

Vocational College Pre-School Education Students' Satisfaction Towards the Use of the Superstar Application to Teach Hands-On Art Class

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Abstract

Mobile learning was popular during the epidemic, and a number of schools in China used the Superstar Application to assist distance learning. Therefore, it is relevant to investigate students' satisfaction with the use of the Superstar application in the classroom to enhance student learning.

The purpose of the study was 1) To identify the factors that affect vocational colleges students' satisfaction with the Superstar application, and 2) To determine the level of vocational college students' satisfaction towards the Superstar Application.

This research utilized a quantitative approach, using a questionnaire as a survey tool to collect sample data from the target population. The purposive sampling strategy, inviting 415 students from Deyang Vocational College of Technical and Trade to participate in the research. Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) were employed to assess the model's fit and establish the causal relationships between the variables for hypothesis testing.

The research's conceptual framework was constructed upon the foundation of the Web-based Learning Environment Instrument (WEBLEI) and the Expectation-Confirmation Model (ECM), with seven variables being identified as access, interaction, response, result, perceived usefulness, confirmation, and satisfaction. It was found that six of the seven hypotheses proposed were proven to achieve the research objectives, while the hypothesis between confirmation and satisfaction was not proven. The results of the study showed that the factors affecting students' satisfaction with the Superstar Application in vocational and technical colleges were access, interaction, response, result, and perceived usefulness; with perceived usefulness being the strongest predictor directly affecting the Superstar Application; and the result variable had a significant effect on students' satisfaction with Superstar Application use. In addition, the study also found that although confirmation did not directly impact satisfaction, confirmation played a significant role in perceived usefulness.

Keywords: Superstar Application, Technology-Enhanced Learning, Vocational College Students, Pre-school Education, Web-Based Learning

Introduction

As the epidemic spreads, many people were opting for mobile learning. According to Kumar Basak et al. (2018), m-learning was the process of acquiring new information and skills using a mobile device (e.g., smartphone or tablet) (Yeap et al., 2016), which enabled students to learn beyond space and time. Students could use their mobile devices to learn at any time of the day, free from the confines of the traditional classroom (Loh et al., 2022). In addition, social media (e.g., Facebook) and instant messaging (e.g., WhatsApp) platforms allow teachers to

conduct online debates, make important announcements, and distribute resources (Bordoloi et al., 2021). With social media platforms, instant messaging applications, online chat rooms and forums, audio and video conversations, and advanced communication technologies, students and teachers can communicate easily and quickly. Because of the technological effectiveness and versatility of mobile devices, m-learning had become the most popular choice among the learning systems implemented in higher education worldwide during the epidemic (Biswas et al., 2020). For example, they used educational applications to increase students' interest in learning (Yahaya & Zaini, 2020), to enrich learning content, to encourage peer social interaction (Al-Emran et al., 2020), and to enhance students' learning experience (Wang et al., 2018). One example of this was the use of the Superstar Application to enhance students' interest in learning. Considering that confirmation, and perception of perceived usefulness could affect their satisfaction with learning. Therefore, it was particularly important to investigate students' satisfaction with the use of the Superstar Application in the classroom to enhance student learning.

This study provided two models that form a conceptual model to test the role of the Superstar Applications in drawing learning through a questionnaire. This research examined the results derived from the Web-Based Learning Environment Instrument (WEBLEI), Expectation-Confirmation Model (ECM), to reflect the impact of instruction through the Superstar Application on students' learning of drawing, leading to better use of technology for learning and increased student engagement in Technology-Enhanced Learning (TEL). Although these two models were widely used, most of the courses using the model were lecture-based, while pre-school art course was hands-on, so this paper focused on examining the use of the Superstar Application in hands-on art classes.

For students, technology fostered independent learning. E-learning technology allowed students to adjust their study plans according to their personal time. And with the popularity of interactive software such as the Superstar Application, students could access class resources more easily and learn more effectively.

For teachers, it reduced repetitive work and improved the efficiency of teaching. This was mainly reflected in the fact that teachers could correct students' homework anytime and anywhere, and students could also revise their homework immediately after getting timely feedback from teachers. At the same time, students could also tap the Superstar Application to watch if they didn't understand something, which reduced the teacher's repetitive labor. In short, this optimized the teaching mode, and improved students' performance.

For university administrators, the adoption of the Superstar Application optimized the management process and provided a more comfortable teaching environment.

For policy makers, education was to continuously meet the needs of students, in order to students could be faster and in line with the times, so the combination of online and offline teaching methods was also conducive to the development of the school.

This research was conducted to investigate the satisfaction of pre-school education majors in Deyang Vocational College of Technical and Trade with the use of the Superstar Application for teaching hands-on art classes.

Research Objectives

The research objectives had been formulated as follows.

- 1) To identify the factors that affect vocational colleges students' satisfaction with the Superstar application.
- 2) To determine the level of vocational college students' satisfaction towards the Superstar Application.

Literature Review

The Web-Based Learning Environment Instrument (WEBLEI)

The WEBLEI which arose due to the increasing popularity of online learning, and the WEBLEI which had our main scales. Three of them were based on Tobin's findings and were access, interaction, and response scales (Tobin, 1998). The resulting scale was the last part of the questionnaire and includes questions about the organization and content of the internet course.

Web-based learning was defined as a form of distance education that utilized computers and Internet technology (Allen & Seaman, 2008). And the Web-based Learning Environment Instrument (WEBLEI) had four main scales. Three of the scales - the Emancipatory Scale, the Co-Participation Scale, and the Qualia Scale - were based on Tobin's (1998) findings on Connecting Communities for Learning (CCL). The other scale focused on information architecture and the design of online materials (Chang & Fisher, 2001). Facilitation, efficiency, and autonomy of learners' emancipatory behaviors were the focus of the Emancipation subscale. The co-participation subscale focused on six aspects of facilitating learning in virtual communities: flexibility, reflection, quality, interaction, feedback, and collaboration. According to Tobin (1998), the six elements of the Qualia subscale were enjoyment, confidence, achievement, success, frustration, and boredom. Chang and Fisher (2001) created a fourth subscale called results, which focused on the organization of information and the layout of online materials. This section included content relevance and scope, content effectiveness, content accuracy and balance, navigation, and aesthetic and emotional aspects. The researcher used access (Emancipatory Scale), interaction (Co-Participation Scale), response (Qualia Scale), and result (Information Structure and Design Scale) as variables.

Technology-Enhanced Learning (TEL) Theory

TEL was often defined as learning that took place using ICT and web-based educational technologies. Therefore, TEL was also known as e-learning, mobile learning, technology-assisted learning, and technology-based learning (Dubey & Sahu, 2021).

In face-to-face learning, technology enriched it; in blended learning courses, technology reduced human contact; and in the process of distance learning, technology allowed for self-directed learning. From here we could see that technology played an increasingly important role (Kirkwood & Price, 2014). Within this broader context, the convergence of Information and Communication Technology (ICT) had revolutionized the way we teach and give rise to Technology Enhanced Learning (TEL). ICT had become an important factor in education due to its versatility, affordability, accessibility, and freedom from the traditional constraints of time and place. As a result, teaching methods had become more flexible and able to seamlessly adapt to new technologies to provide a more dynamic learning experience (Becker & Ravitz, 1999). How technology improves education and how much value it adds to the learning process was a matter of concern. The term enhancement implies that something

was superior or better in some way. Similarly, TEL implied a value judgment (Kirkwood & Price, 2014).

Expectation-Confirmation Model Theory (ECM)

This theory was adapted from the consumer behavior literature and combined with theoretical and empirical data from previous research on information systems use to create an information systems persistence model (Bhattacharjee, 2001).

Expectation-confirmation theory (ECT) had been widely used in the consumer behavior literature to study consumer satisfaction, post-purchase behaviors (e.g., re-purchase, complaints), and service marketing (Dabholkar et al., 2000; Oliver, 1980; Patterson et al., 1997; Tse & Wilton, 1988). However, a number of theoretical extensions were needed to adapt ECT to a different context (i.e., the persistence of IS), and these extensions offer unique opportunities for theoretical refinement. They had the potential to explain IS continuance decisions better than ECT. Within this framework, there were four variables, the independent variable was confirmation, the intermediate variables were perceived usefulness and satisfaction, and the dependent variable was the intention to continue using the information system.

Research Conceptual Framework

The conceptual framework of this study was based on two previous theoretical frameworks (WEBLEI, ECM).

The independent variables of the study were access, interaction, response, result and confirmation. The intermediate variable was perceived usefulness. The dependent variable was students' satisfaction in using the Superstar Application. Regarding the conceptual framework, there were 7 variables and 7 relationships.

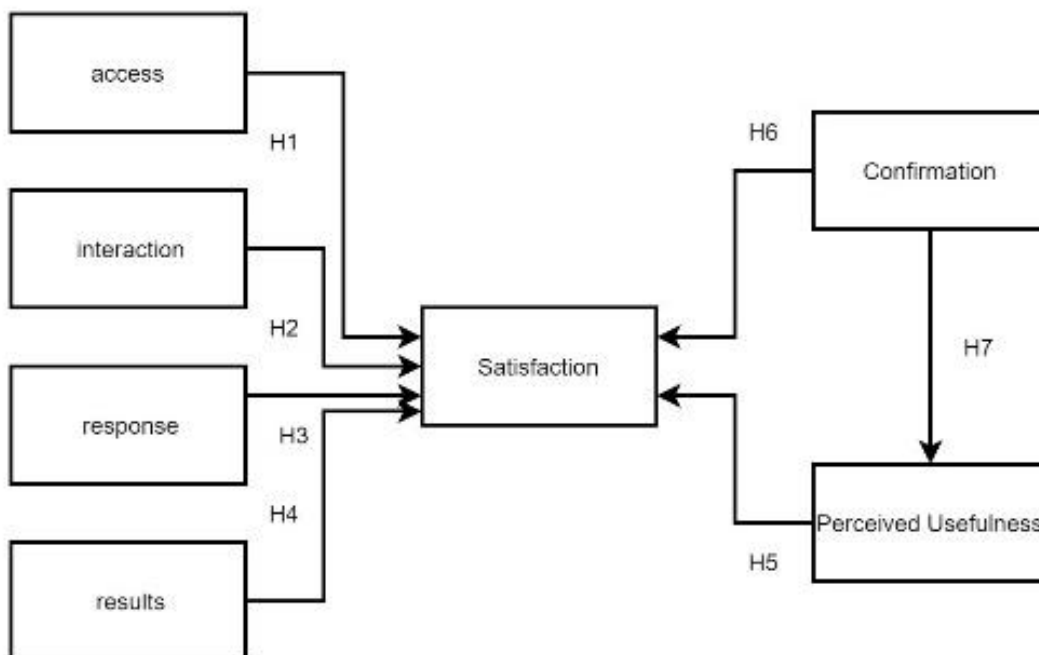


Figure 1: Research Conceptual Framework

Based on the conceptual framework, the hypotheses were developed as follows.

Hypotheses Testing

H₀1: Access to the Superstar Application does not influence students' satisfaction.

H_a1: Access to the Superstar Application influences students' satisfaction.

H₀2: The interaction of the Superstar Application does not influence students' satisfaction.

H_a2: The interaction of the Superstar Application influences students' satisfaction.

H₀3: The response of the Superstar Application does not influence students' satisfaction.

H_a3: The response of the Superstar Application influences students' satisfaction.

H₀4: The result of the Superstar Application does not influence students' satisfaction.

H_a4: The result of the Superstar Application influences students' satisfaction.

H₀5: Perceived usefulness of Superstar Application does not influence students' satisfaction towards the use of Superstar Application.

H_a5: Perceived usefulness of Superstar Application influences students' satisfaction towards the use of Superstar Application.

H₀6: Confirmation does not affect students' satisfaction with the use of the Superstar Application.

H_a6: Confirmation affects students' satisfaction with the use of the Superstar Application.

H₀7: Confirmation of expectations isn't related to their perceived usefulness of the Superstar Application.

H_a7: Confirmation of expectations is positively related to their perceived usefulness of the Superstar Application.

Research Methodology

Research design

This study used quantitative research to examine students' satisfaction with the Superstar Application used for teaching art. A survey was conducted using Questionnaire Star in this process.

Population and Sample

Population: The focus of this study was on students in an art-related program at a vocational-technical college. Through the use of the Superstar Application, students were able to preview and review content placed on the Superstar Application by the instructor before and after class by accessing the content. During formal classes students use the Superstar Application under the guidance of the instructor and actively participate in classroom activities.

Sample: The representative target population in this study was the vocational college preschool education students of Deyang Vocational College of Technical and Trade and all sampling units can be generalized to represent all students. In order to get the results of the survey more accurately, the participants were 415 students of preschool education majors from Deyang Vocational College of Technical and Trade, and the participants participated voluntarily. A purposive sampling method was used in this study to draw the sample from the Deyang Vocational College of Technical and Trade.

Research Instruments

Questionnaire

The questionnaire for this study consisted of two parts: scale items for all observed variables and demographic information.

The questionnaire consisted of two sections.

Part 1: Demographic information of the respondents, including gender, grade.

Part 2: Seven factors, including access, interaction, response, result, satisfaction, perceived usefulness, and confirmation, were evaluated using the 23 questionnaire items in the first section. Furthermore, the WEBLEI was formulated by Chang and Fisher (2003), the satisfaction and confirmation scale was developed by Bhattacharjee (2001), and the perceived usefulness scale was established by Davis (1989).

Table 1: Operationalization Table of “access, interaction, response, result, satisfaction, perceived usefulness, and confirmation.”

Variable	Definition	Operationalization	Sources	Measurement
Access	The access scale measures the accessibility of the learning environment to students (Demirtaş et al., 2021).	<ol style="list-style-type: none"> 1. I can access lessons on the Superstar Application at a time convenient to me. 2. Lessons on the Superstar Application are available at locations suitable for me. 3. I can access lessons on the Superstar Application on days when I do not have class or am absent from school. 4. Lessons on the Superstar Application allow me to work at my own pace to achieve learning objectives. 	(Chang & Fisher, 2003)	A 5-point Likert Scale survey questionnaire

		5.	Lessons on the Superstar Application enable me to decide how much I want to learn in a given period.		
Interaction	The interaction scale investigates how beneficial students judge distance education to be (Demirtaş et al., 2021).	6.	I communicate with my teacher on this subject electronically via the Superstar application.	(Chang & Fisher, 2003)	A 5-point Likert Scale survey questionnaire
		7.	I have the option to ask my teacher what I do not understand via the Superstar Application.		
		8.	The teacher responds to my Superstar Application.		
Response	The response scale indicates how students feel and think about the web-based learning system (Demirtaş et al., 2021).	9.	I can learn more in this environment.	(Chang & Fisher, 2003)	A 5-point Likert Scale survey questionnaire
		10.	I can easily get students to work with me on the Internet.		
		11.	It is easy to work with other students and discuss the content of the lessons.		
Results	The results scale expresses the extent to which students believe they accomplished	12.	The organization of each lesson on the Superstar Application is easy to follow.	(Chang & Fisher, 2003)	A 5-point Likert Scale survey questionnaire

	any of the learning objectives within the online learning environment (Demirtaş et al., 2021).	13. Superstar Application lessons help me better understand the work that is delivered in class. 14. The subject content is appropriate to be delivered on the Superstar Application.		
Satisfaction	Satisfaction in this study measures the individual's psychological or emotional state of experience as a virtual communication user (Bhattacharjee, 2001; Zheng et al., 2013).	15. I am satisfied with the performance of the Superstar Application. 16. I am pleased with the experience of using the Superstar Application. 17. The use of the Superstar Application improves my ability to integrate information 18. I am satisfied with the learning flexibility of the Superstar Application.	(Bhattacharjee, 2001)	A 5-point Likert Scale survey questionnaire
Perceived Usefulness	Perceived usefulness is defined here as the degree to which a person believes that using a particular	19. Using the Superstar Application can improve my learning performance. 20. Using the Superstar	(Davis, 1989)	A 5-point Likert Scale survey questionnaire

	system would enhance his or her job performance. (Davis, 1989)	21. I find the Superstar Application to be useful to me.		
Confirmation	Confirmation was a significant predictor of satisfaction and perceived usefulness in the proposed model. (Bhattacharjee, 2001)	22. My experience with using the Superstar Application is better than I expected. 23. The service provided by the Superstar Application is better than I expected.	(Bhattacharjee, 2001)	A 5-point Likert Scale survey questionnaire

Pilot Test

This study was pilot-tested through an online questionnaire published by Questionnaire Star. The data were collected from 40 students majoring in pre-school education at Deyang Vocational College of Technical and Trade.

Validity of Research Instruments

The research instrument used in this study was modified from previous studies, which confirmed its construct validity. To further ensure the validity of the questionnaire, three experts with more than twenty years of research and professional experience in art-related fields were invited to evaluate the items of the questionnaire. One of the experts was a Ph.D., one was a professor, and one was an associate professor, all of whom were qualified to assess the validity of the questionnaire. In assessing the items for each construct, the study used a threshold score of 1 (if the item measured the construct with certainty), 0 (if the item's ability to measure the construct was uncertain), or -1 (if the item could not measure the construct with certainty). According to Hambleton et al. (1978), items with an IOC score of less than 0.5 should be deleted.

Reliability of Research Instruments

Table 2 displayed the Cronbach's alpha for each construct as determined by Jamovi. For the majority of the structures, the alpha was greater than 0.9. It showed that the access scale has 5 items and a Cronbach's Alpha coefficient of 0.979, which is higher than 0.9, indicating that the reliability test results were good for the access scale. Similarly, strong reliability test results may be drawn for the other scales, which include interaction, response, result, satisfaction, perceived usefulness, and confirmation.

Table 2: Pilot Test Results of Cronbach’s Alpha of the Research Instruments

Variable	Number of Items	Cronbach’s Alpha
Access	5	0.979
Interaction	3	0.982
Response	3	0.992
Results	3	0.983
Satisfaction	4	0.967
Perceived usefulness	3	0.977
Confirmation	2	0.976

Data Collection Procedures

Questionnaire Star was the online survey tool for this study. The researchers created a web-based Chinese questionnaire on this platform and pushed the link to the questionnaire to the target group of students via WeChat. Students could then fill in the answers via their cell phones or computers. After collecting the questionnaires, the researchers eliminated questionnaires that took a short time to fill out or had too many single answers to ensure the validity of the questionnaires. Once the data collection was completed, the researcher conducted statistical processing using Jamovi software in order to analyze the results in a meaningful way.

Research Results

Demographic Information

The sample in this part includes details on the 415 students' personal characteristics, such their grade level and gender, which would be reflected in the descriptive analysis of demographic data. The detail information was showed in Table 3. The demographic characteristics of the respondents were summarized in terms of frequency and percentage. Respondents were predominantly female, accounting for 84.6 % of the total sample, while males accounted for 15.4 %. In terms of academic year, 36.1 % were freshmen, 58.6 % were sophomores, and 5.3 % were juniors.

Table 3: Demographic Information of Samples

Variable	Category	Frequency	Percentage
Gender	Male	64	15.4 %
	Female	351	84.6 %
	Total	415	100%
Year of Study	Year 1	150	36.1 %
	Year 2	243	58.6 %
	Year 3	22	5.3 %
	Total	415	100%

The value of the standard deviation is close to 0, indicating that the distribution of the data is unchanged and close to the mean. The standard deviation for all items ranged from 0.61 to 0.677, which indicates that there is less variability within the data set. The average mean value ranged from 4.130 to 4.240.

Table 4: Descriptive Statistics of Each construct

Construct	Number of items	Average Mean	Average SD
Access (Acc)	5	4.240	0.617
Interaction (Int)	3	4.187	0.643
Response (Resp)	3	4.153	0.659
Result (Resu)	3	4.177	0.638
Satisfaction (Sa)	4	4.160	0.624
Perceived Usefulness (PU)	3	4.130	0.661
Confirmation (Con)	2	4.145	0.644

All of the skewness values in Table 5 were negative and near to zero (between -0.428 and -0.108), suggesting that the distribution's long tail was to the left. Trochim and Donnelly (2006) had proven that the normal curves for skewness at -2 and +2 were acceptable. Additionally, the majority of the kurtosis values (-0.618 to 0.253) have a flat shape and were negative and around zero. A realistic scenario, according to Hair Hair Jr et al. (2010), was skewness range of -2 to +2 and kurtosis range of -7 to +7.

Table 5: Normality of Data

	N	Mean	SD	Skewness	SE	Kurtosis	SE
Acc1	415	4.210	0.632	-0.203	0.120	-0.618	0.239
Acc2	415	4.250	0.608	-0.183	0.120	-0.549	0.239
Acc3	415	4.260	0.624	-0.428	0.120	0.253	0.239
Acc4	415	4.250	0.610	-0.195	0.120	-0.564	0.239
Acc5	415	4.230	0.611	-0.233	0.120	-0.229	0.239
Int1	415	4.200	0.630	-0.300	0.120	-0.075	0.239
Int2	415	4.200	0.639	-0.317	0.120	-0.149	0.239
Int3	415	4.160	0.660	-0.288	0.120	-0.324	0.239
Resp1	415	4.170	0.628	-0.208	0.120	-0.306	0.239
Resp2	415	4.130	0.672	-0.351	0.120	-0.069	0.239
Resp3	415	4.160	0.677	-0.345	0.120	-0.273	0.239
Resu1	415	4.170	0.659	-0.344	0.120	-0.105	0.239
Resu2	415	4.190	0.615	-0.141	0.120	-0.504	0.239
Resu3	415	4.170	0.639	-0.333	0.120	0.093	0.239

Sa1	415	4.160	0.639	-0.204	0.120	-0.374	0.239
Sa2	415	4.160	0.617	-0.112	0.120	-0.470	0.239
Sa3	415	4.170	0.609	-0.108	0.120	-0.439	0.239
Sa4	415	4.150	0.631	-0.244	0.120	-0.069	0.239
PU1	415	4.120	0.665	-0.236	0.120	-0.380	0.239
PU2	415	4.130	0.655	-0.238	0.120	-0.289	0.239
PU3	415	4.140	0.662	-0.258	0.120	-0.344	0.239
Con1	415	4.130	0.659	-0.250	0.120	-0.323	0.239
Con2	415	4.160	0.628	-0.192	0.120	-0.297	0.239

Confirmatory Factor Analysis (CFA)

Table 6 showed the data results, Average Variance Extracted (AVE), Composite Reliability (CR) and Factor loadings (Estimate) extracted for all items in the confirmatory factor analysis.

For the accuracy of the additional measurements of the structure matrix, the researchers summarized the metrics of the validated factor analysis in this section. The factor loading values ranged from 0.542 to 0.618, the average variance extracted values ranged from 0.797 to 0.845, and the composite reliability ranged from 0.9 to 0.959, which are all ideal.

Table 6: Confirmatory factor analysis result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Factor	Indicator	Estimate	SE	Z	p	Stand. Estimate	AVE	CR
Access	Acc1	0.578	0.024	24.300	< .001	0.915	0.825	0.959
	Acc2	0.556	0.023	24.300	< .001	0.916		
	Acc3	0.557	0.024	23.300	< .001	0.894		
	Acc4	0.566	0.023	24.900	< .001	0.929		
	Acc5	0.542	0.024	23.000	< .001	0.887		
Interaction	Int1	0.574	0.024	23.900	< .001	0.912	0.818	0.931
	Int2	0.578	0.024	23.700	< .001	0.906		
	Int3	0.590	0.025	23.200	< .001	0.895		
Respond	Resp1	0.537	0.025	21.600	< .001	0.855	0.797	0.921
	Resp2	0.618	0.025	24.400	< .001	0.921		
	Resp3	0.609	0.026	23.500	< .001	0.901		
Result	Resu1	0.578	0.026	22.600	< .001	0.879	0.816	0.93
	Resu2	0.572	0.023	24.900	< .001	0.931		
	Resu3	0.574	0.024	23.500	< .001	0.900		
Satisfaction	Sa1	0.575	0.024	23.700	< .001	0.902	0.841	0.954
	Sa2	0.576	0.023	25.300	< .001	0.936		
	Sa3	0.558	0.023	24.400	< .001	0.918		
	Sa4	0.575	0.024	24.200	< .001	0.912		

Perceived Usefulness	PU1	0.612	0.025	24.500	< .001	0.921	0.845	0.943
	PU2	0.597	0.025	24.100	< .001	0.912		
	PU3	0.611	0.025	24.700	< .001	0.925		
Confirmation	Con1	0.600	0.025	23.900	< .001	0.912	0.818	0.90
	Con2	0.563	0.024	23.200	< .001	0.897		

Discriminant Validity

In AVE analysis, the square root of each AVE value associated with a construct was compared to the correlation between any pair of constructs, ensuring that the former was significantly larger than the latter (Zaiğ & Berteau, 2011). According to the study's results on discriminant validity, the square roots of AVE are 0.908, 0.904, 0.893, 0.904, 0.917, 0.919, and 0.905. For the non-diagonal region, the square roots of each of them are larger than the interconnecting covariance. Consequently, this empirical study's discriminant validity is upheld.

Table 7: Discriminant Validity

	Acc	Int	Resp	Resu	Sa	PU	Con
Acc	0.908						
Int	0.822	0.904					
Resp	0.794	0.835	0.893				
Resu	0.801	0.794	0.856	0.904			
Sa	0.798	0.78	0.859	0.902	0.917		
PU	0.741	0.765	0.81	0.861	0.9	0.919	
Con	0.746	0.728	0.808	0.828	0.864	0.875	0.905

Note: Acc=Access, Int=Interaction, Resp=Response, Resu=Result, Sa=Satisfaction, PU=Perceived Usefulness, Con=Confirmation

Confirmatory Factor Analysis (CFA) Model Fit

The model fit for CFA was assessed to ensure the adequacy of the CFA model for subsequent analysis. Moreover, the CFA model fit result was shown on Table 8. According to the criteria proposed by Navarro and Foxcroft (2019) the current model fit seemed to reach an acceptable level of fit. This is indicated by values of Comparative Fit Index (CFI) greater than 0.9, Tucker-Lewis Index (TLI) greater than 0.9, and Root Mean Square Error of Approximation (RMSEA) approximately ranging from 0.05 to 0.08, as shown in Table 8.

Table 8: CFA Model Fit Indices

RMSEA 90% CI				
CFI	TLI	RMSEA	Lower	Upper
0.958	0.949	0.0792	0.0731	0.0853

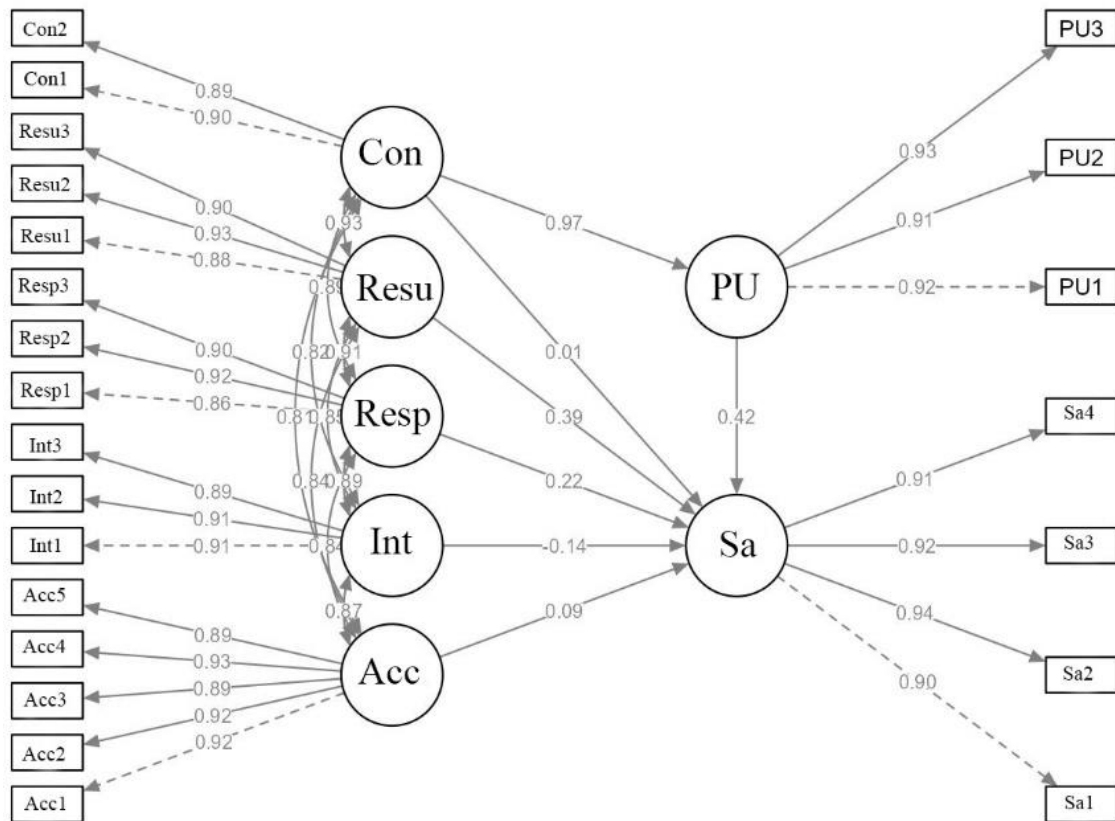
Table 9: Confirmatory Factor Analysis Fit Indices and Adjustments

Fit Index	Acceptable Criteria	Source	Statistical Values
RMSEA	≤ 0.08	Navarro and Foxcroft (2019)	0.080
CFI	≥ 0.90	Navarro and Foxcroft (2019)	0.956
TLI	≥ 0.90	Navarro and Foxcroft (2019)	0.948
Model Summary			In harmony with empirical data

The structural model was tested for fit using the following fitting indices. Standardized Root Mean Square Residual (SRMR), RMSEA, CFI, TLI analyses showed the following values for the selected fit indices. The following were the indices' outcomes. TLI = 0.948, RMSEA = 0.080, GFI = 0.976, and SRMR = 0.021. The actual data and the current model fit analysis were in agreement. Seven variables—access, interaction, response, result, perceived usefulness, confirmation, and satisfaction—would be evaluated using these indices.

Table 10: Fit Indices Results of the Structural Equation Model (SEM)

Fit Index	Acceptable Criteria	Source	Statistical Values
GFI	≥ 0.80	Cho et al. (2020)	0.976
SRMR	≤ 0.08	Cho et al. (2020)	0.021
RMSEA	≤ 0.8	MacCallum et al. (1996)	0.080
CFI	≥ 0.90	Bentler and Bonett (1980)	0.956
TLI	≥ 0.90	Bentler and Bonett (1980)	0.948
Model Summary			In harmony with empirical data

**Figure 2: SEM Path Diagram of the Study****Research Hypothesis Testing****Table 11: SEM Parameter Estimates**

Dep	Pred	Estimate	SE	95% Confidence Intervals				
				Lower	Upper	β	z	p
Sa	Acc	0.091	0.044	0.006	0.176	0.092	2.097	0.036
Sa	Int	-0.135	0.057	-0.246	-0.024	-0.135	-2.388	0.017
Sa	Resp	0.238	0.079	0.084	0.392	0.223	3.029	0.002
Sa	Resu	0.391	0.085	0.225	0.557	0.394	4.612	< .001
Sa	PU	0.394	0.131	0.137	0.650	0.419	3.008	0.003
Sa	Con	0.013	0.176	-0.332	0.359	0.014	0.075	0.940
PU	Con	1.003	0.036	0.933	1.074	0.969	27.937	< .001

Table 11 displayed the results of testing each of the hypotheses presented in the study. Table 12 presented a summary of the hypothesis testing based on the obtained results.

A P-value of 0.05 or less indicated moderate evidence against the null hypothesis. A P-value between 0.001 and 0.01 indicated moderate to strong evidence, and a P-value less than 0.001 indicates strong to very strong evidence (Goodman, 1999). Using knowledge of corresponding beta coefficients to impute missing correlations (effect sizes) generally produced relatively accurate and precise population effect-size estimated under certain conditions (Peterson & Brown, 2005). Table 12 showed that most of the alternative hypotheses were supported except Ha6.

Table 12: Hypothesis Testing Results of the Structural Equation Model

Hypotheses	Standardized Coefficients (β)	z-value	Result
Ha1: Access to the Superstar Application influences students' satisfaction.	0.092	2.097*	supported
Ha2: The interaction of the Superstar Application influences students' satisfaction.	-0.135	-2.388*	supported
Ha3: The response of the Superstar Application influences students' satisfaction.	0.223	3.029*	supported
Ha4: The result of the Superstar Application influences students' satisfaction.	0.394	4.612***	supported
Ha5: Perceived usefulness of Superstar Application influences students' satisfaction towards the use of Superstar Application.	0.419	3.008**	supported
Ha6: Confirmation affects students' satisfaction with the use of the Superstar Application.	0.014	0.075	Not supported
Ha7: Confirmation of expectations is related to their perceived usefulness of the Superstar Application.	0.969	27.937***	supported

*** = $P < .001$, ** = $P < .01$, * = $P < .05$

In addition to testing the hypotheses related to the independent and dependent variables, the study showed that the mediating effect between the Confirmation (Con) and Perceived usefulness (PU) at $p < 0.001$. Table 13 showed the hypotheses associated with the mediating variables.

Table 13: Mediating Effects of Confirmation (Con) and Satisfaction (S)

Label	Description	Parameter	Estimate	SE	95% Confidence Intervals		β	z	p
					Lower	Upper			
	Con \Rightarrow PU \Rightarrow			0.13				3.00	0.00
IE1	Sa	p30*p28	0.395	1	0.137	0.652	0.406	7	3

Discussion

Research objectives

As shown in the data in Table 12, most of the hypotheses were supported except the H_{a6}. Detailed explanation followed.

1) To identify the factors that affect vocational colleges students' satisfaction with the Superstar application.

Access, interaction, response, result, and perceived usefulness had an effect on satisfaction, and confirmation has an effect on perceived usefulness.

There was a statistically significant link between access and satisfaction among pre-school pupils in the target universities, indicated that the alternative hypothesis of hypothesis 1 (Ha1) was supported. With a threshold value of 0.092 and a p-value of 0.036, the standardized path coefficient (β) indicated a significant association between satisfaction and access.

The alternative hypothesis of hypothesis 2 (Ha2) was supported, suggesting a statistically substantial correlation between interaction and satisfaction with using Superstar Application among pre-school education students at the targeted universities. The standardized path coefficient (β) was recorded at -0.135 with a p-value of 0.017, indicating a significant association between interaction and satisfaction.

The alternative hypothesis of hypothesis 3 (Ha3) that there was a statistically significant relationship between response to mobile learning and making satisfaction among preschool students in the target universities was supported. The standardized path coefficient (β) is 0.223 with a p-value of 0.002 which indicated that there was a significant relationship between response and satisfaction.

The alternative hypothesis of hypothesis 4 (Ha4) was supported which reflected that there was a statistically significant correlation between result and satisfaction. The value of standardized path coefficient (β) was 0.394, and a p-value of <0.001 which indicate that results had a significant correlation with satisfaction.

It was determined that there was a statistically significant link between satisfaction and perceived usefulness by supporting the alternative hypothesis of hypothesis 5 (Ha5). Among pre-school students at the target universities, there was a statistically significant association between satisfaction and perceived usefulness of using Superstar Application. Path Coefficient Standardized According to the standardized path coefficient (β) of 0.419 and p-value of 0.003, there was a noteworthy association between satisfaction and perceived usefulness.

The alternative hypothesis of hypothesis 6 (Ha6) was not supported, signifying the absence of a statistically significant relationship between confirmation and satisfaction regarding the utilization of using Superstar Application among pre-school students at the targeted universities. The standardized path coefficient (β) is observed to be 0.014 with a p-

value of 0.940, indicating a lack of significant correlation between confirmation and satisfaction.

Since pre-school students at the target universities regard mobile learning to be valuable, the alternative hypothesis of hypothesis 7 (Ha7) was supported, indicating a statistically significant correlation between the two. Perceived usefulness was significantly correlated with confirmation, as indicated by the standardized path coefficient (β) with a threshold of 0.969 and a p-value of <0.001 .

2) To determine the level of vocational college students' satisfaction towards the Superstar application.

The descriptive analysis's findings showed that all of the study's variables had averages between 0.797 and 0.845 and standard deviations between 0.855 and 0.936. To ensure the precision of the supplementary measurements of the structure matrix, the researchers synthesized the metrics derived from the validated factor analysis in this section. The factor loading values were observed to range from 0.542 to 0.618, the AVE values ranged from 0.797 to 0.845, and the CR ranged from 0.9 to 0.959, all of which align with ideal thresholds. Each square root was greater than the covariances between the non-diagonal elements, thus affirming the discriminant validity of this empirical study. Furthermore, the discriminant validity of the structural equation modeling is also upheld, solidifying the validity of the conclusions drawn.

Research results

The statistical results indicated that satisfaction was directly affected by access, interaction, response, result, and perceived usefulness. Additionally, confirmation had an intuitive effect on satisfaction. Perceived usefulness had the most significant effect on satisfaction, with the results scale ranking second in terms of its effect on satisfaction.

Reflection

These variables suggested that by emphasizing perceived usefulness, educators, administrators, and governmental bodies could enhance student satisfaction with the Superstar Application. Encouraging the utilization of the Superstar Application in the teaching and learning process not only promotes individual study but also enhances teaching effectiveness, reduces redundant workload for instructors, streamlines administrative procedures for university administrators, and provides overall benefits to the university as a whole for policy makers.

Congruent/Incongruent

First, perceived usefulness had the most significant impact on satisfaction. This finding was supported by several studies that had identified a positive correlation between these two constructs (Lee & Kwon, 2011; Maryanto & Kaihatu, 2021; Shin et al., 2011). Additionally, the statistical analysis revealed that the results scale had the second greatest impact on satisfaction. Previous studies had also demonstrated that online resources enhance student learning and promoted greater focus on the material (Gupta & Pathania, 2021). Several studies had shown that response significantly affected satisfaction. For example, Gupta and Pathania (2021) found that students feel content and accomplished, enjoy learning in an online environment, and feel at ease when collaborating with other students. Chandra and Fisher (2009) argued that web-based learning was convenient, accessible, and promoted autonomy in learning, allowing students to learn at their own pace. However, the data suggested that interaction had a relatively small impact on satisfaction. Previous literature had confirmed the relationship between interaction and satisfaction. However, the data suggested that interaction had a relatively small impact on satisfaction. And the data suggested that interaction had a

relatively small impact on satisfaction. This indicated that, for most people, face-to-face interactions were still preferred (Chandra & Fisher, 2009). Finally, validation could also have a positive impact on perceived usefulness. Some researchers were convinced that confirmation enhanced individuals' perceived usefulness (Larsen et al., 2009; Lin & Wang, 2012; Lu et al., 2019).

Overall, this study confirms that access, interaction, response, results, and perceived usefulness contribute to the satisfaction of pre-school students using Superstar Application.

Recommendations

Based on these two main findings, the recommendation was to emphasize the advantages or benefits of integrating the Superstar Application into the teaching and learning process. Firstly, developers and universities should strive to ensure that students perceive improved performance and enhanced learning efficiency when utilizing the Superstar Application. Additionally, it was crucial to maintain a clear and comprehensible course structure that facilitates students' understanding, thereby fostering the perception that online learning through the Superstar Application could facilitate the achievement of their learning objectives. Moreover, features such as good accessibility from any location, effective interaction with instructors, and robust feedback mechanisms should be prioritized. These aspects collectively enabled the Superstar Application to effectively support students in attaining their online learning objectives.

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