

## **CONTENT VALIDITY AND CONSTRUCT VALIDITY ON THE DEVELOPMENT OF ACADEMIC ANXIETY QUESTIONNAIRE**

**Muawanah<sup>1</sup>**

STABN Sriwijaya, Indonesia

**Ahsanul Khair Asdar<sup>2</sup>**

STABN Sriwijaya, Indonesia

---

**Address for  
Correspondence:**

<sup>1</sup>muawanah@stabn-  
sriwijaya.ac.id

<sup>2</sup>ahsanul.khair@stabn-  
sriwijaya.ac.id

### **ABSTRACT**

This study was a research and development which aimed to develop an academic anxiety questionnaire for students through content validity and construct validity testing using ADDIE model. This research involved 205 students in the first trial phase and 220 students in the second trial phase. They were selected using the cluster random sampling method. The data were collected using a survey method by distributing the questionnaires using the google form. The results showed that the academic anxiety questionnaire was developed by containing the dimensions of cognitive symptoms, emotional symptoms, and physical symptoms. The coefficient of content validity through the Aiken's V by four experts for each item was more than 0.200, while the reliability was 0.893. The first trial phase showed that eight items dropped through the Confirmatory Factor Analysis (CFA) with Construct Reliability (CR) and Variance Extracted (VE) values for each measurement model were 0.881 and 0.202, while the CR and VE values for the structural model were 0.888 and 0.730. The second trial phase showed that four items dropped with the CR and VE values for the measurement model were 0.873 and 0.213, while the CR and VE values for the structural model were 0.956 and 0.880. The final academic anxiety questionnaire contains 27 items with a modified Likert scale (four choices).

**Keywords:** Development, Questionnaire, Academic Anxiety, ADDIE, CFA, Content Validity, Construct Validity, Reliability

### **INTRODUCTION**

To improve the quality of education in Indonesia, the government administrates the examinations, including the National Examination at all educational levels. These various forms of it will cause anxiety for the students, the anxiety of failure. Nasution and Fasti stated that being too anxious about facing the national examination will affect the students' academic life, such as difficulty concentrating. It also has the worst effect on their learning methods, academic competition, and self-confidence (Variansyaah & Listiara, 2017).

Anxiety occurs because someone is worried that it will disrupt their emotional security or personal security. Anxiousness is closely related to the strength or weakness of self-confidence, and more broadly, it is closely related to the personal characteristics. Anxiety can occur when someone faces certain circumstances. For example, when facing an exam, fear of not being able to meet the demands of academic assignments, and so on (Setyobroto, 2004; Siddiqui & Rehman, 2014).

Anxiety is an unpleasant affective expressed in many terms, such as anxiety, worry, concern, etc. Affective feelings refer to the subjective emotions of a person, namely how a person feels anxious, angry, afraid, depressed, guilty, or embarrassed. Anxiety as an intervening variable is a hypothetical or theoretical reaction caused by almost any stimulus and ultimately has further consequences. In other words, anxiety is a response that mediates or be between a stimulus and another response. Intervening variables can be known indirectly from the antecedents and observable consequences. So no one cannot take the anxiety but can observe the condition of the stimulus that causes anxiety and its psychological or behavioral consequences (Lazarus, 1969; Borich, 1996; Elliot, 2000; Jamaris, 2010; Prawitasari, 2012; Santrock, 2014; Shahrouri, 2016).

The main challenge faced by every educational institution is how and what to do so that graduates can realize the goals and ideals of the institution. In simple words, we can say what experiences should be given to students during their education to make their profiles or competencies developed from their profiles or competencies as new students. The introduction of new students profiles is the key to presenting the experiences to the students. The impact of the experience can not be in line with expectations when they are inappropriate. It can even be contrary to what we want (Hanifah & Abadi, 2018).

The students not only get anxiety when they go through the educational process. They also can be anxious at the beginning of their entry into college. It is in line with previous research conducted by Sanitiara and Nazriati that medical students in the first year are at risk of experiencing more stress. In the first year of university, many students were anxious at a high level. It could be caused by academic pressure, not being familiar with the new educational environment, and high expectations from family, the surrounding community, themself, and educators (Sanitiara & Nazriati, 2014).

New students are very vulnerable to psychological pressure. These pressures arise because they experience changes in their roles and academic environment. When they enter the university, they face a different learning and teaching process from their former school environment. In this environment, they will know the various abilities possessed by other students that they do not know (Ati, Kurniawati, & Nurwanti, 2015). In this phase, new students are vulnerable to their abilities because they compare themselves to the other students.

Not only as a new student or during the educational process, but a student can also experience anxiety when they are about to complete a series of education in college. It can be categorized as anxiety in determining the future. Anxiety about the future is an unpleasant emotion associated with various problems that must be faced in its development period that affect the affective, cognitive, and behavioral aspects (Siburian, Karyono, dan Kaloeti, 2010: 41). Feldman, Olds, and Papalia state that choosing to continue their education or enter the world of work is a problem experienced by students after completing higher education (Apriliana, 2016). The students who decide to enter the workforce after graduation will face a new status as job seekers or unemployed. This narrative ultimately explains that students will always experience academic anxiety but to a different degree.

Academic anxiety is a common phenomenon that commonly occurs among all students at various levels of education. Anxiety has a good impact on students who respond positively, but on the contrary, it will hurt students who respond negatively (Siddiqui & Rehman, 2014; Sanitiara & Nazriati, 2014; Irman, 2015). Bandura explained that academic anxiety is an unpleasant feeling of worry because of confidence in one's ability to cope the academic tasks (Prawitasari, 2012).

There are four characteristics of academic anxiety. They are the pattern of anxiety engendering mental activity, misdirected attention, physiological distress, and inappropriate

(Ottens, 1991). Meanwhile, Cassady and Johnson stated that academic anxiety could be monitored by cognitive symptoms, emotional symptoms, and bodily symptoms (Cassady & Johnson, 2002). Casbarro also explained that anxiety is a collaboration and a combination of three uncontrolled things. They are cognitive manifestations, affective manifestations, and motoric behavior (Suratmi & Taufik, 2017).

Stuart and Laraia suggested that the anxiety experienced by a person can be categorized into four levels, namely mild, moderate, severe, and very severe. Regardless of the form of the anxiousness experienced by students, in the end, it will affect their academic achievement in the lecture process, including how they get these achievements. One of the existing problems in education is integrity, where students commit academic fraud, such as cheating or even plagiarism (Annisa, Surani, & Mirwanti, 2018). The next problem is what kind of instruments can measure and detect academic anxiety experienced by students, especially in the university? It ultimately attracted the interest of researchers to develop an instrument to measure the students' academic anxiousness through content validity and construct validity testing.

## METHOD

This study was a research and development. It's aimed to develop an academic anxiety instrument for students using the ADDIE model. The sample used in this study was 205 students for the first trial phase and 220 students for the second trial phase. They were selected using the cluster random sampling technique. Content validity analysis was carried out through Aiken's V and Hoyt formula involving four experts, while construct validity was measured through factor analysis using Confirmatory Factor Analysis (CFA).

## RESULTS AND DISCUSSIONS

### 1. Analyze

The safe and comfortable learning process contributes to determining the student's success in learning. However, the psychological factors of a student are hard to be identified. It is because of their ability to cover up and hide these psychological factors at their age. One of these psychological factors is academic anxiety. So to facilitate the measurement of academic anxiety, it is necessary to develop an academic anxiety instrument.

According to the fact, there is no scientific research that measures student academic anxiety at the college level. Cassady and Johnson stated that academic anxiety can be monitored through cognitive symptoms, emotional symptoms, and bodily symptoms (Irman, 2015). Casbarro also explained that anxiety is a collaboration and a combination of three uncontrolled things. They are cognitive manifestations, affective manifestations, and motoric behavior (Suratmi & Taufik, 2017). So, academic anxiety can be interpreted as a description of the anxiety experienced by students in the academic nuances and expressed in the form of scores obtained through an academic anxiety scale with dimensions of cognitive symptoms, emotional symptoms, and physical symptoms.

### 2. Design

The initial grille of the academic anxiety instrument is shown in Table I.

Tabel I Initial Grille of The Academic Anxiety Instrument

No.	Dimension	Indicators	Items	
			Favorable	Unfavorable
1.	Cognitive Symptoms	Anxious or afraid of failure	1 and 2	3
		Irrelevant in thinking	4 and 6	5
		Limitations in thinking	7, 8, and 9	-
2.	Emotional Symptoms	Easy to get dizzy	11 and 12	10
		Easy to feel panicked or scared	13	14 and 15
		Easy to feel tense	16 and 17	18
		Having trouble sleeping	19, 20, and 21	-

No.	Dimension	Indicators	Items	
			Favorable	Unfavorable
3.	Physical Symptoms	Roll the eyes when angry	23 and 24	22
		Shortness of breath	25, 26, and 27	-
		The facial muscles look tense	28, 29, and 30	-
		The intonation of the voice became louder	32 and 33	31
		Experiencing cardiovascular symptoms	34 and 36	35
		Experiencing urogenital symptoms	37, 38, and 39	-
<b>Total</b>			<b>30</b>	<b>9</b>

Each item compiled at this stage is equipped with a measurement scale in the form of a Likert scale with five response options, namely Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree.

### 3. Development

At this stage, the content validity coefficient is calculated by using Aiken's V formula. Overall, the validity coefficient of the draft of each item is more than 0.200. It fulfills the criteria of content validity. Meanwhile, based on the results of the calculation of the reliability coefficient of Hoyt, the reliability coefficient was 0.893. So it means that the draft of the academic anxiety instrument was reliable according to expert judgment.

### 4. Implementation

#### a. The First Trial Phase

The result of first stage showed that seven items are invalid because their t-value is lower than 1.963 (df = 699; = 0.05). They are items number 2, 6, 13, 20, 25, 27, and 31. Since there are seven invalid items, the second stage of the first-order CFA testing is carried out by removing them. Figure 1 and Figure 2 show that 32 items are declared valid because their t-value is more than 1.965 (df = 461; = 0.05). It means that the relationship between the manifest variables and the dimensions is significant. Thus, the 32 items can be declared feasible to use.

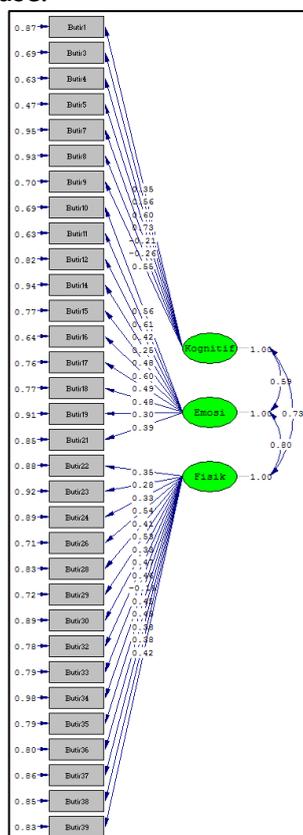


Figure 1 The Standardized Solution of The First-Order CFA

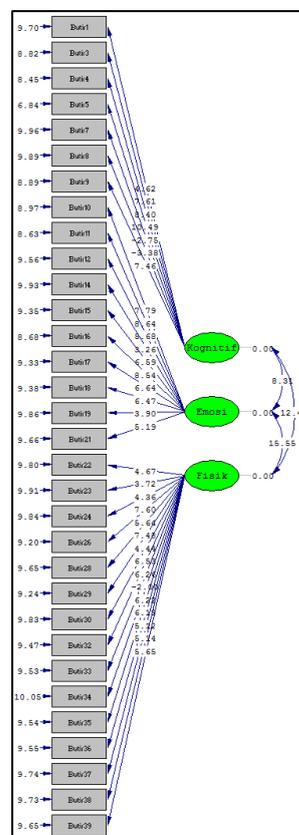


Figure 2 The T-Value of The First-Order CFA

The first stage of second-order analysis showed that item number 34 is invalid ( $t$ -value = 1.86). The  $t$ -value is lower than 1.965 ( $df = 491$  and  $= 0.05$ ). A re-analysis was carried out by removing item number 34 from the academic anxiety instrument. Figure 3 and Figure 4 show that the remaining 31 statement items on the academic anxiety instrument are valid because their  $t$ -value is more than 1.966 ( $df = 431$  and  $= 0.05$ ). It means that the academic anxiety instrument consists of 31 statement items in the first trial phase. All items developed are declared capable of measuring indicators, dimensions, and variables.

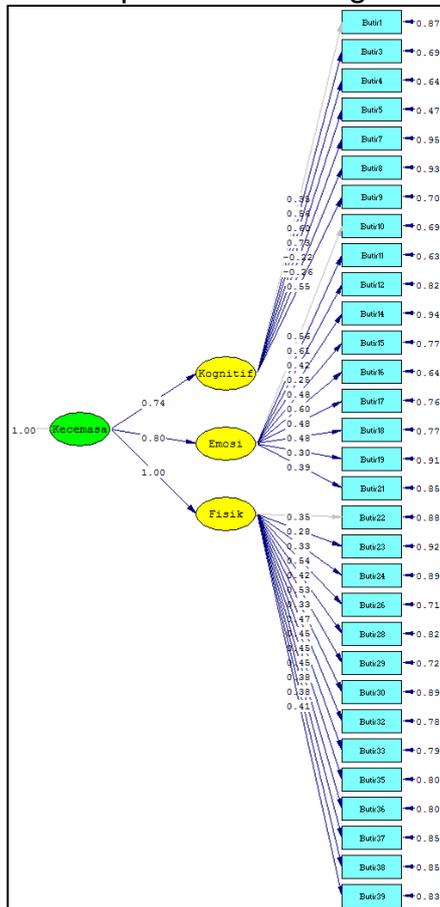


Figure 3 The Standardized Solution of The Second-Order CFA

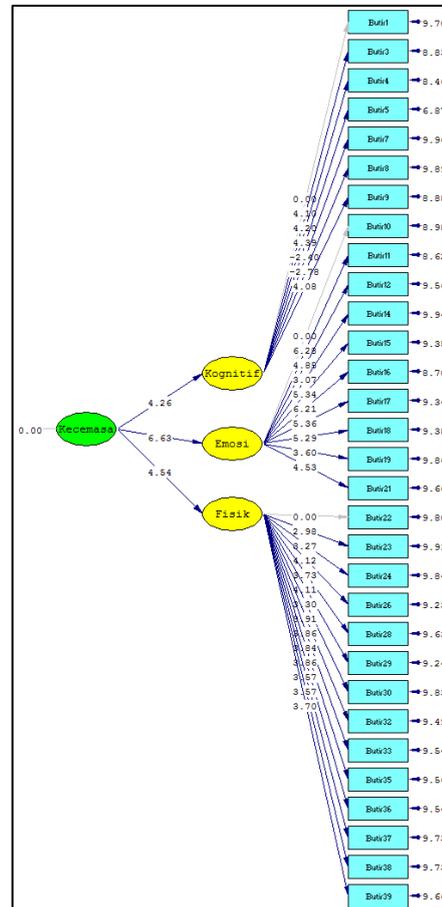


Figure 4 The T-Value of The Second-Order CFA

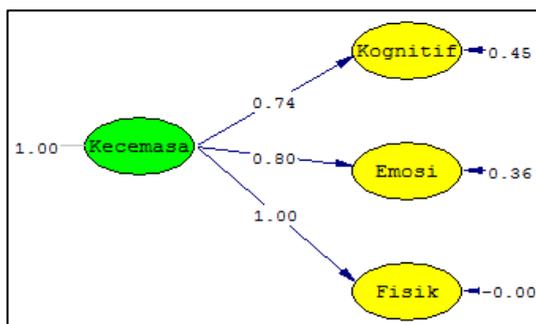


Figure 5 The Factor Analysis Structural Model Standardized Solution of The First Trial Phase

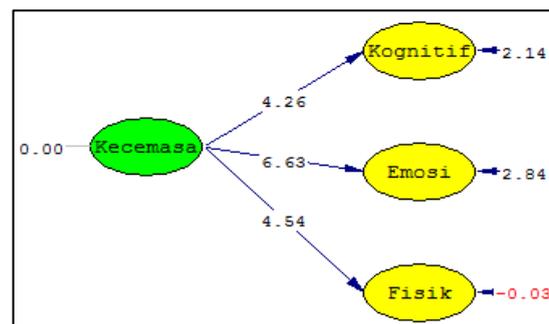


Figure 6 The Factor Analysis Structural Model T-Value of The First Trial Phase

Figure 5 and Figure 6 show that the factor loading on the dimensions that make up the construct is valid, with the factor loading value more than 0.5 and the  $t$ -value more than 1.966 ( $df = 431$  and  $= 0.05$ ). The factor loading on the dimension of cognitive symptoms is

0.74, the dimension of emotional symptoms is 0.80, and the dimension of physical symptoms is 1.00. The higher the loading factor value, the more reliable the dimensions to form the construct are. The t-value for each dimension sequentially is 4.26, 6.63, and 4.54.

The t-value of 31 items on the academic anxiety instrument is more than 1.965 (df = 461 and = 0.05). It means that items in the academic anxiety instrument are valid and feasible to use. The calculation results showed that CR = 0.881 and VE = 0.202. So, the 31 items are good. Meanwhile, for the structural model, the CR = 0.888 and the VE = 0.730. This values have fulfilled the requirements and far exceeds the critical limit. So, the reliability of the measurement model (construct) is good.

**b. The Second Trial Phase**

The result of first stage showed that four items are invalid because their t-value is lower than 1.966 (df = 431; = 0.05). They are items number 2, 11, 16, and 28. Since there are four invalid items, the second stage of the first-order CFA testing is carried out by removing them. Figure 7 and Figure 8 show that 27 items are declared valid because their t-value is more than 1.965 (df = 461; = 0.05). Thus the 27 items can be declared eligible to be used. Figure 8 shows that the t-value of all manifest variables is more than 1.967 (df = 321; = 0.05). It means that the relationship between manifest variables and dimensions is significant.

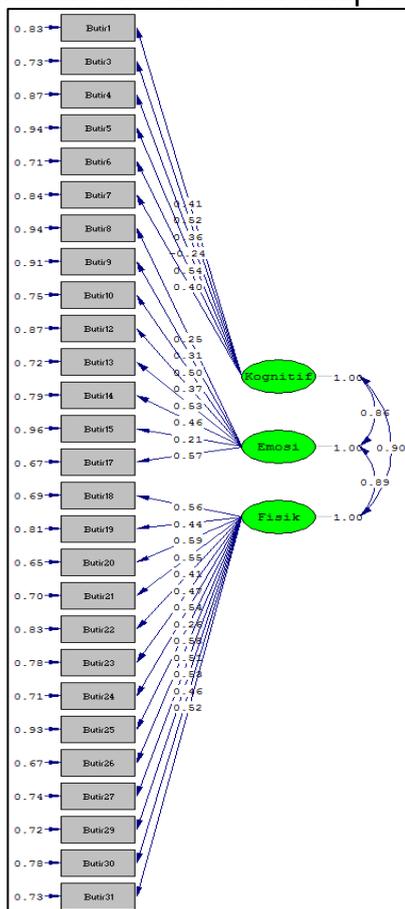


Figure 7 The Standardized Solution of The First-Order CFA

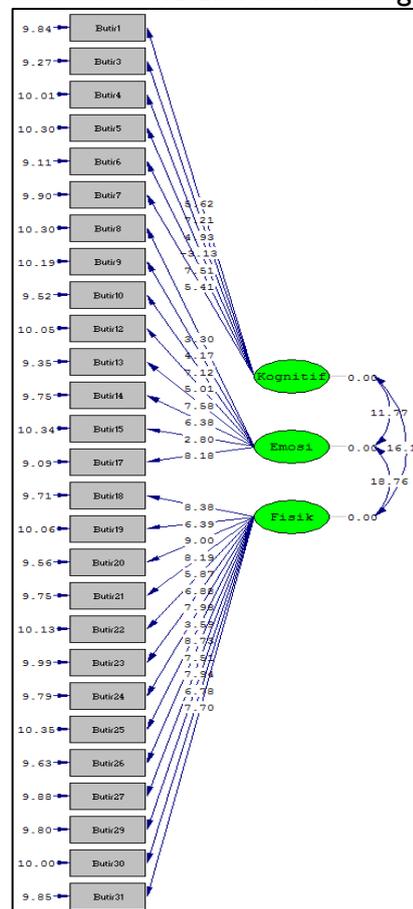


Figure 8 The T-Value of The First-Order CFA

Figure 10 shows that the t-value of 27 items on the academic anxiety instrument is more than 1.967 (df = 321 and = 0.05). It means that items are declared construct valid. So, the academic anxiety instrument consists of 27 items. All items can measure the indicators, dimensions, and variables that were the focus of this study. Figure 11 and Figure 12 show that the factor loading on the dimensions that make up the construct is valid, with the factor loading value more than 0.5 and the t-value more than 1.967 (df = 321 and = 0.05). The

factor loading on the dimensions of cognitive symptoms is 0.93, the dimension of emotional symptoms is 0.92, and the dimension of physical symptoms is 0.96. The higher the loading factor value, the more reliable the dimensions to form the construct are. The t-value for each dimension sequentially is 5.50, 3.26, and 7.87.

The t-value of 27 items on the academic anxiety instrument is more than 1.967 (df = 321 and  $\alpha = 0.05$ ). It means that items in the developed academic anxiety instrument are valid. The calculation results showed that CR = 0.873 and VE = 0.213. So, the 27 items are good. Meanwhile, for the structural model, the CR = 0.956 and the VE = 0.880. These values have fulfilled the requirements and far exceed the critical limit. So, the reliability of the measurement model (construct) is good.

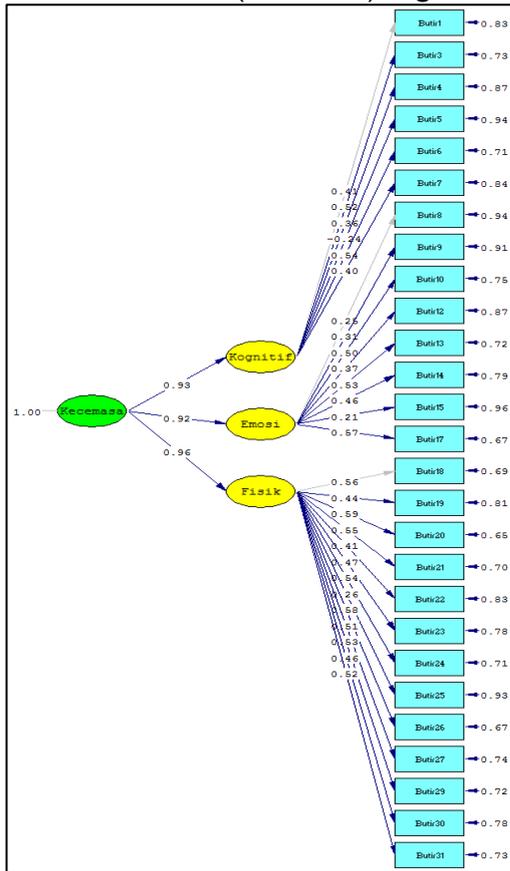


Figure 9 The Basic Model Standardized Solution The Second-Order CFA of The Second Trial Phase

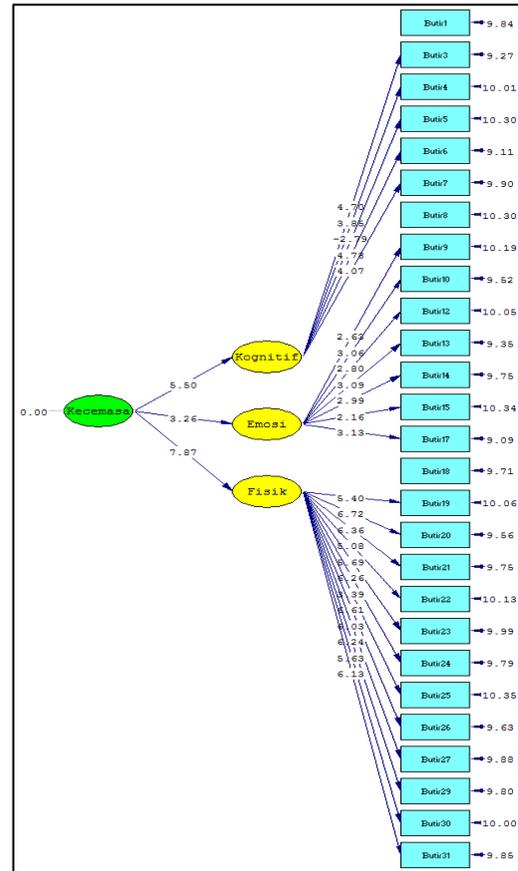


Figure 10 The Basic Model T-Value The Second-Order CFA of The Second Trial Phase

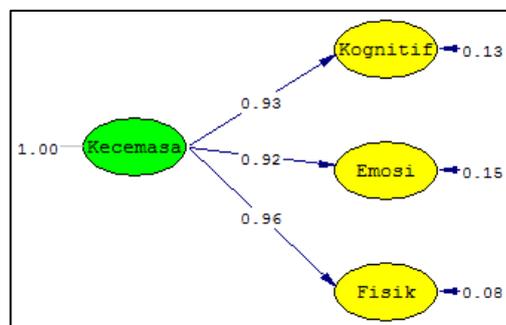


Figure 11 The Factor Analysis Structural Model Standardized Solution of The Second Trial Phase

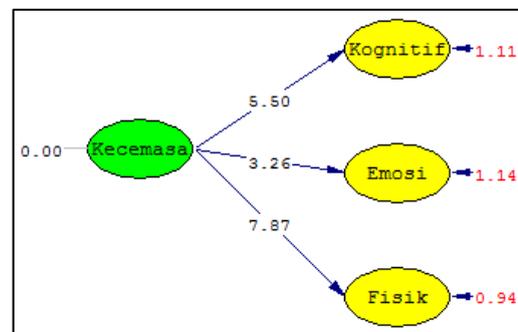


Figure 12 The Factor Analysis Structural Model T-Value of The Second Trial Phase

## 5. Evaluation

Due to the tendency of respondents in the first trial phase and second trial phase, they tend to choose a neutral response. So, the measurement scale is adjusted for each statement item. The measuring scale used is a modified Likert scale. The resulting academic anxiety instrument finally contains 27 items. Each item is equipped with four choices, namely strongly disagree, disagree, agree, and strongly agree. Based on the results, the indicators that make up the dimensions of cognitive symptoms are anxiety or afraid of failure, irrelevant in thinking, and limitations in thinking. The indicators that make up the dimensions of emotional symptoms are easy to get dizzy, easy to feel panicked or scared, easy to feel tense, and having trouble slipping. Meanwhile, the indicators that make up the dimensions of physical symptoms are rolling the eyes when angry, shortness of breath, the facial muscles looking tense, the intonation of the voice becoming louder, experiencing cardiovascular symptoms, and experiencing urogenital symptoms.

## CONCLUSION

Based on the results, the conclusions of this study are: (1) the academic anxiety instrument was developed by ADDIE model, (2) the coefficient of content validity through the use of Aiken's V formulation for each item is more than 0.200 with a reliability coefficient = 0.893, (3) the first trial phase showed that eight items had to be dropped through CFA so the CR and VE values of 31 items for the measurement model were 0.881 and 0.202, while the CR and VE values for the structural model were 0.888 and 0.730, and (4) the second trial showed that four items had to be dropped through CFA so the CR and VE values for the measurement model were 0.873 and 0.213, while the CR and VE values for the structural model were 0.956 and 0.880.

## REFERENCES

- Annisa, L., Surani, & Mirwanti, R. (2018). Tingkat Kecemasan Mahasiswa Keperawatan dalam Menghadapi Ujian Berbasis Computer Based Test. *MEDIASAINS: Jurnal Ilmiah Ilmu-Ilmu Kesehatan*, 16(2), 67-75.
- Apriliana, R. (2016). Hubungan antara Kecemasan terhadap Karir Masa Depan dan Konsep Diri Akademik dengan Prokrastinasi Skripsi pada Mahasiswa. *Jurnal Proyeksi*, 11(1), 24-35.
- Asdar, A. K. (2018). Ketidakwajaran Skor Seleksi Penerimaan Mahasiswa Baru. *Vijacariya*, 1-16.
- Ati, E., Kurniawati, Y., & Nurwanti, R. (2015). Peran Impostor Syndrome dalam Menjelaskan Kecemasan Akademik pada Mahasiswa Baru. *Jurnal Mediapsi*, 1(1), 1-9.
- Borich, G. (1996). *Effective Teaching Methods*. New Jersey: Prentice Hall.
- Cassady, J., & Johnson, R. (2002). Cognitive Test Anxiety and Academic Performance. *Contemporary Educational Psychology*, 27, 270-295.
- Elliot, S. N. (2000). *Educational Psychology: Effective Teaching, Effective Learning*. London: McGraw-Hill.
- Hanifah, & Abadi, A. (2018). Hubungan antara Pemahaman Konsep dan Kecemasan Menghadapi Mata Kuliah Teori Grup dengan Prestasi Akademik Mahasiswa. *Kreano: Jurnal Matematika Kreatif-Inovatif*, 9(2), 156-153.
- Irman. (2015). Pengelolaan Kecemasan Akademik Siswa melalui Pelatihan Regulasi Emosi. *Jurnal Al-Qalb*, 7(2), 62-71.
- Jamaris, M. (2010). *Orientasi Baru dalam Psikologi Pendidikan*. Jakarta: Yayasan Penamas Murni.
- Lazarus, R. S. (1969). *Patterns of Adjustment and Human Effectiveness*. New York: McGraw-Hill Book Company.

- Manoppo, Y., & Mardapi, D. (2014). Analisis Metode Cheating pada Tes Berskala Besar. *Jurnal Penelitian dan Evaluasi Pendidikan Tahun 18*, 115-128.
- Ottens, A. J. (1991). *Coping with Academic Anxiety*. New York: The Rosen Publishing Group.
- Prawitasari, J. E. (2012). *Psikologi Terapan Melintas Batas Disiplin Ilmu*. Jakarta: Erlangga.
- Sanitiara, & Nazriati, E. (2014). Hubungan Kecemasan Akademis dengan Regulasi Diri dalam Belajar pada Mahasiswa Tahun Pertama Fakultas Kedokteran Universitas Riau Tahun 2013/2014. *Jurnal Online Mahasiswa Fakultas Kedokteran, 1*(2), 1-9.
- Santrock, J. W. (2014). *Psikologi Pendidikan*. Jakarta: Salemba Humanika.
- Setyobroto, S. (2004). *Psikologi suatu Pengantar*. Jakarta: Percetakan Solo.
- Shahrouri, E. (2016). Sources of Academic Anxiety Among Undergraduate Students Contemporary Study Between Private and Fovernment Universities. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, 7(2), 118-124.
- Siddiqui, M. A., & Rehman, A. U. (2014). An Interactional Study of Academic Anxiety in Relation to Socio-Economic Status, Gender, and School Type Among Secondary School Students. *International Journal of Educational Research and Technology*, 5(2), 74-79.
- Suratmi, A. R., & Taufik, M. (2017). Hubungan antara Tingkat Kecemasan dengan Hasil Belajar Mahasiswa di Program Studi Pendidikan Biologi Untirta. *Jurnal Pembelajaran Biologi*, 4(1), 71-76.
- Variansyaah, V., & Listiara, A. (2017). Hubungan Orientasi Tujuan Performa dengan Kecemasan Akademik pada Siswa Kelas X di SMA Negeri "A" Semarang. *Jurnal Empati*, 6(1), 419-424.