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Validating Students' Readiness for Online Learning: Questionnaire Development and Evaluation

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Abstract

The purpose of this study is to validate the students' readiness of online learning questionnaire based on previous research, conceptualized in attitudes toward learning aspects. Six dimensions of attitudes toward learning aspects comprised of learning flexibility (LF), attitude online learning (OL), online interaction (OI), study management (SM), technology (TE), classroom learning (CL), and readiness of blended learning (RBL). 243 secondary students in a rural area in Bali participated in this study. Google form was delivered after the participants agree to join the study and filled the consent form. The data were analysed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to assess the hypotheses. The findings showed that a four-correlated model including attitudes toward study management, classroom learning, learning flexibility, and readiness of blended learning factors was validated by the results of EFA and CFA. Internal reliability confirmed the consistency factors, the validity provided evidence for significance relationships between them. Unlike previous study's findings, this study discovered that attitudes toward online learning, attitudes toward technology, and attitudes toward online interaction are not essential elements of students' readiness for online learning. This finding highlights pedagogical aspects, which turn into the essential idea in determining how prepared students are for online learning. The result can only be generalized to other areas of Indonesia through further researches.

Keywords: online learning; students' readiness; secondary school; questionnaire validation

1. Introduction

E-learning is considered a crucial aspect of education. The demand for applying high standards of ELT stems from the coordination of e-learning either directly or indirectly. Therefore, very educational institution dedicates maximum efforts in designing the best

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formula of using technology alongside face-to-face learning experience. Data from the Indonesia Ministry of Communication and Information website (2017) showed 51% of the total population has access to the internet. A further 42% own smartphones. Also, the average time Indonesians and Americans spent on the internet was 3.5 and 1.9 hours per day. This showed potential in the internet being used to improve the relevance and quality of education in Indonesia. It conceptually supports the paradigm of a student-centered approach, learners as active participants in their learning. For that reason, the role of technology cannot be denied to become a vital factor in providing beneficial and meaningful learning. It also opens more great chances for students to do real lifelong learning (Aldhafeeri, F. M., & Khan, 2019). Especially in language education, technology plays an essential role, not only for facilitating the learning but also for building students' self-access of learning (Hu & McGrath, 2011).

The implementation of e-learning can be confirmed, demands a holistic transformation in the practice of education, including classroom practice, teachers' competencies, and professional learning environment (Hu & McGrath, 2011). The commitment of all stakeholders should be put in one point, which is on how to design the most meaningful learning environment supported with very carefully designed materials for students (Aldhafeeri, F. M., & Khan, 2019). In order to ensure the programs of e-learning meets the goals, preparation on all dimensions of e-learning should be taken into consideration. Those dimensions include the needs, capability, interest, and willingness of all stakeholders, especially teachers and students (Chapnick, 2000); (Morrison, 2003).

Furthermore, investigating the readiness of stakeholders, especially students, becomes the first issue to consider before planning the program of e-learning itself (Rosenberg, 2001). Many researchers have confirmed that e-learning readiness assessment is vital to be conducted before starting that innovation in learning. It is to understand the characteristics of the stakeholders (DeSimone and Harris, 1998) and avoid cost overruns and failure (Chapnick, 2000); (Clark and Mayer, 2003); (Tubaishat and Lansari, 2011). Many educational institution failures in e-learning implementation are caused by the lack of attention on e-learning readiness

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(Demir and Yurdugül, 2015). In Indonesia context, some researchers have considered the importance of investigating students' e-readiness before implementing online learning, but in University level (Pradana and Amir, 2016) ; (Hadining, Sukanta and Hidayat, 2019); The & Usagawa, 2018; (Irfan, Putra and Ramdhani, 2019); (Panday and Purba, 2015). A limited study that focuses on secondary school level (Anza, Luthfi and Saragih, 2019); (Mahdum, Hadriana and Safriyanti, 2019) only investigated teachers' readiness and neglected the students' readiness in online learning. Using descriptive qualitative method, (Anza, Luthfi and Saragih, 2019) found that senior high school teachers in DKI Jakarta were not aware of the essential issue of LMS (Learning Management System). In contrast with the study of (Anza, Luthfi and Saragih, 2019), quantitative analysis had been conducted to measure 616 senior high school teachers' perception and motivation toward ICT (Mahdum, Hadriana and Safriyanti, 2019). They found that teachers in rural area in Indonesia had a good level of perception and motivation toward ICT integration in learning. To make it all-inclusive, recommendation to investigate the students' attainment was recommended for further research. Consequently, a comprehensive analysis of secondary students' e-learning readiness should be conducted.

A study from (Tang and Chaw, 2013) has provided a comprehensive explanation of how the attitude toward learning aspects can be seen as crucial dimensions in examining student's adaptability to online learning. Those learning aspects are learning flexibility, online learning, study management, technology, online interaction, and classroom learning (Tang and Chaw, 2013). From 34 items on the questionnaire they developed, it was found that five factors were able to predict students' online learning readiness. However, because the internal consistency of the reliability of some constructs is not too durable, it is suggested by them to replicate and validate the questionnaire with a different group of students.

Referring to the phenomenon, this study aims to validate the secondary students' online learning readiness questionnaire. Factor analyses, both exploratory and confirmatory, were conducted to assess the hypotheses of this study. With the setting of secondary students in

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Page : 426-447
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Indonesia, it is hoped that this research will be able to produce a valid questionnaire in measuring students' online learning readiness based on their attitudes towards learning aspects.

2. Literature Review

Due to the rapid advances in technology and communication, the world is in a constant flow of information and data. Due technology, communication is poised to be multi-directional in any part of the world. This facilitates the shifting of the model of constructivism to socio-constructivism which develops to navigationism (Brown and Green, 2003). The paradigm shift has encouraged moving knowledge and authority from the instructors to the (Barr and Tagg, 1995); (McCombs and Whistler, 1997).

ICT is a crucial tool for helping for facilitating a student-centered approach (Muianga *et al.*, 2018). It is not only constructing but also navigating knowledge. (Ashraf, S., Khan, T. A., 2016) defined e-learning as a learner-centered strategy which provides students with the opportunity for an in-depth investigation of a given topic through the use of ICT. It produces significantly better results in the education outcomes (Ayere, Odera and Agak, 2010)

Developing an e-learning initiative is a much larger endeavor than face-to-face learning. There is need to pay attention to high expenses, the number of people involved, development time, technological requirements, and delivery options (Chapnick, 2000). Additionally, investigating the readiness of stakeholders, especially students, is the priority before planning the program itself (Rosenberg, 2001). Education aspects influence the students' adaptability to blended learning (Brown and Green, 2003); Collopy & Arnold, 2009; (Howard, 2009) ; (Smyth *et al.*, 2012); (Tang and Chaw, 2013); Tsai, 2010). It predicts the students' readiness for online studies (Tang and Chaw, 2013). Those teaching aspects are education flexibility, internet learning, study management, technology, real-time interaction, and classroom teaching. According to (Tang and Chaw, 2013), when the students have a positive attitude toward the first five learning aspects, they are more likely to become adaptive to internet studying. In contrast, students with a positive attitude toward classroom teaching struggle to join online education.

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According to studies, flexibility is one of the main benefits of blended learning (Wooten and Thomas, 2009) ; (Gedik, Kiraz and Ozden, 2012). The benefits students gain include work completion, freedom to move at own pace, and continuous access to course resources, examples, and content (Shand and Farelly, 2018). Students with a positive attitude toward flexibility of online learning benefit by gaining academic balance, family, and social lives (Vaughan, 2007).

For professional development, a lot of teachers are using distant learning courses. Schools have therefore greatly expanded the number of online courses offered by them. This supplement learning provided some internet-based professional development within the last ten years (Brown and Green, 2003); (Tyre, 2002). The most successful approaches for providing professional development, according to current research, are hybrid courses, which blend face-to-face and online learning (Dziuban and Moskal, 2001) ; (Young, 2002)

Secondary school online education is a disruptive force that is almost at an exponential growth trend (Miller & Ribble, 2010). In any context, highly skilled classroom teachers are indispensable. But instructors of today must be ready to take on the task of interacting and involving pupils who are geographically and temporally apart from them (Charania, 2010). Effective instruction requires little in-person interaction from the teacher. Moreover, they have to create and create course material in a technologically advanced setting and provide material that would interest students. To make sure students understand material, they should, nonetheless, employ evaluation tools (Archambault & Kennedy, 2017).

One essential element in blended learning is students' self-regulation. Several adaptive actions and results are benefited by the management of the research environment. In face-to-face classes, they might be both effort, perseverance, application of cognitive strategies, self-efficacy, and grade-point average (Cooper and Corpus, 2009); Lan 1998; (Ley and Young, 1998); (Wolters and Rosenthal, 2000) ; (Sharma *et al.*, 2007); Yukselturk & Bulut 2007). As computer laboratories, residences, work sites, and many other places can be turned into online classrooms, anybody can take an online course from anywhere.

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Page : 426-447
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Online learning also heavily depends on internet contact. Because blended learning fosters a community of inquiry, it promotes critical discussion, open communication, and consensus (Garrison and Kanuka, 2004). Furthermore, real project-based activities promote communication in an online setting. Activities of such kind encourage participation and active involvement.

In addition, face-to-face, distance, and hybrid learning are the three categories into which teaching is separated (Thomas, 2009). Every one of these categories can be further classified based on the information delivery format. Professional development that takes place in person happens when the teacher and the students are in the same place. This course can be presented in an afternoon or over several days, with a wide range of activities or only lectures. While the format differs, distance education shares these essential elements. It covers all kinds of education in which the teacher and student are not physically present. This covers correspondence courses, video conferencing, online and recorded courses (Fairbans et al., 2000; (Lewis, Snow and Farris, 1999).

The classroom is an environment where students and teachers share their knowledge and experiences. This is achieved using various means of communication to reach educational purposes with an appropriate configuration. In the realization of educational purposes, the management of the classroom is imperative. A decrease in extra-curricular activities in school is attributed to inappropriate classroom management (Gulec and Durmus, 2019)

There are six hypotheses formulated after considering the crucial influence of attitudes on learning aspects. Those hypotheses are including the following.

1. Ha1: There is a significant positive relationship between attitudes and learning flexibility to construct students' readiness for online learning
2. Ha2: There is a significant positive relationship between attitudes and online learning to construct students' readiness for online learning
3. Ha3: There is a significant positive relationship between attitudes and study management to construct students' readiness for online learning

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Page : 426-447
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4. Ha4: There is a significant positive relationship between attitudes and technology to construct students' readiness for online learning
5. Ha5: There is a significant positive relationship between attitudes and online interaction to construct students' readiness for online learning
6. Ha6: There is a significant negative relationship between attitudes and classroom learning to construct students' readiness for online learning

3. Method

3.1. Design of Study

This study used quantitative design in testing the hypothesis. EFA and CFA were conducted to validate the questionnaire constructively. Six dimensions of attitudes toward learning aspects with 34 items and 1 factor of blended learning readiness with three items were translated from a questionnaire developed by (Tang and Chaw, 2013) regarding students' readiness in online learning. Since the questionnaire developed by (Tang and Chaw, 2013)has a weak internal consistency of reliability of some constructs, it is suggested by them to replicate and validate the questionnaire. (Tang and Chaw, 2013)also mentioned that it is necessary to conduct it with a different research group of students. The summary of the Items of Individual Constructs developed by (Tang and Chaw, 2013)can be seen in table 1.

Table 1. Summary of the Items of Individual Construct by Tang & Chaw (2013)

Construct	Numbers of Items	Items
Attitudes toward Learning Flexibility (LF)	4	I would like unlimited access to lecture materials I would like to decide where I want to study I like to study at my own pace I would like to decide when I want to study
Attitudes toward Online Learning (OL)	8	I believe that face-to-face learning is more effective than online learning I am comfortable with self-directed learning I do not resist having my lesson online

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Page : 426-447
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		I like online learning, as it provides richer instructional content
		I would like lecture time in the classroom to be reduced
		I would like to have my classes online rather than in the classroom
		I get bored when studying online
		I find it very difficult to study online
Attitudes towards Study Management (SM)	6	I am more likely to miss assignment die dates in an online learning environment
		I organize my time better when studying online
		I can study over and over again online
		Online learning motivates me to prepare well for my studies
		Online learning encourages me to make plans
		Online learning makes me more responsible for my studies
Attitudes toward Technology (TE)	4	I believe the Web is a useful platform for learning
		I am familiar with Web technologies
		I find Web technologies easy to use
		I think we should use technologies in learning
Attitudes toward Classroom Learning (CL)	5	I have a sense of community when I meet other students in the classroom
		I like the fast feedback when I meet my lecturer in person
		I find learning through collaboration with others face-to-face is more effective
		I learn better through lecturer-directed classroom-based activities
		I learn better when someone guise me personally
Attitudes toward Online Interaction (OI)	7	I feel isolated in an online learning environment
		I am comfortable in using web technologies to exchange knowledge with others
		I would like to interact with my lecturer online

Borneo Educational Journal (Borju)
https://jurnal.fkip-uwgm.ac.id/index.php/Borju
Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

		I would like to interact with other students outside the classroom I find it easy to communicate with others online I appreciate easy online access to my lecturer I can collaborate well with a virtual team in doing assignments
Readiness for Blended Learning (RBL)	3	If there is an opportunity, I intend to register for a course that adopts the blended learning approach If there is an opportunity, I want to join in a course that adopts the blended learning approach If there is an opportunity, I plan to attend a course that adopts the blended learning approach

3.2. Participants

Participants in this study were 243 Public Junior High School students in Bali who had participated in online learning for two months. They are students in rural areas in Bali who have to do online learning due to the Covid-19 pandemic. With the limited internet facilities and makeshift devices, they can still follow online learning well. Before filling out the questionnaire, 260 students' parents were given a consent letter for their consent to allow their child to participate in this study. Out of 260, 17 parents refused to give consent. Most of them have the same reasons in which they were doubts that their child would take part in online learning fully due to facilities and costs. After going through the process, 243 valid responses were obtained from 108 male students and 135 female students. Those 243 participants were 151 7th graders and 93 8th graders. Grade 9 students are not included because they have focused on the final school exams.

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EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

3.3. Data Collection and Instruments

The instrument of this study was the translated questionnaire developed by (Tang and Chaw, 2013). There are two sections in the questionnaire in this study; section A is about student demographics such as name, class, gender, and online learning experience; section B is 34 statements translated to Bahasa Indonesia from the (Tang and Chaw, 2013). All items are included in Google Form. The google form link is given to the class teachers of grade VII and VIII following the principal's coordination. The class teachers listed students who have collected parental consent before sharing the link for the participants. The participants are given a filling time for 2 hours after the online class time.

3.4. Data Analysis

Data analysis begins with EFA, where the construct of the questionnaire is identified using the SPSS 24.0 version (Churchill, 1979). The feasibility of the figures is determined by the KMO and Bartlett's Test values before the principal component analysis (PCA). From the analysis, items which are laden below 0.5 and the ones with cross-loaded above 0.5 on two or more aspects should be deleted (Hair *et al.*, 2009). According to (Hair *et al.*, 2009), Cronbach's alpha satisfactory for exploratory research should be more than 0.6. After obtaining the variables and items from the EFA results, the CFA is conducted using the hierarchical factor model using SPSS AMOS 24.0. The construct validity was analyzed and decided based on four relevant indices criteria, including ($\chi 2$ / df, TLI, CFI, and RMSEA). Invalid items (<0.5) were dropped based on their factor loadings.

4. Findings and Discussion

This following section of this article presents the results EFA and CFA that have been employed. EFA analysis was performed on 34 items with orthogonal rotation (varimax). The assumption behind the adoption of the varimax rotation approach was that there was no association between the components (Field, 2009). From the output results obtained, the KMO

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Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

value of 0.861 means 'great' according to (Field, 2009). Bartlett's test of sphericity shows a value of $X^2 = 3084{,}629$, $p < 0.001$. It indicates that the correlation between the items was quite high for principal component analysis (PCA), and that the data set in this study is classified as a wonderful factor to perform the analysis (Hutcheson & Sofroniou, 1999 in (Field, 2009). The detailed results of Bartlett's test and KMO are shown in table 2.

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.861
Bartlett's Test of Sphericity	Approx. Chi-Square	3084.629
	Df	528
	Sig.	.000

Knowing that the dataset of this study is excellent, a parallel analysis with 243 datasets as the 95th percentile is used to validate the number of components even further (O'Connor, 2000). After extracting five and six factors, a more readable factor matrix was obtained using the five-factor structure. As noted by (Hair *et al.*, 2009), items that loaded below 0.5 and those that cross-loaded over 0.5 on two or more variables should be removed. As a result, three items were deleted. Those items are '*I would like unlimited access to learning materials*', '*I like the fast feedback when I meet my teacher in person*', and '*I learn better when someone guides me personally*'.

Five variables comprising 29 items together explained 50.81% of the variance according to the PCA analysis. After rotations, the factor loadings are shown in Table 2. Every component has a suitable Cronbach's alpha, which is greater than 0.6 for exploratory study (Hair *et al.*, 2009).

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Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

Table 3. Summary of Factors and Item Loadings

Items	Mean	SD	SM	CL	OL	OI	LF
I believe the Web is a useful platform for learning	3.58	1.039	.765				
I am comfortable in using web technologies to exchange knowledge with others	3.58	1.059	.715				
Online learning encourages me to make plans	3.41	1.030	.694				
Online learning makes me more responsible for my studies	3.52	1.111	.682				
Online learning motivates me to prepare well for my studies	3.47	1.088	.682				
I can study over and over again online	3.31	1.080	.673				
I find Web technologies easy to use	3.58	.982	.644				
I organize my time better when studying online	3.26	1.128	.627				
I appreciate easy online access to my teacher	3.74	1.001	.612				
I do not resist having my lessons online	3.72	1.059	.611				
I like online learning, as it provides richer instructional content	3.19	1.115	.593				
I am familiar with Web technologies	3.32	.985	.589				
I would like to interact with my teacher online	3.21	1.100	.576				
I think we should use technologies in learning	3.36	1.124	.574				
I find learning through collaboration with others face-to-face is more effective	1.96	.985		.747			
I learn better through teacher-directed classroom-based activities	1.98	1.020		.706			
I believe that face-to-face learning is more effective than online learning	1.93	1.106		.579			
I have a sense of community when I meet other students in the classroom	2.24	1.021		.568			

Borneo Educational Journal (Borju)
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Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

I like the fast feedback when I meet my teacher in person	2.56	1.052		.538			
I get bored when studying online	2.74	1.211			.688		
I find it very difficult to study online	2.71	1.233			.678		
I am more likely to miss assignment due dates in an online learning environment	3.02	1.117			.644		
I feel isolated in an online learning environment	3.45	1.117			.530		
I would like learning time in the classroom to be reduced	2.46	1.293				.655	
I can collaborate well with a virtual team in doing assignments	3.30	1.077				.579	
I would like to have my classes online rather than in the classroom	2.47	1.176				.515	
I would like to decide when I want to study	3.29	1.259					.733
I would like to decide where I want to study	3.48	1.238					.721
I like to study at my own pace	3.75	1.159					.623
% of variance explained			20.715	8.603	8.304	6.637	6.549
Eigenvalue			6.836	2.839	2.740	2.190	2.161
Cronbach's alpha			0.898	0.695	0.718	0.645	0.672

Note: SM: Attitude toward study management; CL: attitude toward classroom learning; OL: Attitude toward online learning; OI: attitude toward online interaction; LF: attitude toward learning flexibility

PCA was also carried out on three items that measured blended learning readiness. From the analysis, it was found that KMO is 0.71, and the value of Bartlett's test is sig. 0.000. all three items have strong loading factor, which is incorporated in one factor. These factors explain 76.47% of the variance. The value of Cronbach's alpha is satisfactory, which is 0.844.

After the EFA was carried out, and five factors of attitudes toward learning aspects and one factor of blended learning readiness were found, the next analysis was continued to confirmatory factor analysis (CFA). The hierarchical factor model of CFA was used to examine the construct validity of the students' readiness of online learning questionnaire. The construct

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Section : Research Article
Page : 426-447
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validity was analysed and decided based on four fit indices criteria: χ^2/df, TLI, and RMSEA. Invalid items were dropped based on the factor loadings of each item. Furthermore, the picture representation of the final model is provided to give a better description of the structural model.

The analysis shows that out of 32 items (29 items of attitude toward learning aspects and three items of blended learning readiness), 12 items were valid with satisfactory factor loadings ranging from 0.50 to 0.91. Two dimensions (Attitude toward online learning and attitudes toward online interaction) were dropped since the items for each dimension were less than three, making them under-identified factors which might have compromised the whole construct validity. Table 4 shows the factor loadings for this construct.

Table 4. Factor Loadings for Each Items

Items	Dimension				R^2	P
	SM	CL	LF	RBL		
SM3	.839				.704	.000
SM4	.769				.591	.000
SM5	.781				.610	.000
CL1		.757			.573	.000
CL2		.723			.523	.000
CL3		.501			.251	.000
LF1			.582		.339	.000
LF2			.760		.578	.000
LF3			.584		.341	.000
RBL1				.910	.828	.000
RBL2				.711	.506	.000
RBL3				.790	.624	.000

Note: SM: attitude toward study management; CL: attitude toward classroom management; LF: attitude toward learning flexibility; RBL: readiness of blended learning

Moreover, the factor loadings of the four dimensions to the latent variable students' readiness of online learning questionnaire were examined. The result indicates that all dimensions load significantly to the latent variable. Table 5 below describes the factor loadings for each dimension.

Table 5. Factor Loadings of the Four Dimensions to the Latent Variable Readiness of Online Learning

Dimension	Factor Loadings	R^2	P
SM	0.550	0.303	0.000
CL	-0.326	0.106	0.004

Borneo Educational Journal (Borju)
https://jurnal.fkip-uwgm.ac.id/index.php/Borju
Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

LF	0.385	0.148	0.002
RBL	0.735	0.540	0.002

The hierarchical factor analysis was done to examine the four hypothesized constructs for students' readiness of online learning. The analysis was done by examining four goodness of fit indices χ^2/df, TLI, and RMSEA. Table 6 shows the results of the analysis.

Table 6. The Goodness of Fit of Students' Readiness of Online Learning Construct

The goodness of Fit Indices	Value	Remark
χ^2/df	2.208	Acceptable
TLI	0.916	Acceptable
CFI	0.937	Acceptable
RMSEA	0.071	Acceptable

The analysis shows that the hierarchical factor with 12 items fit the data well; the χ^2/df is 2.208, meaning that it satisfied the cut off value of 3.00. The analysis of TLI and CFI also show a good fit with the value od 0.916 and 0.937, respectively. Meanwhile, the value of 0.071 for RMSEA provides additional support for model fit because it is below the conservative cutoff value of 0.08. In conclusion, the hierarchical factor model with four factors and 12 items can be considered as measuring one latent variable, that is, Readiness of Online Learning. Figure 1 is presented with standardized estimates to give a clear description of the relationship among all factors and items.

Borneo Educational Journal (Borju)
https://jurnal.fkip-uwgm.ac.id/index.php/Borju
Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

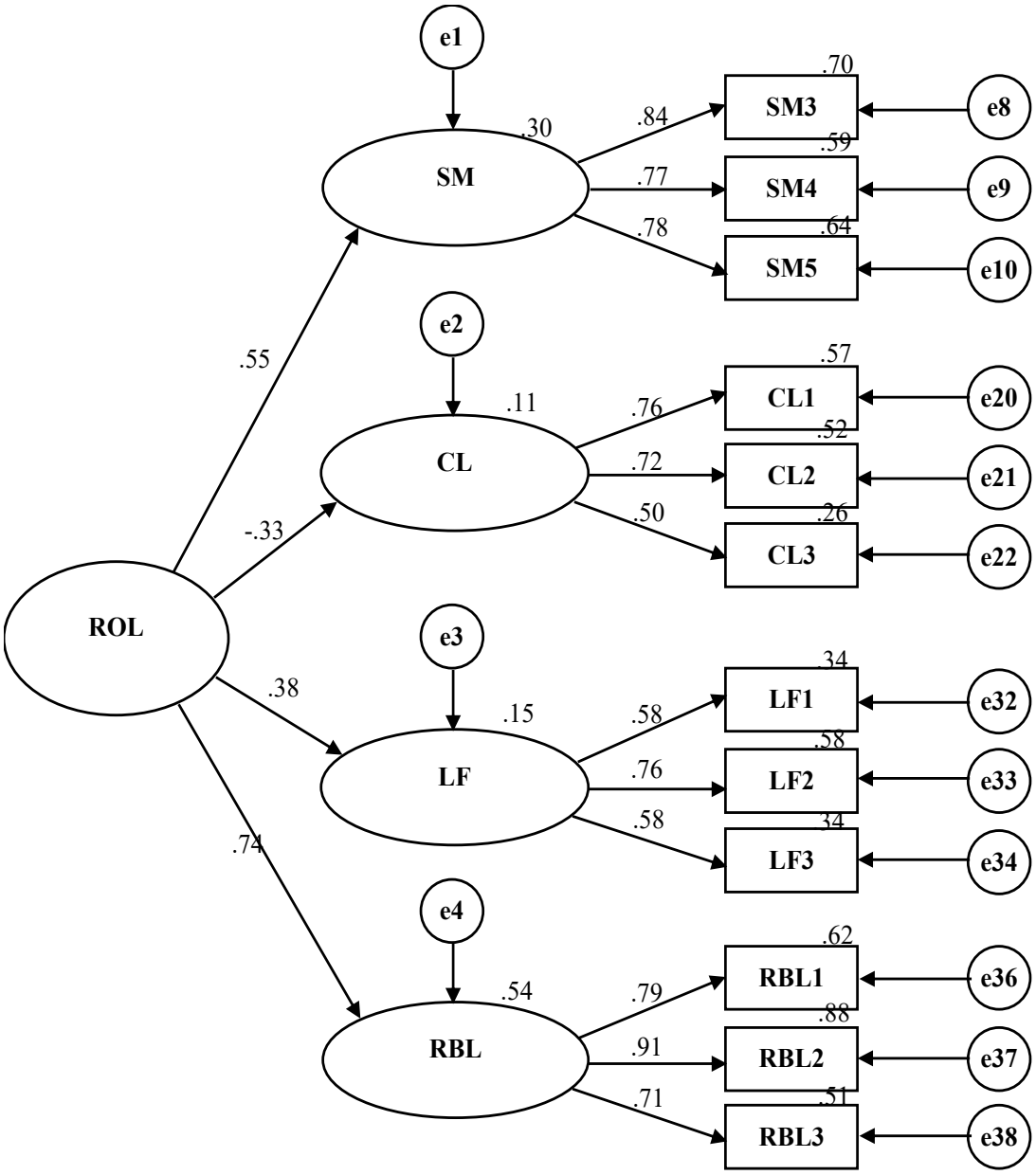

Figure 1. Hierarchial Factor Model for Students' Readiness of Online Learning

Based on the results of construct validation, both exploratory and confirmatory, it was found four factors with 12 items of statements to measure a latent variable, namely Students' Readiness of Online Learning (see appendix). Of the seven factors proposed by (Tang and

Borneo Educational Journal (Borju)
https://jurnal.fkip-uwgm.ac.id/index.php/Borju
Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

Chaw, 2013), only four factors were proven to be valid in measuring students' readiness for online learning at the secondary school level. These factors are attitude toward study management, attitude toward classroom learning, attitude toward learning flexibility, and readiness of blended learning.

Furthermore, it was found that students with attitudes toward study management and positive learning flexibility would be better able to adapt to online learning. This result is in line with the findings of (Tang and Chaw, 2013), who found these two factors as factors that predict students' readiness in blended learning. With proper study management skills, students will be able to organize their learning. It is very much needed to participate in online learning. Some experts call it self-control which is part of self-regulated learning (DiBenedetto and Zimmerman, 2010) ; (Magno, 2010); (Schmitz, Klug and Schmidt, 2011); (Zimmerman and Moylan, 2009). With the ability to do self-control, students are ready to take part in online learning (Shih, Liang and Tsai, 2019); (Connor, Newman and Deyoe, 2014); (Shyr and Chen, 2016); (Moos and Bonde, 2016).

Since blended learning provides the benefits of time efficiency and location convenience for learners (Brown and Green, 2003), students with high flexibility can undoubtedly be categorized as very ready to take part in online learning. Accessibility to learning wherever and whenever also allows students to learn in their way. Students who want high learning flexibility will be able to practice their self-discipline and will eventually lead them to better learning outcomes (Connor, Newman and Deyoe, 2014); (Owston, York and Murtha, 2013); (Smyth *et al.*, 2012)

However, there is one factor that appears to have a negative relationship with students' online learning readiness, namely, attitudes toward classroom learning. Students with a positive attitude towards classroom learning tend not to be ready to take part in online learning. These results are also in line with (Tang and Chaw, 2013). Students who feel comfortable in the face-to-face classroom still have not shown readiness in their online learning (Howard, 2009).

Borneo Educational Journal (Borju)
https://jurnal.fkip-uwgm.ac.id/index.php/Borju
Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

Careful online learning planning is needed to be able to help these students be able to adapt well to online learning.

This research also found that attitudes toward technology, attitudes toward online learning, and attitudes toward online interaction are not included in the critical factors of students' online learning readiness. Although attitudes toward online learning and online interaction are found as key concerns in (Tang and Chaw, 2013), for students at the secondary level, this is not a crucial factor. Just like technology, in (Tang and Chaw, 2013)research, the three factors related to technological issues are not a problem for digital natives. The more critical factors on students participating in online learning are more on pedagogical issues.

Since this study has a limitation on involving two month-experienced students as respondents, it may cause insufficient understanding and experience of online learning. Besides, this study only involved secondary school students in one rural area in Bali. Hence, the results of this study can only be generalized to other areas of Indonesia through further research.

4. Conclusion

On the whole, the results of this study established important constructs to measure students' readiness for online learning in the observed sample. There are four factors with 12 items of statements to measure a latent variable. Those four factors are attitude toward study management, attitude toward classroom learning, attitude toward learning flexibility, and readiness of blended learning. The leading significant of this research is that it provides a scale that is the potential measure of Indonesian secondary school students' readiness to join online learning.

The results of this study have shown that measuring the readiness of students in online learning is very essential. Principally in the pedagogical aspect, teachers should be able to give more consideration to students' pedagogical adjustments during online learning. Preparation of material, activities, media, and assessment should alter to the level of students' readiness. In

Borneo Educational Journal (Borju)
https://jurnal.fkip-uwgm.ac.id/index.php/Borju
Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

addition, support in developing management studies and learning flexibility must be given to students to improve their adaptability in current online learning.

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Page : 426-447
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Section : Research Article
Page : 426-447
DOI : 10.24903/bej.v7i2.2026

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Volume 7, Issues 2, August,2025
EISSN : 2655-9323
Section : Research Article
Page : 426-447
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