

A Study on Preschool Teachers' Willingness and Psychological Readiness to Teach Sexual Education to Young Children within the Framework of Early Childhood Protection Education: An Analysis Based on Structural Equation Modeling

Pei Yang ¹, Mohd Nazri Abdul Rahman ^{1,*} and Amira Najiha Yahya ¹

¹ Faculty of Education, Universiti Malaya 50603, Kuala Lumpur, Malaysia

* Correspondence author: mohdnazri_ar@um.edu.my

Abstract: Sex education for young children is a key component in ensuring their safety and healthy development. This study investigates the influencing factors and mechanisms underlying preschool teachers' willingness and behaviors regarding sex education. A model of influencing factors was constructed, incorporating core variables such as performance expectations, effort expectations, community influence, facilitating conditions, teaching willingness, teaching behaviors, and psychological readiness—the latter comprising three sub-dimensions. A questionnaire survey was administered to preschool teachers, yielding a total of 458 valid responses. Structural equation modeling was used to conduct empirical tests on the data, and model fit analysis and path relationship hypothesis testing were performed using AMOS 24 software. The results indicate that the model has good fit, with a root mean square error of 0.027. Path analysis results show that performance expectations, effort expectations, community influence, and innovation all have a significant positive effect on teaching willingness. Insecurity and maladjustment both have a significant negative effect on teaching willingness. Teaching willingness and favorable conditions both significantly and positively influence teaching behavior. Analysis of these pathways reveals that no single factor independently generates high teaching willingness; rather, high teaching willingness is facilitated by the interaction of multiple influencing factors. This study is of great significance for understanding the psychological mechanisms underlying teachers' acceptance of early childhood sex education, and it also provides a reference for kindergartens in formulating relevant educational policies and teaching plans.

Keywords: teaching willingness; teaching behavior; psychological readiness; child protection; sex education

1. Introduction

With the development of society and the gradual opening up of attitudes and perspectives, the issue of sex education has garnered increasing attention and importance. However, at the early childhood stage of sex education, due to young children's relatively limited cognitive abilities, they require more assistance and guidance in this area [1–2]. As a key indicator of human health, sex education is an essential part of young children's learning about their own bodies and health management [3–4]. At the same time, sex education also supports children's personality and psychological development, helping them form positive attitudes and behaviors toward sexuality and fostering their healthy development in all aspects [5–7]. As the children's guides, preschool teachers bear the responsibility of educating and nurturing them; their willingness to teach sex education and their psychological readiness influence the implementation and effectiveness of sex education for young children.



Inadequate sexual education competencies among preschool teachers represent a major bottleneck hindering their willingness and psychological readiness to teach this subject, as evidenced by an unclear sense of responsibility, a lack of appropriate content and methods, insufficient knowledge and experience, and a disconnect between their beliefs and practice [8–11]. It is necessary to incorporate content related to early childhood sex education into early childhood education development plans as well as into pre-service and in-service training for preschool teachers. A standardized curriculum system and routine educational research and practice should be established. By enhancing teachers' comprehensive competencies, their willingness to teach and psychological readiness can be improved, thereby further enhancing the effectiveness of early childhood sex education and laying the foundation for children's healthy development [12–14].

The topic of early childhood sex education has received widespread attention in academic circles in recent years. Among these studies, Reference [15] aims to explore the roles played by parents and teachers in the sex education process at Lin Kindergarten, as well as the strategies, methods, and teaching materials used in instruction. The research findings indicate that early childhood sex education plays a significant role, and that the roles of educational institutions and parents have a major impact on children's understanding of sex education. Reference [16] emphasizes the importance of implementing early childhood sex education, noting that effective sex education helps foster healthy personalities in young children, guides them in developing correct perceptions of gender roles, and lays the foundation for their physical and mental well-being. It also analyzes current issues in early childhood sex education and proposes corresponding recommendations for improvement. Reference [17] developed a product for early childhood sex education aimed at addressing the lack of integrated sex education media in thematic teaching, enabling teachers to better convey sex education content to young children. The study verified that this product has a significant effect on improving children's knowledge of sex education. Reference [18], through an analysis of the specific practices of early childhood sex education, points out current issues such as inconsistent understanding of the concept of sex education and a severe shortage of core resources. It provides an in-depth analysis of the underlying causes and proposes countermeasures. Reference [19] aims to analyze the impact of sex education-themed children's games on early childhood sex education. The research results indicate that such games effectively promote the dissemination of sex education and can enhance children's understanding of sex education knowledge. Reference [20] aims to analyze the concept and implementation models of sex education within the context of the "Independent Curriculum" in early childhood education. The research findings indicate that incorporating sex education into the "Independent Curriculum" effectively demonstrates learning outcomes. At the same time, the study highlights that the widespread implementation of sex education requires the participation of all school members and parents to establish a sustainable sex education system. Reference [21] aimed to identify research trends related to early childhood sex education through keyword network analysis. Based on a literature review, it revealed these trends and provided insights for future research on early childhood sex education. Reference [22] aimed to explore changes in young children's sexual behavior following sex education interventions using the demonstration method. The results showed that after sex education via the demonstration method, the formation of sexual behavior among young children increased, indicating a significant improvement between the pre- and post-intervention periods. Reference [23] aimed to understand parents' perceptions of early childhood sex education and to develop a parenting program. The survey results indicated that most respondents possessed sufficient knowledge of sex education, while a small minority lacked adequate knowledge, emphasizing the strong feasibility of incorporating sex education during early childhood. Reference [24] aimed to analyze sex education curricula for preadolescent children to provide education tailored to this age group. Based on the findings, the study offered effective strategies and practical recommendations for social workers designing sex education programs for preadolescents.

Based on the UTAUT model and incorporating the theory of technical readiness, this study introduced three dimensions—innovativeness, discomfort, and insecurity—into psychological readiness to construct a model of factors influencing preschool teachers' willingness and behavior regarding sex education. During the research design phase, a questionnaire survey method was employed, and a formal questionnaire was developed based on the results of in-depth interviews with preschool teachers. A total of 458 valid questionnaires were collected. Descriptive statistical analysis was used to assess the overall distribution of key variables in the survey results, and independent-samples t-tests and one-way analysis of variance (ANOVA) were employed to examine differences in the variables based on gender and years of teaching experience. Structural equation modeling was used to empirically test model fit and path relationship hypotheses, in order to accurately estimate the path coefficients and effect sizes of each factor.

2. Research Design

2.1. Research Hypotheses

The UTAUT model is based on TAM (Technology Acceptance Model) and integrates TPB (Theory of Planned Behavior), TTF (Technology Transfer Function), and four other theories. Through this integration and refinement, it constructs a more comprehensive and holistic framework aimed at deeply analyzing the acceptance and adoption of information technology. This theoretical model indicates that, when using a specific information platform, user behavior is primarily driven by four key factors: performance expectations, effort expectations, social influence, and convenience [25].

Performance Expectancy: The extent to which an individual believes the application of technology will help them achieve better performance at work.

Effort Expectancy: An individual's perception of how easy or difficult it is to use a technology or system.

Social Influence: The extent to which an individual perceives others' views on whether they should utilize information technology.

Facilitation Conditions: An individual's assessment of whether existing organizational structures and facilities can support the use of technology.

Technology Readiness (TR) refers to an individual's overall propensity to accept and use new technologies in their personal and professional lives to achieve goals; this propensity can be viewed as a holistic psychological state. Technological readiness consists of four dimensions. Optimism refers to an individual's positive view of technology, including the belief that technology can bring convenience and provide greater efficiency; innovativeness refers to an individual's tendency to be a technology pioneer, that is, the tendency to try new technologies; discomfort refers to the anxiety and confusion arising from an individual's lack of control over technology; and insecurity refers to an individual's lack of trust in technology and concerns about its potential risks [26]. This paper focuses solely on three dimensions—innovativeness, discomfort, and insecurity—and treats these three as sub-dimensions of psychological readiness.

Through a review of relevant domestic and international literature and a synthesis of related theories, this study—taking into account the characteristics of early childhood educators and the context of early childhood sex education—has preliminarily constructed a model of factors influencing early childhood educators' sex education teaching behaviors, using the Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Readiness (TR) as the foundational framework.

Within the framework of the technology acceptance model, actual behavior refers to an individual's actual teaching behavior involving information technology. This study treats "actual teaching behavior" as the outcome variable, defined as "the actual behavior of early childhood teachers in using teaching resources for early childhood sex education," and examines the relationships between other variables and "actual behavior."

H1: Performance expectations have a positive effect on teachers' willingness to teach early childhood sex education.

H2: Effort expectations have a positive effect on teachers' willingness to teach early childhood sex education.

H3: Community influence has a positive effect on teachers' willingness to teach early childhood sex education.

H4: Availability of resources has a positive effect on teachers' early childhood sex education teaching behavior.

H5: Maladaptive behavior negatively influences teachers' willingness to teach early childhood sex education.

H6: Insecurity negatively influences teachers' willingness to teach early childhood sex education.

H7: Innovation positively influences teachers' willingness to teach early childhood sex education.

H8: Teaching willingness positively influences teachers' early childhood sex education teaching behavior.

In summary, the initial research model proposed in this paper is shown in Figure 1:

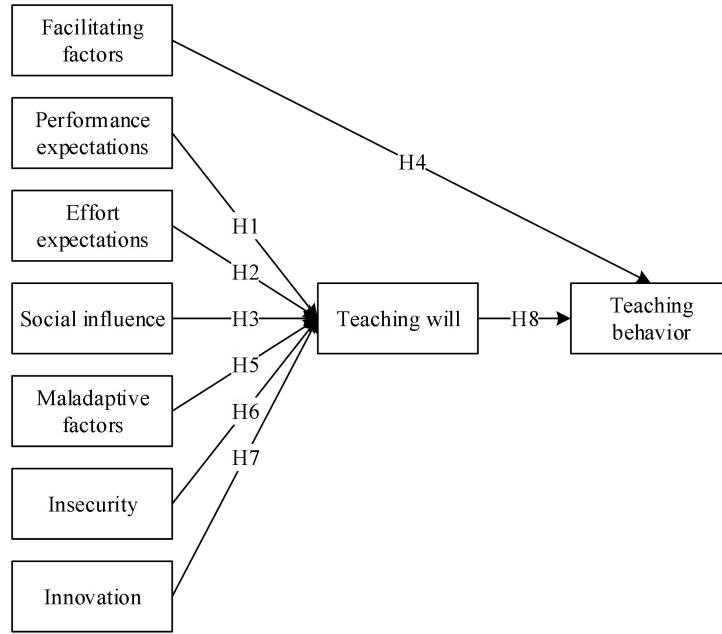


Figure 1. The teaching will model of young children's education

2.2. Study Population

When developing a questionnaire to measure planned behavior, researchers should analyze the findings from heuristic research before finalizing the formal questionnaire, in order to make targeted improvements to the items in questionnaires used in studies on technology acceptance. Heuristic research is often conducted through interviews with a homogeneous sample of participants. To ensure that the dimension construction and survey questionnaire were better suited to the research, this study designed an interview outline on the factors influencing early childhood educators' sexual education teaching behaviors based on the established theoretical dimensions and their detailed structural components, while also referencing existing empirical research on teachers' technology acceptance. To enhance the scientific rigor and comprehensiveness of the interviews, in-depth interviews were conducted with educators from different schools and classes, totaling 30 participants.

Since the primary respondents for this study's questionnaire were early childhood educators, the questionnaire included the item "Have you ever engaged in early childhood sex education teaching behaviors?" to exclude respondents who had not. The online survey was conducted using the Wenjuanxing platform, and questionnaires were distributed via social media applications such as WeChat and QQ, university Weibo super-topics communities, and direct online invitations, resulting in a total of 510 questionnaires collected. After excluding respondents who had never conducted early childhood sex education, as well as questionnaires completed in less than 60 seconds or containing illogical responses, a total of 458 valid questionnaires were obtained, resulting in a valid response rate of 89.80%.

2.3. Questionnaire Design

The questionnaire developed by the research institute is divided into three main sections, organized as follows:

The first section consists of introductory instructions, designed to explain the purpose and content of the study to preschool teachers.

Part Two constitutes the main body of the questionnaire; the test items were developed based on an analysis of relevant theories and a synthesis of interview data. The questionnaire employs a Likert scale scoring method, with each item offering five equally spaced response options: "Strongly Disagree," "Somewhat Disagree," "Neutral," "Somewhat Agree," and "Strongly Agree," scored sequentially as 1, 2, 3, 4, and 5 points, respectively [27].

Part Three covers the teachers' basic information and consists of multiple-choice questions. Demographic questions should be placed at the end of the questionnaire because demographic information is relatively sensitive; answering such questions may cause respondents to withhold truthful answers out of concern for information leakage, thereby creating a Pygmalion effect. Therefore, this questionnaire places these questions at the end.

In this study, when conducting reliability tests on the final questionnaire, the reliability of the questionnaire was determined by measuring reliability coefficients. Analysis revealed that the Cronbach's α coefficient for the overall questionnaire was 0.958, while the Cronbach's α coefficients for each sub-dimension ranged from 0.689 to 0.944; thus, the questionnaire exhibits high reliability. The overall reliability coefficient of 0.958 meets the "excellent" standard. The Cronbach's α coefficients for each dimension met the questionnaire reliability standards. In summary, both the overall reliability of the developed questionnaire and the reliability of its individual subscales comply with questionnaire development standards.

The content validity of this study strictly followed the validation procedures. First, the researcher developed a conceptual framework of theoretical dimensions by reviewing the literature and existing relevant studies. Through in-depth interviews with early childhood educators, the researcher then determined the specific meanings of these theoretical dimensions. At the same time, the researcher drew upon well-established theories of teacher technology adoption and existing assessment questionnaires to formulate the questionnaire items. Finally, the questionnaire was reviewed by relevant experts and professors and discussed with master's and doctoral students in education, which helped ensure its content validity to a certain extent.

Structural validity refers to the correlations among the subscales. It can be determined by conducting correlation analyses between the total questionnaire and the subscales, as well as among the subscales themselves. A higher correlation between each subscale and the total score is preferable, while moderate correlations among the subscales are optimal. Analysis using SPSS software revealed that the correlation coefficients between each subscale and the total score ranged from 0.704 to 0.878, with all subscale-to-total correlations exceeding 0.700. This indicates a high degree of correlation between the subscales and the total score, suggesting that the subscales in this study are relatively independent of one another. In summary, the construct validity of this questionnaire is considered satisfactory.

3. Research Findings

3.1. Descriptive Statistical Analysis

To better understand early childhood educators' responses to the core variables of the model and to verify the normal distribution of the sample data, this study conducted descriptive statistical analyses of the measurement items for the core variables. The results of the descriptive statistical analysis are shown in Table 1. First, the standard deviation ranged from a maximum of 1.34 to a minimum of 1.16, indicating that the sample did not exhibit significant dispersion. Among the core variables, the mean for performance expectations reached 4.29, indicating that early childhood educators generally perceive early childhood sex education as having a positive impact on child protection, making it the primary factor influencing teachers' implementation of such education. The mean for teaching willingness was 4.09, second only to performance expectations, indicating that early childhood educators generally have a high level of willingness to teach early childhood sex education. A comparison of the mean scores for each variable reveals that the means for discomfort, insecurity, and effort expectations were the lowest, suggesting that teachers perceive the discomfort and insecurity associated with conducting early childhood sex education to be relatively low.

Table 1. Descriptive statistical analysis of core variables

Variable name	Mean	Standard deviation
Performance expectation	4.29	1.23
Effort expectation	3.70	1.19
Community impact	4.03	1.31
Convenience condition	3.98	1.18
Innovation	3.86	1.16
Discomfort	3.22	1.28
Insecurity	3.62	1.22
Teaching will	4.09	1.34
Teaching behavior	4.00	1.30

3.2. Analysis of Differences in Background Variables

The model in this study includes two background variables: gender and years of teaching experience. To investigate the effects of these background variables on the core variables, this study used SPSS statistical analysis software to conduct an independent samples t-test to analyze differences based on

teachers' gender; one-way analysis of variance (ANOVA) was used to analyze differences related to years of teaching experience. For cases with homogeneous variances, the Least Significant Difference (LSD) test was used for between-group comparisons; for cases with heterogeneous variances, Tamhane's T2 test was used. It is generally accepted that when the P-value of a significance test is less than 0.05, the moderating effect is significant.

To investigate whether there are significant differences in the factors influencing preschool teachers' readiness for sex education for young children based on gender, this study conducted an independent samples *t*-test with participants grouped by gender. Prior to performing the independent samples *t*-test, a test for homogeneity of variances was conducted to determine whether the variances were homogeneous based on the results of the data analysis. Since none of the tests for homogeneity of variances across the dimensions reached the 0.05 significance level, the null hypothesis of equal variances was accepted. The final test results are shown in Table 2; the P-values for all dimensions were greater than 0.05, indicating that there were no significant differences in teachers' perceptions of the core variables between genders. Therefore, there were no significant differences among early childhood educators of different genders across the various variables.

Table 2. Gender analysis of differences in variables

	Male	Female	<i>t</i>	<i>p</i>
Performance expectation	4.28±0.64	4.34±0.63	-1.431	0.152
Effort expectation	3.56±0.94	3.73±0.85	-1.702	0.088
Community impact	3.72±0.98	3.84±0.85	-1.223	0.224
Convenience condition	4.11±0.64	4.12±0.67	-0.197	0.846
Discomfort	3.77±0.95	3.88±0.82	-1.016	0.312
Insecurity	3.19±0.96	3.18±1.01	-0.064	0.949
Innovation	3.62±0.84	3.58±0.92	0.115	0.905
Teaching will	4.03±0.92	4.11±0.85	-0.907	0.409
Teaching behavior	3.95±0.96	4.03±0.88	-0.833	0.501

One-way analysis of variance (ANOVA) is suitable for analyzing whether two or more levels of a single factor have a significant effect on a variable. In this study, one-way ANOVA was first used to determine whether teachers with different years of teaching experience had a significant effect on each variable. When the F-value reached the significance level ($P < 0.05$), it indicated that the differences between the means of at least two groups had reached the significance level. The results of the one-way ANOVA for years of teaching experience are shown in Table 3.

The results of the one-way ANOVA show that the p-value for performance expectations was 0.016, for effort expectations 0.011, and for social influence 0.005. Since the p-values for all three variables were less than 0.05, this indicates that there are significant differences among teachers with different years of teaching experience regarding these three variables. Therefore, there are significant differences among early childhood teachers with different years of teaching experience across these variables. To further explore the specific differences among teachers with varying years of teaching experience across these three dimensions, a post-hoc analysis is required.

Table 3. The results of the analysis of the education age

	1~5 years	6~10 years	11~20 years	Over 20 years	F	<i>p</i>
Performance expectation	4.24±0.58	4.62±0.54	4.35±0.72	4.35±0.66	3.451	0.016
Effort expectation	3.55±0.82	4.02±0.88	3.82±1.02	3.82±0.98	3.762	0.011
Community impact	3.74±0.83	3.95±1.04	3.99±0.83	3.87±1.05	1.484	0.219
Convenience condition	4.01±0.58	4.32±0.72	4.18±0.74	4.28±0.73	4.238	0.005
Discomfort	3.76±0.87	3.94±0.84	3.94±0.88	4.01±0.89	1.617	0.184
Insecurity	3.15±0.94	3.31±1.03	3.34±1.06	2.98±1.14	1.252	0.293
Innovation	3.59±0.82	3.43±1.05	3.77±0.99	3.58±1.03	1.216	0.307
Teaching will	4.02±0.91	4.11±0.83	4.06±0.82	4.13±0.85	1.211	0.305
Teaching behavior	3.91±0.95	4.01±0.85	3.95±0.83	3.98±0.80	1.302	0.256

Before conducting a multiple comparison analysis, a test for homogeneity of variances must be performed. If the p-value for the homogeneity of variances test is < 0.05 , indicating that the sample variances are not homogeneous, the Tamhane T2 method is used to perform paired comparisons of the means across groups; if the p-value is > 0.05 , indicating that the sample variances are homogeneous, the LSD method is used for the multiple comparison analysis. The results of the homogeneity of variance

tests for the three variables—performance expectations, effort expectations, and social influence—are shown in Table 4.

The variance of performance expectations is homogeneous ($p > 0.05$), so the LSD method is used for multiple comparisons; the variances of effort expectations and social influence are both heterogeneous ($p < 0.05$), so the Tamhane T2 method is used for post hoc tests. Table 5 presents the results of the multiple comparison analysis for years of teaching experience, and the data show significant test results.

In terms of performance expectations and effort expectations, significant differences were primarily observed between teachers with 1–5 years of teaching experience and those with 6–10 years of experience. The mean differences between the two groups were negative, indicating that teachers with 1–5 years of experience had weaker perceptions of both performance expectations and effort expectations. Based on practical considerations, this may be because teachers with 1–5 years of experience lack sufficient teaching experience and the knowledge and skills required to implement early childhood sex education, leading them to perceive difficulties in doing so. In contrast, teachers with 6–10 years of experience have accumulated more teaching experience and are better equipped to make effective use of relevant resources in their instruction; consequently, their perceptions of performance expectations and effort expectations are significantly stronger than those of teachers in other experience groups.

Regarding social impact, there were significant differences among teachers with 1–5 years of experience compared to those with 6–10 years and 20 or more years of experience, with significance coefficients of 0.008 and 0.007, respectively. Based on the differences in mean scores across these experience groups, teachers with 1–5 years of experience have a significantly lower average score regarding the social impact of early childhood sex education than those with 6–10 years of experience, followed by those with 20 or more years of experience. This may be because novice teachers with 1–5 years of experience tend to be more innovative in their teaching and are less susceptible to the influence of opinions from their peers.

Table 4. Variance of variance in different teaching ages

	Levine statistics	Freedom of freedom of 1	Freedom of freedom of 2	Significance
Performance expectation	1.755	3	305	0.155
Effort expectation	2.769	3	305	0.043
Community impact	7.158	3	305	0.000

Table 5. Multiple comparative analysis of age

	aftertest	(I) Teaching age	(J) Teaching age	Mean difference (I-J)	Standard error	Sig.
Performance expectation	LSD	1~5 years	6~10 years	-0.35248*	0.11187	0.003
			11~20 years	-0.10755	0.09984	0.284
			Over 20 years	-0.10857	0.10723	0.313
Effort expectation	Tamhane T2	1~5 years	6~10 years	-0.46903*	0.15515	0.026
			11~20 years	-0.24474	0.15572	0.537
			Over 20 years	-0.25520	0.16386	0.552
Community impact	Tamhane T2	1~5 years	6~10 years	-0.30705*	0.11644	0.008
			11~20 years	-0.19074	0.10392	0.069
			Over 20 years	-0.29157*	0.11163	0.007

3.3. Structural Equation Modeling Validation Analysis

Structural equation modeling is a statistical method for analyzing complex variables, combining factor analysis and path analysis. It uses a system of linear equations to describe the relationships between observed variables and latent variables, or among latent variables themselves. Latent variables refer to abstract constructs or traits that cannot be directly observed or measured. In this study, regarding the phenomenon of preschool teachers' teaching behaviors related to early childhood sex education—which is not directly observable, meaning that the true and specific degree of an individual's intention to engage in such teaching cannot be obtained through direct measurement—and considering the multifaceted and complex nature of the factors influencing the formation of this intention, this study adopted structural equation modeling as the statistical analysis method. This study utilized AMOS 24 software to conduct empirical testing and analysis of preschool teachers' willingness to teach sex education within the framework of structural equation modeling.

The results of the model fit tests are shown in Table 6. The CMIN/DF (chi-square-to-degrees-of-freedom ratio) value is 1.245, which falls within the range of 1–3, and the RMSEA (root mean square

error of approximation) value is 0.027, which is less than 0.05. Furthermore, the GFI, AGFI, CFI, and RFI values all reached excellent levels of 0.9 or higher. Therefore, based on the results of this analysis, it can be concluded that the CFA model for teachers' willingness to teach early childhood sex education has good model fit.

Table 6. Model suitability test results

Index	Measured result
CMIN/DF	1.245
RMSEA	0.027
GFI	0.923
AGFI	0.906
CFI	0.989
RFI	0.922

In this test of path relationships, the results are shown in Table 7. Performance expectations have a significant positive effect on teaching willingness ($\beta = 0.199, p < 0.001$), supporting Hypothesis H1. Effort expectations have a significant positive effect on teaching willingness ($\beta = 0.235, p < 0.001$), confirming Hypothesis H2. Community influence also has a significant positive effect on teaching willingness ($\beta = 0.114, p < 0.05$), indicating that Hypothesis H3 is valid. Maladjustment has a significant negative effect on teaching willingness ($\beta = -0.143, p < 0.05$), thus confirming Hypothesis H5. A sense of insecurity had a significant negative effect on the willingness to teach ($\beta = -0.218, p < 0.001$); therefore, Hypothesis H6 is supported. The effect of innovativeness on teaching motivation was statistically significant ($\beta = 0.147, p < 0.05$), thereby confirming Hypothesis H7. The availability of supportive resources had a significant positive effect on teaching behavior ($\beta = 0.265, p < 0.001$); therefore, Hypothesis H4 is supported. The effect of willingness to teach on teaching behavior was statistically significant ($\beta = 0.367, p < 0.001$), confirming Hypothesis H8.

Table 7. Model path relationship hypothesis test results

Path relation	Estimate	S.E.	C.R.	P
Teaching will<--- Performance expectation	0.199	0.058	3.895	***
Teaching will<--- Effort expectation	0.235	0.0044	4.643	***
Teaching will<--- Community impact	0.114	0.052	2.266	0.023
Teaching will<--- Discomfort	-0.143	0.047	-2.477	0.014
Teaching will<--- Insecurity	-0.218	0.057	-3.561	***
Teaching will<--- Innovation	0.147	0.049	2.968	0.004
Teaching behavior<--- Convenience condition	0.265	0.065	4.913	***
Teaching behavior<--- Teaching will	0.367	0.058	6.477	***

4. Discussion

Based on the UTAUT model and Technology Readiness (TR) theory, this study examined the factors influencing preschool teachers' willingness and behavior regarding sex education. The results of the structural equation modeling analysis showed that all research hypotheses proposed in this study were empirically supported, and the model fit was good, with RMSEA = 0.027 and CFI = 0.989.

Regarding the influence of core variables, both effort expectancy and performance expectancy significantly and positively influenced teaching willingness, with effort expectancy having a stronger effect. This reflects the practical challenge of a lack of mature curriculum resources for early childhood sex education. Although community influence was significant, its effect was the weakest, which is consistent with the non-mandatory nature of sex education, as early childhood teachers possess a high degree of discretion.

In the technical preparedness dimension, a lack of safety had the strongest inhibitory effect on teaching willingness, followed by a lack of adaptability, while innovation had the weakest positive effect. Early childhood sex education involves risks such as sociocultural sensitivity and conflicts with parental views; teachers' concerns about teaching this subject far exceed those in general teaching contexts, creating certain psychological barriers. Even teachers with an inclination toward innovation often hesitate due to concerns about external risks.

Teaching willingness has the greatest effect on actual teaching behavior, and favorable conditions also have a significant positive impact on teaching behavior, indicating that willingness alone is insufficient to drive behavior; educational resource support at the kindergarten campus level is indispensable. No significant gender differences were found; however, teaching experience was found to

have significant effects on three variables—performance expectations, effort expectations, and community influence. These differences may be related to teachers' accumulated teaching experience and changes in their social reference structures.

5. Conclusion

Based on the UTAUT model and the theory of technological readiness, this study constructed a model of factors influencing preschool teachers' willingness and behavior regarding sex education within the framework of early childhood protection. Using structural equation modeling, the study examined the impact of psychological readiness on teaching willingness and the impact of teaching willingness on teaching behavior.

Among the positive influencing factors, effort expectancy emerged as the most critical, indicating that, given the current lack of adequate resources in early childhood education, teachers are primarily concerned with instructional content and resources rather than teaching outcomes. Among the negative influencing factors, the inhibitory effect of perceived insecurity on teaching willingness was significantly stronger than that of perceived maladjustment. Since early childhood sex education involves sociocultural sensitivities and conflicts with parental values, teachers' concerns about external risks outweighed the discomfort arising from the instructional content itself.

In the process of transforming intentions into actions, teaching intentions had the greatest direct effect on actual teaching behavior ($\beta = 0.367, p < 0.001$), while favorable conditions also had a significant positive impact on teaching behavior. These results indicate that teaching intention alone is insufficient to directly facilitate the adoption of early childhood sex education practices; the provision of teaching resources, class scheduling, and institutional support from management within the preschool are necessary external conditions for transforming teachers' teaching intentions into protective sex education behaviors.

This study extends the UTAUT model and the Theory of Technological Readiness to the field of sex education within the framework of early childhood protection education. It reveals the specific inhibitory mechanisms of insecurity in sensitive educational contexts and provides empirical evidence for future efforts to enhance early childhood educators' participation in sex education by reducing perceived risks, providing user-friendly resources, and improving institutional safeguards.

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About The Author

Pei Yang, a PhD candidate in the Department of Educational Psychology and Counselling, Faculty of Education, University of Malaya. She holds an M.A. from the School of Education, University of Sheffield. Her research centers on integrating educational psychology into early childhood education (ages 3–6), with particular emphasis on children’s mental health, educational intervention, and early childhood teacher professional development.

Mohd Nazri Abdul Rahman, an Associate Professor at the Faculty of Education and Head of the Community Transformation Division, UMCares, Universiti Malaya. He holds a PhD in Curriculum Design and Development from Universiti Malaya. His research focuses on early childhood education, homeschooling, indigenous education, and teaching and learning innovation. He is recognized for developing a homeschooling model for Orang Asli children, and has authored books including *Pendidikan Alternatif Homeschooling*, *Design and Developmental Research*, and *Kurikulum: Satu Disiplin yang Dinamik*. His scholarly work appears in international journals, and he has received multiple national awards for research and teaching excellence.

Amira Najiha Yahya, earned her Ph.D. in Psychology from Universiti Putra Malaysia. Her research program centers on adolescent and youth mental health, with particular attention to depression, suicidal behaviour, and the psychosocial factors that shape young people’s psychological well-being. She also maintains active lines of inquiry in developmental screening and the mental health of family caregivers. She has published 35 peer-reviewed journal articles.