informed adaptation. They are not treated as objective knowledge or as fixed beliefs about learning styles. DI is understood as a flexible, assessment-informed approach to responding to students' diverse learning needs rather than as mechanical grouping or matching teaching methods to learner types. This distinction is important because teachers' perceptions of what DI involves may influence their judgments of its usefulness and ease of implementation.

Teachers with clearer perceptions of DI principles, learner diversity, curriculum alignment, and assessment-informed adaptation may have a more structured understanding of what DI requires in practice. This understanding may reduce perceived complexity and make DI appear more feasible to learn and implement. Conversely, unclear perceptions of DI may increase the perceived difficulty of differentiated teaching. Therefore, perceptions of DI are hypothesized to positively affect perceived ease of use (H1) and perceived usefulness (H2). Furthermore, teachers may perceive an instructional approach as more useful when it can be learned and implemented with manageable effort. This relationship is consistent with educational applications of acceptance models, in which perceived ease of use contributes to perceived usefulness (Davis, 1989; Nguyen et al., 2025; Teo, 2011). Therefore, perceived ease of use is hypothesized to positively affect perceived usefulness (H3).

Teachers' attitudes toward implementing DI are expected to be shaped by both perceived usefulness and subjective norm. In the present model, subjective norm is specified as an antecedent of attitude because professional expectations from school administrators, colleagues, students, and teacher education programs may first influence how teachers evaluate DI as an appropriate and valued instructional practice. This specification represents an adaptation of the conventional TPB structure, in which subjective norm is commonly modeled as a

direct predictor of intention (Ajzen, 2020). In the context of pedagogical innovation, social and institutional expectations may contribute to teachers' evaluation of a new instructional approach before that evaluation is translated into behavioral intention (Bi et al., 2026). Therefore, perceived usefulness is hypothesized to positively affect attitude (H4), and subjective norm is hypothesized to positively affect attitude toward DI (H5).

Finally, attitude, DI-specific SE, and facilitating conditions are expected to directly predict behavioral intention. Attitude is a central predictor in TPB (Ajzen, 2020). DI-specific SE reflects teachers' perceived capability to design differentiated tasks, manage heterogeneous classrooms, use assessment information, and evaluate learning at different readiness levels. Facilitating conditions represent the time, resources, class conditions, curriculum flexibility, and institutional support needed for implementation (Venkatesh et al., 2012). Therefore, attitude toward DI (H6), SE (H7), and facilitating conditions (H8) are hypothesized to positively affect behavioral intention.

3. Methodology

3.1 Research Design

This study employed a cross-sectional quantitative survey design to test an extended UTAUT-TPB model explaining Vietnamese teachers' behavioral intention to implement DI, as this design is suitable for examining relationships among multiple latent constructs at a specific point in time. All constructs were modeled reflectively. PLS-SEM was selected because the study aimed to predict teachers' intention to implement DI using a model with multiple latent constructs and both direct and theoretically specified indirect effects.

3.2 Participants and Sampling

The target population consisted of in-service teachers working at lower-secondary and upper-secondary schools in Vietnam. Because a complete national sampling frame was not available, convenience sampling was used to recruit participants through accessible professional and school-based networks. Participants were reached through subject-based teacher groups, local teacher communities, and school-based channels. This approach enabled the researchers to access teachers from different school levels and regions, although it did not produce a probability-based or fully representative sample.

After data screening, 739 valid responses were retained. The final sample exceeded the minimum sample size estimated using Cochran's formula at a 95% confidence level and a 5% margin of error (Cochran, 1977), and exceeded the minimum sample-size recommendation for PLS-SEM proposed by Kock and Hadaya (2018). As shown in Appendix 2, the sample was mainly composed of female teachers, teachers aged 36–55 years, and teachers of natural sciences. For group comparisons, teaching subjects were classified into three categories: natural sciences, social sciences, and other subjects. Teachers in the natural sciences group accounted for 62.1% of the sample, which should be considered a consequence of the convenience sampling process and a limitation to sample representativeness.

3.3 Instruments and Data Collection

Data was collected from March to May 2026 using an online questionnaire administered through Google Forms. The survey link was distributed through Zalo, email, and Messenger within professional teacher networks, subject-based teacher groups, local teacher communities, and school-based channels. No separate pilot study was conducted before the main survey.

The questionnaire consisted of two sections. The first section collected demographic information, while the second measured eight constructs: perceptions of differentiated instruction (PE), perceived ease of use (PEOU), perceived usefulness (PU), attitude toward differentiated instruction (AT), subjective norm (SN), facilitating conditions (FC), DI-specific SE, and behavioral intention (BI). All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The measurement items were adapted from previous studies on DI, TPB, TAM/UTAUT, and teacher SE. PE measured teachers' perceptions of DI principles, learner diversity, curriculum alignment, and assessment-informed adaptation. PU and PEOU assessed teachers' perceptions of the usefulness and ease of implementing DI. AT, SN, and BI were based on TPB. FC captured teachers' perceived availability of time, facilities, class conditions, and curriculum support. SE was operationalized as DI-specific self-efficacy rather than general teacher self-efficacy and focused on teachers' perceived capability to select appropriate content, support individual students' learning progress, and design differentiated lessons. The full measurement items and their sources are presented in Appendix 1.

3.4 Data Analysis

Quantitative data were analyzed using SmartPLS 3. Preliminary group comparisons were first conducted using Kruskal-Wallis tests for variables with more than two groups and Mann-Whitney U tests for binary group comparisons.

The measurement model was then evaluated for indicator reliability, internal consistency reliability, construct validity, and indicator collinearity. Construct validity was assessed through convergent and discriminant validity. Convergent validity was examined using outer loadings and average variance extracted (AVE), while discriminant validity was assessed using the heterotrait-monotrait ratio (HTMT). Internal consistency reliability was evaluated using Cronbach's alpha, rho_A, and composite reliability (Hair et al., 2019; Henseler et al., 2015).

The structural model was subsequently evaluated using inner Variance Inflation Factor (VIF) values, standardized path coefficients, coefficients of determination (R^2), and effect sizes (f^2). The significance of the direct effects was tested using bootstrapping with 10,000 subsamples, with results reported as t values, p values, and bias-corrected and accelerated confidence intervals. Predictive relevance was assessed using Stone-Geisser's Q^2 . Finally, specific and total indirect effects were examined, and their significance was also tested using bootstrapping with 10,000 subsamples.

3.5 Ethical Considerations

Before completing the survey, participants were informed about the study's purpose, the voluntary nature of their participation, and the confidentiality of their responses. No identifying personal information was collected, and submission of the completed questionnaire was regarded as informed consent.

4. Results

4.1 Preliminary Group Comparisons

Preliminary group comparisons were conducted before testing the PLS-SEM model. Because the construct scores were based on Likert-scale responses and normality could not be assumed, non-parametric tests were used. Kruskal–Wallis tests were conducted to compare the main constructs across age groups and subject groups. Mann–Whitney U tests were used to compare the main constructs by gender. The results showed no statistically significant differences in the main constructs by age group, subject group, or gender. All *p*-values were greater than .05 (Appendix 3). Therefore, the subsequent analyses focused on the full sample rather than separate demographic subgroups. These findings directly address RQ1 by indicating that teachers' BI to implement DI did not differ significantly across age, subject group, or gender.

4.2 Measurement Model

The measurement model demonstrated acceptable reliability and convergent validity. Cronbach's alpha values ranged from .904 to .932, rho_A values ranged from .907 to .936, composite reliability values ranged from .947 to .958, and AVE values ranged from .827 to .920 (Table 1). The outer loading values varied between .886 and .959, demonstrating that all retained items showed strong associations with their respective latent constructs (Appendix 4).

Table 1: Construct reliability and convergent validity

Construct	Cronbach's alpha	rho_A	Composite reliability	AVE
AT	.929	.930	.955	.876
PE	.926	.928	.953	.872
BI	.916	.916	.947	.857
FC	.930	.936	.950	.827
PEOU	.904	.907	.954	.913
PU	.913	.913	.958	.920
SE	.932	.933	.957	.881
SN	.931	.932	.951	.828

Note. PE = perceptions of differentiated instruction; PU = perceived usefulness; PEOU = perceived ease of use; AT = attitude toward differentiated instruction; SN = subjective norm; FC = facilitating conditions; SE = self-efficacy; BI = behavioral intention.

Discriminant validity was assessed using HTMT, with values ranging from .471 to .896 (Table 2). The highest value was observed between SE and BI (HTMT = .896). Although this value remained below the recommended .90 threshold (Henseler et al., 2015), its proximity to the threshold indicates substantial conceptual relatedness between the two constructs and therefore warrants cautious interpretation. Nevertheless, the constructs were retained because they represent theoretically distinct concepts: SE refers to teachers' perceived capability to implement DI, whereas BI refers to their planned future action.

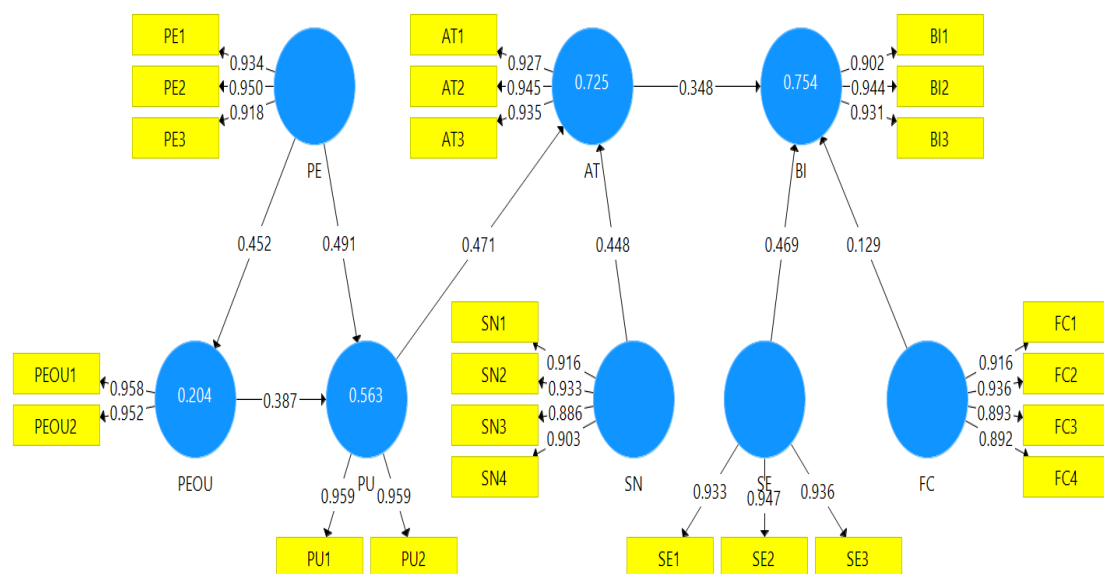
Table 2: Heterotrait-monotrait ratio (HTMT) results

Construct	AT	PE	BI	FC	PEOU	PU	SE	SN
PE	.680							
BI	.859	.653						
FC	.716	.471	.754					
PEOU	.713	.493	.741	.787				
PU	.861	.723	.804	.641	.670			
SE	.822	.608	.896	.773	.756	.781		
SN	.843	.598	.834	.828	.741	.779	.827	

Note. PE = perceptions of differentiated instruction; PU = perceived usefulness; PEOU = perceived ease of use; AT = attitude toward differentiated instruction; SN = subjective norm; FC = facilitating conditions; SE = self-efficacy; BI = behavioral intention.

4.3 Structural Model and Hypothesis Testing

Figure 2 presents the final PLS-SEM model with standardized path coefficients and R^2 values for endogenous constructs.

**Figure 2: Final PLS-SEM model with standardized path coefficients and R^2 values**

The structural model supported all eight hypotheses. Perceptions of DI had positive effects on PEOU and PU, and PEOU was positively associated with PU. PU and SN positively predicted attitude toward DI. For BI, SE was the strongest direct predictor, followed by attitude and facilitating conditions. Inner VIF values ranged from 1.000 to 2.996, below the conservative threshold of 3.3, indicating that the structural paths were not distorted by problematic multicollinearity. These results answer RQ2 by showing that teachers' intention was most strongly explained by DI-specific SE, together with attitude and facilitating conditions (Table 3).

Table 3: Structural model results

H	Relationship	β	t	p	95% BCa CI	f^2	Inner VIF	Result
H1	PE $\rightarrow$ PEOU	.452	11.224	< .001	[.369, .531]	.256	1.000	Supported
H2	PE $\rightarrow$ PU	.491	11.635	< .001	[.405, .570]	.438	1.256	Supported
H3	PEOU $\rightarrow$ PU	.387	10.462	< .001	[.316, .460]	.273	1.256	Supported
H4	PU $\rightarrow$ AT	.471	9.893	< .001	[.382, .569]	.389	2.074	Supported
H5	SN $\rightarrow$ AT	.448	9.372	< .001	[.354, .537]	.352	2.074	Supported
H6	AT $\rightarrow$ BI	.348	7.618	< .001	[.268, .442]	.189	2.598	Supported
H7	SE $\rightarrow$ BI	.469	9.496	< .001	[.363, .557]	.299	2.996	Supported
H8	FC $\rightarrow$ BI	.129	4.092	< .001	[.072, .193]	.030	2.257	Supported

Note. H = Hypothesis; PE = perceptions of differentiated instruction; PU = perceived usefulness; PEOU = perceived ease of use; AT = attitude toward differentiated instruction; SN = subjective norm; FC = facilitating conditions; SE = self-efficacy; BI = behavioral intention; BCa CI = bias-corrected and accelerated confidence interval; bootstrapping used 10,000 subsamples.

The effect sizes further showed that the direct predictors differed in their substantive contribution to BI. DI-specific SE showed the largest effect on BI ($f^2 = .299$), followed by attitude ($f^2 = .189$), whereas facilitating conditions had a small effect ($f^2 = .030$). Thus, although the FC $\rightarrow$ BI path was statistically significant, its practical contribution to explaining behavioral intention was relatively limited compared with SE and attitude.

4.4 Explanatory Power and Predictive Relevance

The model explained 75.4% of the variance in BI, 72.5% in attitude, 56.3% in PU, and 20.4% in PEOU. R^2 values of .75, .50, and .25 can be interpreted as substantial, moderate, and weak in many social science studies (Hair et al., 2019). Predictive relevance was assessed using Stone–Geisser’s Q^2 through the blindfolding procedure with an omission distance of 7. All Q^2 values for the endogenous constructs were above zero, indicating predictive relevance within the PLS-SEM framework. Specifically, the Q^2 values were .639 for behavioral intention, .629 for attitude, .512 for PU, and .184 for PEOU (Table 4).

Table 4: Model explanatory power and predictive relevance

Endogenous construct	Main predictors	R^2	Adjusted R^2	Q^2
BI	SE, AT, FC	.754	.753	.639
AT	PU, SN	.725	.725	.629
PU	PE, PEOU	.563	.562	.512
PEOU	PE	.204	.203	.184

Note. PE = perceptions of differentiated instruction; PU = perceived usefulness; PEOU = perceived ease of use; AT = attitude toward differentiated instruction; SN = subjective norm; FC = facilitating conditions; SE = self-efficacy; BI = behavioral intention.

4.5 Indirect Effects

The theoretically specified indirect effects were examined to address RQ3. All tested indirect effects were statistically significant at $p < .001$. PU and SN indirectly predicted BI through attitude. Perceptions of DI indirectly influenced attitude and BI through PU and PEOU (Table 5). These results indicate that teachers’ perceptions and PEOU were indirectly associated with BI through usefulness beliefs and attitude.

Table 5: Specific and total indirect effects

Indirect effect	Main mediating mechanism	β	t	p	Result
PE $\rightarrow$ AT	through PU and PEOU $\rightarrow$ PU	.313	8.244	< .001	Significant
PE $\rightarrow$ BI	through PU, PEOU $\rightarrow$ PU, and AT	.109	5.489	< .001	Significant
PE $\rightarrow$ PU	through PEOU	.175	7.373	< .001	Significant
PEOU $\rightarrow$ AT	through PU	.182	6.861	< .001	Significant
PEOU $\rightarrow$ BI	through PU and AT	.063	4.942	< .001	Significant
PU $\rightarrow$ BI	through AT	.164	6.029	< .001	Significant
SN $\rightarrow$ BI	through AT	.156	5.888	< .001	Significant

Note. PE = perceptions of differentiated instruction; PU = perceived usefulness; PEOU = perceived ease of use; AT = attitude toward differentiated instruction; SN = subjective norm; FC = facilitating conditions; SE = self-efficacy; BI = behavioral intention.

5. Discussion

5.1 Explanatory Power of the Extended UTAUT-TPB Model

The extended UTAUT-TPB model substantially explained the variance in Vietnamese teachers' BI to implement DI (75.4%), attitude (72.5%), PU (56.3%), and PEOU (20.4%). BI was strongly associated with teachers' perceptions, attitudes, SE, and school conditions, which is crucial since DI is a demanding practice requiring complex planning, flexible grouping, and assessment-informed decision-making.

This model extends earlier DI research twofold. First, while previous studies identified descriptive barriers like time constraints and workload (Lavania & Mohamad Nor, 2021; Shareefa et al., 2019), they provided limited explanation of how beliefs and contextual perceptions translate into intention. Second, although TPB studies linked attitude, SN, and perceived control to DI intention (Knauder & Koschmieder, 2019; Kupers et al., 2024), this study details their interplay: perceptions shape acceptance beliefs (ease of use and usefulness); usefulness and SN predicted attitude; and intention is directly predicted by attitude, DI-specific SE, and facilitating conditions.

Compared to a purely TPB-based model, integrating PU and ease of use from TAM (Davis, 1989, 1993; Venkatesh et al., 2003) explains how teachers judge instructional value and practical feasibility. Simultaneously, UTAUT's facilitating conditions capture external support beyond mere subjective norms (Venkatesh et al., 2012), distinguishing acceptance beliefs, social influence, internal capability, and external support. Consequently, in the Vietnamese competency-based curriculum context, policy alignment alone is insufficient; teachers' willingness to implement DI depends on their pedagogical understanding and acceptance beliefs, making the model relevant for theory testing and curriculum implementation analysis.

5.2 Role of Self-Efficacy, Attitude, and SN

Distinguishing internal capability from external conditions, DI-specific SE positively predicted BI and emerged as the strongest direct predictor, supporting H7. Consistent with Bandura's (1997) SE theory, teachers lacking confidence in specific DI tasks (e.g., designing tiered lessons, managing diverse needs) exhibit

weaker intentions despite recognizing DI's value or receiving support, indicating that professional development should prioritize practical capabilities over merely fostering positive attitudes.

Building on earlier research (Khotimah et al., 2025) that treated SE as a broad professional belief, the findings suggest that DI-specific capability is strongly associated with teachers' intention to use DI. Furthermore, attitude positively predicted BI, supporting H6, although its effect was weaker than that of SE. Positive evaluations of DI do not translate into intention unless teachers believe they can overcome classroom constraints, refining previous findings (Kupers et al., 2024; Letzel et al., 2020) by demonstrating that attitude must be coupled with operational capability.

SN positively predicted attitude (supporting H5), and was indirectly associated with intention through attitude, implying that social expectations may shape professional judgment rather than directly influence BI. Consistent with TPB, SN reflects perceived expectations within the professional environment that may contribute to teachers' evaluation of DI. Overall, consistent with international evidence (Bi et al., 2026; Dulfer et al., 2025; Gibbs et al., 2026; Kupers et al., 2024), this model advocates for domain-specific measurement of internal capabilities to complement known factors like school support and perceived control.

5.3 Perceptions of Differentiated Instruction, PU, and Facilitating Conditions

Perceptions of DI—defined as understanding DI principles and assessment-informed responses—positively predicted both PEOU (H1) and PU (H2). Clearer pedagogical perceptions make DI appear more manageable (PE → PEOU) and instructionally valuable (PE → PU), positioning DI perceptions as a domain-specific antecedent of acceptance beliefs. While traditional TAM/UTAUT models treat usefulness and ease of use as central starting points (Davis, 1989; Venkatesh et al., 2003), this study suggests that these beliefs may partly depend on teachers' prior understanding of DI's instructional logic.

PEOU also positively predicted PU (H3), indicating that DI's educational benefits are judged by their achievability under classroom conditions. Usefulness, in turn, positively predicted attitude (H4), confirming that recognized benefits foster positive evaluations. Facilitating conditions positively predicted BI, supporting H8, although this relationship showed the smallest effect size among the direct predictors of intention. Unlike barrier-focused studies emphasizing workload and resources (Lavania & Mohamad Nor, 2021; Shareefa et al., 2019), this model structurally integrates facilitating conditions as an enabling environment. Supportive policies and resources only become effective when coupled with capacity-building that enhances SE.

5.4 Theoretical Implications

The study offers several theoretical implications for DI research. First, integrating TPB (Ajzen, 2020) with TAM (Davis, 1989, 1993) and UTAUT (Venkatesh et al., 2003, 2012) provides a comprehensive structural explanation of intention,

avoiding reductionist views of intention as purely attitudinal or purely contextual.

Second, distinguishing perceived behavioral control into an internal dimension (DI-specific SE) and an external dimension (facilitating conditions) is critical. Broad definitions of readiness (Bi et al., 2023; Khotimah et al., 2025; Kupers et al., 2024) fail to capture the specific classroom demands of DI, suggesting that DI-specific SE may provide a more precise predictor in this context.

Third, unlike technology adoption, DI requires deep pedagogical understanding; thus, positioning DI perceptions as a domain-specific antecedent extends acceptance models by suggesting that judgments of value and feasibility depend on grasping DI principles.

Finally, while the HTMT value between SE and intention indicates conceptual proximity, they remain theoretically distinct: capability does not equate to planned commitment. Methodologically, applying PLS-SEM to simultaneously test pedagogical, motivational, internal, and contextual factors provides a methodological contribution to DI implementation research.

5.5 Practical Implications

For professional development, one-off workshops should be replaced by sustained training that includes peer coaching and repeated practice to build practical competencies such as designing tiered tasks and managing diverse groups.

At the school and policy levels, support for DI should include protected preparation time, shared resources, and efforts to reduce unnecessary administrative burdens. However, since facilitating conditions alone cannot override low SE or weak attitudes, these institutional supports should be linked with capacity-building activities. Within Vietnam's competency-based curriculum, DI should be treated as a practical instructional pathway rather than a rigid lesson-plan requirement. Institutions should pilot shared banks of differentiated tasks and assessment rubrics to support teachers in integrating DI with curriculum outcomes and daily classroom routines.

6. Conclusions

This study contributes to the DI literature by showing that DI-specific SE is a key predictor of Vietnamese teachers' intention to implement DI. By testing an extended UTAUT-TPB model, the study distinguishes teachers' internal capability, represented by DI-specific SE, from external implementation support, represented by facilitating conditions. DI-specific SE was the strongest direct predictor of BI, followed by attitude and facilitating conditions, while perceptions of DI, PEOU, PU, and SN contributed indirectly through usefulness beliefs and attitude. These findings suggest that teachers' intention to implement DI is associated with both their confidence in performing DI-related tasks and the support available in their teaching context. Professional development should therefore move beyond general awareness by providing sustained, classroom-

based opportunities to strengthen DI-specific capabilities, while schools should support implementation through preparation time, shared instructional resources, professional learning communities, and appropriate institutional support.

7. Limitations and Future Research

Several limitations should be acknowledged. First, the cross-sectional design does not allow causal conclusions or show how teachers' perceptions, SE, and BI may change over time. Second, convenience sampling and online distribution may have introduced self-selection bias. The sample should therefore not be considered fully representative of all Vietnamese secondary school teachers, particularly because natural science teachers were overrepresented.

Third, all constructs were measured using self-reported data at one point in time, so common method bias cannot be completely ruled out. Fourth, the HTMT value between SE and BI was .896, which remained below the recommended .90 threshold but was sufficiently close to require cautious interpretation. This result indicates substantial conceptual proximity between the two constructs, and their distinction should be further examined in future studies. Finally, the study measured BI rather than actual classroom implementation, so the findings cannot determine whether stronger intentions are associated with more frequent or more effective use of DI in practice.

Future research should use longitudinal or mixed method designs to examine whether BI develops into actual DI implementation over time. Classroom observations and other behavioral indicators could complement self-reported survey data and provide a more direct assessment of teachers' differentiated practices.

Conflict of Interest

The authors declare no conflicts of interest.

8. Acknowledgments

The authors gratefully acknowledge the financial support provided by Hue University, Vietnam, for this research under grant number DHH2025-03-208. The authors wish to acknowledge the use of ChatGPT in the writing of this paper. This tool was used to help improve the language and grammar in the paper. The paper remains an accurate representation of the authors' work and intellectual contributions.

9. References

- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314–324. <https://doi.org/10.1002/hbe2.195>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- Bi, M., Liu, X., Cai, J., Cheng, Z., & Zhu, C. (2026). From teachers' self-efficacy belief to their differentiated practice: The mediating roles of collaboration and attitude. *Social Psychology of Education*, 29(1), 18. <https://doi.org/10.1007/s11218-026-10186-1>

- Bi, M., Struyven, K., & Zhu, C. (2023). Variables that influence teachers' practice of differentiated instruction in Chinese classrooms: A study from teachers' perspectives. *Frontiers in Psychology*, 14, 1124259. <https://doi.org/10.3389/fpsyg.2023.1124259>
- Cochran, W. G. (1977). *Sampling techniques*. John Wiley & Sons.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Davis, F. D. (1993). User acceptance of information technology: System characteristic, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies*, 38(3), 475–487. <https://doi.org/10.1006/imms.1993.1022>
- Dulfer, N., Saito, T., & McKernan, A. (2025). Differentiated instruction: An investigation into the effect of class compositional factors on teaching processes. *Asia Pacific Education Review*, 26(4), 1041–1054. <https://doi.org/10.1007/s12564-025-10065-y>
- Gibbs, K. (2025). School leaders' approaches to supporting differentiated instruction. *Educational Research*, 67(3), 367–384. <https://doi.org/10.1080/00131881.2025.2530613>
- Gibbs, K., Woodcock, S., Dargue, N., Le, L., Park, E., Porta, T., & Scarparolo, G. (2026). Measuring teachers' beliefs in their capacity to use differentiated instruction in their classrooms: Development, validation and confirmation of a self-efficacy scale. *Teachers and Teaching*, 1–16. <https://doi.org/10.1080/13540602.2026.2696276>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Huong, T. T. (2025). Differentiated instruction in school practices: Managerial implications for teacher professional development. *AsTEN Journal of Teacher Education, Special Issue*, 1–15. <https://doi.org/10.56278/asten.vi.3343>
- Khotimah, H., Hidayat, N., & Abdul Rashid, N. S. B. (2025). The essential role of teacher self-efficacy and teacher acceptance for differentiated learning. *Profesi Pendidikan Dasar*, 12(2), 113–132. <https://doi.org/10.23917/ppd.v12i2.9215>
- Knauder, H., & Koschmieder, C. (2019). Individualized student support in primary school teaching: A review of influencing factors using the Theory of Planned Behavior (TPB). *Teaching and Teacher Education*, 77, 66–76. <https://doi.org/10.1016/j.tate.2018.09.012>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Kupers, E., De Boer, A., Bakker, A., De Jong, F., & Minnaert, A. (2024). Explaining teachers' behavioural intentions towards differentiated instruction for inclusion: Using the theory of planned behavior and the self-determination theory. *European Journal of Special Needs Education*, 39(4), 638–647. <https://doi.org/10.1080/08856257.2023.2263717>
- Lavania, M., & Mohamad Nor, F. (2021). Factors influencing the implementation of differentiated instruction in English language instruction in Rural and Urban Secondary Schools of Johor Bahru. *Creative Education*, 12(6), 1235–1246. <https://doi.org/10.4236/ce.2021.126093>
- Letzel, V., Pozas, M., & Schneider, C. (2020). 'It's all about the attitudes!' – Introducing a scale to assess teachers' attitudes towards the practice of differentiated

- instruction. *International Journal of Inclusive Education*, 29(12), 2119–2133. <https://doi.org/10.1080/13603116.2020.1862402>
- Nguyen, M. T., Nguyen, H. G. K., Kieu, P. H., & Thai, H. M. (2025). Factors influencing pre-service Vietnamese science teachers' intention to use blended learning. *HNUET Journal of Science: Journal of Educational Science*, 70(1A), 43–54. <https://doi.org/10.18173/2354-1075.2025-0019>
- Sahayu, W., Triyono, S., & Ungu, N. K. (2026). Digital technology in differentiated English language teaching: A systematic review with bibliometric insights. *Indonesian Journal of Science and Technology*, 11(1), 167–188. <https://doi.org/10.17509/ijost.v11i2.89685>
- Shareefa, M., Moosa, V., Zin, R. M., Abdullah, N. Z. M., & Jawawi, R. (2019). Teachers' perceptions on differentiated instruction: Do experience, qualification and challenges matter? *International Journal of Learning, Teaching and Educational Research*, 18(8), 214–226. <https://doi.org/10.26803/ijlter.18.8.13>
- Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test. *Computers & Education*, 57(4), 2432–2440. <https://doi.org/10.1016/j.compedu.2011.06.008>
- Tomlinson, C. A. (2000). *Differentiation of instruction in the elementary grades*. ERIC Clearinghouse on Elementary and Early Childhood Education.
- Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners* (2nd ed.). ASCD.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178. <https://doi.org/10.2307/41410412>
- Vietnam Ministry of Education and Training. (2018). General education curriculum. <https://tulieuvankien.dangcongsan.vn/he-thong-van-ban/van-ban-quy-pham-phap-luat/thong-tu-so-322018tt-bgddt-ngay-26122018-cua-bo-giao-duc-va-dao-tao-ban-hanh-chuong-trinh-giao-duc-pho-thong-5083>

Appendix 1: Measurement items and sources

Construct	Code	Measurement item	Sources
Perceptions of differentiated instruction	PE1	I am aware that differentiated instruction is a relevant pedagogical approach in the 2018 General Education Curriculum.	Kupers et al. (2024)
	PE2	I understand that the main goal of differentiated instruction is to maximize each student's learning potential and improve learning outcomes.	
	PE3	I understand that assessment, including diagnostic, formative, and summative assessment, is an important part of differentiated instruction.	
Perceived usefulness	PU1	I believe that differentiated instruction helps me effectively implement the 2018 General Education Curriculum.	Knauder & Koschmieder (2019); Nguyen et al. (2025)
	PU2	Differentiated instruction enhances teachers' teaching effectiveness.	
Perceived ease of use	PEOU1	Learning about differentiated instruction is easy for me.	Davis (1989, 1993)
	PEOU2	Implementing differentiated instruction is easy for me.	
Attitude toward differentiated instruction	AT1	I believe that differentiated instruction promotes fairness in education.	Knauder & Koschmieder (2019); Kupers et al. (2024)
	AT2	I feel satisfied when students make progress after being taught through differentiated instruction.	
	AT3	I have a positive evaluation of differentiated instruction as a professional teaching approach.	
Subjective norm	SN1	School administrators encourage me to implement differentiated instruction.	Knauder & Koschmieder (2019)
	SN2	My colleagues encourage me to implement differentiated instruction.	
	SN3	My students expect to learn through methods that match their individual abilities.	
	SN4	Teacher training programs recommend that I implement differentiated instruction.	
Facilitating conditions	FC1	I have enough time to organize differentiated instruction.	Sahayu et al. (2026); Shareefa et al. (2019)
	FC2	My school has sufficient facilities to implement differentiated instruction.	
	FC3	Class size is favorable for my implementation of differentiated instruction.	
	FC4	The general education curriculum allows me to apply differentiated instruction.	
Self-efficacy	SE1	I have the subject-matter knowledge needed to select content for differentiated instruction.	Khotimah et al. (2025)

	SE2	I have enough patience to support each student's learning progress.	
	SE3	I have sufficient teaching competence to design differentiated lessons.	
Behavioral intention	BI1	I plan to prepare for implementing differentiated instruction in my class.	Ajzen (2020); Nguyen et al. (2025)
	BI2	I intend to use students' feedback to improve differentiated instruction.	
	BI3	I want to develop my differentiated instruction competence.	

Appendix 2: Demographic characteristics of participants

Variable	Category	<i>n</i>	%
Gender	Female	447	60.5
	Male	292	39.5
Age	25 years or younger	37	5.0
	26–35 years	133	18.0
	36–45 years	259	35.0
	46–55 years	268	36.3
	Over 55 years	42	5.7
Teaching experience	Fewer than 5 years	109	14.7
	5–10 years	74	10.0
	11–15 years	81	11.0
	16–20 years	148	20.0
	More than 20 years	327	44.2
Region	Northern Vietnam	12	1.6
	Central Vietnam	405	54.8
	Southern Vietnam	322	43.6
Subject group	Natural sciences group	459	62.1
	Social sciences group	79	10.7
	Other subjects	201	27.2
School type	Public school	697	94.3
	Private school	36	4.9
	International school	6	0.8
School location	Urban area	395	53.5
	Rural area	284	38.4
	Mountainous, border, or island area	60	8.1

Appendix 3: Results of Preliminary Group Comparisons

Table A3-1: Kruskal-Wallis test by age and subject group

	Age		Subject	
	χ^2	<i>p</i> -value	χ^2	<i>p</i> -value
PE	0.478	0.976	5.35	0.069
PU	8.647	0.071	1.94	0.378
PEOU	5.709	0.222	4.59	0.101
AT	1.970	0.741	1.49	0.474
SN	3.224	0.521	2.24	0.327
FC	2.072	0.723	2.19	0.335
SE	4.141	0.387	3.11	0.211
BI	1.394	0.845	1.25	0.536

Table A3-2: Mann-Whitney U test by gender group

Construct	Mann-Whitney U	<i>p</i>-value
PE	65016	0.929
PU	63697	0.553
PEOU	60123	0.058
AT	64330	0.730
SN	64377	0.748
FC	62726	0.363
SE	61995	0.224
BI	64374	0.740

Appendix 4: Outer loadings of measurement items

	AT	PE	BI	FC	PEOU	PU	SE	SN
AT1	0.927							
AT2	0.945							
AT3	0.935							
PE1		0.934						
PE2		0.950						
PE3		0.918						
BI1			0.902					
BI2			0.944					
BI3			0.931					
FC1				0.916				
FC2				0.936				
FC3				0.893				
FC4				0.892				
PEOU1					0.958			
PEOU2					0.952			
PU1						0.959		
PU2						0.959		
SE1							0.933	
SE2							0.947	
SE3							0.936	
SN1								0.916
SN2								0.933
SN3								0.886
SN4								0.903