



ADPIKS

Asosiasi Dosen Peneliti
Ilmu Keislaman dan Sosial

THE CAUSAL RELATIONSHIP BETWEEN SELF-DETERMINATION AND ACADEMIC MOTIVATION AMONG HIGH-SCHOOL STUDENTS IN BANDA ACEH

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Abstract

This cross-sectional study purpose is to examine both of the self-determination and academic performance-hypothesized to be a multidimensional construct. Another purpose was to examine the relationship between students' self-determination and their academic motivation. The sample consisted of 300 senior high school students from 5 selected schools in Banda Aceh, Indonesia. The data was collected using a self-reported of 21-item questionnaire measuring students' self-determination and academic motivation. Confirmatory Factor Analysis procedures confirmed the structure's measurement validity. SEM fit statistics indicated strong influences of self-determination on academic motivation. The results confirmed the study's hypotheses regarding the multidimensionality of SDT and academic performance, the adequacy of the measurement model of Self-Determination Theory (SDT) and its strong positive role in influencing academic motivation. The results of the study supported and extended the results of previous work on STD. The study also found evidence that students' self-determination is a valid and reliable multidimensional construct. The findings are useful in making evidence-informed the important of self-determination on students' personality development and their motivation. This research is also significant for its contribution towards students' academic motivation in school before they further their study in higher learning education.

Keywords: *self-determination theory (sdt); academic motivation; personality development; psychometric properties.*

Abstrak

Tujuan studi cross-sectional ini adalah untuk menguji penentuan nasib sendiri dan kinerja akademik yang dihipotesiskan menjadi konstruksi multidimensi. Tujuan lain adalah untuk menguji hubungan antara penentuan nasib sendiri siswa dan motivasi akademik mereka. Sampel terdiri dari 300 siswa SMA dari 5 sekolah terpilih di Banda Aceh, Indonesia. Data dikumpulkan menggunakan kuesioner 21 item yang dilaporkan sendiri yang mengukur penentuan nasib sendiri dan motivasi akademik siswa. Prosedur Analisis Faktor Konfirmatori mengkonfirmasi validitas pengukuran struktur. Statistik SEM fit menunjukkan pengaruh yang kuat dari penentuan nasib sendiri pada motivasi akademik. Hasil penelitian mengkonfirmasi hipotesis penelitian mengenai multidimensi SDT dan kinerja akademik, kecukupan model pengukuran Self-Determination Theory (SDT), dan peran positif yang kuat dalam mempengaruhi motivasi akademik. Hasil penelitian mendukung dan memperluas hasil penelitian sebelumnya tentang STD. Studi ini juga menemukan bukti bahwa penentuan nasib sendiri siswa adalah konstruk multidimensi yang valid dan dapat diandalkan. Temuan ini berguna dalam membuat bukti-informasi pentingnya penentuan nasib sendiri pada pengembangan kepribadian siswa dan motivasi mereka. Penelitian ini juga signifikan kontribusinya terhadap motivasi akademik siswa di sekolah sebelum mereka melanjutkan studi di pendidikan tinggi.

Kata kunci: *self-determination theory (sdt); motivasi akademik; pengembangan kepribadian; sifat psikometrik.*

INTRODUCTION

Motivation is recognized as a set of beliefs that drive and sustain behaviour. It is also a significant predictor to learning and success in school (Kiefer & Florida, 2015). Motivation can be defined as a force that activates, directs, and sustains goal-directed behaviour (Liu et al., 2016). Meanwhile, being self-determined means that one's actions are relatively autonomous, freely chosen, and fully endorsed by the person rather than coerced or pressured by external forces or internal expectations (Deci & Ryan, 2000). According to Legault (2017), Self-Determined Theory (SDT) is based on the fundamental humanistic assumption that persons position themselves toward growth and self-organization by natural and dynamic.

Ryan and Deci (2000) in their seminal study suggest that SDT is a metatheory of human motivation and personality development. It is a combination of several “mini-theories” which wrap together. The foundation of the theory is the idea of basic psychological needs which are autonomy, competence and relatedness which, when satisfied, allow for optimal human functioning, wellbeing and growth (Ryan & Deci, 2017). Legault (2017) emphasizes that in order to flourish and grow, all individuals strive for and need autonomy (the need to feel free and self-directed), competence (the need to feel effective), and relatedness (the need to connect closely with others). Hence, Legault (2017) proposes that SDT is concentrated on the basic psychological needs namely autonomy, competence, and relatedness, and also their necessary role in self-determined motivation, well-being, and growth.

Previously, Ryan and Deci (Deci & Ryan, 2000) had also examined factors that enhance intrinsic motivation, self-regulation, and well-being. Their findings suggest three basic psychological needs namely; competence, autonomy, and relatedness that are the essential constituents for psychological development and well-being. According to them, when the basics are fulfilled, it can enhance self-motivation and mental health (Deci & Ryan, 2000). Other researchers also found that motivation in learning has consistently been linked to reduced dropout and increased level of student success.

The study regarding self-determination and academic performance is a phenomenon which has been given special attention by the researchers in West for a long time ago. Most of the previous findings show the importance of self-determination in developing individual's personality and in enhancing individual's self-motivation and

mental health(Deci & Ryan, 2000). However, there is inadequate information on the empirical study of self-determination and academic performance in Asia especially in Aceh, Indonesia. Aceh is one of the provinces in Indonesia and its population has the highest percentage of Muslims in Indonesia, who mostly live according to Sharia law. Even though the SDT theory was well established in Western context, we do not know whether the findings of these studies, can be applied to the Indonesian and Islamic context in particular. Therefore, this study is needed in order to fill these gaps. This study embarks on three objectives: 1) *to validate the psychometric properties in term of reliability and convergent validity of students' self-determination.* 2). *to validate the psychometric properties in term of reliability and convergent validity of students' academic motivation.* 3). *to examine the relationship between students' self-determination and their academic motivation.*

Self-Determination

SDT asserts that individuals' motivation and self-determination are mediated by their satisfactions of the basic human needs of autonomy, competency, and relatedness(Deci et al., 2001). Ryan and Deci (2002) state that when individuals are autonomous, they have the opportunity to self-generate the behaviours necessary to achieve cohesion within one's sense of self and the engaged activity. SDT maintains that if the environment supports the autonomy of the individual, more autonomous motivation will occur (Deci & Ryan, 2000). For personal well-being, relatedness is necessary to maintain a sense of belonging through meaningful connection with others. Meanwhile, according to McAuliffe et al (2008), learners will gain both competencies and capabilities in self-determined learning. Learners will indicate acquired competency when they demonstrate skills and repeat the activity through knowledge retrieval. Blaschke (Irving, 2016) suggests that when feelings of competency are high it will directly influence the person's motivation to learn more. This is because they perceive themselves as capable of learning and having the capacity to learn more.

Academic Motivation

Academic motivation is defined as the students' desire or interest in engaging with learning and their school experience (Hulleman et al., 2016). According to Wu

(2019), some students have innate drive and interest to learn, while other students value learning as important or useful. Meanwhile, there are also some students who are motivated to learn extrinsically. Wu also proposed that there are different levels (low to high) and types (intrinsic, extrinsic, and amotivation) of motivation. According to, intrinsic motivation refers to a desire to engage in a task derived from individual's interest or pure pleasure, whereas extrinsic motivation refers that individuals engage in tasks due to external reinforcements or rewards.

Extrinsic and Intrinsic Motivation

Extrinsic motivation refers to the concept whereby an individual's behavior is driven by influences separate from the actual activity (Deci & Ryan, 2000). Extrinsically motivating tasks can be met with "resentment, resistance, and disinterest or, alternatively, with an attitude of willingness that reflects an inner acceptance of the value or utility of a task" and educators should understand how learning is affected by different types of extrinsic motivation. Deci and Ryan (Deci & Ryan, 2002) add that extrinsically motivated behaviours are undertaken to attain an end state that is separate from the actual behaviour.

Meanwhile, according to Bachman & Stewart, individuals who pursue an activity because they find it pleasurable, or gratifying are experiencing intrinsic motivation. Opportunities to master difficult and challenging activities will promote feelings of efficacy and will also allow the individual to experience intrinsic motivation (Bachman & Stewart, 2011)

Research Framework and Hypotheses

Research on Self-determination theory (SDT) is beginning to surface with a focus on increasing student motivation. Self-determination theory was chosen by the researchers as the ideal framework to reference during the research as its components (i.e., human psychological needs for autonomy, competency, and relatedness) are most relevant to the psychological needs of the students. The scale that used to measure self-determination was adapted from Deci, Ryan, Gagne, Leone, Usunov and Kornazheva as well as from La Guardia, Ryan, Couschman and Deci (Deci et al., 2001). Fundamental to Deci and Ryan's self-determination theory is the concept that for healthy development,

the essential psychological needs of autonomy, competency, and relatedness must be met. Self-determination theory (SDT) and the motivating factors are associated with teaching students of various ages in multiple subjects and ability levels.

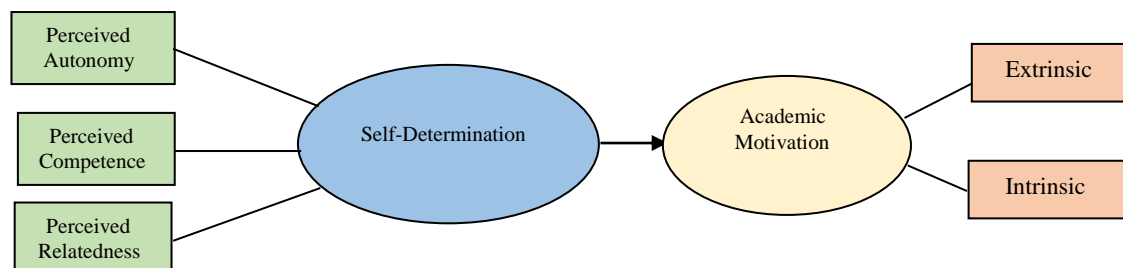


Figure 1 The conceptual framework of factors in satisfying the self-determination and enhancing academic motivation;(Deci & Ryan, 2002); (Wininger, 2007).

Figure 1 is a conceptual framework that summarize the role of autonomy, competence and relatedness in satisfying the basic psychological needs or self-determination and then, enhancing intrinsic and extrinsic motivation. Based on the theoretical underpinnings, the following research hypotheses were posed;

- H1: The measure of multidimensional self-determination is construct valid
- H2: The measure of multidimensional academic motivation is construct valid
- H3: Students self-determination influencing their academic motivation.

RESEARCH METHOD

The data was collected using a self-reported of survey questionnaire to gather data on self-determination and academic performance among senior high school students in Banda Aceh, Indonesia. At the time of data collection, the population of this study was 1745 students and 300 students from 5 schools were selected as a sample. Of the 300 students 145 (48.3%) were male, whereas 155 (5.17%) of the students were female. Furthermore, the sample in this study shared the same demographic characteristics. Several conditions were taken into considerations in selecting the population. Firstly, the population was chosen based on several criteria of the schools, namely; (i) public school, (ii) urban area, and (iii) prestigious school. Secondly, the demographic criteria of the respondents were; (i) aged between 15-17 years old and (ii) majoring in social science and natural science.

20 items were used for the study measure SDT was adapted and adopted from two sources (Deci et al., 2001)). On the other hand, 15 items that was used to examine the academic motivation was adopted from (Vallerand et al., 1992). Therefore, this questionnaire initially has 35 items and classified into three sections. Section A contains the part of demographic information of respondents, i.e. school, class, area of specialization, gender and age. Meanwhile, in section B and C, the questionnaires used five Likert Scale agreement. Furthermore, this questionnaire was interpreted as Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5).

SDT has been empirically validated in various educational settings;(Smetana, 2017);(Litalien et al., 2017). Some researchers found that, intrinsic motivation in educational settings has been found positively relate to academic outcomes (Litalien et al., 2017);(Trevino & DeFreitas, 2014), while extrinsic motivation negatively relates to persistence, classroom engagement, and academic outcomes, and hinders the positive influence of intrinsic motivation (Crumpton & Gregory, 2011).

Reliability refers to the stability and consistency of the test score. Reliability above .60 is acceptable for social science (Heale & Twycross, 2015). For this study, the internal consistency was tested using Cronbach's alpha and the reliability estimates self-determination scale at .922 and the academic motivation scale at .805. The items had been empirically tested a number of times prior to being selected in the present study. Eleven items representing the three hypothesized dimensions (i.e autonomy, competence and relatedness) were used to assess SDT. Similarly, academic motivations representing the two hypothesized dimensions (i.e extrinsic and intrinsic) was used to assess students' academic motivation.

Data Analysis

The study conducted a confirmatory factor analysis (CFA) and a full-fledged modelling using the AMOS (version 22) model-fitting program was applied to validate the measurement of both the SDT and Academic Motivation as well as test influence of SDT on academic motivation. The study ran a confirmatory factor analysis and a full-fledged modelling to verify the adequacy of the hypothesized measurement model and the structural model. The hypothesized models were estimated using the covariance matrix derived from the data. Thus, the estimation procedures employed satisfied the

underlying statistical distribution theory, hence yielding estimates of defensible properties.

RESULT AND DISCUSSION

Measurement Validity of Self-Determination

To test the validity of the self-determination measure, a CFA was applied on the data drawn from the sample (n=300). The results of the estimated measurement model indicated that the three-factor structure of self-determination was adequate to represent the data. The goodness-of-fit of the model was reasonable, the relative Normed Chi square = 1.72; RMSEA = .049; CFI = .97.

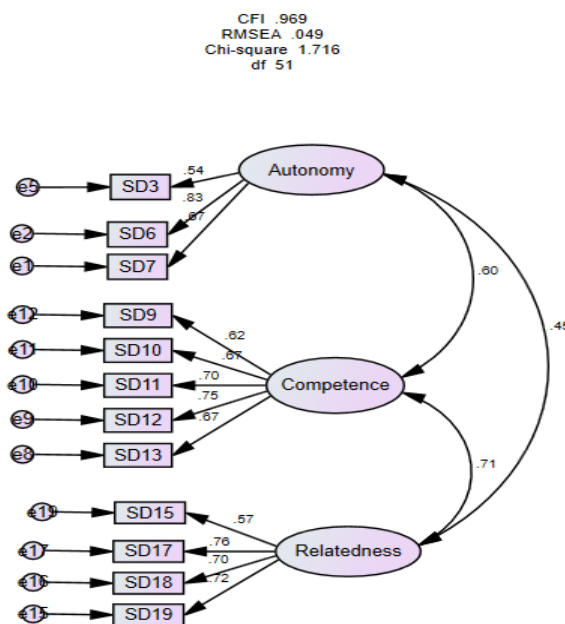


Figure 2. CFA Results Confirming a Three-Factor Structure of Self-Determination

Additional evidence regarding the adequacy of the measurement model in terms of its convergent validity and discriminant validity is provided. Figure 2 shows that all items have a loading of more than 0.5 and ranged from 0.54 to 0.83. In this case, the factor loadings for the items are acceptable with adequate sample size 300 respondents (Hair et al., 2006). Therefore, all indicators in the current study are related to their constructs and thus there is satisfactory proof of convergent validity of the model.

Measurement Validity of Academic Motivation

To test the validity of the self-determination measure, a CFA was applied on the data drawn from the sample (n=300). The results of the estimated measurement model indicated that the three-factor structure of self-determination was adequate to represent the data. The goodness-of-fit of the model was reasonable, the relative Normed Chi square = 2.19; RMSEA = .063; CFI = .96.

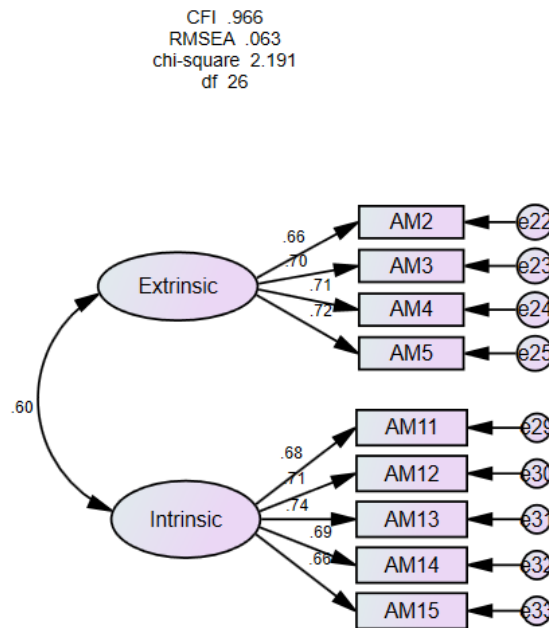


Figure 3. CFA Results Confirming a Two-Factor Structure of Academic Motivation

Additional evidence regarding the adequacy of the measurement model in terms of its convergent validity and discriminant validity is summarized in Figure 3. Figure 3 shows that all items have a loading of more than 0.5 and ranged from 0.66 to 0.74. In this case, the factor loadings for the items are acceptable with adequate sample size 300 respondents (Hair et al., 2006). Therefore, all indicators in the current study are related to their constructs and thus there is satisfactory proof of convergent validity of the model.

Adequacy of the Hypothesized SDT and Academic Motivation Model

Figure 3 shows the Structural Equation Modelling results of SDT and Academic Motivation model that addressed the third research hypothesis. The confirmatory modelling showed consistency of the hypothesized causal relationships with the data (RMSEA = .063; CFI = .906; Normed Chi-Square = 2.183). All these fit indices satisfied their critical cut-scores. The results, therefore, indicated a fitting model of the relationship between SDT and academic motivation. The parameter estimates of the hypothesized model were free from offending values with uncorrelated errors. The standardized path coefficient of SDT and Academic Motivation was substantial and statistically significant, $\beta = 0.66$

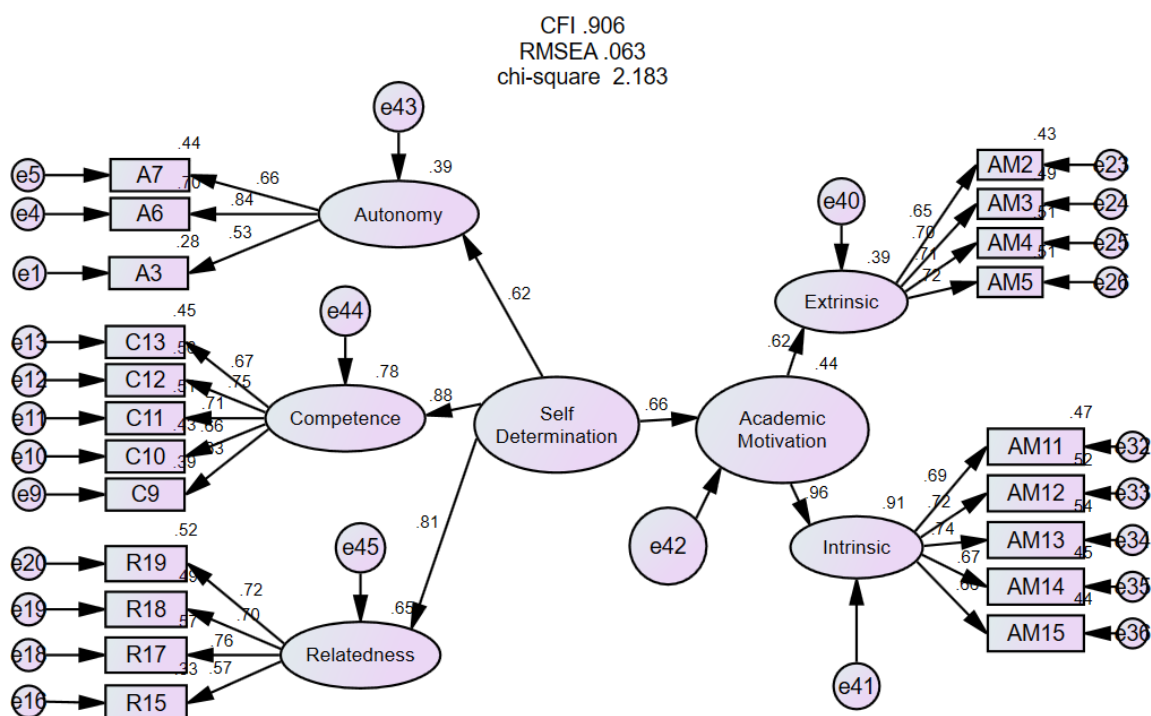


Figure 4 SEM Results of the Hypothesized SDT and Academic Motivation Model

Table 1 summarized the results of the CFA and SEM analyses. The data analysis results supported the expected causal relationships among both SDT and Academic Motivation variables. In other words, this study found that both SDT and academic motivation to be a valid and reliable multidimensional construct as well as a systematic association between them.

Table 1 Summary of CFA and SEM Hypothesis Testing Results

Hypothesis		Results
H1	The measure of multidimensional self-determination is construct valid	Supported
H2	The measure of multidimensional academic motivation is construct valid	Supported
H3	Students self-determination influencing their academic motivation.	Supported

CONCLUSION

The first aim of the study was to validate the hypothesized the factor structure for SDT and academic motivation. The evidence pointed to a three-factor structure for SDT and two-factor structure for academic motivation that is valid and reliable, thereby extending current understanding of their nature in several ways. The study also found that there is a causal relationship between self-determination and academic performance.

The finding also shows that high school students in Banda Aceh self-determination influencing their academic motivation. Therefore, the study supports the findings by Ryan & Deci suggest that there are three basic psychological needs namely; competence, autonomy, and relatedness and essential for psychological development and well-being. When the basics are fulfilled, it can enhance self-motivation

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