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The preschool teachers' perspective of digital technology use in classrooms: A case study of North Maluku province, Indonesia

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Abstract

The significance of information and communication technologies in the educational sector in the last few decades has tremendously increased. The current study aims to examine the significance of various individual factors such as teachers' self-concept, self-efficacy and ICT-related subjective self in predicting their perceptions of ICT usability leading to enhance preschool children's learning outcomes. To achieve the study objectives, the authors applied a quantitative research methodology. After surveying 386 preschool teachers in 55 preschools, the data were analyzed using SmartPLS software. Most educational institutions have transformed their traditional modes of education into virtual classrooms. Technological intrusion in the educational sector has increased during COVID-19 and is persistent in the post-COVID era. Similarly, in universities and colleges, the inclusion of digital technologies in preschools has remarkably increased. The current study adds value to the existing body of literature by extending the existing TAM3 to TAM3+ by adding a new domain of subjective self and predicting preschool teachers' ICT usage in the classrooms and the interaction of this usage with technical support to enhance the preschool children's learning outcomes.

Keywords: ICT-related subjective self, Perceived ICT usability, Preschool teachers' self-concept, Self-efficacy, TAM3+.

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Contents

Contribution of this paper to the literature

This research has explicitly focused on the teachers' perspective of the subjective self, self-concept and self-efficacy to extend the TAM modal to TAM3+ by signifying the worth of the subjective self in enhancing their perceptions regarding the ease of ICT use in a pedagogical context to perform classroom tasks.

1. Introduction

In today's digital world, attitude towards Information and Communication Technology (ICT) adoption is very important (Šabić, Baranović, & Rogošić, 2022). ICTs are ubiquitous aspects of the modern era with immense developments and intrusions into human life including the educational sector (Kundu, Dey, & Bej, 2022). Preschool education is very important because it provides the basis for children's grooming and knowledge-gaining (Westerberg & Vandermaas-Peeler, 2021). Children are born in the digital era, they are inclined to use various digital technologies like smartphones, tablets and laptops even at earlier age (Bowman, Vongkulluksn, Jiang, & Xie, 2022). To enhance students' learning capabilities, teachers need to adopt digital technologies (Karakose, Polat, & Papadakis, 2021). More specifically, during the COVID-19 epidemic, the use of digital technologies in the educational sector has tremendously increased (Karakose et al., 2022) based on their significance and positive influence on teaching methodologies and the enhancement of children's learning outcomes (Kim, 2022).

The Technology Acceptance Model(TAM) by Davis and Davis (1989) has been extended from the original concept of the high dependence of technology adoption on human behaviors and perceived usefulness rather than the provision of infrastructure and resources. Later on, in the TAM3 version, several other factors such as enjoyment, anxiety, computer efficacy, demonstrated ability, output quality, job relevance, image, subjective norms, experience, voluntariness etc. were used to predict the significance of technology adoption in different contexts (Fahmi, Kostini, & Putra, 2022; Kundu et al., 2022). However, research still lacks the significance of the subjective self in predicting the use of technologies in the modern era (Kundu et al., 2022). Several studies have highlighted the significance of technology adoption among teachers to enhance the student's learning outcomes such as high grades, satisfaction, enhanced knowledge, etc. (Han & Sa, 2022; Hsu & Peng, 2022; Zhu & Zhang, 2022). However, in terms of preschools, limited research is available regarding the significance of teachers' use of digital technologies and the resultant children's outcomes such as engagement, participation in different tasks and enthusiasm and interest in learning at early stages of their lives (Ahmad & Zabadi, 2022; Kundu et al., 2022).

Therefore, the current study considered the significance of the personal attributes of the teachers including their self-concept, self-efficacy and ICT-related subjective selves. The current study has extended the previous findings related to the influence of various personality characteristics of the teachers in determining their perceptions regarding ICT usability to the preschool children's actual learning outcomes. Research shows that individuals' subjective selves reflect their self-belief which originates from an effective self-experience that motivates them to excel in various fields of life (Lucas, 2018). Previously, research revealed the significance of the self-system enhancing the motivational level to engage in certain behaviors (Tuli & Mantri, 2021). This self-system can be further linked effectively with adopting technologies based on teachers' priorities and acceptability towards such technologies (Kumari, Hameed, Mazumder, Krishnadas, & Sathyan, 2020).

At the same time, educational institutions have faced several challenges and changes over the years (Arumugham, 2019). The adoption of technologies is not an easy task (Kumari et al., 2020).Hence, it is very important for educational institutions to not only focus on enhancing the preschool teachers' self-characteristics in the form of self-efficacy, concept and subjective self but also provide them with technical support to adopt the technologies to extract their benefits.

The current study has been conducted in Indonesia. Indonesia has embraced and adopted technology in various fields (Hidayat, Lee, Mason, & Khaerudin, 2022). Similar to various organizations and businesses, educational institutions have widely started to apply ICT in the classrooms to enhance students' knowledge (Amka & Dalle, 2022). Moreover, research reports that there are approximately 191 million active internet users in Indonesia (Kharisma, 2022) and about 60% of educational institutions are using modern technologies in the classrooms at various levels. Similarly, scholars are paying greater attention to the use of ICT in pedagogical education to extract the benefits of these technologies (Fochi, 2022). Hence, it is of significant importance to find out the influence of various self-characteristics of preschool teachers in determining their perceptions of ICT usability so that this usability can be transformed into enhanced preschool children's learning outcomes. Thus, based on the extended version of TAM3+ and the addressed literature gap, the current study aims to:

- Examine the significance of preschool teachers' self-concept, self-efficacy and ICT-related subjective selves on their perceptions of ICT usability and preschool children's learning outcomes.
- Examine the influence of preschool teachers' perceptions regarding ICT usability in enhancing children's learning outcomes.
- Investigate the mediatory role of preschool teachers' perceptions of ICT usability in transforming their self-concept, self-efficacy and ICT-related subjective selves in developing and enhancing children's learning outcomes.
- Investigate the contingent role of technical support in enhancing the significance of preschool teachers' perceptions of ICT usability in enhancing children's learning outcomes.

2. Theoretical Foundation and Hypothesis Development

Most studies linked with technological adoption used the TAM as the most widely used research model in different domains (Sharma & Joshi, 2016). Several scholars have already used and verified it by reflecting on individual behaviors towards technology adoption based on their desirability and evaluation of a particular technological system (Vaiopoulou, Papadakis, Sifaki, Stamovlasis, & Kalogiannakis, 2021). As an extension to this original TAM for developing a consolidated nomological network of ICT adoption, the TAM2 was proposed and extended by Venkatesh (2000) as the TAM3 by combining the TAM2 with the six determinants of "Perceived Ease

of Use (PEU), computer self-efficacy, perceptions of external control, computer anxiety, computer playfulness, perceived enjoyment and objective usability."

However, based on the literature and contextual settings, researchers found a gap in TAM3 with the need to focus on individuals' subjective selves in determining their ICT usability behaviors (Kundu et al., 2022). According to researchers, suspect subjectivism is a personal primary independent experience and prerequisite for the individuals' existence and performance based on their subjective self- awareness (Almutairi & Shraid, 2021). The current study also considers the significance of facilitating conditions in the form of wider technical support by educational institutions to enhance the learning outcomes of the children based on teachers' perceptions of ICT usability, considering it a valuable extension to the TAM3.

2.1. Preschool Teachers' Self Concept, Self-Efficacy, ICT-Related Subjective Self, Perceived ICT Usability and Students' Learning Outcome

People's self-concepts present their reviews of themselves (Arens et al., 2017). Individuals' self-concept lies in the belief that they have a hold on their personality and can respond to external stimuli in a specific manner (Alevizou, Henninger, Stokoe, & Cheng, 2021). Self-concept plays a very significant role in an individual's perceptions regarding a certain system (Arens et al., 2017). When individuals perceive that the use of a certain system is beneficial for themselves or the people around them, they are more confident about using those systems (Cui, Tong, & Tan, 2022). At the same time, in terms of ICT integration, self-efficacy is very context-specific, reflecting the individual's effectiveness in adopting the technological changes as per the environmental changes (Hanham, Lee, & Teo, 2021). The use or integration of ICT demands a special type of teachers' efficacy in terms of their ability to use technologies (Šabić et al., 2022). It also depends largely upon their willingness to adopt new technologies in classroom practices (Zheng, Wang, Doll, Deng, & Williams, 2018). In this context, previous researchers asserted that when individuals believe in their capabilities and competence in using a new system, they are more confident in adopting that system and spreading awareness about it (Chudhery et al., 2022; Šabić et al., 2022). The same arguments can be applied to preschool teachers' perceptions regarding the significance of using ICT in the classroom to achieve higher benefits.

Several researchers asserted the importance of teacher-related cognitive factors like readiness, motivation, confidence, intentions, attitudes and beliefs in their affective adoption and integration of communication technologies in pedagogy (Dalle et al., 2021; Nikolopoulou, Gialamas, & Lavidas, 2021; Peralta, O'Connor, Cotton, & Bennie, 2016; To'raqulovich, 2021). In addition to this self-concept and self-efficacy, the current study has also highlighted the significance of the ICT-related subjective selves of individuals in reflecting their perceptions of adopting new technologies and their usability. Individuals' subjective selves reflect their egoistic personalities by serving certain motives and are solely based on the specific interests of the people (Lucas, 2018). Therefore, it can be stated that when egoistically motivated individuals are convinced regarding the significance of technology intrusion in the educational sector, they are positive about adopting those technologies in their classroom. They are also more inclined that these technologies and classrooms are highly useable. It can be stated that once the preschool teachers are self-convinced about the productivity of ICT adoption in classroom practices, they evaluate the student outcomes at higher levels and present their classroom activities positively and effectively (Ahmad & Zabadi, 2022). Based on the above arguments and the extension of TAM3 into TAM3+ by integrating preschool teachers' self-concept and self-efficacy in presenting their positive perceptions of ICT adoption and usage in the classrooms, the current study postulates that:

H1: Preschool teachers' a) self-concept, b) self-efficacy, and c) ICT-related subjective self have a positive influence on children's learning outcomes.

H2: Preschool teachers' a) self-concept, b) self-efficacy, and c) ICT-related subjective self-have a positive influence on their perception of ICT usability.

2.2. Preschool Teachers' Perceptions of ICT Usability and Students' Learning Outcome

The use of ICT and its integration are two unique concepts. In the context of curriculum development and delivery, the integration of ICT has more intense implications compared to technical knowledge or ICT literacy (Hidayah, Prihatin, & Utanto, 2021). In the pedagogical context, researchers have highlighted the importance of ICT integration in terms of students' learning outcomes in the form of satisfaction with the studies, good grading and engagement in classroom activities (Amka & Dalle, 2022; Dahleez, El-Saleh, Al Alawi, & Abdel Fattah, 2021; Young, Klemz, & Murphy, 2003). Few studies have examined the significance of ICT adoption technologies in preschool classrooms among students (aged 3-7) (Kundu et al., 2022). Hence, it is asserted that when teachers are convinced about the positive use of ICT in the form of digital plays, educational robotics, video games, cartoon composers, blackboard technologies, etc., they are in a better position to apply those technologies in the classrooms to enhance the children's learning outcomes in the form of their interest, engagement, participation, etc. Hence, based on the above arguments and literature support it is postulated that:

H3: Preschool teachers' perception of ICT usability is positively related to children's learning outcomes.

2.3. Perceptions of ICT Usability as a Mediator

Scholars have focused on the individual's self-concept in developing various positive traits among themselves (Zahrai, Veer, Ballantine, & Peter de Vries, 2022). As a result, they depict several positive behaviors. When people have a high self-concept, they are more confident in the workplace and their performance increases (Farhadi, Bagherzadeh, Moradi, Nemati, & Sadeghmoghadam, 2021). An individual's self-efficacy has been linked to their ability to perform various tasks efficiently and effectively (Hanham et al., 2021). Additionally, the teachers' ICT-related subjective selves have been introduced as a new domain of their self-characteristics of relating themselves as a reflection of their classroom activities. Hence, it is postulated that when they consider that the use of modern technologies in their teaching practices reflects their updated subjective selves with the requirements of society to include technology in different walks of life, they perceive their usage as high in the classrooms based on the effectiveness of generating positive outcomes. At the same time, the literature also supports the significance of the

instructor's perceptions regarding the use of ICT in the classrooms as a significant predictor of the students' learning outcomes (Dahleez et al., 2021). At the same time, the current study extends previous findings concerning the relationship of individuals' ICT usability perceptions and positive outcomes as well as their personality traits as predictors of ICT usability. Thus, the current study considers the underlying mechanism of this ICT's usability in transforming individual-level variables to bring about group-level outcomes in the form of students' learning in the preschool classrooms. Hence, it is postulated that:

H4: Preschool teachers' perceptions of ICT useability mediate the association of their a) self-concept, b) self-efficacy and c) ICT-related subjective self with children's learning outcomes.

2.4. Technical Support as a Moderator

In addition to the direct and indirect association of preschool teachers' self-concept, self-efficacy and subjective self with children's learning outcomes, the current study has also considered the contingent role of technical support from educational institutions to enhance this association. Educational institutions can provide technical support to preschool teachers' in multiple ways including the provision of modern information and communication technologies in the classrooms with easy access to these technologies (Dalle et al., 2021). This technical support can also enhance teachers' knowledge of using ICT in the classroom (Zheng et al., 2018). Previously conducted research reports the significance of training program seminars and workshops and enhancing teachers' capabilities and willingness to adopt ICT in the classrooms to attain higher learning outcomes (Hidayah et al., 2021). Technical support also refers to the facilitating conditions provided by the educational institutions to the teachers in the form of accessible internet and the availability of computer labs etc. (Hu, Yuan, Luo, & Wang, 2021). In terms of preschool teachers, if they want to display educational robotics, they should be provided with the material simultaneously (Abel, Tondeur, & Sang, 2022). Educational institutions provide digital facilities in poor school classrooms but the teachers cannot extract their benefits at full capacity (Tomczyk, Mróz, Potyrała, & Wnęk-Gozdek, 2022). We hypothesize that:

H5: The technical support available to preschool teachers acts as a moderator between the association of their perceptions of ICT useability and preschool children's learning outcomes such that the relationship is stronger in the case of a higher level of technical support.

3. Research Methodology

The current study used quantitative research methodology to collect the data from the participants. A survey was conducted among preschool teachers in Indonesia. In this region, the literacy rate is quite low (Hasan, Mas'ud, & Sundari, 2021)because of the low per capita income and poor living standards of the people. Therefore, it was perceived to be more significant in determining the factors that can enhance the teachers' perceptions regarding the useability of ICT technology and resultant outcomes. This is also effective for all the children who are studying or who are willing to have the opportunity to go to school. For data collection, the authors approached 55 preschools to obtain formal consent from the administrative departments. The basic administrative control of the preschool teachers in the region is under the North Maluku board of primary and secondary education or the central board of primary education.

Moreover, the administrative departments were briefed in detail regarding the purpose of conducting this study. Approximately 48 schools showed their willingness to allow researchers to collect data from teachers. When selecting the preschools for data collection purposes, it was preferred by the scholars to only include those having ICT labs and computers.

Out of 48 schools, 43 qualified for this basic criterion. A heterogeneous sampling method was used to collect the data. This heterogeneous sampling methodology permits the scholars to use various cases relevant to the study context from different angles (Bryan, Tipton, & Yeager, 2021). For that purpose, researchers divided the demographic characteristics into different categories including the regions of the district, gender, age, number of students in the classrooms etc. This type of research methodology further provides in-depth information regarding the study sample.

In total, researchers communicated with approximately 537 preschool teachers and requested that they to participate in the research survey. Of the 537 preschool teachers, 423 agreed to participate in the survey. However, after completing the survey, it was found that approximately 37 questionnaires had either missing values or unengaged patterns. Therefore, they were not included in further hypotheses. Thus, 386 responses were included in the data analysis section generating a final response rate of about 71%.

The demographic practices of the respondents showed that 5% of the respondents were males and 95% were female, 51% of the respondents were married and 49% were unmarried, 95% of the respondents were undergraduates and 5% were graduates. In terms of experience, 25% of respondents had an experience of less than one year, 31% had an experience of less than one to five years, 32.7% had more than five years of experience and the remaining 11.3% had an experience of more than 15 years with the same organization.

3.1. Measures of the Study

The survey questionnaire for the current study consisted of thirty-five items measuring all study constructs. Self-concept was measured by six items (Arens et al., 2017). We adapted 7 items from Šabić et al. (2022) to measure the preschool teachers' self-efficacy. For measuring ICT-related subjective self, we used five items adapted from Kundu et al. (2022).

To measure teachers' perceptions of ICT usability, we used the System Useability Scale (SUS) which was adapted from Brooke (1996). Simultaneously, preschool children's learning outcomes were measured with five items adapted from Powell and Bodur (2019). Finally, technical support was measured with three items by Zheng et al. (2018).

Table 1. Factor loadings, reliability, and validity.

Constructs	Factor loadings						AVE	CR	CA
	1	2	3	4	5	6			
Teachers' self-concept							0.632	0.923	0.867
TSC1	0.831								
TSC2	0.784								
TSC3	0.779								
TSC4	0.808								
TSC5	0.846								
TSC6	0.760								
TSC7	0.751								
Teachers' self-efficacy									
TSE1		0.773					0.591	0.897	0.833
TSE2		0.776							
TSE3		0.721							
TSE4		0.789							
TSE5		0.762							
TSE6		0.790							
Teachers' ICT related subjective self							0.634	0.896	0.847
TIRSS1			0.793						
TIRSS2			0.827						
TIRSS3			0.809						
TIRSS4			0.821						
TIRSS5			0.726						
Perceived ICT usability							0.555	0.926	0.871
PIU1				0.724					
PIU2				0.784					
PIU3				0.763					
PIU4				0.723					
PIU5				0.766					
PIU6				0.731					
PIU7				0.730					
PIU8				0.737					
PIU9				0.758					
PIU10				0.730					
Preschool children's learning outcomes							0.543	0.856	0.811
CLO1					0.797				
CLO2					0.735				
CLO3					0.707				
CLO4					0.738				
CLO5					0.704				
Technical support							0.523	0.766	0.756
TS1						0.705			
TS2						0.744			
TS3						0.719			

Note: CR= Composite reliability; AVE= Average variance extracted; CA= Cronbach's α.

4. Data Analysis and Results

The authors of the current study used SmartPLS version 4.0 to conduct the study analysis by performing Partial Least Square Equation Modeling (PLS_SEM). The authors conducted an independent test as per the guidelines provided by Armstrong and Overton (1977) before performing their confirmatory factor analysis and hypothesis testing.

This t-test is performed to avoid potential non-response issues by examining the probability of differences among the respondent's means collected at different times. The t-test results revealed that there are no significant differences between the means of the data collected at different times indicating no potential nonresponse biases. In the next step, the influence of participants' demographic characteristics on the dependent variables was assessed. The influence of participants' experiences was found to positively impact preschool children's learning outcomes. Hence, it was controlled before proceeding with the regression analysis.

Researchers used the values of "Cronbach's α (CA)" and "composite reliability (CR)" to examine the measures' reliability and validity (Henseler, Ringle, & Sarstedt, 2015; Noor, Mansoor, & Shamim, 2022). The results in Table 1 show that all values of the CR and CA were within the recommended range, i.e., above 0.70 depicting the well-established validity and reliability of the study measures. "Average Variance Extracted (AVE)" was found to be above the recommended value of 0.50 based on the factor loadings of the study variables above 0.70 (Mansoor, Awan, & Paracha, 2022). Thus, the results also confirmed the "convergent validity" of the research constructs (Hair, Black, Babin, & Anderson, 2010).

Additionally, scholars recommended assessing the Heterotrait-Monotrait (HTMT) ratio as a measure of constructs' discriminant validity (Henseler et al., 2015). The findings suggested that the HTMT ratio values are below 0.85 (see Table 2).

Hence, no issues of multicollinearity were revealed among the study variables (Mansoor, Awan, & Paracha, 2021; Sarstedt, Ringle, & Hair, 2017).

Table 2. Heterotrait-monotrait ratio (HTMT).

Constructs	Mean	STD	1	2	3	4	5	6
Teachers' self-concept	4.01	1.02	0.794					
Teachers' self-efficacy	4.32	0.92	0.487	0.768				
Teachers' ICT-related subjective self	3.88	1.06	0.589	0.644	0.796			
Perceived ICT usability	3.94	1.10	0.633	0.578	0.581	0.744		
Preschool children's learning outcomes	4.10	0.99	0.505	0.540	0.502	0.577	0.736	
Technical support	3.83	1.13	0.576	0.499	0.487	0.456	0.630	0.723

Note: The square roots of the AVEs of the constructs are shown in bold in a diagonal.
TSC= Teachers' self-concept; TSE= Teachers' self-efficacy; IRTSS= Teachers' ICT related subjective self; PIU= Perceived ICT usability; CLO= Children's learning outcomes; TS= Technical support.

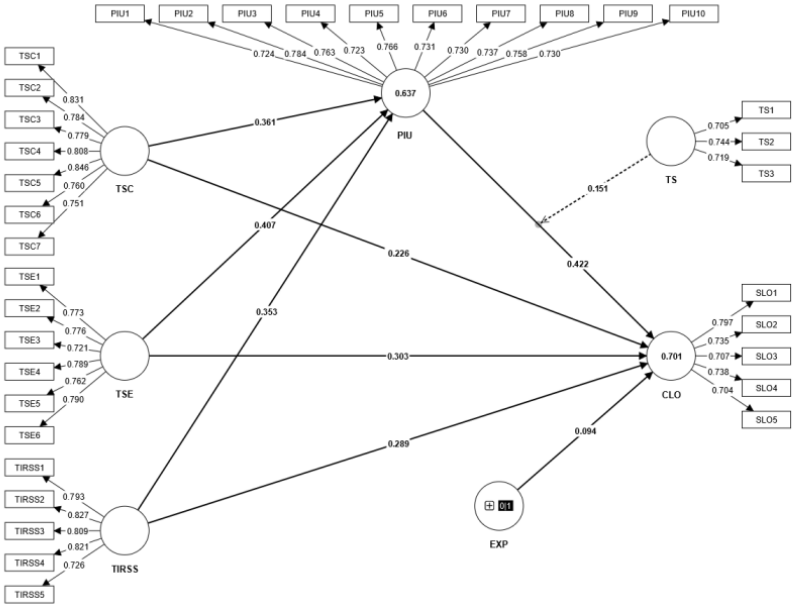

Figure 1. Full measurement model.
Note: TSC= Teachers' self-concept; TSE= Teachers' self-efficacy; IRTSS= Teachers' ICT related subjective self; PIU= Perceived ICT usability; CLO= Children's learning outcomes; TS= Technical support.

4.1. Hypothesis Testing

Authors determine the "Coefficient of Determination (R^2)" for hypothesis testing. As Figure 1 illustrates, the values of R^2 for preschool teachers' perceptions of ICT usability were 0.637 whereas for preschool children's learning outcomes, they were 0.701. Thus, reflecting a variance of about 63.7% and 70.1% in both variables based on the preschool teachers' self-concept, self-efficacy, ICT-related subjective self and the technical support available to preschool teachers.

4.2. Direct Hypotheses

Results shown in Table 3 depict that preschool teachers' self-concept (ß = 0.226**, t = 4.102), self-efficacy (ß = 0.303**, t = 5.314) and ICT-related subjective self (ß = 0.289**, t = 5.190) have a significant and positive relationship with children's learning outcomes. Similarly, teachers' self-concept (ß = 0.361***, t = 6.721), self-efficacy (ß = 0.407***, t = 8.412) and ICT-related subjective self (ß = 0.353***, t = 7.951) have a significant positive relationship with their perceptions of ICT usability. In addition, preschool teachers' perceptions of ICT usability had a positive influence on children's learning outcomes (ß = 0.422***, t = 8.567). These results reflect that all direct hypotheses, i.e., H1a, b, and c, H2a, b, and c, and H3 are analytically supported.

4.3. Mediating Hypotheses

In addition to the direct hypothesis, teachers' self-concept (ß = 0.249**, t = 4.597), self-efficacy (ß = 0.313**, t = 5.440) and ICT-related subjective self (ß = 0.341***, t = 5.927) have a significant and positive relationship with children's learning outcomes through an underlying mechanism of teachers' perceptions of ICT usability. These results indicate the acceptance of mediation hypotheses H4a, b, and c (see Table 3).

4.4. Moderating Hypotheses

For calculating the contingent influence of the technical support available for teachers to significantly adopt ICT in the classrooms and enhance the effect of preschool teachers' perceptions of ICT usability on children's learning outcomes, an interaction was developed by applying a product indicator approach in SmartPLS version 4.0 (Mansoor, 2021). Results proved the moderating role of technical support. The findings also revealed that TS and PIU have a significant interaction to improve children's learning outcomes (β =0.151**, t-value = 2.945, p < .01). Additionally, the R^2 for the main influence of preschool teachers' perceptions of ICT usability on children's

learning outcomes was 0.570. In contrast, after adding the interaction term TS*PIU the R^2 value reached 0.701. This change in R^2 value which reflects enhanced explanatory power of children's learning outcomes by 13.1%.

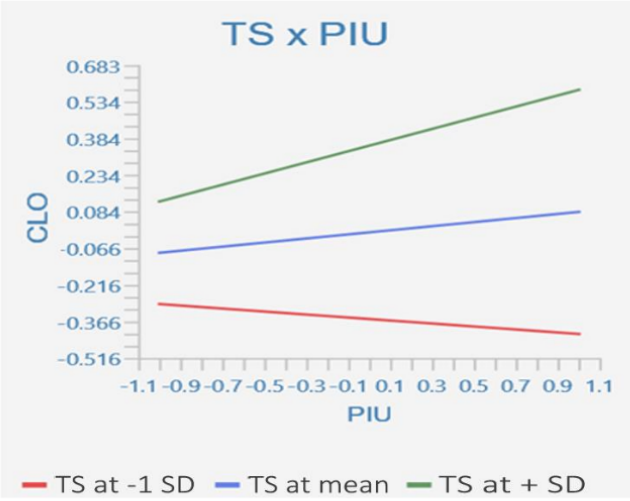

Figure 2. Interaction plot for moderating the effects of technical support.
Note: PIU= Perceived ICT usability; CLO= Children's learning outcomes; TS= Technical support.

It is evident from Figure 2 that the line labeled for the higher values of available technical support to the preschool teachers for the adoption of the learning technologies in the classrooms had a steeper gradient compared to the lower values of technical support for the association of the preschool teachers' perception of ICT usability with children's learning outcomes. This further reveals that when preschool teachers feel comfortable using ICT in the classrooms to train and teach the students, their learning outcomes automatically improve. These results also support hypothesis 5 of this research.

Table 3. Hypothesis testing results.

Hypothesized relationships		Std. beta	T-value	P-value	Supported
H1a	TSC→ CLO	0.226	4.102	0.003	Yes
H1b	TSE→ CLO	0.303	5.314	0.001	Yes
H1c	TIRSS→CLO	0.289	5.190	0.001	Yes
H2a	TSC→ PIU	0.361	6.721	0.000	Yes
H2b	TSE→ PIU	0.407	8.412	0.000	Yes
H2c	TIRSS→ PIU	0.353	7.951	0.005	Yes
H3	PIU → CLO	0.422	8.567	0.000	Yes
H4a	TSC→ PIU→ CLO	0.249	4.597	0.003	Yes
H4b	TSE→ PIU→ CLO	0.313	5.440	0.001	Yes
H4c	TIRSS→ PIU→ CLO	0.341	5.927	0.000	Yes
H5	TC*PIU→ CLO	0.151	2.945	0.011	Yes

Note: TSC= Teachers' self-concept; TSE= Teachers' self-efficacy; IRTSS= Teachers' ICT related subjective self; PIU= Perceived ICT usability; CLO= Children's learning outcomes; TS= Technical support.

5. Discussion and Conclusion

5.1. Study Findings

The results of the current study revealed the significant impact of all teachers' self-related variables on their perceptions regarding children's learning outcomes. The significant influence of the self-concept of preschool teachers on the children's learning outcomes reveals that when teachers are confident about their abilities to adopt ICT in classrooms, they are more convinced about their students' performance. These results can be further related to the previous studies that asserted the significance of using digital technologies in classrooms and learning activities to enhance students' performance and achievement levels (Arens et al., 2017; Farhadi et al., 2021). Thus, when preschool teachers are confident in applying modern technologies including digital play, educational robotics, etc. during teaching, they perceive their effectiveness in enhancing preschool children's learning outcomes.

Self-efficient teachers adopt modern technologies in the classrooms to enhance preschool children's learning outcomes. These findings are consistent with the previous studies that have asserted the significance of teachers' self-efficacy in adapting modern technologies to apply them in the classrooms (Šabić et al., 2022; Zheng et al., 2018). The results revealed that teachers' ICT-related subjective selves have a significant positive influence on enhancing preschool children's learning outcomes. This further reflects the significance of teachers' subjective selves relating themselves to modern technologies by acknowledging the significance of those technologies in their teaching practices.

Results reflect that teachers' self-concept and self-efficacy enhance their perceived ease of ICT use. When they perceive that it is easy to use modern technologies in the classroom, they are more intent on using them and

perceive their high usability based on their positive perceptions regarding such technologies (Kundu et al., 2022; Omar, Zahar, & Rashid, 2020). At the same time, the significance of teachers' subjective self in determining their perceived ICT usability is worth mentioning as a valuable addition to the existing body of literature.

Moreover, findings also suggest the underlying mechanism of teachers' perception of ICT usability that transmits the effect of their self-concept, self-efficacy and ICT-related subjective selves to enhance preschool children's learning outcomes. It also show that teachers have a higher self-concept of implementing ICT technologies (Hamdan et al., 2021). This cognitive dimension of the subjective self is more apt to perceive the ease of using technologies. This perceived ease of usefulness and usability made them more satisfied with their teaching methodologies and enhanced their perceptions regarding preschool children's learning outcomes (Hanham et al., 2021). These results can be further linked with the previous studies which asserted the significance of system useability as an underlying mechanism to transmit the effect of individual factors and attitudes in extracting positive behaviors (Hidayah et al., 2021). Hence, it can be stated that it is very important for preschool teachers to effectively use ICT in the classroom based on their confidence in extracting positive outcomes in the form of student learning.

Finally, the current study also adds to the existing body of literature by suggesting that technical support is important in transmitting the significance of teachers' perceptions regarding ICT usability in enhancing student outcomes. The positive results reveal that when teachers are provided with the facilitating conditions and technical support, they effectively use different technologies in the classrooms for students' benefit and enhance their learning outcomes in the form of satisfaction, grading, engagement in the classrooms and self-grooming.

5.2. Study Implications

The current study contributes to the literature linked with the preschool teachers' perceptions of their self-concept, self-efficacy and subjective selves to predict the significance of ICT usability and the resultant student learning outcomes and it has considered the subjective self in addition to self-concept and self-efficacy to extend the TAM3 modal to TAM3+ by demonstrating the significance of the subjective self in enhancing teachers' perceptions. At the same time, preschool teachers' perspectives of themselves have been applied to the pedagogical use of ICT to perform certain classroom tasks. Nowadays, education is not only confined to delivering lectures and enhancing the existing concepts of the students but is extended to simulation with ICT and problem-based learning for enhancing the students' knowledge and extracting their best capabilities. Therefore, the attainment of positive behaviors is of utmost significance and can only be achieved once the instructors are self-confident with higher levels of positive self-concept, efficacy and subjective self to apply modern technological tools along with their skills to enhance students learning. In this context, educational institutions should focus on several measures to improve the perceptions of self-concept, self-efficacy and subjective self among preschool teachers. For this purpose, training programs including counseling frameworks should be continuously introduced and implemented as the benefits of modern technologies in the classroom can only be extracted once teachers are convinced about the significance of applying these technologies to their teaching practices.

Moreover, self-concept and self-efficacy can be seen in all individuals, irrespective of their working fields (Alevizou et al., 2021; Arens et al., 2017; Farhadi et al., 2021). However, there is continuous need to enhance these cognitive traits to improve their efficiency and effectiveness. It can also be related to the fact that in the technological world, every individual is using ICT in their lives (Mansoor, 2021). It is important to find out the productive uses of ICT. Hence, to make ICT productive, organizations should invest in polishing their latent abilities into practical ones to extract positive outcomes. Additionally, the current study extended the previous findings from the perception of ICT usage to actual outcomes in the form of students' learning. This adds value by demonstrating the ICT usability and ease of use as well as the positive impact on individual behaviors in the educational sector. Finally, based on the empirical finding of a valuable extension of TAM3 to TAM3+, it is suggested by the authors to add the valuable cognitive state of individuals in the form of subjective self when effectively contributing to the perceived usability of modern technologies. Additionally, by enhancing the explanatory power of ICT usability, the cognitive trait is valuable for the researchers in extending the existing technology acceptance model in different domains.

6. Limitations and Future Research Directions

The current study has a few limitations that need to be addressed by future researchers. For instance, the current study has only been conducted in the preschool teachers' public and private education institutions in one province of Indonesia. However, there are several conflicts in the human brain's psychological structure, hence, teachers' perceptions regarding self-concept and the adoption of digital technologies in different areas may differ. Therefore, scholars should conduct similar kinds of studies in different regions. After collecting data, a comparative analysis should be performed to better understand teachers' perceptions based on their personalities and self-perceptions regarding ICT usability and potential behavioral outcomes. The current study only relied upon the teachers' perceptions regarding their self-concept, self-efficacy and subjective self to evaluate the significance of ICT usage in depicting children's learning outcomes in preschools. In contrast, other organizational-based predictors like the school culture and facilitating an environment in the form of training, seminars, workshops, the best ICT facilities and other assistance should also be considered as predictors of teachers' perceptions regarding ICT usability in enhancing preschool children's learning outcomes. Finally, the current study has only considered the contingent impact of technical support. In contrast, future researchers can explore other potential moderators such as teachers' personality traits, religious beliefs, gender, carrier orientation etc. to enhance the benefits of their perceptions of ICT usability in improving and achieving children's learning outcomes.

References

Abel, V. R., Tondeur, J., & Sang, G. (2022). Teacher perceptions about ICT integration into classroom instruction. *Education Sciences, 12*(9), 609. https://doi.org/10.3390/educsci12090609

Ahmad, N. A. A., & Zabadi, A. M. (2022). Using the technology acceptance model (TAM) in understanding the preschool teachers in Palestine technology'acceptance during the COVID-19 pandemic. *Eximia, 4*(1), 63-83.

Alevizou, P., Henninger, C. E., Stokoe, J., & Cheng, R. (2021). The hoarder, the oniomaniac and the fashionista in me: A life histories perspective on self-concept and consumption practices. *Journal of Consumer Behaviour, 20*(4), 913-922. https://doi.org/10.1002/cb.1916

Almutairi, T. S., & Shraid, N. S. (2021). Teacher evaluation by different internal evaluators: Head of departments, teachers themselves, peers and students. *International Journal of Evaluation and Research in Education, 10*(2), 588-596. https://doi.org/10.11591/ijere.v10i2.20838

Amka, A., & Dalle, J. (2022). The satisfaction of the special need' students with e-learning experience during COVID-19 pandemic: A case of educational institutions in Indonesia. *Contemporary Educational Technology, 14*(1), ep334. https://doi.org/10.30935/cedtech/11371

Arens, A. K., Marsh, H. W., Pekrun, R., Lichtenfeld, S., Murayama, K., & Hofe, R. v. (2017). Math self-concept, grades, and achievement test scores: Long-term reciprocal effects across five waves and three achievement tracks. *Journal of Educational Psychology*(5), 621-634. https://doi.org/10.1037/edu0000163

Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research, 14*(3), 396-402. https://doi.org/10.2307/3150783

Arumugham, K. S. (2019). Teachers' understanding towards portfolio assessment: A case study among Malaysian primary school teachers. *Problems of Education in the 21st Century, 77*(6), 695-704. https://doi.org/10.33225/pec/19.77.695

Bowman, M. A., Vongkulluksn, V. W., Jiang, Z., & Xie, K. (2022). Teachers' exposure to professional development and the quality of their instructional technology use: The mediating role of teachers' value and ability beliefs. *Journal of Research on Technology in Education, 54*(2), 188-204. https://doi.org/10.1080/15391523.2020.1830895

Brann, K. L., Daniels, B., Chafouleas, S. M., & DiOrio, C. A. (2022). Usability of social, emotional, and behavioral assessments in schools: A systematic review from 2009 to 2019. *School Psychology Review, 51*(1), 6-24.

Brooke, J. (1996). SUS-A quick and dirty usability scale. *Usability Evaluation in Industry, 189*(194), 4-7.

Bryan, C. J., Tipton, E., & Yeager, D. S. (2021). Behavioural science is unlikely to change the world without a heterogeneity revolution. *Nature Human Behaviour, 5*(8), 980-989. https://doi.org/10.1038/s41562-021-01143-3

Chudhery, M. A. Z., Safdar, S., Rehman, H.-U., Rafique, R., Ali, M., & Li, F. (2022). M-health services equipped with public sector community health centers (MH-PS-CHCs), an emerging public-private joint venture in China: Adoption from M-health users' perspective. *Technology Analysis & Strategic Management*, 1-15. https://doi.org/10.1080/09537325.2022.2117598

Cui, T., Tong, Y., & Tan, C. H. (2022). Open innovation and information technology use: Towards an operational alignment view. *Information Systems Journal, 32*(5), 932-972. https://doi.org/10.1111/isj.12375

Dahleez, K. A., El-Saleh, A. A., Al Alawi, A. M., & Abdel Fattah, F. A. M. (2021). Student learning outcomes and online engagement in time of crisis: The role of e-learning system usability and teacher behavior. *The International Journal of Information and Learning Technology, 38*(5), 473-492. https://doi.org/10.1108/ijilt-04-2021-0057

Dalle, J., Raisinghani, M. S., Putra, A. P., Suriansyah, A., Hadi, S., & Sahara, B. (2021). A technology acceptance case of Indonesian senior school teachers: Effect of facilitating learning environment and learning through experimentation. *International Journal of Online Pedagogy and Course Design, 11*(4), 45-60. https://doi.org/10.4018/ijopcd.2021100104

Davis, F. D., & Davis, F. (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

Fahmi, M. A., Kostini, N., & Putra, W. B. T. S. (2022). Exploring hybrid learning readiness and acceptance model using the extended TAM 3 and TPB approach: An empirical analysis. *International Journal of Research in Business and Social Science (2147-4478), 11*(8), 321-334. https://doi.org/10.20525/ijrbs.v11i8.2144

Farhadi, A., Bagherzadeh, R., Moradi, A., Nemati, R., & Sadeghmoghadam, L. (2021). The relationship between professional self-concept and work-related quality of life of nurses working in the wards of patients with COVID-19. *BMC Nursing, 20*(1), 1-8. https://doi.org/10.21203/rs.3.rs-152610/v1

Fochi, P. S. (2022). Pedagogical documentation as a strategy for planning and communicating children's learning and pedagogical day-to-day life. *European Early Childhood Education Research Journal, 30*(2), 227-238. https://doi.org/10.1080/1350293x.2022.2046840

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis – a global perspective* (7ed ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Hamdan, K. M., Al-Bashaireh, A. M., Zahran, Z., Al-Daghestani, A., AL-Habashneh, S., & Shaheen, A. M. (2021). University students' interaction, Internet self-efficacy, self-regulation and satisfaction with online education during pandemic crises of COVID-19 (SARS-CoV-2). *The International Journal of Educational Management, 35*(3), 713-725. https://doi.org/10.1108/ijem-11-2020-0513

Han, J.-H., & Sa, H. J. (2022). Acceptance of and satisfaction with online educational classes through the technology acceptance model (TAM): The COVID-19 situation in Korea. *Asia Pacific Education Review, 23*(3), 403-415.

Hanham, J., Lee, C. B., & Teo, T. (2021). The influence of technology acceptance, academic self-efficacy, and gender on academic achievement through online tutoring. *Computers & Education, 172*, 104252. https://doi.org/10.1016/j.compedu.2021.104252

Hasan, S., Mas'ud, A., & Sundari, S. (2021). Etnopedagogy approach to science learning in sdn 50 city of ternate based on the local wisdom of Rempah North Maluku. *Pedagonal: Scientific Journal of Education, 5*(2), 133-141. https://doi.org/10.33751/pedagonal.v5i2.3789

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

Hidayah, R., Prihatin, T., & Utanto, Y. (2021). Development of training on writing digital textbooks based in on in service learning for teacher. *Innovative Journal of Curriculum and Educational Technology, 10*(2), 74-89.

Hidayat, D. N., Lee, J. Y., Mason, J., & Khaerudin, T. (2022). Digital technology supporting English learning among Indonesian university students. *Research and Practice in Technology Enhanced Learning, 17*(1), 1-15. https://doi.org/10.1186/s41039-022-00198-8

Hsu, C.-W., & Peng, C.-C. (2022). What drives older adults' use of mobile registration apps in Taiwan? An investigation using the extended UTAUT model. *Informatics for Health and Social Care, 47*(3), 258-273. https://doi.org/10.1080/17538157.2021.1990299

Hu, D., Yuan, B., Luo, J., & Wang, M. (2021). A review of empirical research on ICT applications in teacher professional development and teaching practice. *Knowledge Management & E-Learning: An International Journal, 13*(1), 1-20. https://doi.org/10.34105/j.kmel.2021.13.001

Karakose, T., Ozdemir, T. Y., Papadakis, S., Yirci, R., Ozkayran, S. E., & Polat, H. (2022). Investigating the relationships between COVID-19 quality of life, loneliness, happiness, and internet addiction among K-12 teachers and school administrators—a structural equation modeling approach. *International Journal of Environmental Research and Public Health, 19*(3), 1052. https://doi.org/10.3390/ijerph19031052

Karakose, T., Polat, H., & Papadakis, S. (2021). Examining teachers' perspectives on school principals' digital leadership roles and technology capabilities during the COVID-19 pandemic. *Sustainability, 13*(23), 13448. https://doi.org/10.3390/su132313448

Kharisma, B. (2022). Surfing alone? The Internet and social capital: Evidence from Indonesia. *Journal of Economic Structures, 11*(1), 1-17. https://doi.org/10.1186/s40008-022-00267-7

Kim, K.-J. (2022). Moving forward: Embracing challenges as opportunities to improve medical education in the post-COVID era. *Humanities and Social Sciences Communications, 9*(1), 1-4. https://doi.org/10.1057/s41599-022-01451-7

Kumari, V., Hameed, D., Mazumder, D., Krishnadas, L., & Sathyan, A. (2020). The role of education leadership in managing teaching competencies of selected secondary teachers in the United Arab Emirates (UAE)(an exploratory study). *International Journal of Management, 11*(9), 688-698.

Kundu, A., Dey, K. N., & Bej, T. (2022). Subject-self affecting on teachers' perceived ICT usability: A proposition for TAM3+. *International Journal of Distance Education Technologies, 20*(1), 1-24. https://doi.org/10.4018/ijdet.295980

Lucas, R. E. (2018). *Reevaluating the strengths and weaknesses of self-report measures of subjective well-being. Handbook of well-being*. Salt Lake City, UT: DEF Publishers.

Mansoor, M. (2021). Citizens' trust in government as a function of good governance and government agency's provision of quality information on social media during COVID-19. *Government Information Quarterly, 38*(4), 101597. https://doi.org/10.1016/j.giq.2021.101597

Mansoor, M., Awan, T. M., & Paracha, O. S. (2021). Predicting pro-environmental behaviors of green electronic appliances' users. *International Journal of Business and Economic Affairs, 6*(4), 175-186.
Mansoor, M., Awan, T. M., & Paracha, O. S. (2022). Sustainable buying behaviour: An interplay of consumers' engagement in sustainable consumption and social norms. *International Social Science Journal, 72*(246). https://doi.org/https://doi.org/10.1111/issj.12372
Nikolopoulou, K., Gialamas, V., & Lavidas, K. (2021). Habit, hedonic motivation, performance expectancy and technological pedagogical knowledge affect teachers' intention to use mobile internet. *Computers and Education Open, 2*, 100041. https://doi.org/10.1016/j.caeo.2021.100041
Noor, U., Mansoor, M., & Shamim, A. (2022). Customers create customers!–Assessing the role of perceived personalization, online advertising engagement and online users' modes in generating positive e-WOM. *Asia-Pacific Journal of Business Administration*. https://doi.org/10.1108/APJBA-11-2021-0569
Omar, M. K., Zahar, F. N., & Rashid, A. M. (2020). Knowledge, skills, and attitudes as predictors in determining teachers' competency in Malaysian TVET institutions. *Universal Journal of Educational Research, 8*(3), 95-104. https://doi.org/10.13189/ujer.2020.081612
Peralta, L. R., O'Connor, D., Cotton, W. G., & Bennie, A. (2016). Pre-service physical education teachers' indigenous knowledge, cultural competency and pedagogy: A service learning intervention. *Teaching Education, 27*(3), 248-266. https://doi.org/10.1080/10476210.2015.1113248
Powell, C. G., & Bodur, Y. (2019). Teachers' perceptions of an online professional development experience: Implications for a design and implementation framework. *Teaching and Teacher Education, 77*, 19-30. https://doi.org/10.1016/j.tate.2018.09.004
Šabić, J., Baranović, B., & Rogošić, S. (2022). Teachers' self-efficacy for using information and communication technology: The interaction effect of gender and age. *Informatics in Education, 21*(2), 353-373.
Sarstedt, M., Ringle, C. M., & Hair, J. F. (2017). Partial least squares structural equation modeling. *Handbook of Market Research, 26*(1), 1-40. https://doi.org/https://doi.org/10.1007/978-3-319-57413-4_15
Sharma, D., & Joshi, U. (2016). A comparative study of work culture, Job performance, and subjective well-being of private and public sector banks. *Metamorphosis, 15*(2), 102-108. https://doi.org/10.1177/0972622516675958
To'raqulovich, J. U. (2021). Innovative pedagogical technologies in a preschool educational institution. *International Journal of Culture and Modernity, 11*, 215-218.
Tomczyk, Ł., Mróz, A., Potyrała, K., & Wnęk-Gozdek, J. (2022). Digital inclusion from the perspective of teachers of older adults-expectations, experiences, challenges and supporting measures. *Gerontology & Geriatrics Education, 43*(1), 132-147. https://doi.org/10.1080/02701960.2020.1824913
Tuli, N., & Mantri, A. (2021). Evaluating usability of mobile-based augmented reality learning environments for early childhood. *International Journal of Human–Computer Interaction, 37*(9), 815-827. https://doi.org/10.1080/10447318.2020.1843888
Vaiopoulou, J., Papadakis, S., Sifaki, E., Stamovlasis, D., & Kalogiannakis, M. (2021). Parents' perceptions of educational apps use for kindergarten children: Development and validation of a new instrument (PEAU-p) and exploration of parents' profiles. *Behavioral Sciences, 11*(6), 82. https://doi.org/10.3390/bs11060082
Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research, 11*(4), 342-365. https://doi.org/10.1287/isre.11.4.342.11872
Westerberg, L., & Vandermaas-Peeler, M. (2021). How teachers, peers, and classroom materials support children's inquiry in a Reggio Emilia-inspired preschool. *Early Child Development and Care, 191*(7-8), 1259-1276. https://doi.org/10.1080/03004430.2021.1881075
Young, M. R., Klemz, B. R., & Murphy, J. W. (2003). Enhancing learning outcomes: The effects of instructional technology, learning styles, instructional methods, and student behavior. *Journal of Marketing Education, 25*(2), 130-142. https://doi.org/10.1177/0273475303254004
Zahrai, K., Veer, E., Ballantine, P. W., & Peter de Vries, H. (2022). Conceptualizing self-control on problematic social media use. *Australasian Marketing Journal, 30*(1), 74-89. https://doi.org/10.1177/1839334921998866
Zheng, Y., Wang, J., Doll, W., Deng, X., & Williams, M. (2018). The impact of organisational support, technical support, and self-efficacy on faculty perceived benefits of using learning management system. *Behaviour & Information Technology, 37*(4), 311-319. https://doi.org/10.1080/0144929x.2018.1436590
Zhu, M., & Zhang, Y. (2022). Medical and public health instructors' perceptions of online teaching: A qualitative study using the technology acceptance model 2. *Education and Information Technologies, 27*(2), 2385-2405. https://doi.org/10.1007/s10639-021-10681-2

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