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Measuring Emotional Intelligence of Islamic Higher Education Students: A Factor Analysis Approach

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Abstract

According to many studies, emotional intelligence is a crucial factor that can contribute to the success of the academic and non-academic domains. This research aimed to assess the emotional intelligence of Islamic students in higher education. The participants in this research were 151 Islamic higher education students. The researcher employed the survey technique with Likert scale parameters. This research empirically states that 39 emotional intelligence measuring instruments were spread into five dimensions. The construct validity results using factor analysis showed that the items that had been successfully estimated were 39 indicators that were higher than 0.50. Of the 56 items, 14 items were invalid based on the MSA value in stage one, namely items 1, 2, 4, 6, and 7 on the understanding self-emotions dimensions, item 24 on the managing self-emotions dimensions, items 25 and 34 on the self-motivation dimensions, and items 36, 39, 40, 41, 42, and 43 on the building relationships with other people dimensions. Furthermore, for understanding other people's emotions, all of the items' MSA values were above 0.5. In the second stage, the assessment was based on the loading factor. Three items were invalid because they did not meet the requirements. The three items were item 1 of the understanding self-emotions dimension, items 10 and 13 on managing self-emotions dimensions. For the other three dimensions, all of the items' loading factors were higher than 0.50. Likewise, the reliability index in the first stage was 0.761, and the reliability index in the second stage was 0.817 (both indexes were higher than 0.70). Therefore, the emotional intelligence instrument could be declared reliable.

***Keywords**: Development, affective instruments, emotional intelligence, factor analysis.*

Abstrak

Menurut banyak penelitian, kecerdasan emosional adalah faktor krusial yang dapat berkontribusi pada kesuksesan dalam ranah akademis dan non-akademis. Penelitian ini bertujuan untuk menilai kecerdasan emosional mahasiswa Islam di perguruan tinggi. Partisipan dalam penelitian ini adalah 151 mahasiswa perguruan tinggi Islam. Peneliti menggunakan teknik survei dengan parameter skala Likert. Penelitian ini secara empiris menyatakan bahwa 39 instrumen pengukuran kecerdasan emosional tersebar dalam lima dimensi. Hasil validitas konstruk menggunakan analisis faktor menunjukkan bahwa item yang telah berhasil diestimasi adalah 39 indikator yang lebih tinggi dari 0,50. Dari 56 item, 14 item tidak valid berdasarkan nilai MSA pada tahap satu, yaitu item 1, 2, 4, 6, dan 7 pada

P. ISSN: 20869118
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dimensi pemahaman emosi diri, item 24 pada dimensi pengelolaan emosi diri, item 25 dan 34 pada dimensi motivasi diri, serta item 36, 39, 40, 41, 42, dan 43 pada dimensi membangun hubungan dengan orang lain. Selanjutnya, untuk pemahaman emosi orang lain, semua nilai MSA item berada di atas 0,5. Pada tahap kedua, penilaian didasarkan pada faktor beban. Tiga item tidak valid karena tidak memenuhi persyaratan. Tiga item tersebut adalah item 1 pada dimensi pemahaman emosi diri, item 10 dan 13 pada dimensi pengelolaan emosi diri. Untuk tiga dimensi lainnya, semua faktor beban item lebih tinggi dari 0,50. Begitu pula, indeks reliabilitas pada tahap pertama adalah 0,761, dan indeks reliabilitas pada tahap kedua adalah 0,817 (keduanya lebih tinggi dari 0,70). Oleh karena itu, instrumen kecerdasan emosional dapat dinyatakan dapat diandalkan.

Kata kunci: Pengembangan, instrumen afektif, kecerdasan emosional, analisis faktor.

INTRODUCTION

Students require a high level of intelligence to participate in teaching and learning activities (Firdaos, 2017b). Intelligence encompasses not only cognitive but also emotional intelligence. Emotional intelligence has a significant part in getting someone to a higher level of life (Happy & Widjajanti, 2014), (Badiah, 2016). As a result, emotional intelligence can act as a regulator for all people's impulses.

Emotional intelligence is defined as individuals' ability to detect, manage, and identify all of their impulses. Self-motivation, the ability to live in the face of frustration, managing heart impulses, regulating moods, and suppressing stress are all examples of emotional intelligence, which allows a person to proportionally govern his joy, sadness, and rage. Furthermore, the ability to recognize and manage others and oneself is included in the theory of emotional intelligence in general. It is the quality that contributes to new connections and the quality of current connections (Schutte et al., 2013).

Some elements of Emotional Intelligence briefly identified are Self-awareness (aware of one's feelings and able to manage them), emotional resilience (able to maintain performance under pressure), motivation (have the drive and energy to achieve challenging long-term goals), interpersonal sensitivity (display sensitivity and empathy for others), influence (can influence and persuade others to accept views), intuition (can decide and use reason and intuition), and consistency in one's words and actions and behave following applicable ethical standards (Dulewicz & Higgs, 2004).

It is indisputable that the emotional turmoil experienced by late teenagers aged 18-21 years is inextricably linked to various circumstances, including the surroundings and place of living, family factors, the school they attend, and peers. Adolescent instability is mirrored in the social milieu in which they interact as if it necessitates their ability to adjust to their surroundings efficiently. Peers articipate in daily activities (Rachmawati & Nurmawati, 2014). As a sign of solidarity, their peers must obey even unpleasant things.

P. ISSN: 20869118
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The word emotion is derived from the Latin word "*movere,*" which means to move or move away. It is a specific feeling and thinking, biological and psychological condition, and actions associated with it (Goleman, 2004). Theoretically, emotions are a catalyst for action or a plan that emerges quickly when addressing the steadily established issues related to current events.

Emotional intelligence research has exploded in popularity in recent years. Emotional intelligence has been studied by researchers, therapists, psychologists, and educators about academic success and emotional adjustment (Gliebe, 2012). As has been done before, studies on emotional intelligence have been focused on the last two decades (especially in Europe and America). Interestingly, these studies cover a wide area of educational and social domains (Aremu & Tejumola, 2008).

Many prior researchers have researched the development of the emotional intelligence scale. Developing emotional intelligence scales for nurses (Bester et al., 2013), developing emotional scales for counselors' self-regulation (Peterson, 2012), developing emotional intelligence competencies among teachers (Dolev & Leshem, 2017), developing emotional scales for General College students (Rashid & Mohammadyfar, 2009), developing emotional intelligence for early childhood (Nurjannah, 2017), and how emotional intelligence can make someone obey the law during a pandemic outbreak (Igbinovia & Okuonghae, 2021). However, no research on developing an emotional intelligence scale for Islamic higher education students has been conducted thus far. The need for measuring tools to determine the level of emotional intelligence for Islamic students cannot be overstated. There are numerous unfavorable occurrences afflicting Islamic higher education students. This phenomenon motivated the researcher to test a variety of emotional intelligence instruments on Islamic higher education students to provide several valid and reliable measuring tools that are practical and can be used for academic and non-academic interests. The indicators established in this research were based on five indicators proposed by Salovey and Mayer's hypothesis: recognizing self-emotions, managing emotional emotions, self-motivation, understanding other people's emotions, and building relationships with others (Mayer et al., 1990).

METHOD

This developmental research was based on affective measurement design (Gable, 1986), which theoretically includes three stages: the instrument development stage, the instrument testing stage, and the reporting stage as a test administration process (Semiawan, 2008). The research and development cycle includes research findings on the developed product, reviewing it in the setting where the results are used, and revising it until the research is deemed adequate (Hamzah B. Uno, 2012).

The instrument was developed based on the mathematical models continuously tested for feasibility by psychometrics (Azwar, 2005). Thus, instrument development is a theoretical concept development activity arranged following the construct to produce a standard instrument that refers to the techniques that have been gradually determined by the experts (Firdaos, 2017). The research samples were 151 Islamic higher education students investigated using the Likert scale parameters. The scale was used to measure attitudes, opinions, and perceptions of a person or a group about social events or phenomena (Riduan, 2009).

The researcher performed factor analysis to analyze the data. Factor analysis is a mathematical technique that allows the reduction of a large number of interrelated variables to a small number of dimensional or factor latent variables (Kass & Tinsley, 1979). Factor analysis is a model that was first developed as a method to examine something that cannot be observed, such as intelligence, motivation, ability, attitude, and opinion (Raykov, 2006). The emotional intelligence variable is a latent variable that cannot be observed directly unless using a test with a constructive approach. However, constructs have a theoretical link (Harrington, 2009).

RESULT AND DISCUSSIONS

The Results of Factor Analysis at the First Stage

In the first stage trial, 56 emotional intelligence questionnaire items were distributed to 81 respondents. The second stage trial employed the valid items determined in the first stage trial, then distributed to 70 respondents. The following are the results of factor analysis and reliability testing.

In the early stages of testing, factor analysis assessed several variables that were considered feasible to be included in the next trial. This assessment served to identify several variables to be analyzed based on certain criteria. If a variable tends to group, it can be said that the variable has a fairly strong relationship with other variables. The statistical calculations assisted by SPSS 26 are presented in each discussed dimension.

The Dimension of Understanding Self-Emotions

The factor analysis calculation on the dimensions of understanding self-emotions obtained the KMO value of 0.515 and chi-square value of 82.618 (Sig = 0.009 and df = 55). The results indicated that the significance level was lower than 0.05. In other words, the variables for the dimensions of understanding self-emotions at the initial testing stage were declared effective for subsequent analysis.

Furthermore, the MSA value was examined to determine the extent to which these items had a strong correlation. Of the eleven items for understanding self-emotions, six items studied lead to a higher level (> 0.5). The items lower than 0.5 were discarded (items 1, 2, 4, 6, and 7). The significant assumption criterion is that if the significance value is higher than 0.05, then H_o is accepted. Conversely, if the significance value is lower than 0.05, H_o is rejected. The MSA value (Measure Sample Adequacy) ranged between 0 and 1 with the following criteria: (a) if MSA is equal to 1, the variable can be predicted without error by other variables. If MSA is higher than 0.05, the existing variables can be estimated, and further analysis can be carried out. On the other hand, if MSA is lower than 0.5, the variable cannot be predicted and automatically rejected or included in the next analysis. Therefore, it

is excluded from several existing variables (Santoso, 2014). Since there were some discarded items, the researchers retested by only entering a few items whose values were above 0.5. The obtained KMO value is as follows:

Table 1
The Results of Measure Sample Adequacy and Bartlett Test for the Dimensions of Understanding Self-Emotions

Kaiser-Meyer-Olkin Measure Sample Adequacy		.581
Bartletts Test of Sphericity	Approach. Chi-Square	21.322
	Df	15
	Sig	.005

Table 1 shows the KMO increased from 0.515 to 0.581 with a df value of 15 and the significance value of 0.005. The results were far lower than 0.05. Likewise, the MSA value after removing several variables below 0.5 resulted in a value higher than 0.5.

In the next stage, after the filtering process in the first stage (several variables that were declared to meet the criteria for further analysis), the researcher performed the core process of factor analysis. The researcher extracted several variables to determine how many factors were formed. Furthermore, the results of factor component testing through the Principal Component Analysis using the Varimax rotation technique and Kaiser Normalization method (Jackson, 1981). The matrix component rotation was carried out within three rounds. It showed the distribution of the variables for each item more clearly. The rotation results proved that there were two factors whose constructs were tested by referring to the limiting criteria with a loading factor of more than 0.50. After constructing two factors whose constructs were verified on all dimensions of self-emotion dimension items, six valid statement items met the loading factor criteria of more than 0.5.

Table 2
Factor and Factor Component

Factor	Member	Loading Factor	Number
1	A3 A5 A10 A11	0.552 0.666 0.754 0.586	4
2	A8 A9	0.710 0.758	2

From the table above, it can be concluded that the dimensions of Understanding Self Emotions form two factors. The first factor has 4 items, namely self-awareness factor, with the items are: A3, A5, A10, and A11. While the second factor is named the independence factor, with the number of items being A8 and A9.

The Dimension of Managing Emotions

In this dimension, the KMO value before the MSA analysis for each item was 0.576, with a df value of 78 and a significance value of 0.000 lower than 0.5. Therefore, further analysis can be performed. However, after looking at the MSA values individually, there were values lower than 0.5, namely item 24, which must be discarded. Next, the researcher retested by removing item 24 that did not meet the requirements. The KMO results are presented in the following table:

Table 3
The Results of Measure Sample Adequacy and Bartlett Test on the Dimension of Managing Emotions

Kaiser-Meyer-Olkin Measure Sample Adequacy		.595
Bartletts Test of Sphericity	Approach. Chi-Square	134.305
	Df	55
	Sig	.000

KMO value increased to 0.595 with a df value of 55 and a significance value of 0.000, which was far lower than 0.05. Likewise, the MSA value for each item was above 0.5 as a condition for further analysis to be continued.

After the first stage's filtering process, the researcher completed the basic factor analysis procedure (several variables that were deemed to match the requirements for further analysis). The researcher retrieved several variables to establish how many factors were produced. The matrix component rotation was carried out within three rounds. It showed the distribution of the variables for each item more clearly. The rotation results proved that there were two factors whose constructs were tested by referring to the limiting criteria with a loading factor of more than 0.50. After constructing four factors whose constructs were verified on

all dimensions of managing emotion dimension, eleven valid statements met the loading factor criteria of higher than 0.5.

Table 4
Factors and Factor Component

Factor	Member	Loading Factor	Number
1	A16	0.728	3
	A18	0.639	
	A20	0.701	
2	A13	0.766	4
	A14	0.554	
	A17	0.534	
	A19	0.559	
3	A15	0.814	2
	A22	0.587	
4	A21	0.886	2
	A23	0.749	

From the table above, it can be concluded that the dimensions of Managing Emotions form four factors. The first factor has 3 items, namely patience factor, with the items are: A16, A18, A20. Second factor is named the self control factor, with the number of items A13, A14, A17, A19. The third factor is named the responsibility factor with the number of items A15 and A22. While the fourth factor has items A21 and A23 namely self-potential.

The Dimension of Self-Motivation

The calculation results of factor analysis on the self-motivation dimension obtained KMO values of 0.537, with a chi-square value of 112.438 (Sig = 0.009, df = 45). The results indicated that the significance level was lower than 0.05. In other words, the variables for the items at the first stage of testing were declared feasible. However, the MSA values for items 25 and 34 were lower than 0.5. Therefore, these two items must be removed, and the researcher retested to obtain a feasible MSA value.

After removing the two items, the KMO increased to 0.628 with a df value of 28 and a significance value of 0.000, far lower than 0.05. The MSA values were all higher than 0.5. Therefore, further analysis could be performed.

Table 5
The Results of Measure Sample Adequacy and Bartlett Test on the Dimension of Self-Motivation

Kaiser-Meyer-Olkin Measure Sample Adequacy		.628
Bartletts Test of Sphericity	Approach. Chi-Square	77.817
	Df	28
	Sig	.000

The researcher performed the core process part of factor analysis, extracting several variables to determine how many factors are arranged. After screening at the first stage, several variables were declared to meet the criteria for further analysis (Firdaos, 2017). The matrix component rotation was carried out within three rounds. It showed the distribution of the variables for each item more clearly. The rotation results proved that there were two factors whose constructs were tested by referring to the limiting criteria with a loading factor of more than 0.50. After constructing two factors whose constructs were verified on all dimensions of self-motivation items, eight valid statement items met the loading factor criteria of higher than 0.5.

Table 6
Factors and Membership Factor

Factor	Member	Loading Factor	Number
1	A27	0.682	
	A30	0.586	
	A31	0.627	5
	A32	0.578	
	A33	0.817	
2	A26	0.982	
	A28	0.740	3
	A29	0.510	

From the table above, it can be concluded that the dimensions of Self Emotions form two factors. The first factor has 5 items, namely Self-confident factor, with the items are: A27, A30, A31, and A32 A33. While the second factor is named the quick response factor, with the number of items being A26 A28 and A29.

The Dimension of Building Relationships with Others

In this dimension, the KMO value before the MSA was analyzed for each item was 0.522, with a df value of 55 and a significance value of 0.000, lower than 0.5. Therefore, further analysis could be performed. However, after looking at the MSA values individually, MSA values were lower than 0.5, namely items 36, 39, 40, 41, 42, and 43. Thus, these items must be discarded. The researchers retested by removing the items that did not meet the requirements. The results of KMO are contained in the following table:

Table 7
The Results of Measure Sample Adequacy and Bartlett Test on the Dimension of Building Relationships with Others

Kaiser-Meyer-Olkin Measure Sample Adequacy		.639
Bartletts Test of Sphericity	Approach. Chi-Square	56.282
	Df	10
	Sig	.000

KMO value increased to 0.639 with a df value of 10 and a significance value of 0.000 (lower than 0.05). Likewise, the MSA values of each item were higher than 0.5 as a condition for further analysis to be continued.

In the next stage, after the filtering process in the first stage (several variables that were declared to meet the criteria for further analysis), the researcher performed the core process of factor analysis. The researcher extracted several variables to determine how many factors were formed. Furthermore, the results of factor component testing through the Principal Component Analysis using the Varimax rotation technique and Kaiser Normalization method. The matrix component rotation was carried out within three rounds. It showed the distribution of the variables for each item more clearly. The rotation results proved that there were two factors whose constructs were tested by referring to the limiting criteria with a loading factor of more than 0.50. After constructing two factors whose constructs were verified on all dimensions of building relationships with others, five valid statements met the loading factor criteria of higher than 0.5.

Table 8
Factors and Factor Component

Factor	Member	Loading Factor	Number
1	A37	0.690	4
	A38	0.777	
	A44	0.739	
	A45	0.679	
2	A35	0.982	1

From the table above, it can be concluded that the dimensions of Building Relationships with Others form two factors. The first factor has 4 items, namely sympathy factor, with the items are: A37, A38, A44, and A45. While the second factor is named the appreciation factor, with the number of items being A35.

The Dimension of Understanding Other People's Emotions

The calculation results of factor analysis on the dimension of understanding other people's emotions obtained the KMO value of 0.609, with the chi-square value of 77.705 (Sig = 0.009 and df = 55). The results indicated that the significance value was lower than 0.05. Therefore, all of the variables for the items at the initial testing stage were stated to be very appropriate for subsequent analysis. The results are presented in the following table:

Table 9
The Results of Measure Sample Adequacy and Bartlett Test of Understanding Other People's Emotions

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.609
Bartletts Test of Sphericity	Approach. Chi-Square	77.705
	Df	55
	Sig	.000

Of the eleven items for understanding other people's emotions, all items analyzed had higher values (higher than 0.5). Furthermore, the MSA value was examined to determine the extent to which these items had a strong correlation. The MSA value (Measure Sample Adequacy) ranged between 0 and 1 with the following criteria: (a) if MSA is equal to 1, the variable can be predicted without error by other variables. The significant assumption criterion is that if the

significance value is higher than 0.05, then Ho is accepted. Conversely, if the significance value is lower than 0.05, Ho is rejected. If MSA is higher than 0.05, the existing variables can be estimated, and further analysis can be carried out. On the other hand, if MSA is lower than 0.5, the variable cannot be predicted and automatically rejected or included in the next analysis. Therefore, it is excluded from several existing variables.

In the next stage, after the filtering process in the first stage (several variables that were declared to meet the criteria for further analysis), the researcher performed the core process of factor analysis. The researcher extracted several variables to determine how many factors were formed. Furthermore, the results of factor component testing through the Principal Component Analysis using the Varimax rotation technique and Kaiser Normalization method. The matrix component rotation was carried out within three rounds. It showed the distribution of the variables for each item more clearly. The rotation results proved that there were two factors whose constructs were tested by referring to the limiting criteria with a loading factor of more than 0.50. After constructing two factors whose constructs were verified on all dimensions of understanding other people's emotions, eleven valid statements met the loading factor criteria of higher than 0.5.

Table 10
Factors and Factor Component

Factor	Member	Loading Factor	Number
1	A46 A47 A49 A53	0.552 0.796 0.789 0.576	4
2	A48 A54 A55	0.540 0.833 0.795	3
3	A50 A52	0.779 0.552	2
4	A51 A56	0.749 0.740	2

From the table above, it can be concluded that the dimensions of Understanding Other People's Emotions form four factors. The first factor has 4 items, namely honesty factor, with the items are: A46, A47, A49 A53. Second factor

is named the association factor, with the number of items A48, A54, A55. The third factor is named the respect factor with the number of items A50 and A52. While the fourth factor has items A51 and A56 namely tolerance.

Instrument Reliability at Stage One

At this stage, the instrument reliability test was performed by removing several invalid items at stage one. The statistical calculation assisted by SPSS version 17 found that the reliability index of the emotional intelligence instrument at stage one was 0.761. The purpose of carrying out this analysis was to determine the extent of the instrument's consistency to be used properly. The researcher performed this test by using the Cronbach's Alpha coefficient formula. The result is as follow:

Table 11
The Reliability Coefficient Statistics

Cronbach's Alpha Based on Standardized Items	N of Items
0.761	42

The data above shows that the Alpha reliability coefficient value is 0.761. Therefore, the statement items in the questionnaire have good internal consistency. Based on the research, the emotional intelligence instrument was valid and reliable.

Factor Analysis at Phase Two

The results of the factor analysis calculation at the second stage, which cover the KMO value, chi-square significance, and df. The KMO and the chi-square value of understanding self-emotions was 0.587 and 27,800, managing emotions was 0.627 and 142,902, self-motivation was 0.603 and 11,587, building relationships with others was 0.581 and 11,587, and understanding other people's emotions was 0.612 and 190,043. The significance of all dimensions was below 0.05, which means that the overall variables for all items of emotional intelligence at the initial testing stage were stated to be very suitable for further analysis.

After filtering in the first stage on the number of variables declared to meet the criteria for further analysis, the researcher performed the core process of the

factor analysis in the second stage by extracting several variables. The aim was to identify the factors formed. The following are the invalid items of the emotional intelligence instruments based on the loading factors:

Table 12
The valid Items based on the Loading Factor

No	Dimension	Factor				
		1	2	3	4	5
1	Understanding self-emotions	0.816 0.596 0.777 0.785				
2	Managing emotion		0.819 0.638 0.803 0.786 0.658 0.863 0.543 0.878 0.768 0.615			
3	Self-motivation			0.835 0.806 0.745 0.592 0.804 0.853 0.563		
4	Building Relationships with Others				0.949 0.769 0.726 0.812 0.695	
5	Understanding other people's emotions					0.722 0.833 0.576 0.869 0.820 0.798 0.771 0.809 0.572 0.529

Instrument Reliability at Stage two

In this second stage, the instrument reliability test was carried out by removing several invalid items at the second stage based on the loading factor. The calculation using SPSS version 26 found that the reliability index of the emotional intelligence instrument at stage two was 0.817, which was greater than stage one (0.76). The purpose of this analysis was to determine the extent of the instrument's consistency so that it can be used properly(Bahri, 2019). The researcher tested using the Cronbach's Alpha coefficient formula, and the obtained data are presented as follows:

Table 13
Reliability Coefficient

Based on Standardized Items	N of Items
0.817	39

The data above shows that the Alpha reliability coefficient value is 0.817. Therefore, the statement items in the questionnaire had good internal consistency. Based on the research, the developed emotional intelligence instrument can be valid and reliable

Discussion

Emotional intelligence is essential for our lives as perfect human beings, as stated in Quran Surah Ali Imron verse 110, which means that Muslims are the best people born for humans because they command to do what is right and prevent the wrongdoers and believe in Allah. Emotional intelligence also be referred as intrapersonal intelligence that regulates humans to understand what is inside them (Arafah et al., 2021).

Humans are successful if they can manage their emotions well and understand, recognize, and realize their existence and potential (Tiaranita et al., 2018). Emotions, in the view of the majority of humans, are identified as something negative, such as often venting frustration, being angry, and making a fuss.

There are many advantages when a person has adequate emotional intelligence. First, emotional intelligence can be a tool for self-control so that a

P. ISSN: 20869118
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person does not do irresponsible actions. Second, emotional intelligence can be implemented as an excellent way to market or promote ideas, concepts, or even products (Suharsono, 2004). Also, parents need to instill good emotions from an early age by practicing self-expression, articulating ideas or opinions, and learning to live in an organization and society. Therefore, the role of emotional intelligence is important for children's lives so that a stimulus is needed to develop optimally, such as games, storytelling, role-playing, drawing, and many others (Prima, 2018).

In the learning process, emotional intelligence can control itself. Students will have high motivation when researching in the classroom and outside of the classroom (Farhan & Alfin, 2019). In other words, if someone is good at adjusting to the moods of other individuals or can empathize, that person will have a good level of emotionality and will adjust easily to social interactions and the environment (Jhon Mayer, 2000). Emotional intelligence includes practicing interpersonal skills (Tucker et al., 2000) and understanding other people's emotions, and regulating and utilizing emotions (Schutte et al., 2013).

Factor analysis has an important role in psychometricians' research to estimate construct validity. This statistical technique allows identifying a small number of factors that can be used to represent the relationship between a set of interrelated variables, such as a set of items, measurements, and instruments (Goodwin, 2009). Besides, one way to characterize factor analysis is to view it as a sophisticated correlational method for finding regularities and trends in large data.

Considering the KMO and MSA values in this test, all dimensions of emotional intelligence were higher than 0.50. The next stage was factor validation. In this research, the researcher chose a cut-off point (limiting) with a loading factor of more than 0.50. Of the 56 items, 14 items were invalid based on the MSA in stage one, namely items 1, 2, 4, 6, and 7 on the dimension of understanding self-emotions, item 24 in the managing self-emotions dimension, items 25 and 34 in the self-motivation dimension, items 36, 39, 40, 41, 42, and 43 in the building relationships with others dimension. However, the dimension of understanding other people's emotions met the MSA number of higher than 0.5. At the second

stage, the assessment was based on the loading factor. Three items were invalid because they did not meet the requirements. The three items were item number 1 on the dimension of understanding self-emotions and items 10 and 13 on managing self-emotions. The other three dimensions' loading factors were higher than 0.50.

The reliability coefficient of the emotional intelligence instrument calculated using the Alpha formula was 0.761 in the first stage of testing and 0.817 in the second stage of testing. Therefore, the statement items in the questionnaire had high internal consistency.

CONCLUSION

The analysis showed that most instrument items were tested with KMO values above 0.50 and MSA values above 0.50. In stage one, out of the 56 items, there were 14 instrument items declared invalid. There were five invalid items in the dimension of understanding self-emotion, one invalid item in managing self-emotions, and two invalid items in the self-motivation dimension. As for the dimension of understanding other people's emotions, there were no invalid items. However, there were six invalid items in the dimension of building relationships with other people. In the second stage, with 42 items, there were three invalid items, namely one item in the dimension of understanding self-emotions and two items in the dimension of managing self-emotions. These items were invalid based on the loading factor criteria because they were less than 0.50.

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