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Exploring Factors of Preschool Parents' Behavioral Intention to Use Face Recognition Technology on Campus

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Face recognition technology (FRT) is being increasingly used to record the trajectory of human behavior due to its non-contact nature and high accuracy. When the technology is extended to education, it is applied to manage students' access to campus, to analyze learning behaviors, and to monitor students' campus activities. It is important to note that the use of face recognition technology for students on campus should be approved by the students' guardians. Therefore, this study aimed to determine what factors affect the behavioral intentions of preschool parents' adoption of facial recognition systems on campus. Unlike previous studies, the model of this study was designed to focus not only on the affective dimension, but also on the parenting style. The model was validated with data from an online questionnaire completed by 419 preschool parents. AMOS was used to analyze various assumptions of the model. The analysis revealed that innate consumer innovativeness positively influenced experience values and helicopter parenting which directly affected their behavioral intentions. The results imply that in the application of face recognition technology, parents' behavioral intentions depend not only on the prior experiential value of the product and helicopter parenting, but also on parents' innate consumer innovativeness. Therefore, for campus management and technology application, this study is useful to understand the behavioral intention of guardians to use the new technology. For operators and users of face recognition technology, this study provides several guidelines for exploring parental attitudes toward child supervision and improving products and services to value information security.

Keywords: face recognition technology, innate consumer innovativeness, experiential value, helicopter parenting, behavioral intention

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1 INTRODUCTION

Analysis of human behavior and its behavioral intentions is a common research method in social science. Technology is not only a tool for innovation in the service of research, but also an element that can facilitate the emergence of innovation in new contexts [1]. Based on the support of deep learning and big data, the speed and accuracy of face recognition technology in analyzing human emotions and states are rapidly improving [2], and its application areas have been extended to education, human-computer interaction, epidemic prevention, and other aspects closely related to our lives [3–5]. However, most of previous studies on face recognition technology have focused on

practical applications, such as improving the accuracy and scale of face recognition [6, 7]. In fact, the unique feature of face recognition technology that does not require active human cooperation raises certain security and ethical issues in the application process. Lai et al. [8] summarized some of the controversies and concerns arising from the misuse of face recognition technology. As people become more aware of information data protection, it is necessary to actively explore the factors that influence the use of face recognition technology.

As education and emerging technologies continue to integrate and innovate, there is growing demand for face recognition technology in education [9]. The development of technology in new areas is essential to increase and update existing knowledge [10]. One of the main applications of face recognition technology relies on deep learning for classroom management and monitoring of students' learning behavior [11]. On a campus or in a classroom, the target of face recognition is students who are not yet adults, and their privacy and facial data should be more effectively protected. Therefore, when face recognition technology is carried out in a classroom or on campus, seeking the behavioral intention of their guardians regarding face recognition technology is a key step in the implementation of the technology. In fact, whether adopting technology or consuming a product, behavioral intentions are influenced by many factors, including both the user's pre-existing personality traits and prior use experiences. For example, Jing et al. [12] found that parents' personal traits and innate innovation influence their choice of autonomous vehicles for their children's safety. In other words, parents' personal traits and innate innovation tend to directly influence their usage behavior. The importance of user experience value has been widely used in acceptance studies of new technology products, and previous studies have shown that prior emotional and functional experiences have a significant impact on consumer attitudes toward using such products, and will influence consumer choices long into the future [13, 14]. There has, however, been little research on the experiential value of using face recognition systems. In addition, parenting style has become an important consideration when exploring parenting and parental supervision. Helicopter parenting, as a parenting style that emphasizes parental intervention and protection, is often considered when exploring supervision of children and their academic stress [15, 16].

This study examined guardians' willingness to have their children supervised with face recognition. Thus, innate consumer innovativeness was considered in the study, as a trait-like variable, while the experiential value of the technology and parenting style, an important dimension of educational research, was considered. The study aimed to explore the factors which affect preschool children's parents' behavioral intention regarding face recognition technology, and to provide some reference for the preparation of face recognition technology before it is implemented.

2 THEORETICAL BACKGROUND AND HYPOTHESES

2.1 Innate Consumer Innovativeness

Innate consumer innovativeness (ICI) refers to a generalized but non-consensual perceptual characteristic that is usually expressed as an individual's intrinsic cognitive style and innovative personality [17, 18]. ICI as a factor leading to innovative behavior is often cited and studied in studies on innovation diffusion [19, 20]. When individuals uphold a strong ICI, they will have a greater willingness to accept new products at an early stage than other individuals. According to Vandecasteele and Geuens [21], exploring the relationship between the two is often analyzed using experiential value as a mediator. However, this often creates more limitations due to differences in product functionality and application scenarios. Therefore, when exploring the consumer-product connection, it is important to focus not only on the relational ties between the two, but also to emphasize the intervention of other factors on usage behavior.

2.2 Experiential Value

Mathwick et al. [22] defined experiential value as an individual's perception of a type of product or way of behaving that is formed through direct experience or indirect observation. In contrast to other values, experience value (EV) is concerned with the value that individuals retain from different kinds of experiences and can be thought of as perceived, relative preferences for product or behavioral attributes.

Meanwhile, Sheth et al. [14] used experience value theory to explore the reasons why individuals would continue to use certain types of products. Subsequent studies have also shown that experience value is an important reference point that influences whether a user will use a product or service again [13]. In the field of education, Burke et al. [23] found that parents' experiences growing up internalize their traits and directly influence the way they treat their children. In exploring the relationship between ICI and EV, Lowe and Alpert [24] assessed the overall innovativeness of individuals and found that ICI can influence the experience value of individuals.

However, little research has been conducted on the role of EV in FRT applications, due to the fact that some application contexts of FRT tend to capture people's EV directly without considering them, especially in the educational domain. Therefore, in exploring FRT-oriented EV, the following hypotheses were proposed in this study.

Hypothesis 1. Preschool parents' ICI is positively related to their EV for FRT.

2.3 Helicopter Parenting

Helicopter parenting (HP) is considered to be a parenting style that excessively regulates and constructs the child's behavioral world, interfering in the child's daily activities and homework, which intrudes on and manipulates the child's thoughts, feelings, and attachment to the parent [25]. This type of parenting is different from the control of behavior and psychology in that it

shows more emphasis on deep parental involvement in their children's lives [26].

According to [15], HP is associated with intrusive, stressful aspects of controlling children's behavior. This over-focused parenting style often begins early in childhood and has long-term effects on children [27]. However, this parenting pattern is formed unconsciously and is largely due to parental traits [28]. [29] demonstrated that parental traits have a direct impact on the parenting style they choose, and that the trait of intrinsic innovativeness is unique in that it promotes experimentation with new products or lifestyles [30]. This suggests that parenting style has become an important consideration when exploring parent-child relationships and supervisory behaviors, which are often influenced by parental traits. HP, as a more controlling parenting style, has largely been absent from studies of campus supervision. Therefore, the following hypothesis was proposed.

Hypothesis 2. Preschool parents' ICI is positively related to HP on FRT.

2.4 Behavioral Intention

Engel et al. [31] proposed that behavioral intention (BI) is derived from attitude. It refers to the specific activities or behavioral tendencies that consumers are likely to adopt for a product or service after consumption, and is an accurate indicator of future consumer behavior. In the field of face recognition technology use, positive behavioral intention refers to the meaning possessed by the use, willingness to use, or belief in face recognition technology.

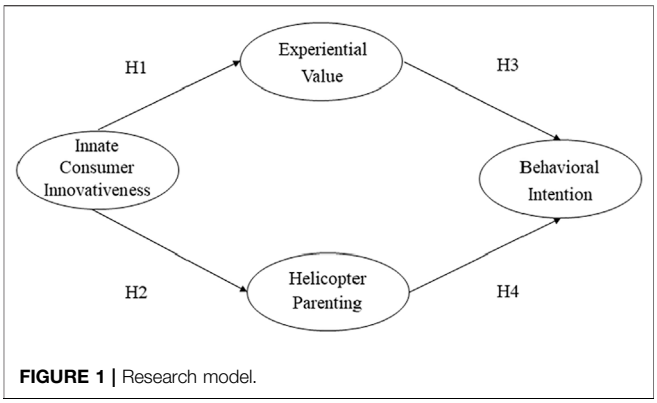

FIGURE 1 | Research model.

Researchers have often analyzed the influencing factors of BI when exploring consumer acceptance of new technologies. For example, [32] explored influencing factors in terms of primary influences, experiential value, positive meaning, and relative advantage dimensions to explore the behavioral intentions affecting the adoption of broadband among Malaysian consumers. The influence of experience value is not only used to explain consumers' offline purchasing behavior, but is also widely used in the field of digital goods research. [33] found the influence of the hedonic and utilitarian constructs of experience value on consumers' intention to use smartphones, while [13] studied the effect of EV on consumers' viewing of IP movies. Therefore, Hypothesis 3 was proposed as follows:

TABLE 1 | Descriptive statistical analysis.

The participants' basic information						
Gender	Male		Female			
	101		318			
Age	<30	31–40	41–50	>50		
	8	333	70	8		
Educational level	Middle school and below	High school	Undergraduate			Graduate and above
	1	9	257			152
Occupation	Manual laborer	Company employee	Civil servant	Freelancer	Full-time at home	Other
	1	179	169	14	35	21
Face recognition usage						
				Yes		No
Have you heard of face recognition technology?				417		2
Have you ever used face recognition technology?				396		23
Where do you use face recognition technology most frequently?						
Schools	Face scan payment	Activate authentication	Station security check	Conference check-in	Home access control	Others
22	40	143	120	19	23	52
How long have you been using face recognition technology?						
Less than 1 month	1–6 months		7–12 months		More than 1 year	
48	37		53		281	
How often do you use face recognition technology in a week ?						
3 times or less	4–6 times		7–10 times		11 times or more	
236	61		49		7	

TABLE 2 | Data of the scale.

Variable measurement questionnaire						
	1	2	3	4	5	6
Innate Consumer Innovativeness						
I am open to new ideas	3	7	19	183	174	33
I usually take risks to do different things	3	50	131	141	89	5
I don't like to stay the same	—	18	75	154	147	25
I like to pursue excitement	3	27	162	159	61	7
I often come up with different ideas to share with people around me	—	16	123	172	90	18
I often have new ideas in my head	2	27	106	192	74	18
I can constantly come up with new ideas about the same issue	—	14	95	206	84	20
Experiential Value						
I think the face recognition system is easy to use	2	7	16	177	172	15
I think the face recognition system is versatile and can meet my needs	2	8	22	191	155	41
I think face recognition is more efficient than other verification methods for admission	—	2	39	170	154	54
I think it is valuable to use the face recognition system for campus management	5	13	80	175	117	29
I think it is interesting to use face recognition	4	5	43	180	146	41
I find using face recognition enjoyable	2	10	58	203	110	36
I enjoy using the face recognition system	4	12	57	195	114	37
I feel relaxed after using face recognition	4	11	53	191	127	33
Helicopter parenting						
I would like to be able to monitor my child's school performance at all times	4	22	55	144	134	60
I would like to be able to monitor my child's development every step of the way	4	10	50	154	124	77
If my child is in trouble at school, I would go to the school immediately to see the teacher to find out what is going on	—	9	93	165	105	47
I would like my child to call or text me regularly to let me know how he/she is doing at school, if possible	1	22	127	125	100	44
I would like to be able to monitor my child's food and drink at school	5	24	98	155	101	36
I would like to be able to monitor who my child is playing with at school	9	29	134	136	81	30
If my child has a problem with a classmate, I will intervene immediately	19	85	241	51	40	10
I am always personally involved in my child's school life	—	10	101	179	103	26
Behavioral Intention						
I will choose face recognition as the campus management method if the campus environment permits in the future	8	2	28	160	170	51
I feel that once I have tried using face recognition as a method of entry verification, I will encourage other students' parents to use it	4	2	57	160	149	49
I think the sooner I use face recognition in classrooms to verify children's entry and exit, the better	11	6	60	161	130	51
I would like to suggest that educational institutions use facial recognition systems to manage schools	8	4	65	152	141	49
I would like to convince other parents to accept the face recognition system to manage the school	2	10	88	157	115	47
Overall, my evaluation of using the face recognition system is positive and my willingness to use it is high	2	3	39	162	162	51

Hypothesis 3. Preschool parents' EV is positively related to BI regarding FRT.

In addition, because face recognition technology in public settings is often not consulted for intention to use, fewer studies have explored BI regarding face recognition technology in public settings. However, this does not mean that this research perspective is not meaningful, as the misuse of face recognition technology has gradually become a concern [8]. In addition, helicopter parenting is a unique parenting type that reflects deep parental involvement in their children's lives, even to the point of exhibiting overprotection or overcontrol [16]. Using parenting style as a predictor of willingness to use, he suggested that an important predictor of parents' willingness to use is their propensity to control. This study therefore proposed Hypothesis 4:

Hypothesis 4. Preschool parents' HP is positively related to their BI regarding FRT

Combining the above literature, this study used the perceived dimension of experiential value and the educational dimension of parenting style as state-like variables to explore the factors that influence preschool parents' behavioral intention to apply FRT on campus (see **Figure 1**).

3 METHODOLOGY

3.1 Participants

The study investigated the interaction between preschool parents' ICI, EV, HP, and BI to use face recognition technology on campus. All participants were informed that the online questionnaire would only be used for this study and that their privacy would be protected. For the questionnaire distribution, we chose more economically developed regions for this study, as these regions tend to apply face recognition technology earlier for

TABLE 3 | Results of confirmatory factor analysis.

Latent variable	Measure item	Standardized factor loading	Composite reliability (CR)	Average variance extracted (AVE)	Cronbach's alpha
Innate consumer innovativeness	ICI2	0.702	0.820	0.533	0.817
	ICI3	0.685			
	ICI4	0.755			
	ICI5	0.775			
Experiential value	EV4	0.717	0.933	0.784	0.927
	EV6	0.897			
	EV7	0.964			
	EV8	0.934			
Helicopter parenting	HP3	0.802	0.863	0.613	0.860
	HP4	0.865			
	HP6	0.744			
	HP8	0.712			
Behavioral intention	BI2	0.910	0.969	0.885	0.968
	BI4	0.977			
	BI5	0.937			
	BI6	0.939			

management purposes. Snowball sampling was used to collect the data for this study. An online questionnaire was posted on the platform "Questionnaire Star" (https://www.wjx.cn/) and a link to the questionnaire was sent to parents through kindergarten teachers in different schools.

A total of 447 responses were collected from June to July 2021. After eliminating invalid questionnaires, 419 valid questionnaires were retained for statistical analysis, with a valid return rate of 94%. Respondents included 101 men (24.1%) and 318 women (75.9%), with 417 (99.5%) respondents having heard of or used face recognition technology. Of these respondents, 79.4% were between 31 and 40 years old, 61.3% had received college education, and more than half of respondents (67%) had been using face recognition technology for more than a year. The most common occasions they used facial recognition were for bank activation authentication and inbound security checks (train stations, airports, etc.) (see **Table 1**).

3.2 Instrument

A questionnaire was distributed online in the study. The survey was conducted voluntarily and anonymously. The answers to the questionnaire were for the use of the researchers and were not used for commercial or any other purpose. The questionnaire had three parts, including the basic information about the participants, the participants' use and attitude toward face recognition technology through their use in daily life, and the scale of factors affecting the acceptance of face recognition technology by preschool parents on campus. The items were designed in the form of a 6-point Likert scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), indicating the respondent's level of agreement with the items. The original questionnaire had four latent variables, namely consumer innate innovativeness (7 items), experience value (8 items), helicopter parents (8 items) and behavioral intention (6 items), for a total of 29 items.

3.2.1 Innate Consumer Innovativeness

To measure preschool parents' ICI, this study synthesized Kirton's [18] and [17] questionnaires for measuring ICI, in which the former first proposed an instrument for measuring ICI and was continuously cited in subsequent related studies, and the latter empirically linked ICI to a new product adoption behavior study, which is close to the case of this study. The subscale contains seven items (e.g., "If I knew a new technology product, I would find a way to experience it"). Higher scores on this subscale reflected a stronger ICI. The Cronbach's alpha of this variable was 0.854.

3.2.2 Experiential Value

To assess experiential value, this study designed an Experiential Value Questionnaire by combining a number of questionnaires [34]. To make the scale specific to face recognition, this study adapted all items by adding wording related to face recognition (e.g., "I think the face recognition system is working well"). The adapted experience value scale comprised eight items and consisted of two subscales: Functional Value (4 items, e.g., "I think the face recognition system is highly secure and does not reveal personal information") and Emotional value (4 items, e.g., "I enjoy using the face recognition system"). The Cronbach's alpha for experiential value was 0.906.

3.2.3 Helicopter Parenting

The helicopter parenting questionnaire was adapted from [35]. Since HP often manifests as excessive parental attention to children, this study also referred to Hong et al. regarding parental monitoring and helicopter parenting [25]. The Helicopter Parenting scale comprised eight items, an example of which is "I would really like to be able to monitor my child's school situation at all times." The Cronbach's alpha of this variable was 0.887.

TABLE 4 | Correlation coefficient matrix and square roots of AVE (n = 419).

Construct	ICI	EV	HP	BI
ICI	**0.730**			
EV	0.418**	**0.885**		
HP	0.550**	0.395**	**0.783**	
BI	0.288**	0.744**	0.444**	**0.940**

Note. **p < 0.01. *The diagonal elements are the square roots of AVE, and the off-diagonal elements are values of the inter-construct correlations.*
*The results of correlational analysis showed that there was a significant correlation among ICI, EV, HP, and BI (see **Table 4**). ICI was positively correlated with EV (r = 0.418**) and with HP (r = 0.550**). EV was positively correlated with BI (r = 0.744**). HP was positively correlated with BI (r = 0.444**).*
*According to [40], when the square root of AVE is greater than the correlation values of the other constructs, construct discriminant validity (CDV) can be determined. In this study, as shown in **Table 4**, the values marked as bold showed that all square roots of the AVEs (the diagonal elements) exceed the correlation of the factor and another factor (the off-diagonal elements). For example, the square root of AVE of ICI is greater than the correlation value of ICI with other factors (0.730 > 0.418, 0.550, and 0.288). CDV is therefore considered to be acceptable.*

3.2.4 Behavioral Intention

To assess behavioral intention, this study adapted the Behavioral Intention Scale [36]. The scale was designed based on Fishbein and Ajzen's [37] definition of behavioral intention, which states that "behavioral intention is the process necessary for behavioral performance and the decision that precedes the emergence of the behaviors." It comprises six items (e.g., "If the future campus environment permits, I would choose face recognition as a campus management method"). Higher total scores on this scale indicated stronger BI. The Cronbach's alpha of this variable was 0.902.

3.3 Reliability and Validity Test

The third part of the questionnaire was the scale of factors affecting the acceptance of face recognition technology by preschool parents on campus. (See **Table 2**).

Reliability is verified by internal consistency reliability (Cronbach's alpha) and composite reliability (CR). The values of the Cronbach's alpha all exceeded 0.916, and the values of CR for all constructs were greater than 0.820 (ranging from 0.820 to 0.969), showing that the study constructs had acceptable reliability [38]. **Table 3** shows that all AVEs were between 0.533 and 0.885. Therefore, the convergent validity of the model was satisfied.

3.4 Data Analysis

In the study, structural equation modelling (SEM) was applied for data analysis because it allows for the simultaneous analysis of multiple variables as needed for the study and in conjunction with factor analysis [39]. Firstly, confirmatory factor analysis (CFA) tests were applied to confirm the validity and reliability of the variables. Secondly, correlation analyses were conducted for ICI, EV, HP, and BI in order to explore potential relationships among the variables. Thirdly, model fitting was performed. Finally, a path analysis of the structural relationships was performed.

TABLE 5 | Fit indices of the structural model.

Fit indices	χ^2/df	TLI	IFI	NFI	CFI	RMSEA
Threshold	<3.00	>0.90	>0.90	>0.90	>0.90	<0.80
Result values	2.739	0.964	0.970	0.954	0.970	0.064

TABLE 6 | Coefficients of the hypothesized model.

Hypothesis	Path	β	*SE*	*t*	Supported
H1	ICI→EV	0.436	0.059	7.359*	Yes
H2	ICI→HP	0.564	0.075	8.890*	Yes
H3	EV→BI	0.688	0.065	13.324*	Yes
H4	HP→BI	0.175	0.043	4.324	Yes

Note. *p < 0.05.

4 RESULTS

4.1 Item Analysis

The original questionnaire had 29 items, including seven items for ICI, eight each for EV and HP, and six for BI. First, those with factor loading values less than 0.5 were removed. Second, a first-order CFA was applied to test the suitability of the items, removing those with the highest residual values in each construct until the values of these first-order CFAs reached the threshold suggested by [38]. Finally, the remaining 16 items were retained for further analysis.

4.2 Correlational Analysis

According to [40], when the square root of AVE is greater than the correlation values of the other constructs, construct discriminant validity (CDV) can be determined. All square roots of the AVEs (the diagonal elements) exceed the correlation of the factor and another factor (the off-diagonal elements) (see **Table 4**). CDV is therefore considered to be acceptable.

4.3 Model Fit Analysis

The fit indices and causal path analysis of the model were evaluated by AMOS. The indices exhibited perfect fitness in terms of the model of this study (χ^2/df = 2.739, TLI = 0.964, IFI = 0.970, NFI = 0.954, CFI = 0.970, RMSEA = 0.064) (see **Table 5**).

4.4 Path Analysis

This study aimed to identify the relationship among preschool parents' BI regarding face recognition technology, ICI, EV, and HP. The verification results showed that ICI was positively related to EV (β = 0.436, p < 0.001) and HP (β = 0.564, p < 0.001), supporting H1 and H2, respectively. EV and HP were positively associated with BI (EV → BI: β = 0.688, p < 0.001; HP → BI: β = 0.175, p < 0.001), supporting H3 and H4, respectively (see **Table 6**).

The coefficient of determination (R^2) and effect size (f^2) are the measures of predictive structural models [38]. The R^2 values

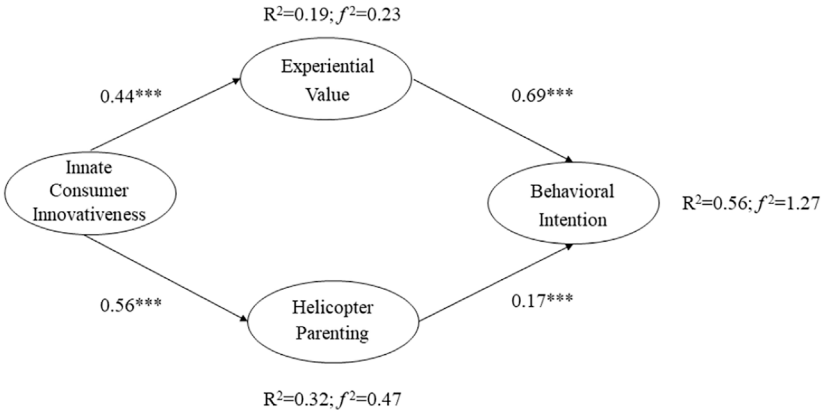

FIGURE 2 | The structural model with standardized coefficients (Note: ***$p < 0.001$).

TABLE 7 | Direct and indirect effect analyses.

	ICI		EV		HP	
	β	95% CI	β	95% CI	β	95% CI
Direct effect	—	—	—	—	—	—
EV	0.427***	[0.33,0.54]	—	—	—	—
HP	0.562***	[0.48.0.65]	—	—	—	—
BI	—	—	0.791***	[0.63,0.89]	0.237***	[0.15,0.39]
Indirect effect	—	—	—	—	—	—
EV	—	—	—	—	—	—
HP	—	—	—	—	—	—
BI	0.455***	[0.37,0.58]	—	—	—	—

Note. ***p < *0.001*.

range from 0 to 1. As shown in **Figure 2**, the explanatory power of ICI on EV is 19%, with an effect size f^2 of 0.23; the explanatory power of ICI on HP is 32%, with an effect size f^2 of 0.47; the explanatory power of EV and HP on BI is 56%, with an effect size f^2 of 1.27. All statistical values were thus acceptable.

4.5 Direct and Indirect Effect Analyses

We conducted 5,000 resample bootstrapping with 95% bias-corrected confidence intervals. From **Table 7**, for direct effects, each 95% confidence interval (CI) did not include zero, which reveals that the direct effect existed in the research model. Furthermore, the analysis showed that the indirect effect between ICI and BI to use face recognition technology was significant [$\beta = 0.455$, $p < 0.001$; 95% CI, (0.37, 0.58)]. This not only suggests that there is indeed a mediating effect of EV and HP between parents' ICI and behavioral intentions to use face recognition technology to supervise their children. It also suggests that all variables in this study had good predictive power [38].

5 DISCUSSION

The study aimed to explore the factors influencing the behavioral intentions of preschool parents to apply FRT on campus. All of the hypotheses were supported. It can now be confirmed that ICI was an antecedent of EV and HP in this study, and that both could directly predict parents' BI regarding the use of FRT.

5.1 Preschool Parents' ICI is Positively Related to Their EV of FRT

In the study, the results showed that preschool parents' ICI was positively associated with their EV of FRT ($\beta = 0.436$, $p < 0.001$; H1 supported), which is consistent with the previous studies on the impact of ICI on EV, especially those of Hartman et al. [41] and Lowe and Alpert [24], indicating that individuals' innovative traits positively affected the experience value, whether it was the acceptance of a new product or service. These similar findings may be due to the fact that when we discuss decision making styles, an individual's innovative ability directly influences the

cognitive dimension of decision making, thus enriching the individual's experience value [42]. Thus, when preschool parents have stronger ICI, they show stronger EV for the latest products or services.

5.2 Preschool Parents' ICI is Positively Related to the Influence of HP on Attitudes Towards FRT

In this study, when preschool parents had stronger ICI, they also had stronger HP when confronted with face recognition technology ($\beta = 0.564$, $p < 0.001$; supported by H2). In this study, ICI, while encouraging users to try new products or lifestyles, also influenced parents to try new techniques and models in their parenting. This is partly an expression of the generalizing influence of ICI on decision-making styles, where users with strong ICI are happy to intervene in their own lives in ways that are within their control in different scenarios [13, 43]. In the context of this study, face recognition technology can be a convenient technological tool, and when parents have stronger ICI, they will also have stronger HP and tend to use new technologies to enhance the supervision of their children.

5.3 Preschool Parents' EV is Positively Related to Their BI Regarding FRT

The results of this study showed that EV of preschool parents had a positive effect on their BI regarding FRT ($\beta = 0.688$, $p < 0.001$; H3 was supported). Previous studies had similar findings, such as [44] study on consumer acceptance of technology, which showed a significant association between experiential value and intention to adopt. Emotion and experience were used by Song [45], and [46] as factors to explore behavioral intention, revealing that the factor had a positive impact on consumers' behavioral intention regarding mobile communication technology and smartwatch devices. [33] discussed the significant impact of EV on BI in the smartphone domain through a refinement of the EV dimension. Over time, the internalized perceptions spread to influence the individual's attitudes toward other areas. In this study, parents' prior experience and attitude towards face recognition were found to directly influence their intention to use face recognition technology for supervision on campus.

5.4 Preschool Parents' HP is Positively Related to Their BI Regarding FRT

The result of this study showed that Preschool parents' HP positively affected their BI regarding FRT ($\beta = 0.175$, $p < 0.001$; H4 supported). Parental control of behavior is considered an important factor influencing parental behavior [25]. In turn, HP will often further enhance monitoring and intervention in the parenting process for protection and monitoring purposes [47]. [48] argued that the use of monitoring systems is a novel form of parental monitoring, and by comparing different parenting styles, they found that parents with more control were more likely to adopt devices to supervise their children. Similarly, the stronger the parent's HP, the stronger their BI regarding the use of FRT to monitor their children, further suggesting that HP is overly concerned with the world of their child's behavior.

Taken together, these results indicate that there is an association between ICI, EV, HP, and BI using face recognition technology. Based on these data, this study can infer that parenting style and EV of using FRT were significantly influenced by ICI. Meanwhile, BI to use face recognition technology was highly correlated with EV and HP. The results of this study further reveal how parents' experiential values and parenting styles influence their attitudes toward new technologies in the public environment of the campus.

6 CONCLUSION

Face recognition technology is increasingly being used in a wide range of categories, including information confirmation, security, law enforcement, payments, and education. However, unlike other biometric features, FRT does not necessarily require active human cooperation in some public settings [8, 49, 50]. Its operation and analysis in public settings often does not require active human cooperation, and the use of FRT has the potential for misuse due to low information awareness and legal irregularities. Although some studies have been conducted on the acceptance of face recognition technology, there is still little scientific inquiry into parental BI of RFT use on campus in the specific context of education. The study systematically predicts the use of face recognition technology on campus, and has implications for future adoption in an educational context.

Specifically, the results of this study suggest that the more innovative preschool parents were, the greater the likelihood that they would embrace the use of facial recognition technology on campus. Also, the two influential variables this study discusses have noteworthy contributions. First, the findings suggest that when individuals are more satisfied with a product or technology that they have previously experienced, they are more likely to be interested in bringing related technologies to other areas of their lives [51]. Although this study explored BI regarding face recognition technology in education, the findings are expected to offer some lessons for other public settings or specific areas that require consumer behavioral intention surveys. Thus, for operators and users of face recognition technology, this study provides implications to improve the products and services to keep users' information secure. Secondly, in educational scenarios, preschool parents showed BI about new technologies not only because of the value of the experience but also because of the parenting style they adhered to. To date, while many studies have examined

the relationship between HP and parental supervision and child stress, this study revealed the relationship between HP and parental supervision through a specific form of their desire to enhance the supervision of their children's school lives outside of the home through face recognition technology.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

All authors contributed equally to the conception of the idea, implementing and analyzing the experimental results, writing the manuscript and reading and approving the final version of the manuscript.

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