Kawaii Analysis on Education-Based Online Game on User Behavior (*Case Study*: Jalasi 2 Application)

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Abstract

Currently, the developments of education-based online games throughout the world including Indonesia have increased sharply. Accordingly, one of the latest online educational games in Indonesia is called JALASI 2. This game offers many kawaii elements purposely designed to attract children to play this educational game. Basically, this research is to test the hypotheses of H1: Perceived kawaii on Intention to Use, H2: Perceived Ease of Use on Perceived Satisfaction, H3: Perceived Usefulness on Perceived Satisfaction, and H4: Intention to Use on Perceived Satisfaction. After that, the study also tests the hypothesis of H5: Perceived Satisfaction on Intention to Use. The target consumers of JALASI 2 are Indonesian children between the ages of 8 and 12. To know how many Indonesian children are interested in the effect of kawaii in JALASI 2, analysis of Theory Reaction Action (TRA) and Structural Equation Modeling (SEM) was utilized using AMOS software. According to the structural model test, the results obtained by the perceived kawaii (PK) variable indicated a very significant effect on the Intention to Use (ITU) by 1.339. This indicates that kawaii latent variable possesses an important role in JALASI 2 content, which can lure children's interest in playing this game.

Keywords: SEM, TRA, Kawaii, Educational Game, Intention to Use

1. Introduction

The use of educational-based online games have become very popular with children all over the world in their everyday life and in Indonesia, JALASI 2 application has gained much prominence in that direction. Hussain, et al., (2015) explained that this situation takes place because mobile applications provide more varied education-based online games to accommodate them as needed. As indicated earlier, one of the latest online educational games in Indonesia is JALASI 2, which is a software developed from the previous version, namely JALASI 1. JALASI 1 and JALASI 2 were designed by a partnership between STTAL and ITS Surabaya. JALASI 2 contains many elements of kawaii design. In accordance with a previous research related to kawaii, Tipporn Laohakangvalvit (2018) describes the results of his research under the title of evaluation of spoon designs based on kawaii between genders and nationalities. According to him, Thailand is very much influenced by kawaii culture. This is evident in the daily lives of Thai people who know various kinds of clothing products and cosmetic. However, the weakness of this research is that it is only devoted to Thai and Japanese consumers and not for other consumers. Another research that relates to using kawaii was done by Barnawi and Ohkura (2019), who explained the results of their research through interviews with several Saudi women. According to them, they evaluated that there is a difference between kawaii adaptation way and emotional value, i.e., corresponding kawaii to relaxed feelings and on the vice versa, correlation of emotional feelings to a tense condition. In contrast to the research on JALASI 2 application, this concept is based on how users feel happy with the content provided by the developer, and then the users are expected to be able to tell others regarding the characters and games that are in the content, so that other users can believe that educational games are quite interesting games to play and provide virtual learning benefits.

The background of this research focuses on the situation of Indonesian children who think that virtual system learning is not too important. The lack of interest in learning versions of games by consumers has resulted to the decline in the development of interest and intention to use educational game products in Indonesia. To date, the development of educational game products in Indonesia has not shown significant progress, especially on the way to provide the correct recommendations to increase consumer interest in using educational game products. Another reason that is influencing the low level of playing educational games is that there is a negative view on educational online games by majority of people. Some people still think that educational games are not interesting enough to play even though

they have or have not played educational games. This study also focuses on the problem of the way the users behave during the interaction with educational games and the identification of the indicators that are significantly able to describe the perceived kawaii latent variables and intention to use. Regarding these indicators, this study is expected to reveal how strong it can provide an explanation about whether the more kawaii is in the educational games, the more useful and easier they are for the users.
This study clarifies the factors that affect the causality relationship between the users and JALASI 2 application, namely the existence of supporting variables, including: the first latent PK, the second latent variable PEOU, the third latent variable PU, the fourth latent variable PS, the fifth latent variable ITU.
The analysis employed two approaches, which were the extent to which the influence of the Perceived Kawaii variable and the Intention to Use variable have. The theory of reasoned action (TRA) analysis approach to develop the two aspects above requires support from variables of perceived ease of use, perceived satisfaction and perceived usefulness. The structural equation modeling (SEM) analysis approach was used to develop the perceived kawaii variable with regard to whether it has a strong influence on the Intention to Use variable or not.

1.1 Objectives

The general objectives to achieve in this study is to determine the behavior of Indonesian children towards their interest in playing educational games.
However, the specific objectives of this study are as follows:

1. Testing the hypothesis of whether perceived kawaii affects the Intention to Use.
2. Testing the hypothesis of whether perceived ease of use affects the perceived satisfaction.
3. Testing the hypothesis of whether perceived usefulness affects the perceived satisfaction.
4. Testing the hypothesis of whether intention to use affects the perceived satisfaction.
5. Testing the hypothesis of whether perceived satisfaction affects the Intention to Use.

2. Literature Review

In Indonesia, educational game products have been widely circulated in all facets of the society. In terms of the function of virtual education, Vitianingsih (2016) stated that educational online games become a learning medium that comes from non-conventional online media that is introduced to the public as an alternative to new educational media besides the ones received from formal education. Such learning process, according to the researcher, is simpler and makes it easier for players to remember each section in the game than to remember the material presented by a teacher in a public school. Novayani (2019) asserted that genre is a characteristic of games with the same style, content, and gameplay; thus, through virtual learning, the users can achieve learning objectives integrated in the game. The following is the form of the game genre in the JALASI 2 application research: Simulation, Strategy, Action, Role playing game, Education and Entertainment. Hidayaturrochman (2018) remarked that JALASI application or better known as "Jaga Laut Indonesia" is an educational game to introduce the maritime resource area in the Indonesian archipelago to Indonesian children. The important factor is that consumers like the educational games offered. Therefore, it requires an analysis of Theory of Reasoned Action (TRA), which means that a model formed from the individual performance of an activity will be carried out. Behnamnia, et al., (2020) mentioned preliminary modeling to identify the effect of a learning environment based on virtual games so as to encourage creativity and independent skills pattern in children's learning without the help of others. To ensure the changes in children's behavior towards the interest in playing games, it requires statistical analysis, namely validity test and reliability test. Qhusna (2018) explicated that testing using SPPS software can be matched with the results of SEM testing by employing AMOS software with the following criteria for validity testing: SLF (Standardized Loading Factor) value of ≥ 0.7 means that the indicator is acceptable, while SLF (Standardized Loading Factor) value of ≤ 0.7 means that the indicator can be rejected. As a consequence, the determination of validity test can be performed directly in SEM without having to go through the SPPS software. Meanwhile, the reliability test of the compatibility test is carried out by looking at the results of SEM testing using AMOS software. CR (Construct Reliability) value of ≥ 0.7 means that an indicator can be accepted or not with the following formula: Meanwhile, the CR value is obtained by the following equation: $CR = (\sum\lambda i)2/(\sum\lambda i)2 + (\sum\boldsymbol{\delta} i)$, where: λ = Loading factor of latent variable parameters, $\boldsymbol{\delta}$ = Error value of indicator parameter. VE (Variance Extracted) value of ≥ 0.6 means that an indicator is acceptable. The SEM analysis of the reality test has a testing criterion of a Cronbach Alpha value of ≥ 0.7.
The next process is an analysis using Structural Equation Modeling (SEM). There are several stages related to working on SEM. The first stage is measuring the model or confirmatory factor analysis (CFA), i.e., testing the CFA with the p value or loading factor. The second stage of model specification is to specify the model in two ways: a. The variables contained in the path diagram conversion between latent factors / variables must be eminently called a structural model

or called a mathematical model. The formula is: $\acute{\eta}1 = \beta 1.\acute{\eta}2 + \gamma 1.\ \xi 1 + \varsigma 1$, where: ή = (eta) refers to endogenous or dependent variables, β = (beta) shows the relationship between endogenous and endogenous variables, and γ = (gamma) shows the relationship between exogenous and endogenous variables. The third stage of parameter estimation is utilized to determine the estimated value of the latent variable indicators. This JALASI 2 using Maximum likelihood (ML) has 100-200 samples, a multivariate normal distribution and very minimal intervals. The fourth stage, testing the suitability of the model has the objective is to identify whether the proposed model using a path diagram (theoretical model) is suitable, compatible, fit or not with the data so that it can be carried out as a whole, including: (Waluyo, 2016). Model suitability or goodness of fit consists of Chi-Square and the P value is a model suitability test according to the maximum likelihood (ML). It is expected a low value while a high P (Probability) value exceeds 0.05. Root Mean Square Error of Approximation (RMSEA) is the approximate value of the root mean of the error squared. It is expected that the low value is ≤ 0.08 (Bagozzi and Yi, 1982). Normed Fit Index (NFI) is the expected value of ≥ 0.90 (Bentler and Bonett, 1980), Comparative Fit Index (CFI) is an expected value of ≥ 0.90, Incremental Fit Index (IFI) is the expected value of ≥ 0.90 (Bollen, 1989), and Tucker Lewis Index (TLI) is the expected value of ≥ 0.90. The fifth stage of model specification / model modification is related to model modification that can be executed if there is an estimated value less than the predetermined conditions, i.e., ≥ 0.7 for the indicators and ≥ 0.4 for the path diagram. The sixth stage is the Influence Level of Latent Variables. The results of the influence of this hypothesis will determine the extent to which the level of research success on JALASI 2 educational game. The effect of latent variable levels can be determined from the formula on the basis of the total effect criteria according to the conditions of the total effect obtained from the following criteria: 0 – 0.25 is the criterion for the level of influence of the weak correlation condition variable, > 0.25 – 0.5 is the criterion for the level of influence of the quite weak correlation condition variable, > 0.5 – 0.75 is the criterion for the level of influence of the strong correlation condition variable, and > 0.75 – 1.00 is the criterion for the level of influence of the very strong correlation condition variable. Consequently, by following those criteria, how much the latent variable criteria level can determine the condition of Indonesian children towards educational games, especiallyJALASI 2.

The latent variables used in this study consist of two variables, which are: Exogenous variables known as independent (free) variables which affect the dependent (bound) variable and Endogenous variables known as dependent (bound) variables which are influenced by independent (free) variables. In this study, the latent variables associated with kawaii variables are as follows:

a. Perceived ease of use (PEOU)

Lewis (2015) described the ease with which users can carry out activities on technology where there is no need to study or have much effort to get to know the system. The indicator parameters by Jap (2017) are: users can easily learn how to play educational games, users feel that playing educational games is more flexible, users feel the easiness of interacting in educational games, and users find it easy to recall the steps in playing educational games. The correlation between the perceived ease of use and perceived kawaii variables lies in the ease with which users use educational game applications because there is a factor of interest in the content offered to consumers so that the behavioral attitude to continue learning to play games is higher without the need for a proper guidebook.

b. Perceived usefulness (PU)

Yen et al., (2016) explained that users realize many benefits after using a technology or system that is effective and efficient for themselves. The indicator parameters according to Vallejo et al., (2019) are: increasing the effectiveness of learning, reducing stress for users, becoming a way to make new fantasy friends, increasing the user's ability to play educational games, and increasing knowledge and learning efficiency. The correlation between the perceived usefulness and perceived kawaii variables lies in how useful the educational games are for virtual learning systems for children. With the support of colors and animated movements on objects, the content offered to consumers will clarify the purpose and the messages that can be extracted from the content in the application.

c. Perceived Kawaii (PK)

Kawaii comes from the word kawaii which originates from Japanese, and its English equivalent means cute, interesting and fun. Another meaning of the word kawaii originates from the Japanese word "kawaisou" which means "cute" in Indonesian translation. Basically, product design is influenced by several characteristics such as contrast, color, material and characteristic combination.

The indicator parameters according to Okhura (2019) are: the characters in JALASI 2 are created in modern minimalism, it has the combination of colors and cute images, the symbols and attributes in JALASI 2 are cute and unique, the gestures are cute, and the animation images are bright in color.

d. Perceived Satisfication (PS)

Bastian (2015) described a measure that reflects a sense of satisfaction with the activity or performance of a technology as an evidence of success in information systems. The indicator parameters according to him are user satisfaction after playing educational games, user success in exploring educational games, user satisfaction with the quality of

educational games, user satisfaction with educational games as a good game. The relationship between the perceived satisfaction and perceived kawaii variables lies in how satisfied the users of educational games are for virtual learning systems for children. With these conditions, it might allow the need to play educational games to be higher and the desire to play repeatedly will show a high frequency. With the support of colors and animated movements on objects, the content offered to consumers will clarify the content in the application.

e. Intention for Use (ITU)

Rodrigues et al., (2016) described the Intention to Users to use a product and also the intention to do the same activity over and over again. The indicator parameters (Weng et al., Correra et al., 2019; Amelia and Ronald, 2017) employed are: users want to know more details about the educational games offered, users will often play educational games in the future, users consider educational games as a favorite game, and users have the intention to recommend educational games to others. The correlation between Intention for Use and Perceived Kawaii variables lies in how much the users' interest generated by children after playing educational games virtually so that games tend to be repeated. The interest that arises is caused by a sudden emotion appearing from the users which give rise to an attitude.

In accordance with the empirical studies and problem formulations that have been carried out and the previous research, only some of the perceived kawaii is used in educational game research and the results have not indicated any significant progress towards the development of educational game marketing in Indonesian society. After being analyzed, kawaii includes enjoyment. This can encourage changes in people's behavior towards a new product.

3. Method

In this study, the method used is made up of 2 analyzes. The first analysis employed is the Structural Equation Modeling (SEM) and the second analysis used is the Theory Reaction Action (TRA). In relation to the variables' identification stage, the completion steps that was taken include:

a. Location and Sample size. This stage was used to determine the respondents, compile the questionnaire and scope of testing, and identify the variables used to collect the data processed at the next stage. The data collection was limited to a population size of between 100-200 pupils. The pupils who were the target of testing were approximately 8–12 years old. The sample test location was carried out in the city of Blitar, East Java, Indonesia. The time for the research was done according to the research recommendation letter which was between 18 November 2020 until 15 December 2020. The data were collected at two different primary schools. The respondents who participated in the JALASI 2 application test from the first primary school were 37 pupils, while a total of 72 pupils were from the second primary school. The total sample from the two different primary schools was 109 pupils who were willing to complete the questionnaire submitted to them online.

b. Sampling Techniques. A non-probability sampling technique was used in this stage. This implies that the same population is not necessarily the sample used in this study. Meanwhile, the sampling method was accidental sampling or convenience sampling, which means that the sample selection was based on pupils who were easy to find or reach. In other words, by chance, the researcher met the pupils directly and they were suitable for the study with reference to the criteria determined in the JALASI 2 study.

c. Designing Theoretical Model Making

In designing the initial model for this study, the researcher focused on the idea that, this research was based on a phenomenon that had lately occurred in society. Figure 1. is an illustration of the initial model framework of this study.

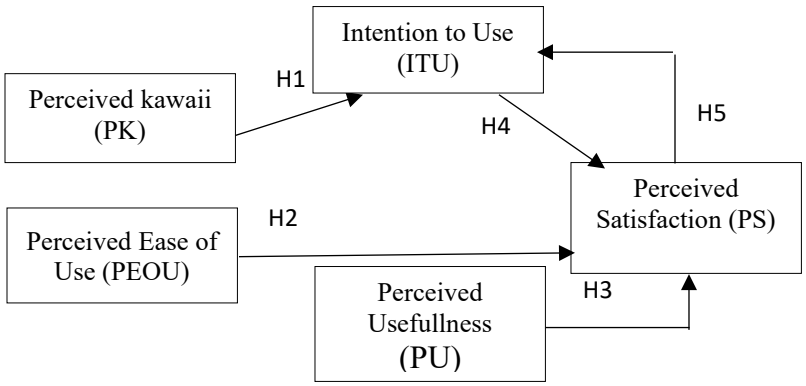

Figure 1. Theoretical Initial Model Development

Based on Figure 1, the initial hypothesis stages of modeling carried out between variables were as follows: H1: Perceived Kawaii has a positive correlation with Intention to Use, H2: Perceived Ease of Use has a positive correlation with Perceived Satisfaction, H3: Perceived Usefulness has a positive correlation with Perceived Satisfaction, H4: Intention to Use has a positive correlation with Perceived Satisfaction, and H5: Perceived Satisfaction has a positive correlation with Intention to Use.

d. Questionnaire Distribution Techniques: At this stage, the distribution of questionnaires to the respondents, which enables them to fill out the questionnaires, were carried out after the respondents finished playing the JALASI 2 educational game. The targeted respondents were issued a self-administered questionnaire developed from google form. This questionnaire refers to a Likert scale with a value of 1 to 5, where 1 = STS (Strongly disagree), 2 = TS (Disagree), 3 = C (Enough), 4 = S (Agree), and 5 = SS (Strongly agree). The results from respondents were used as the primary data for SEM processing in the SPSS and AMOS software.

4. Data Collection

The results of the questionnaires completed by the pupils of the two primary schools are as follows. The description of respondents who filled out the JALASI 2 questionnaire based on their ages and gender is depicted in percentages as shown in Figure 2 and Figure 3 below.

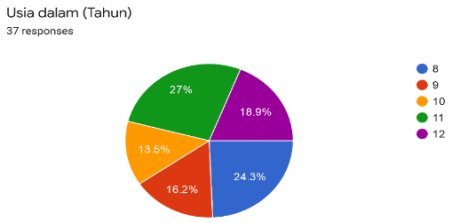

Figure 2. Percentage of Respondents from The First Primary School

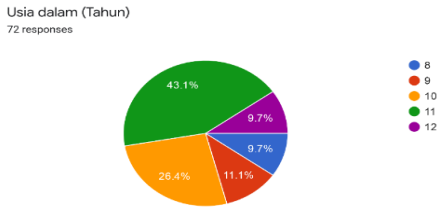

Figure 3. Percentage of Respondents from The Second Primary School

Based on Figure 2 and Figure 3, the results of respondents on the basis of their overall ages from the first primary school shows that the highest age was 11 years old which is 27% and the lowest age recorded is 10 years old and made up of 13.5% of the total responses. Meanwhile, the results of respondents on the basis of their ages from the second primary school indicates that the highest age was 11 years old which is 43.1%, and the lowest age 8 years old and made up of 9.7% of the total respondents. Based on the gender distribution of the first primary school, 55.6% are males and 44.4% are females. Also, the gender distribution from the second primary school shows that 55.8% are males and 43.2% are females. Then, the next steps are to analyze the results of the data obtained after the respondent filled out the questionnaires distributed through the google form link and to present the results according to each latent variable, including the perceived Ease of Use, Perceive Usefulness, Perceived Kawaii, Perceived Satisfaction, and Intention to Use variables. The summary of the result of the data for each latent variable is shown in table 1 below.

Table 1. Number of Respondents Filling in the Likert Scale.

Indicators	Likert Scale					
	3		4		5	
	1	2	1	2	1	2
PK1,PK2, PK3,PK4	1,5,3,2	7,10,8,4	13,8,14,7	32,23,27,25	23,24,20,28	33,39,37,42
PEOU1,PEOU2, PEOU3, PEOU4	5,2,8,5	11,9,7,7	12,10,12,11	20,25,17,21	11,9,7,7	24,21,28,28
PU1,PU2,PU3,PU4, PU5	4,6,6,5,4	4,5,5,3,5	10,7,7,7,5	27,32,27,31,23	23,24,24,25,28	41,35,40,38,44
PS1,PS2,PS3,PS4	4,2,3,2	5,4,6,2	9,9,8,8	24,26,26,27	29,28,29,28	37,40,37,42
ITU1,ITU2,ITU3,ITU4	4,1,3,3	4,7,3,7	7,16,7,16	26,20,27,18	26,20,27,18	39,43,44,35

5. Results and Discussion

The results of the data from a total of 109 respondents were processed with SEM and TRA analysis after the respondents have played JALASI 2 game and filled out the questionnaires.

5.1 Numerical Results

a. Model measurement test

This stage is related to the validity and reliability tests of the latent variable indicators using SPSS software. Testing the measurement model was carried out using confirmation factor analysis (CFA), as seen in Table 2 below.

Table 2. Results of Testing the Measurement Model with SPSS and AMOS Software on JALASI 2

Latent Variables	Indicators	Validity Test by SPSS	Standard Loading Factor (SLF) Value by AMOS	Error Values (δ) by AMOS	Reliability Test of Cronbach Alpha Value by SPSS	Reliability Test of CR, Chi Square, P and RMSEA values by AMOS
Perceived Kawaii (PK)	1. JALASI 2 characters are created in modern minimalist. (PK1)	0.837	1.00	0.13	0.881	CR = 0.9658 Chi square = 11.836 P = 0.003 RMSE A = 0.213
	2. JALASI 2 uses color combinations and cute images. (PK2)	0.837	1.17	0.16		
	3. Symbols and attributes in JALASI 2 are cute and unique. (PK3)	0.806	0.92	0.20		
	4. The gestures are cute, and the imitation images are bright in color. (PK4)	0.866	0.99	0.10		
Perceived Ease of Use (PEOU)	1. It is easy for the users to learn. (PEOU1)	0.781	1.00	0.36	0.8 10	CR = 0.9420 Chi square = 1.688 P = 0.430 RMSEA = 0.000
	2. Educational games are more flexible. (PEOU2)	0.756	0.86	0.25		
	3. Interact in educational games. (PEOU3)	0.848	1.15	0.17		
	4. The game is easy to remember. (PEOU4)	0.812	1.00	0.21		

Latent Variables	Indicators	Validity Test by SPSS	Standard Loading Factor (SLF) Value by AMOS	Error Values (δ) by AMOS	Reliability Test of Cronbach Alpha Value by SPSS	Reliability Test of CR, Chi Square, P and RMSEA values by AMOS
Perceived usefulness (PU)	1. It is effective for learning. (PU1) 2. It reduces stress. (PU2) 3. Fantasy friends. (PU3) 4. It improves ability. (PU4) 5. It is efficient for learning. (PU5)	0.876 0.861 0.841 0.811 0.785	1.00 1.03 0.99 0.87 0.82	0.13 0.14 0.1 5 0.18 0.20	0.891	CR = 0.9652 Chi square = 31.171 P = 0.000 RMSEA = 0.220
Perceived Satisfication (PS)	1. Satisfaction after playing game. (PS1) 2. Users are successful in exploration. (PS2) 3. Satisfaction with quality. (PS3) 4. Satisfaction with educational games. (PS4)	0.823 0.845 0.808 0.813	1.00 1.00 0.89 0.86	0.26 0.12 0.21 0.12	0.836	CR = 0.9519 Chi square = 2.014 P = 0.365 RMSEA = 0.008
Intention to Use (ITU)	1. The game in detail. (ITU1) 2. Users frequently (ITU2) 3. Favorite game. (ITU3) 4. Intention to play (ITU4)	0.834 0.791 0.848 0.807	1.00 0.89 1.00 0.88	0.13 0.30 0.11 0.22	0.834	CR = 0.9492 Chi square = 2.980 P = 0.225 RMSEA = 0.067

b. Theoretical Modeling in AMOS

After testing the CFA, the next step is to test the estimates between latent variables. If the results of the process using AMOS produce an estimated value of < 0.5, it implies that the estimated value between latent variables is invalid or there is no correlation at all. Table 3 below shows the results of the SEM analysis process using AMOS with theoretical modeling.

Table 3. Result of Estimation Output Path Diagram

Output			Estimation	S.E.	C.R.	P.	Labels	Results
ITU	<---	PK	0.252	0.180	1.401	0.161	par_20	Invalid
PS	<---	PU	0.453	0.151	3.001	0.003	Par_22	Invalid
PS	<---	PEOU	0.065	0.072	0.895	0.371	par_23	Invalid
ITU	<---	PS	0.739	0.212	3.493	***	par_21	Valid
PS	<---	ITU	0.429	0.166	2.584	0.010	par_24	Invalid

According to the results of the data output path diagram, it shows that there are four invalid outputs in the path diagram image which values relates to H1, H2, H3 and H5, and only H4 is valid.

c. Model Modification in AMOS

The next stage is the model modification testing which is carried out if the regression weight process in the data processing process is declared infeasible. Table 4 is the results recap of model modification that shows the output path diagram modification.

Table 4. Result of Estimation Output Path Diagram Modification of New Model

	Output	Laten Variables	Estimation	S.E.	C.R.	P	Labels	Results
PU	<---	PEOU	1.030	.165	6.248	***	par_19	Valid
PS	<---	PK	.338	.103	3.292	***	par_18	Valid
PS	<---	PU	.589	.111	5.317	***	par_20	Valid
ITU	<---	PS	1.001	.134	7.489	***	par_17	Valid

The model modification was successful. The estimated values for the path diagram were all valid and can be utilized to test the feasibility of the model. This implies that the correlation that occurs between the two variables is very strong and valid so that the result can be accepted. After the successful test of model modification, the next process follows the test of the feasibility of the model.

d. Model Feasibility Test (Goodness of Model Fit)

Model feasibility test is basically a continuation of CFA testing. In this JALASI 2 study, 7 indices were employed as the parameters, which among others are: RMSEA, CMIN/df, Normed Fit Index (NFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI), Tucker Lewis Index (TLI). This can be seen in Table 5 for ease of reference.

Table 5. Model Feasibility Test Results

Goodness of Fit Index	Values	Results
Chi Square	417.445	Poor fit
RMSEA	0.108	Poor fit
CMIN/df	2.269	Good fit
NFI	0.777	Marginal fit
CFI	0.858	Good fit
IFI	0.868	Good fit
TLI	0.822	Marginal fit

In accordance with the results, only three have a Good fit value, namely CMIN/df (2.269), CFI (0.858), and IFI (0.868). The conclusion is that these results are fit to meet each parameter of the model index.

e. Structural Model Test

The next final stage is testing the structural model. This process is carried out to ascertain whether the hypothesis can be categorized as accepted or not.

Based on Table 6, it shows that the CR (Critical Ratio) values meet the requirements of ≥ 1.96. Accordingly, the results of data processing using AMOS are as follows: for the path diagram of PEOU to PU, the CR value is 6.248, meaning that the hypothesis is accepted. For PK to PS, CR value is 3.292. For PS to PU, CR value is 5.317, and the last path diagram is PS to ITU, the CR value is 7.489. Table 6 below depicts AMOS outputs results for hypotheses testing.

Table 6. AMOS Output Results for Hypotheses Testing

Hypotheses	T- Values	Results
H1	3.292	Accepted
H2	6.248	Accepted
H3	5.317	Accepted
H4	7.489	Accepted

The results show that all hypotheses are more than the t-value of ≥ 1.98, based on 109 respondents and 5 latent variables. However, for SEM using AMOS, the value of Critical Ratio (CR) ≥ 1.96.

5.2 Graphical Results

Positive perceptions of the reaction of children to JALASI 2 will be taken into consideration for further game development. Figure 4 is used for the proposed model development.

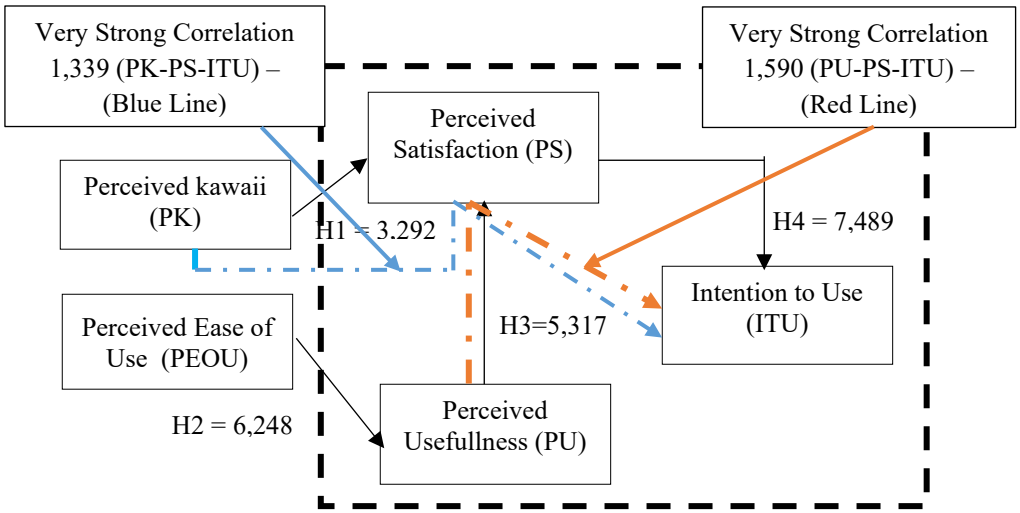

Figure 4. Strong Correlation among Latent Variables from Model Modification Results

From Figure 4 above, the blue color shows a correlation between latent variables and the PK-PS-ITU path diagram, and the red color shows a correlation between variables and the PU-PS-ITU path diagram. The very strong correlation (1.339) shows that the perceived kawaii variable has a positive effect on the intention to model through the mediation of the perceived satisfaction variable. Meanwhile, another very strong correlation (1.590) shows that perceived usefulness has a positive effect on the intention to model through perceived satisfaction.

5.3 Proposed Improvements

The effect of latent variables describes the effect of the correlation between variables based on the path diagram. The extent of the level of influence of the correlation between variables can be calculated from the total effect value, which is equal to the value of the direct effect plus the indirect effect. Table 7 below shows the correlation of path diagram of each latent variable.

Table 7. Recap of the Effect of Latent Variables on the Path Diagram of the JALASI Model 2

Hypotheses	Path Diagram	Direct	Indirect	Total	Results
H1	PK - PS	0.338	-	0.338	Quite strong correlation
H2	PEOU - PU	1.030	-	1.030	Very Strong Correlation
H3	PU - PS	0.589	-	0.589	Strong Correlation
H4	PS - ITU	1.001	-	1.001	Very Strong Correlation
PK - ITU	PK - PS - ITU	0.338 + 1.001	-	1.339	Very Strong Correlation
PEOU - ITU	PEOU - PU - PS - ITU	1.030 + 0.589 + 1.001	-	2.620	Very Strong Correlation
PU - ITU	PU - PS - ITU	0.589 + 1.001	-	1.590	Very Strong Correlation

Based on the recap of path diagram of latent variables, it shows that it can prove how much role of kawaii is in JALASI 2 content. Kawaii cannot directly influence users but requires the role of another variable, i.e., perceived satisfaction variable which ultimately encourages the feeling of interest and satisfaction to play the educational game again.

5.4 Validation

In this study, it is seen that kawaii has an important role in JALASI 2. It has been proven that the path diagram in hypothesis H1 results in the degree of influence of kawaii latent variables that is quite strong. In this case, the role of kawaii acts as a conduit to lure Indonesian children to JALASI 2 educational game. Then the indirect path is chosen, which means that the indirect effect on the PK - PS - ITU path diagram is 1.339. This means that perceived kawaii cannot directly affect the Intention to Use but it requires a mediator, namely perceived satisfaction as a link between the latent variable of perceived kawaii and the latent variable of Intention to Use. The very strong correlation (1.339) shows that the perceived kawaii variable has a positive effect on the intention to model through the mediator variable of perceived satisfaction. From the results of testing the analysis of the JALASI 2 hypothesis, this research discovered an important factor that causes children's interest in playing online games voluntarily without coercion, i.e., the strong influence of kawaii on JALASI 2 content. Another support comes from the satisfaction factor, which will encourage users to express the feeling of satisfaction after playing educational games. Hence, children emotionally arouse a feeling of interest in playing educational games on an ongoing basis. JALASI 2 educational game has its own uniqueness, which is providing knowledge related to the Indonesian Navy. Besides, the images in their opinion are unique, cute and cold on the eyes, making the game easily recognizable from 3 to 5meter distance, starting from the first display to when it is played. This indicates that kawaii design has a strong effect on the identification of educational game content.

6. Conclusion

Based on the results of studies in the field, which shows users behavior during interacting with educational games, respondents stated that kawaii-based educational games can attract users' attention. Respondents assessed that at the beginning of opening the JALASI 2 game display, starting from their eye view, then interacting with a focus on color combinations (kawaii characteristics), symbols, objects, people assimilated from native Japan to Indonesia, helps them to understand that JALASI 2 is an educational game. The findings of this study are valid and can be used as a basis for recommendations for further research. Regarding the role of kawaii in the JALASI 2 educational game, there are several supporting factors for kawaii that cause this game to be accepted by children, among others, are the advantages of the system and knowledge provided in JALASI 2. The results of this test are proven in terms of reusability, the respondents states that there are no system error that happens while the game is running. In terms of the usefulness of this educational game, it is obvious that, it provides more benefits to users with the existence of general knowledge outside the non-conventional learning system, namely formal learning in schools. The ease with which users interact in educational games will make it easier for players to understand games like educational games. This proof is very much needed to support children's sustainability to play educational games. Based on the testing of the SEM hypothesis, the results are as follows:

1. H1 is perceived kawaii on intention to use. It has still not been proven that there is a direct influence on intention to use. This test proves that the role of kawaii cannot immediately get users to play repeatedly.
2. H2 is perceived ease of use has an influence on perceived usefulness, this is related to the existing system in an educational game, whether when users play games experience problems with the system or not. The content of educational games, of course, lies in the questions given in the game, whether the user has previously read while studying at school or the knowledge provided is new knowledge for children.
3. H3 is the latent variable perceived usefulness has a strong positive effect on perceived satisfaction. These results prove the usefulness of a knowledge that is available. Children feel satisfied when they are playing educational games.
4. H4 is the latent variable intention to use has no effect on perceived satisfaction. This output cannot be proven in the reality of society. Children think of playing educational games because of the satisfaction factor of the service quality of the system and make them suddenly play without liking the advantages and disadvantages of educational games beforehand.
5. H5 is the latent variable perceived satisfication affects the intention to use. This latent variable is clearly in accordance with the reality that occurs in society at this time. Children intend to play an educational game based on satisfaction with the system, science, color combinations, people objects, symbols in an educational game.

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