

Copyright © 2022 by Cherkas Global University



Published in the USA
 International Journal of Media and Information Literacy
 Issued since 2005
 E-ISSN 2500-106X
 2022. 7(2): 333-344

DOI: 10.13187/ijmil.2022.2.333
<https://ijmil.cherkasgu.press>



Students' Attitude Towards *Ruanguji* Mobile-Based Assessment: An Explanatory Case Study in Tangerang, Indonesia

Muhammad Farkhan ^{a,*}, Muhammad Azwar ^a

^a Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia

Abstract

This qualitative study aims to unveil the junior high school students' attitude towards *Ruanguji* mobile-based assessment. It uses an explanatory case study design engaging 225 students in Tangerang, Indonesia as the respondents. To analyze the data got by the questionnaire, the study uses the multi-component model of attitude and one-dimensional perspective. The study reveals that their attitude towards *Ruanguji* comprises the cognitive, affective, and behavioral components with different degree. For the students, *Ruanguji* is a supplementary media offering various tests and assignments to help them face the national examination. With the application, they feel convenient to prepare themselves for the examination. If they have chances, they will use it to explore testing materials and assignments. Their attitude is identified as a positive one that impedes the existence of the negative one. Its positivity degree is determined by internal factors, like their perception and emotion; and external factors, like the application's user-friendliness. In addition, their positive attitude towards the application also contributes to their success in their school's summative tests and national examination. The result of the study leads to the conclusion that a positive attitude towards the mobile assessment can be a determinant factor of their success in the study.

Keywords: attitude, mobile-based assessment, *Ruanguji*, multi-component model, one-dimensional perspective.

1. Introduction

Many mobile applications are now installed on smartphones, offering users such substantial convenience in terms of accessibility, mobility, and entertainment that people scarcely ever want to be without them (Mwantimwa, 2019). They can satisfy the users' requirements to complete their duties in various spheres of life, including the teaching of English as a foreign language (EFL), since they become more sophisticated and are constantly updated. For instance, they are employed in the teaching-learning process, evaluation, task delivery, presentation, translation, class grouping, or other administrative services (Karthikeyan et al., 2022). These applications used in EFL are beneficial because they can provide students with more authentic learning materials, engaging and interactive learning exercises, and more effective assessment (Lin, 2019). As a result, the users often update the various applications on their cellphones to gain more advantages from them (Correa et al., 2020).

One of the educational applications which are mostly used in Indonesia is *Ruanguru* released in the Google Play Store in 2016. It is a trending educational application awarded as a number one domestic application which has millions of users. *Ruanguru* provides the users with various services; one of them is *Ruanguji* as a mobile-based assessment (MBA). It offers online

* Corresponding author

E-mail addresses: farkhan@uinjkt.ac.id (M. Farkhan)

assignments and tests for primary, junior, and senior high school students for different purposes, like simulations on summative tests, national examination, or joint entrance test of state universities (Devara, Usman, 2016). As an application, *Ruanguji* has been used by the students to prepare themselves for the national examination. However, its effectiveness has not been identified because there have been few studies on it. It depends not only on its operating systems but also on its users' psychological factors, like their cognitive ability, skills, and attitude. Among them, the students' attitude becomes one of the determinant factors that contributes the effectiveness of a mobile application in educational practices. Attitude means the way a person thinks, feels, or acts towards someone, thing, or situation (Getie, 2020). It, under the multi-component model, comprises cognitive, affective, and behavioral components (Haddock, Maio, 2012). Cognitive component deals with thoughts and beliefs about an attitude object; affective component concerns with feelings and emotions associated with it; and behavioral component refers to actions an individual has done (or might do in the future) regarding it (Eagly, Chaiken, 1993; Haddock, Maio, 2019). For example, if the students think that a mobile educational application is not user-friendly, it will discourage them from using it for learning. Conversely, if they think it is a user-friendly, they must be encouraged to use it for learning. Therefore, its operating system and its users' attitude influence the effectiveness of a mobile educational application, like *Ruanguji*. Despite its tremendous acceptance and potential, *Ruanguji* is still a new application which needs to further investigation, especially in its user-friendliness and other features.

In their research, F.K. Ting and K.H. Tang (Ting, Tan, 2021) point out that all mobile educational applications, as well as those that are still relatively new and developing, need to be assessed or studied. Therefore, there are still rooms to conduct studies on mobile applications used in education, like *Ruanguji*. This can be about the students' attitude towards the application interface, assessment materials, tests' lay-out, users' responses, and real-time feedback offered by the application. The result of the studies would be beneficial for the teachers to conduct more effective learning activities and assessment for EFL students and the company to enhance the quality of the application.

In English assessment using technology, there are studies conducted in the primary or secondary schools with different results. One of them is experimental research involving three intact classes of the intermediate EFL learners in Iran. Its overall findings shows that MBA improves the EFL learners' writing ability because of partnerships between them and the instructor via text- and voice-based mediation (Ebadi, Bashir, 2021). This shows that MBA is an effective media in measuring the students' writing ability because they can get the real time feedback that assistances them improve their writing. Similarly, another study claims that matters, like comfort, instant feedback and personal safety are most efficiently controlled by the MBA, like Moodle quizzes (Buczek-Zawila, 2021). This shows that the use of technology in English assessment has a positive impact on the students' performance compared to the use of traditional assessment.

There are studies that are contradictory to the previous ones. Some claim that paper-based test is more effective than the MBA in measuring the students' English ability because they can read the test easily without connecting to the internet. A recent study reports that the students who read printed texts get higher score on the reading comprehension test than those who read the digital texts (Schwabe et al., 2021). Similarly, another study reveals that the paper-based test is more effective than the computer-based test. It is because students who do tests on screen have a variety of concerns and problems on computer-based examinations, such as noisy keyboards, assessment of spelling, and unfairness rather than those who are less comfortable with the technology (Yeom, Jun, 2020). In addition, research by W. Yu and N. Iwashita (Yu, Iwashita, 2021) indicates that the students' attitude towards MBA does not have a positive impact on their performance. Complementarily, in their research H. Öz and T. Özturan (Öz, Özturan, 2018) show that there is not any significant difference in test scores between the participants who take the computer-based test and those who take the paper-based test.

Differently from the previous studies, the current research uses the qualitative approach, with a case study design engaging the junior high school students as the participants. It presents the novelty that covers *Ruanguji* as a local application, and its focus on the users' cognitive, affective, and behavioral attitude. Therefore, this research aims mainly to identify and elaborate the students' attitudes toward *Ruanguji*. It concerns with their cognitive, affective, and behavioral attitude towards *Ruanguji*; and whether their attitude is positive or negative.

2. Materials and methods

The study uses a qualitative approach because it relies on verbal data that does not need any statistics to analyze. It adopts an explanatory case study design that elaborates the students' attitude towards *Ruanguji*. The study engages 225 junior high school students in Tangerang Banten Indonesia who enrolled as users of *Ruanguji*. Its primary data are their perceptions on the attitude objects gathered using a Likert-type five scale attitude questionnaire comprising 19 items or statements. It is designed under the theory of a multi-component model consisting of cognitive, affective, and behavioral aspects (Haddock, Maio, 2019). Each item contains a statement of an attitude object and five options, namely strongly disagree (SD), disagree (D), neutral (N), agree (A), and strongly agree (SA). The questionnaire is distributed using Google Form to help the respondents access it easily in their homes. The collected data then are analyzed qualitatively under one-dimensional perspective of attitudes stating that the positive and negative elements are stored in memory at opposite ends of a single dimension, and people experience either end of the dimension or a location in between as illustrated in Figure 1 (Maio et al., 2019).

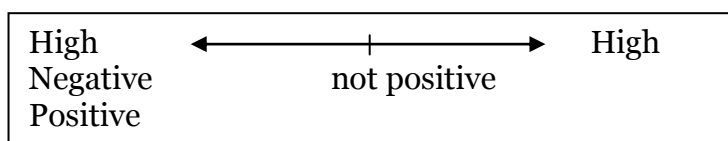


Fig. 1. One-dimensional Perspective of Attitude

3. Discussion

Using the data gathered by the questionnaire, the researchers can present the discussion of cognitive, affective, and behavioral components that construct the students' whole attitude towards *Ruanguji*. The cognitive attitude in this study concerns more with the students' opinion on *Ruanguji* after they have experienced using the application. These include its test layout and appearance, access flexibility, test content, its role, and benefits the students can get. The students' responses towards the cognitive component of attitude are available in Table 1.

Table 1. Students' Responses towards Cognitive Component

No	Statement	Responses				
		SD	D	N	A	SA
1	Ruanguji plays as a supplementary/supporting assessment media for its users.	0 %	0 %	0 %	30 %	70 %
2	Ruanguji offers more flexible access than other computer-based tests.	0 %	11 %	23 %	43 %	23 %
3	Ruanguji contains tests that have better lay out and appearance than paper-based tests do.	0 %	13 %	20 %	53 %	14 %
4	Ruanguji contains tests that have similar quality to the school made tests.	0 %	0 %	27 %	60 %	13 %
5	Ruanguji helps its users to keep motivated to take the tests.	0%	0 %	13 %	40 %	47 %
6	Ruanguji can enhance its users' self-confidence in attending the tests.	0 %	7 %	20 %	60 %	13 %
7	Ruanguji helps its users to improve their scores on the subjects they take at schools.	0 %	0 %	27 %	40 %	33 %
8	Ruanguji helps its users to have their learning activities well planned and organized.	0 %	0 %	33 %	47 %	20 %
	Average	0 %	4 %	20 %	47 %	29 %

Referring the students' responses to the cognitive component items as seen in Table 1, the researchers can elaborate their perception of using *Ruanguji*. As showed by their responses to statement one, 30 % of them agree and 70 % of them strongly agree that *Ruanguji* plays as a supplementary assessment media for them. Using *Ruanguji*, they can attend test simulations that

are identical to the tests they get at schools. They can learn the feedback and item discussion about how to identify the problems and seek the most possible answer. So that they are accustomed to identifying the intended responses and answers effectively. They can know to what extent they have mastered the learning materials and achieved the learning outcome by taking the test simulation available in *Ruanguji*. As a supplementary assessment media, *Ruanguji* contributes to the student's success in their learning. This finding is in line with the study by O. Ozer and F. Kılıç (Ozer, Kılıç, 2018) revealing that the acceptance of mobile technology, like MBA has influenced the students' learning achievement both directly and indirectly.

As a supplementary assessment media, *Ruanguji* should be armed with flexible access that helps the students to explore testing and assignment materials. About the flexible access, the study prepares statement two the students to respond. From the total responses, 11 % of them disagree, 43 % of them agree, and 23 % of them strongly agree that *Ruanguji* can be accessed more flexibly than computer-based tests. Although both used information and communication technology (ICT), *Ruanguji* is more flexible because its users can access through their smart phones whenever and wherever. This finding confirms a previous study revealing that MBA is more innovative, efficient, and thorough than others (Ningsih et al., 2022; Zubanova et al., 2021). In addition, it confirms another study highlighting that flexibility and capability of mobile phones make them valuable tools even for high stakes testing (Lestary, 2020), like university entrance test, national examination, a scholarship selection, or a license to practice a profession. In connection to its flexibility, the study reveals that *Ruanguji* provides tests which have better layout and appearance than paper-based tests. It is known from the students' responses to statement three, inclining more to 'agree' (53 %) and 'strongly agree' (14 %). It is because *Ruanguji* makes uses of ICT to present its tests embedded by pictures, videos, and other media that their appearance become more attractive. It is also consistent with the previous study showing that MBA is more attractive because questions are augmented with pictures, clues, and explanations (Alharbi, Meccawy, 2020).

Besides the layout and appearance, *Ruanguji* also pays attention to the test quality, which is known from the students' responses to statement four. 60 % of them agree and 13 % of them strongly agree that *Ruanguji* provides its users with the tests that have similar quality to those that the schools make; while the rest of them (27 %) do not decide yet. What the students find in *Ruanguji* teaches them how to identify the problems the items questioned in objective or subjective test types. They also learn how to determine the most correct option or answer for multiple or short-answer test; or to explain the answer and description for the essay type of tests. As they learn how to respond to the tests available in *Ruanguji*, they find it easy to do the real tests at schools. This finding is consistent with the previous research finding pointing out that the familiarity with the similar test type decrease the psychological and technical burdens in the real tests (Suzani, 2021). It implies that taking-test experiences helps the students cope with psychological burdens, like anxiety or worry; and technical burdens, like time management in doing the tests.

As a MBA, *Ruanguji*, provides its users with benefits and advantages to promote their learning and testing activities. Although there are benefits that test applications can offer, the research only focuses on the important ones. They include the students' high motivation, self-confidence, self-directed learning, and test score improvement. Motivation is one of the psychological aspects that influences the students' success in their learning. There are internal and external factors that contribute significantly to the increase or decrease of their motivation, one of them is the use of a MBA in learning and assessment. That is why the study also focuses on the impact of *Ruanguji* on the students' motivation to attend the test by preparing statement five. Responding to this statement, 13 % of the students do not decide; while, 40 % of them agree and 47 % of them strongly agree that *Ruanguji* helps them to become more highly motivated to keep finishing the tests and other assignments. It is because the MBA places them in more joyful situation that they feel motivated to do the tests happily. What the study finds out is in line with the previous study that highlights the importance of MBA to sustain the students' motivation that influences their learning success (Rassaei, 2021). Motivation is an essential factor frequently used in explaining why some students perform better than others in their learning. It also determines the degree of effort and struggle which students spend at various stages in their learning.

Related to motivation is their self-confidence influenced by various factors, like availability of applications, or their habit of using the ICT. Apparently, the study shows that *Ruanguji* can enhance the students' self-confidence in taking the tests as evidenced by their responses' distribution to statement six (D = 7 %; N = 20 %; A = 60 %; SA = 13 %). Using MBA enhances

efficiency and ease in responding to test items, and provides the real time scores and feedback. So that they can identify their potential by analyzing their strengths and weaknesses; and determining supporting and non-supporting factors. As the students get such experiences individually, their self-confidence increases significantly. This finding is consistent with a previous study pointing out that the MBA is one factor that enhances of the students' self-confidence in their learning activity (Lin et al., 2019). It is also what V. Persson and J. Nouri (Persson, Nouri, 2018) infer that there is a relationship between the use of technology and self-confidence. Self-confidence increases or decreases along with the students' experiences in using any applications to support their learning and testing activities. If they find it easy and enjoyable doing learning activities and assignments, they must be more confident in achieving learning outcomes or targets. Another research reports that self-confidence is one of factors that allow someone to move forward and achieve his/her goal (Ghasemi et al., 2020; Hava, 2021). To achieve even the smallest goals, the students must have a self-confidence. Obviously, *Ruanguji* can help the students enhance their self-confidence in attending the tests administered both in the application and at schools.

Another benefit *Ruanguji* offers to its users is the score improvement of subjects tested at schools as shown by the students' responses distribution to statement seven. Evidently, 27 % of them does not decide; while, 40 % of them agree and 33 % of them strongly agree that *Ruanguji* enables them to get a higher score on tested subjects at schools. Their scores of tested subjects increase because they have already been familiar with the test types and items discussion available in *Ruanguji*. They are accustomed to identifying problems of test items, to managing time answering the questions, or to effectively retrieving the stored information. They become more focused on doing the tests and performing assignments and task correctly. As they have performed well in their tests, they can get the higher scores. This shows that *Ruanguji* can help them increase the scores of the tested subjects at schools. This finding is not different from the previous study stating that there is a positive effect on students' test score and exam pass rates after an online self-assessment test is introduced (Rezaee et al., 2020).

The ability to plan and organize the study is the last benefit the students get from *Ruanguji*. It is measured by statement eight stating whether *Ruanguji* helps them to have their learning activities well planned and organized. Although 33 % of the students do not have any decision on it, 33 % of them agree and 20 % of them strongly agree that *Ruanguji* enables them to plan and organize their learning activities well as they get more flexibility in attending the testing service application. They access *Ruanguji* asynchronously that they can attend all tests if they feel convenient. Therefore, they have times to manage more efficiently to engage all learning activities at schools; and avoid having activities to happen coincidentally. They can still put school programs and activities as their top priority to do. This means that flexibility in attending tests in *Ruanguji* enables them to organize their school learning activities as well. What the current study reveals is like the finding of previous research pointing out that MBA could help the students to organize their learning activities more efficiently (Barrett et al., 2021).

The second component of attitude discussed in the study is affective one. It concerns with the students' feeling and emotion associated with *Ruanguji* after having experiences using it. These comprise like, satisfaction, anxiety, and challenge for the application. The students' responses towards the affective component of attitude are available in Table 2.

Table 2. Students' Responses towards Affective Component

No	Statement	Responses				
		SD	D	N	A	SA
1	I like to use Ruanguji because of its mobile compatibility feature.	0 %	0 %	14 %	53 %	33 %
2	I am satisfied with Ruanguji's connection and fast load of times.	0 %	3 %	7 %	50 %	40 %
3	I feel comfortable and excited about doing the school's tests and assignments using Ruanguji.	0 %	0 %	15 %	44 %	41 %
4	I do not feel anxious doing tests and national examination simulation in Ruanguji	0 %	6 %	17 %	60 %	17 %
5	I am challenged to do many test forms available in	0 %	0 %	7 %	53 %	40 %

	Ruanguji.					
	Average	0 %	2 %	12 %	52 %	34 %

Using the information available in [Table 2](#), the researchers can explicate the students' affective perception of *Ruanguji* after having used the application. Based on statement nine's responses distribution, 14 % of the students do not decide; while, 53 % of them agree and 33 % of them strongly agree that they prefer using *Ruanguji* to other testing application because of its mobile compatibility. It is about how an online resource can be accessed using mobile phones and personal computers. It offers the students a better interface that enables them to access testing materials, testing simulations, and test items discussion. In addition, all instruction to reach its features uses Indonesian language that makes the access to its features becomes more effective. The finding is consistent with a previous study pointing out that online learning platform should not be limited to personal computer but compatible with smartphones ([Qu et al., 2022](#)). For online assessment, like *Ruanguji*, mobile compatibility becomes one of the important user-friendliness to attract its users to access from their smartphones. They also want fast load times when they visit online applications as another characteristic a user-friendly platform should fulfill. About this characteristic, using the data of statement ten, the study reveals that 50 % of the students agree, and 40 % of them strongly agree that they are satisfied with *Ruanguji's* fast load times. If an application cannot fulfill this characteristic, its users must leave it. This is what a previous study highlights that due to lack of user-friendliness, including fast load times, students tend to not use online resources much ([Rahim, Sandaran, 2020](#)). Therefore, it can be understood that students like to use mobile application because they find it convenient and user-friendly ([Alghamdi, Shah, 2018](#)). They are more satisfied with mobile application than those without it ([Zhonggen et al., 2019](#)). Therefore, the MBA, like *Ruanguji* should care with fast load times as a part of user-friendliness to help the students access learning and testing materials more conveniently.

Another affective component that the study investigates concerns with comfort the students feel. As shown by statement eleven's responses distribution, 44 % of them agree and 41 % of them strongly agree that they feel comfortable and excited about doing school's assignments using *Ruanguji*. They do assignments conveniently with no pressure from their peers as they experienced at schools; and are more enthusiastic about finishing them. Feeling comfortable and excited enables the students to retrieve stored information or knowledge necessary to answer the questions or doing the assignments. What the current study points out is in line with the finding of a study showing that a MBA places its users in a peaceful situation or comfort ([Gao, Shen, 2021](#)). Complementarily, the students do not either feel anxious when they do tests and national examination simulation in *Ruanguji*. They do not feel disturbed by their peers asking to do some cheating and dishonest in answering the questions. They do not even worry about the scores because they can take another similar test in other opportunities. That they do not feel anxious is evidenced by their responses to statement twelve. Though 17 % of the students do not decide, 60 % of them agree and 17 % of them strongly agree that they do not feel anxious doing the tests in *Ruanguji*. This supports the previous study showing that using mobile application contributes to reduce its users' anxiety in learning activities, including doing tests and assignments ([Kacatl, Klimova, 2019](#)).

The last affective attitude the study investigates is about the students' being challenged to do many test forms, as shown by statement thirteen. It seems 53 % of them agree and 40 % of them strongly agree that they are challenged to do many test forms available in *Ruanguji*. It is because its features help them cope with the difficulties in completing the tests with more alternatives. This finding confirms the previous study pointing out that the students are challenged to creatively cope with currently real-world issues by the help of mobile application ([Imelda et al., 2019](#)). In addition, its features do not either make them bored spending a longer period to complete the tests. Similarly, Chi-Jen Lin and colleague ([Lin et al., 2018](#)) and Bacca-Acosta and Avila-Garzon ([Bacca-Acosta, Avila-Garzon, 2021](#)) in their research reveal that students endure for longer periods of time when they do the tests and assignments using MBA.

The third component of attitude in this study is behavioral one. It is about actions the students have done or might do in the future regarding *Ruanguji* as an attitude object. It covers making uses of the application, doing tests and national examination simulations, learning feedback, and other supplementary materials. The students' responses towards the behavioral component of attitude are presented in [Table 3](#).

Table 3. Students' Responses towards Behavioral Component

No	Statement	Responses				
		SD	D	N	A	SA
1	I will be a licensed user of Ruanguji if I afford to pay the charge.	0 %	7 %	13 %	40 %	30 %
2	I will take a test in Ruanguji if I have leisure time	0 %	6 %	7 %	56 %	31 %
3	When I am visiting Ruanguji I will try to do more test forms my assignments.	0 %	7 %	11 %	50 %	32 %
4	I have taken national examination simulations in Ruanguji before attending the real tests.	0 %	0 %	14 %	46 %	40 %
5	I learn item feedback and discussion videos in Ruanguji to cope with difficulties in my tests.	0 %	0 %	5 %	58 %	37 %
6	Besides the testing service, I have learned other supplementary materials available in Ruanguji.	0 %	7 %	9 %	48 %	36 %
	Average	0 %	4 %	9 %	52 %	35 %

The students' responses towards statement fourteen are distributed mainly into three options. 7 % of the disagree and 13 % of the them do not decide whether they will be licensed users if they afford to pay the charge. While, 33 % of them agree and 30 % of them strongly agree that they will be licensed users if they afford to pay the charge. This implies that majorly they care about getting licensed membership or premium access to get more advantages in preparing themselves to attend national examinations. Getting premium access becomes their priority if they have financial support from their parents because they know how important this application is for their success in examination. In addition, the comfort that *Ruanguji* provides for its users also triggers them to get premium access. This is consistent with what the previous study founding out that learning and doing assessment become more convenient and easier when they have premium account to access the application (Hegarty, Thompson, 2019).

How they use *Ruanguji* if they have a premium account is understood from their responses towards statement fifteen. 56 % of them agree and 31 % of them strongly agree that they use this application if they have leisure time. It means that they do not set any definite time to use it because they still have regular classes at schools. So, a more flexible schedule after having regular classes becomes their choice. They do not either have any burdens to accomplish because it functions to support their learning. About this finding, a previous study has identified that the students like to use learning application which they can carry and access in their preferred time and place (Klimova, Polakova, 2020). They use it to reinforce what they have learned at schools by doing available tests and assignments in *Ruanguji*. They then become more motivated to engage in learning and testing resources and develop individual learning goals, like passing from national examination (Hasan et al., 2021). If they are highly motivated, they must be more curious about learning materials that will be tested, and doing various types of test and assignments. According to the students' responses to statement sixteen, some of them disagree (7 %) and some of them (11 %) do decide their option. However, 50 % of them agree and 32 % of them strongly agree that they will do more assignments and take various types of tests when visiting *Ruanguji*. They are engaged with more test types because they want to get more experience in doing tests and more be familiar with test items.

In their research, M.M. Asad and his colleague (Asad et al., 2021) mention that electronic assessment usually contains various forms of assessments, including collaborative approach-based assessment, interactive assessment, portfolios, and group projects for its users to access. Such forms of assessment open its users' perspective on how to attend the national examination. That is why it is necessary for the students to take national examination simulation that *Ruanguji* offers to help them realize the test types, test materials, item types, and item difficulty. If they are well acquainted with test simulation content, they will feel comfortable attending the real examination. That the students take the test simulations is evidenced by their responses towards statement seventeen. 46 % of them agree and 40 % of them strongly agree that they have taken national examination simulation in *Ruanguji* before taking the real tests; 14 % of them do not decide. It also shows that taking test simulations makes their self-confidence increases.

Their self-confidence can increase if they get real time feedback on the incorrect response to the questions or from a video discussion about the testing materials. This feedback helps them cope with the difficulties they have got or will get in finishing the tests. It is what statement eighteen unveils based on their responses to it. It is known, 58 % of the students agree and 37 % of them strongly agree that they learn something from the feedback and get new insights as solution for the problems. Similarly, recent research also highlights the importance of assessment feedback for the students to identify their weaknesses (Hung, 2019). Feedback becomes an effective way helping the students promote their learning and pass in the exams. However, they still need other supplementary learning materials because the feedback only concerns with the difficulties the students get in the test. Other learning materials become necessary for them to enrich their knowledge and skills and be ready to enter the national examination.

In this study, the students have already accessed other supplementary learning materials in *Ruanguji* as shown by their responses towards statement nineteen. 48 % of them agree and 36 % of them strongly agree that they have learned other learning materials. They focus not only on testing materials, but they also explore all *Ruangguru's* learning services, like *ruangguru* private (individual learning with the best teacher), *roboguru* (discussing difficult assignment with the best tutor), *ruangbelajar* (learning from video resources), or *ruangkelas* (free distance learning). So, they must find a solution if they get a problem in their tests. This is in line with the previous study asserting that, with the support of mobile devices, students can access various learning materials (Shadiev et al., 2020). Similarly, F. Rosell-Aguilar (Rosell-Aguilar, 2018) in his research also acknowledges the students could improve their knowledge and skills through mobile learning resources they access.

4. Results

Regarding the discussion of the data available in Table 1-3, the study uncovers two important results, namely the content of their attitude and the attitude valence (positivity versus negativity). The students' attitude content is seen from the concept of a multi-component model conceptualizing attitude as summary evaluations that have affective, cognitive and behavioral components (Haddock, Maio, 2019). Using this concept, the researchers can assert that the students' attitude towards *Ruanguji* comprises cognitive, affective, and behavioral attitude with different degree. The degree of each component is determined by their intension of experience, emotion, and cognition. For example, if they experience more using *Ruanguji*, their behavioral attitude will be greater than another two attitudes. However, it does not inhibit the existence of both cognitive and affective attitudes; they together make up their attitude towards *Ruanguji*.

Complementarily, to explain their attitude valence (positivity versus negativity), the study uses one dimension perspective. It postulates that the positive and negative elements are stored in memory at apposite ends of a single dimension, and people experience either the end of the dimension or a location in between (Maio et al., 2019). This means if the students' total responses accumulate in the area between the center and the right end (or agree and strongly agree), they must have a positive to high positive attitude. Contrarily, if their responses incline to the area between the center and the left end (or disagree and strongly disagree), they must have a negative to high negative attitude. While if their responses gather in the center, they must have no negative nor positive attitude. As the students' average responses towards the cognitive component (SD= 0%, D= 4 %, N= 20 %, A= 47 %, SA= 29 %) congest in the area between the center and right end, the researchers can claim that they have a positive cognitive attitude towards *Ruanguji*. This cognitive attitude shows that they are eager to accept innovation in learning activities, like the use of MBA. In short, the students have a positive cognitive attitude towards the use of mobile devices as learning tools, including *Ruanguji*, if they have experienced using the application (Tra, 2020).

Similarly, for the affective attitude, the study reveals the students' average responses (SD=0%, D=2 %, N=22 %, A=52 %, SA=34 %) get together in the area between the center and the right end. This means they have a positive affective attitude towards *Ruanguji*; and, to some extent their cognitive attitude determines it. The higher the students' cognitive attitude, the higher their affective attitude will be. This means the students' engagement with *Ruanguji* is expressed as like, preferences, satisfaction, or pleasure with it. For example, they prefer to use *Ruanguji* after they have experienced using some mobile assessment application. They use it because it has interesting features, like a user-friendliness, usability, or portability that become determinant factors of their positive

affective attitude. This result is consistent with the previous studies revealing that the students' positive affective is influenced by the applications' interesting features (Haleman, Yamat, 2021).

While, for the behavioral attitude the students' average responses (SD= 0 %, D= 4 %, N= 9 %, S= 52 %, and SA= 35 %) fall in the area between the center and the right end showing that they have the positive behavioral attitude towards *Ruanguji*. The behavioral attitude is about actions that the students have done or will do. The students will use a mobile based learning application, like MBA if they have experienced using it, and get more advantages to promote their knowledge and skills. Otherwise, if they do not experience well and get benefits, they will not use any applications. (Mun, 2018). They learn knowledge and skills conventionally with no technological support, and they do not use modern tools either when taking the assessments.

As the students have a positive attitude cognitively, affectively, and behaviorally towards *Ruanguji*, the study can claim that wholly they have a positive attitude towards this application. Their positive attitude is determined by many internal and external factors. Internally, its positivity is influenced by, for example, their experience, preferences, emotion, or perception of it. Externally, its positivity depends on its user-friendliness, like the ease and speed of access. Their positive attitude also contributes to their success or failure in their study. The higher their positive attitude towards *Ruanguji*, the more efforts they do to reach their target, and the bigger their opportunity to succeed in their examinations (Botero et al., 2018; Mukhallafi, 2018; Yarahmadzahi, Goodarzi, 2020).

5. Conclusion

The study aims to identify the students' attitude towards *Ruanguji* offering its users assignments and test simulations for national examination in Indonesia. Both discussion and result lead the researchers to draw some conclusion. Simultaneously, the cognitive, affective, and behavioral components construct the students' attitude towards *Ruanguji*. It is a positive attitude that sees *Ruanguji* as the supplementary media to face the national examination in Indonesia's secondary education. Their positive attitude impedes the occurrence or existence of their negative attitude towards this application. The domination of the positive attitude over the negative one enhances their intention to use the application, prepare and arm themselves with the quality test simulations. Therefore, maintaining the positive attitude in their memory becomes necessary by considering internal and external influential factors.

Besides the conclusions, the study also addresses recommendations for further studies. Those who are interested in the same topic can conduct studies with the different focuses, like research design, respondents, level of education, interdisciplinary or transdisciplinary perspective. A study using correlational designs can be conducted to determine the relationship between the attitude and cognitive abilities. Experimental designs can also be done to know the influence of attitude on other variables, like performance and psychomotor ability. Other researchers can conduct similar studies in primary or higher education involving more learners and teachers as the participants.

References

- Alghamdi, Shah, 2018 — Alghamdi, E.A., Shah, S.R. (2018). Exploring the effects of mobile-based audience response system on EFL students' learning and engagement in a fully synchronous online course. *International Journal of English Linguistics*. 8(3): 92-100. DOI: <https://doi.org/10.5539/ijel.v8n3p92>
- Alharbi, Meccawy, 2020 — Alharbi, A.S., Meccawy, Z. (2020). Introducing socrative as a tool for formative assessment in saudi EFL classrooms. *Arab World English Journal*. 11(3): 372-384. DOI: <https://doi.org/10.24093/awej/vol11no3.23>
- Asad et al., 2021 — Asad, M.M., Khan Soomro, R.B., Shamsy, A., Churi, P. (2021). Students' satisfaction towards e-assessment for academic achievement in ESL at public schools and colleges. *Education Research International*: 1-10. DOI: <https://doi.org/10.1155/2021/4576750>
- Bacca-Acosta, Avila-Garzon, 2021 — Bacca-Acosta, J., Avila-Garzon, C. (2021). Student engagement with mobile-based assessment systems: a survival analysis. *Journal of Computer Assisted Learning*. 37(1): 158-171. DOI: <https://doi.org/10.1111/jcal.12475>
- Barrett et al., 2021 — Barrett, N.E., Liu, G-Z., Wang, H-C. (2021). Student perceptions of a mobile learning application for English oral presentations: The case of EOPA. *Computer Assisted Language Learning*: 1-26. DOI: <https://doi.org/10.1080/09588221.2021.1881975>

- Botero et al., 2018** — Botero, G.G., Questier, F., Cincinnato, S., He, T., Zhu, C. (2018). Acceptance and usage of mobile assisted language learning by higher education students. *Journal of Computing in Higher Education*. 30(3): 426-451. DOI: <https://doi.org/10.1007/s12528-018-9177-1>
- Buczek-Zawila, 2021** — Buczek-Zawila, A. (2021). Catering to assessment needs of students of English — call to the rescue? *Teaching English with Technology*. 21(2): 38-65.
- Correa et al., 2020** — Correa, T., Pavez, I., Contreras, J. (2020). Digital inclusion through mobile phones?: A comparison between mobile-only and computer users in internet access, skills and use. *Information, Communication & Society*. 23(7): 1074-1091. DOI: <https://doi.org/10.1080/1369118X.2018.1555270>
- Devara, Usman, 2016** — Devara, B., Usman, I. (2016, July 22). *Sukses PTS, PAS, dan UTBK dengan ruanguji*. Ruangguru. [Electronic resource]. URL: <https://www.ruangguru.com/ruanguji>
- Eagly, Chaiken, 1993** — Eagly, A.H., Chaiken, S. (1993). *The psychology of attitudes*. Harcourt Brace Jovanovich College Publishers: xxii, 794 [Electronic resource]. URL: <https://psycnet.apa.org/record/1992-98849-000>
- Ebadi, Bashir, 2021** — Ebadi, S., Bashir, S. (2021). An exploration into EFL learners' writing skills via mobile-based dynamic assessment. *Education and Information Technologies*. 26(2): 1995-2016. DOI: <https://doi.org/10.1007/s10639-020-10348-4>
- Gao, Shen, 2021** — Gao, C., Shen, H. (2021). Mobile-technology-induced learning strategies: Chinese university EFL students learning English in an emerging context. *ReCALL*. 33(1): 88-105. DOI: <https://doi.org/10.1017/S0958344020000142>
- Getie, 2020** — Getie, A.S. (2020). Factors affecting the attitudes of students towards learning English as a foreign language. *Cogent Education*/ 7(1): 1-37. DOI: <https://doi.org/10.1080/2331186X.2020.1738184>
- Ghasemi et al., 2020** — Ghasemi, A.A., Ahmadian, M., Yazdani, H., Amerian, M. (2020). Towards a model of intercultural communicative competence in Iranian EFL context: testing the role of international posture, ideal L2 self, L2 Self-confidence, and metacognitive strategies. *Journal of Intercultural Communication Research*. 49(1): 41-60. DOI: <https://doi.org/10.1080/17475759.2019.1705877>
- Haddock, Maio, 2012** — Haddock, G., Maio, G.R. (2012). Attitude. In: Hewstone, M., Stroebe, W., Jonas, K. (eds.), *An introduction to social psychology*. Wiley: 171-200.
- Haddock, Maio, 2019** — Haddock, G., Maio, G.R. (2019). Inter-individual differences in attitude content: cognition, affect, and attitudes. In: Olson, J.M. (ed.). *Advances in Experimental Social Psychology*. 59: 53-102. Academic Press. DOI: <https://doi.org/10.1016/bs.aesp.2018.10.002>
- Haleman, Yamat, 2021** — Haleman, K.N., Yamat, H. (2021). The acceptance of e-learning among ESL primary school students during covid-19. *Journal of English Language Teaching and Applied Linguistics*. 3(1): 8-18. DOI: <https://doi.org/https://doi.org/10.32996/jeltal.2021.3.1.2>
- Hasan et al., 2021** — Hasan, M., Islam, A.B.M.S., Shuchi, I.J. (2021). Using mobile-based formative assessment in ESL/EFL speaking. *Journal of Languages and Language Teaching*. 9(1): 117-125. DOI: <https://doi.org/10.33394/jollt.v9i1.3449>
- Hava, 2021** — Hava, K. (2021). Exploring the role of digital storytelling in student motivation and satisfaction in EFL education. *Computer Assisted Language Learning*. 34(7): 958-978. DOI: <https://doi.org/10.1080/09588221.2019.1650071>
- Hegarty, Thompson, 2019** — Hegarty, B., Thompson, M. (2019). A teacher's influence on student engagement: using smartphones for creating vocational assessment e-portfolios. *Journal of Information Technology Education: Research*. 18: 113-159. DOI: <https://doi.org/10.28945/4244>
- Hung, 2019** — Hung, Y. (2019). Bridging assessment and achievement: Repeated practice of self-assessment in college English classes in Taiwan. *Assessment & Evaluation in Higher Education*. 44(8): 1191-1208. DOI: <https://doi.org/10.1080/02602938.2019.1584783>
- Imelda et al., 2019** — Imelda, I., Cahyono, B., Astuti, U. (2019). Effect of process writing approach combined with video-based mobile learning on Indonesian EFL learners' writing skill across creativity levels. *International Journal of Instruction*. 12: 325-340. DOI: <https://doi.org/10.29333/iji.2019.12320a>
- Kacetl, Klimova, 2019** — Kacetl, J., Klimova, B. (2019). Use of smartphone applications in English language learning — a challenge for foreign language education. *Education Sciences*. 9(3): 1-9. DOI: <https://doi.org/10.3390/educsci9030179>

- Karthikeyan et al., 2022** — *Karthikeyan, J., Chong, S. ., Barman, B.* (2022). Integrating mobile applications ICT and digital tasks through online English language classrooms. In: Bindhu, V., Tavares, J.M.R.S., Du, K-L. (eds.). *Proceedings of Third International Conference on Communication, Computing and Electronics Systems* Springer: 273-288. DOI: https://doi.org/10.1007/978-981-16-8862-1_19
- Klimova, Polakova, 2020** — *Klimova, B., Polakova, P.* (2020). Students' perceptions of an EFL vocabulary learning mobile application. *Education Sciences*. 10(2): 1-8. DOI: <https://doi.org/10.3390/educsci10020037>
- Lestary, 2020** — *Lestary, S.* (2020). Perceptions and experiences of mobile-assisted language learning for IELTS preparation: a case study of Indonesian learners. *International Journal of Information and Education Technology*. 10(1): 67-73. DOI: <https://doi.org/10.18178/ijiet.2020.10.1.1341>
- Lin et al., 2018** — *Lin, C-J., Hwang, G-J., Fu, Q-K., Chen, J-F.* (2018). A flipped contextual game-based learning approach to enhancing EFL students' English business writing performance and reflective behaviors. *Journal of Educational Technology & Society*. 21(3): 117-131.
- Lin et al., 2019** — *Lin, Y-N., Hsia, L-H., Sung, M-Y., & Huang, G-H.* (2019). Effects of integrating mobile technology-assisted peer assessment into flipped learning on students' dance skills and self-efficacy. *Interactive Learning Environments*. 27(8): 995-1010. DOI: <https://doi.org/10.1080/10494820.2018.1461115>
- Lin, 2019** — *Lin, J-J., Lin, H.* (2019). Mobile-assisted ESL/EFL vocabulary learning: a systematic review and meta-analysis. *Computer Assisted Language Learning*. 32(8): 878-919. <https://doi.org/10.1080/09588221.2018.1541359>
- Maio et al., 2019** — *Maio, G.R., Haddock, G., Verplanken, B.* (2019). The psychology of attitudes and attitude change. 3rd ed.. Sage.
- Mukhallafi, 2018** — *Mukhallafi, T.R.A.* (2018). Attitudes and usage of MALL among saudi university EFL Students. *International Journal of English Linguistics*. 9(1): 407-420. DOI: <https://doi.org/10.5539/ijel.v9n1p407>
- Mun, 2018** — *Mun, C.* (2018). A study of EFL college students' acceptance of mobile-based listening assessment. *STEM Journal*. 19(3): 109-126. <https://doi.org/10.16875/stem.2018.19.3.109>
- Mwantimwa, 2019** — *Mwantimwa, K.* (2019). Use of mobile phones among agro-pastoralist communities in Tanzania. *Information Development*. 35(2): 230-244. DOI: <https://doi.org/10.1177/0266666917739952>
- Ningsih et al., 2022** — *Ningsih, S.K., Suherdi, D., Purnawarman, P.* (2022). Secondary school teachers' perceptions of mobile technology adoption in English as a foreign language learning: trends and practices. *International Journal of Education and Practice*. 10(2): 160-170. DOI: <https://doi.org/10.18488/61.v10i2.3004>
- Öz, Özturan, 2018** — *Öz, H., Özturan, T.* (2018). Computer-based and paper-based testing: does the test administration mode influence the reliability and validity of achievement tests? *Journal of Language and Linguistic Studies*. 14(1): 67-85. [Electronic resource]. URL: <https://dergipark.org.tr/en/pub/jlls/issue/43213/527697>
- Ozer, Kılıç, 2018** — *Ozer, O., Kılıç, F.* (2018). The effect of mobile-assisted language learning environment on EFL students' academic achievement, cognitive load and acceptance of mobile learning tools. *Eurasia Journal of Mathematics, Science and Technology Education*. 14(7): 2915-2928. DOI: <https://doi.org/10.29333/ejmste/90992>
- Persson, Nouri, 2018** — *Persson, V., Nouri, J.* (2018). A systematic review of second language learning with mobile technologies. *International Journal of Emerging Technologies in Learning (IJET)*. 13(02): 188-210. DOI: <https://doi.org/10.3991/ijet.v13i02.8094>
- Qu et al., 2022** — *Qu, L., Song, S., Xiao, Z.* (2022). Construction of the EFL mobile learning model in the hybrid distributed terminal. *Security and Communication Networks* 1-10. DOI: <https://doi.org/10.1155/2022/4429174>
- Rahim, Sandaran, 2020** — *Rahim, M.N., Sandaran, S.C.* (2020). EFL teachers' perceptions of the barriers and opportunities for implementing e-learning at Afghanistan universities. *Universal Journal of Educational Research*. 8(11C): 97-104. DOI: <https://doi.org/10.13189/ujer.2020.082311>
- Rassaei, 2021** — *Rassaei, E.* (2021). Implementing mobile-mediated dynamic assessment for teaching request forms to EFL learners. *Computer Assisted Language Learning*: 1-31. DOI: <https://doi.org/10.1080/09588221.2021.1912105>

Rezaee et al., 2020 — Rezaee, A.A., Alavi, S.M., Razzaghifard, P. (2020). Mobile-based dynamic assessment and the development of EFL students' oral fluency. *International Journal of Mobile Learning and Organization*. 14(4): 511-532. DOI: <https://doi.org/10.1504/IJMLO.2020.10030691>

Rosell-Aguilar, 2018 — Rosell-Aguilar, F. (2018). Autonomous language learning through a mobile application: A user evaluation of the busuu app. *Computer Assisted Language Learning*. 31(8): 854-881. DOI: <https://doi.org/10.1080/09588221.2018.1456465>

Schwabe et al., 2021 — Schwabe, A., Brandl, L., Boomgaarden, H.G., Stocker, G. (2021). Experiencing literature on the e-reader: the effects of reading narrative texts on screen. *Journal of Research in Reading*. 44(2): 319-338. DOI: <https://doi.org/10.1111/1467-9817.12337>

Shadiev et al., 2020 — Shadiev, R., Liu, T., Hwang, W-Y. (2020). Review of research on mobile-assisted language learning in familiar, authentic environments. *British Journal of Educational Technology*. 51(3): 709-720. DOI: <https://doi.org/10.1111/bjet.12839>

Suzani, 2021 — Suzani, S.M. (2021). Investigating the effect of podcasting on Iranian senior undergraduate TEFL students' listening comprehension improvement and motivation. *The Asia-Pacific Education Researcher*. 30(5): 395-408. DOI: <https://doi.org/10.1007/s40299-020-00526-w>

Ting, Tan, 2021 — Ting, F.K., Tan, K.H. (2021). Enhancing English language vocabulary learning among indigenous learners through google translate. *Journal of Education and E-Learning Research*. 8(2): 143-148.

Tra, 2020 — Tra, P.T. (2020). Mobile-assisted language learning in a university context in Vietnam: Students' attitudes. *VNU Journal of Foreign Studies*. 36(1): 103-116. DOI: <https://doi.org/10.25073/2525-2445/vnufs.4502>

Yarahmadzahi, Goodarzi, 2020 — Yarahmadzahi, N., Goodarzi, M. (2020). Investigating the role of formative mobile based assessment in vocabulary learning of pre-intermediate EFL learners in comparison with paper based assessment. *Turkish Online Journal of Distance Education*. 21(1): 181-196. DOI: <https://doi.org/10.17718/tojde.690390>

Yeom, Jun, 2020 — Yeom, S., Jun, H. (2020). Young Korean EFL learners' reading and test-taking strategies in a paper and a computer-based reading comprehension tests. *Language Assessment Quarterly*. 17(3): 282-299. DOI: <https://doi.org/10.1080/15434303.2020.1731753>

Yu, Iwashita, 2021 — Yu, W., Iwashita, N. (2021). Comparison of test performance on paper-based testing (PBT) and computer-based testing (CBT) by English-majored undergraduate students in China. *Language Testing in Asia*. 11(1): 1-21. DOI: <https://doi.org/10.1186/s40468-021-00147-0>

Zhonggen et al., 2019 — Zhonggen, Y., Ying, Z., Zhichun, Y., Wentao, C. (2019). Student satisfaction, learning outcomes, and cognitive loads with a mobile learning platform. *Computer Assisted Language Learning*. 32(4): 323-341. DOI: <https://doi.org/10.1080/09588221.2018.1517093>

Zubanova et al., 2021 — Zubanova, S., Didenko, E., Karabulatova, I. (2021). Location-based mobile learning system facilitating English learning. *Interactive Learning Environments*: 1-17. DOI: <https://doi.org/10.1080/10494820.2021.1983609>