

The Role of Teacher Support and Academic Self-Efficacy on Self-Regulated Learning of Physically Disabled Students in Inclusive School with Academic Self-Concept as a Mediator

Bibit Mulyana

Doctoral Student of Psychology Universitas Airlangga Surabaya-Indonesia
mulyana.wisem@gmail.com

Mareyke M.W. Tairas

Doctoral Lecturer of Psychology Universitas Airlangga Surabaya – Indonesia
mareyke.tairas@psikologi.unair.ac.id

Dewi Retno Suminar

Doctoral Lecturer of Psychology Universitas Airlangga Surabaya – Indonesia
dewi.suminar@psikologi.unair.ac.id

Abstract

Students with physical disabilities experience many problems with learning. The self-regulated learning model is an independent learning model that teaches students how to effectively organize and manage themselves, to ensure optimal learning outcomes. Our purpose is to analyze how teacher support and academic self-efficacy could influence the self-regulated learning model, specifically with academic self-efficacy as a mediating variable. We used survey as our research instrument. Meanwhile, the analysis method used path analysis. Our findings show that academic self-efficacy could significantly increase the self-regulated learning of physically disabled students. Teacher support had a minimal effect on improving the self-regulated learning of physically disabled students. We also found the importance of academic self-concept as a mediator in increasing self-regulated learning of physically disabled students. Future research is advised to include other social support variables such as parental and peer support into the model. Our findings can be used as a reference for developing a curriculum on a self-regulated learning model for disabled students.

Keywords: Teacher support, academic self-concept, academic self-efficacy, self-regulated learning, physically disabled students

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Introduction

Self-regulated learning is critical for the learning experience of students. It helps to develop learning habits and strengthen learning abilities (Zimmerman, 2008). The cognitive theory of

Bandura states that self-regulated learning could increase children's autonomy in learning. Students who can adequately manage their learning will perform well (Bandura, 1997). Self-regulated learning (SRL), or self-management in learning, is a way to achieve educational goals. SRL will also create better learning habits (Pintrich, 1990). Several components of learning must be prepared to be successful: teachers, adequate learning facilities, and a conducive learning environment. The fulfillment of some of these components would increase the possibility for students to succeed in their studies (Butler, 1998).

Stevens et al. (1996) stated that many factors could influence SRL, such as academic self-efficacy and social support. Academic self-efficacy refers to the individual assessment of one's ability or competence to perform tasks, achieve goals, or overcome obstacles in learning (Cobb, 2003). Meanwhile, social support is a significant factor in independent learning, particularly those received from teachers (Elliot & Gramling, 1990).

Previous studies have shown a relatively similar pattern, namely that there is a connection between SRL with the learning achievements of typical students from regular schools. One such example is a study on SRL by Steinberg and Darling (1994) that examined the relationship between social support and self-regulated learning. Their study showed that family and teacher support could improve students' SRL and learning outcomes. The study included students from regular schools between the ages of 15-18 years.

Pape and Wang (2003) examined the impact that occurs if a student has no SRL. The results showed that students with no SRL often rely on others in solving problems. Thus, having irregular learning process. This study used regular students, aged between 12-16 years. Woolley (2011) examined the relationship between academic self-concept and SRL. The results showed that academic self-concept directly influences the formation of SRL and is critical in developing students' independent learning. In this study, the subjects were average students in regular schools.

Based on those facts, this study aims to test whether teacher support and academic self-efficacy could affect the SRL of physically disabled students in inclusive schools, with academic self-concept as a mediator. Students with physical disabilities in inclusive schools

have many obstacles in learning. Therefore, students with physical disabilities need many support, especially from their teachers. They would also need to develop a strong sense of academic self-efficacy (Meng-Yueh Chien et al., 2010). The current study will answer the gap of knowledge about the effect of teacher support and academic self-efficacy on self-regulated learning, specifically among physically disabled students that previous studies did not examine (Pape & Wang, 2003; Woolley, 2011; Sun, Xie, & Anderman, 2018; Lau, Kitsantas, Miller, & Rotssers, 2018). The result of the current study will give enlightenment to the issue above.

Self-Regulated Learning

Self-regulated learning refers to autonomic learning that provides flexibility to students to effectively manage their own learning experience through various strategies—thereby ensuring that learning outcomes are achieved (Zimmerman, 2000). According to Jarvela and Jarvenoja (2011), SRL is essentially considered to have a strategic role in determining success in learning. Corno (2001) states that students with good SRL are capable of (a) planning, (b) setting goals, (c) managing time or schedule, and (d) monitoring themselves in various aspects during the learning implementation process. Similarly, Henderson (1986) states that students with excellent SRL can create a good learning environment. SRL helps students to choose what they want to learn, determine how long they want to learn, how to study appropriately, access relevant effective teaching materials, and assess their level of understanding of a given material (Zimmerman & Barry, 1989).

Social Support

Previous studies have shown that many psychological problems link to social support, such as depression, loneliness, anxiety, fear of failure (Elliot & Gramling, 1990). The results of the study found that social support can reduce students' depression, anxiety, and stress in facing learning problems. Studies have also shown that social support could help students manage their learning experience and reduce psychological problems (Aris, Yasi., & Mariam, 2011). Steinberg and Darling (1994) stated that social support is an essential factor that influences SRL and student achievement.

Social support from teachers, parents, and friends have a significant impact on increasing motivation to learn, SRL, and students' effort to achieve optimal learning outcome (Tyler, 2006). Social support can reduce students' psychological problems because of the existence of teachers, parents, and friends who could motivate and inspire them (Steinberg & Darling, 1994). Students with physical disabilities have limited opportunities to interact with classmates with a regular healthy body; thus, social support from teachers becomes vital (Mpofu, 2003).

Teacher support can come in various forms, ranging from assisting assignments to showing concern over the students' well-being. Teacher support will show students that their teacher cares and will help them when needed (Mitchell & DellaMattera, 2010). Teacher support is defined as the interaction or relationship carried out by the teacher with students in the form of real assistance directly related to the subject matter faced by students. Students feel that they are loved and cared for by their teachers. This definition contains two main aspects found in teacher support, namely the support received and perceived support (Mitchell, & DellaMattera, 2010).

Teacher support has a significant impact on increasing the motivation to learn, SRL, as well as cultivate the efforts that students give to achieve their highest accomplishment. This is because teacher support is the first source of support that students can experience (Steinberg and Darling, 1994). Students who received support can see that they have teachers who will continue to motivate and inspire them; thus, reducing their psychological problems (Endedijk, Vermunt, Verloop, & Brekelmans, 2012).

Academic Self-Efficacy

In addition to teacher support, academic self-efficacy can also influence SRL. Self-efficacy is an individual's assessment of his/her ability to perform tasks, achieve goals, or overcome obstacles in learning (Cobb, 2003). Self-efficacy can influence students' choice of tasks, effort, perseverance, and achievement. Students with high self-efficacy will increase their cognitive use and SRL strategies (Savolainen et al., 2012). According to Bandura (1997), academic self-efficacy is a person's belief related to the ability to achieve and complete learning

assignments with regards to predetermined target results. Academic self-efficacy refers more to the consideration of one's beliefs about his/her ability to perform learning activities and his/her ability to complete learning tasks. For example, a student with low self-efficacy may not want to try studying for an exam because he does not believe that learning will help him solve problems, including issues on learning (Lampert, 2007).

Academic self-efficacy influences SRL in students (Bandura, 1977). Students with high academic self-efficacy will have confidence in their ability to organize and complete tasks to achieve specific results in various forms and difficulty levels (Bandura, 1997). Someone with self-efficacy can effectively manage his or her own learning experience in various ways to achieve optimal learning outcomes (Schunk & Swartz, 1993).

Academic self-concept

Academic self-concept can affect SRL, learning achievements, as well as the students' future (Marsh, Byrne, & Shavelson, 1988). The same results were conveyed by Ahmavaara & Houston (2007), who stated that students' academic self-concept significantly correlates with SRL and their future. Students should have academic self-concept since very early on to ensure a better future ahead (Deosaran, 1978). Studies found that we can increase students' academic self-concept by assigning them to specific study groups. Academic self-concept affects a student's SRL (Marsh, Hau, & Kong, 2002)

Academic self-concept, which improves academic achievement and SRL, is formed and developed through interacting with students' significant others at schools (i.e., parents, teachers, friends) (Rosen, 2010). Academic self-concept influences SRL. It is a part of the psychological aspect that belongs to the psycho-humanistic field. In psychology, academic self-concept usually refers to students' composition of ideas, feelings, and attitudes regarding themselves (Marsh, & Yeung, 1997). Academic self-concept has a significant role in students' development, especially in the continuity of their education (Bakari & Dramanu, 2013). The development of academic self-concept is not limited to the influence of parents, but also peers and teachers (Louise, 2011). Students' academic self-concept significantly correlates

with SRL and their future; therefore, having academic self-concept will ensure a better future ahead (Burns, 1979).

Hypothesis

H1: Academic self-efficacy and teacher support, with academic self-concept as a mediator, affects the self-regulated learning of physically disabled students in inclusive schools.

H2: Academic self-efficacy, with academic self-concept as a mediator, affects the self-regulated learning of physically disabled students.

H3: Teacher support, with academic self-concept as a mediator, affects the self-regulated learning of physically disabled students.

H4: Academic self-concept affects self-regulated learning of physically disabled students.

Method

Respondents

The population in this study were 270 physically-disabled students, ranging from 12-16 years old, who goes to inclusive schools in East Java. The cluster sampling technique was used, and 210 students were selected as samples. The study is a correlational cross-sectional study design, in which all research variables were measured at the same time to examine how the independent variable affects the dependent variable. All respondents have read informed consent and agreed to participate voluntarily in this study. Their parents also provided informed consent, permitting their children to participate in this study.

Measurements

This study have three variables, namely self-regulated learning (SRL) as the dependent variable, academic self-efficacy (ASE) and teacher support (TSS) as the independent variables, as well as academic self-concept (ASC) as the mediator. We used questionnaires as the main instrument, containing fifty five items to measure SRL by Zimmerman (1990), seven items on academic self-efficacy by Bandura (1997), six items on teacher support by Alan Vaux (1986), and 20 items on academic self-concept by Liu & Wang (2005).

The validity testing of this study used the corrected item total correlation. Based on the validity testing, all questionnaire items that have a significance correlation probability under 0,05 will be considered valid. Based on those results, SRL only have 44 valid items, teacher support has four valid items, academic self-efficacy have six valid items, and academic self-concept have 13 questionnaire items. The final version of the questionnaire will only include the valid items as indicated previously. In other words, questionnaire items that were found to be invalid will not be used to measure the variables.

Next, we conducted a reliability testing. The result of the reliability testing was based on the Alpha Cronbach. Variables that scores above 0.60 (closer to one) will be considered reliable. The reliability testing found all variables to be reliable: SRL with an Alpha Cronbach score of 0.921; TSS with a score of 0.628; ASE with a score of 0.787; and ASC with a score of 0.783.

Data Analysis

Data were analyzed using path analysis, a statistical technique to test causal relationships between two or more variables. Path analysis allows testing of relationships with mediating variables (Ghozali, 2014).

Results

The result and discussion part of the study contained reviews related to the description of each research variable, and the influence of the relationship between all four variables. The findings on the relationship between these variables were obtained from the path analysis. Table I depicts the description of each research variables.

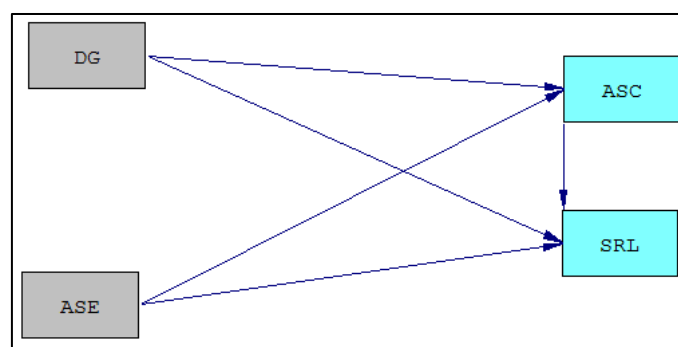


Figure 1. Research model

TSS : Social Support Teachers
 ASE : Academic Self Efficacy

ASC : Academic Self Concept
 SRL : Self Regulated Learning

Table I
 Descriptive Analysis

Variables		Frequency	Percentage
Teacher Support (TSS)	Very low	3	1.4%
	Low	58	27.6%
	Moderate	74	35.2%
	High	75	35.7%
	Very high	0	.0%
	Total	210	100.0%
Academic self-efficacy (ASE)	Very low	5	2.4%
	Low	61	29.0%
	Moderate	73	34.8%
	High	71	33.8%
	Very high	0	.0%
	Total	210	100.0%
Academic self-concept (ASC)	Very low	5	2.4%
	Low	50	23.8%
	Moderate	82	39.0%
	High	67	31.9%
	Very high	6	2.9%
	Total	210	100.0%
Self-regulated learning (SRL)	Very low	10	4.8%
	Low	49	23.3%
	Moderate	81	38.6%
	High	69	32.9%
	Very high	1	.5%
	Total	210	100.0%

Source: Primary Data (2018)

Table 1 shows that, among the 210 sample population, most of the respondents' TSS level is categorized within the high (35.7%) and moderate (35.2%) category. Their ASE level is mostly within the very high (34.8%) and high category (33.8%). Meanwhile, their ASC is mainly categorised within the moderate (39%) and high category (31.9%). Lastly, SRL has the highest value in the moderate (38.6%) and high category (32.9%). Figure 1 illustrates the relationship between all the research variables. Additionally, we obtained the weight and *t*-statistics value based on the path analysis result using Lisrel software. Figure 2 presents the visual form of those results.

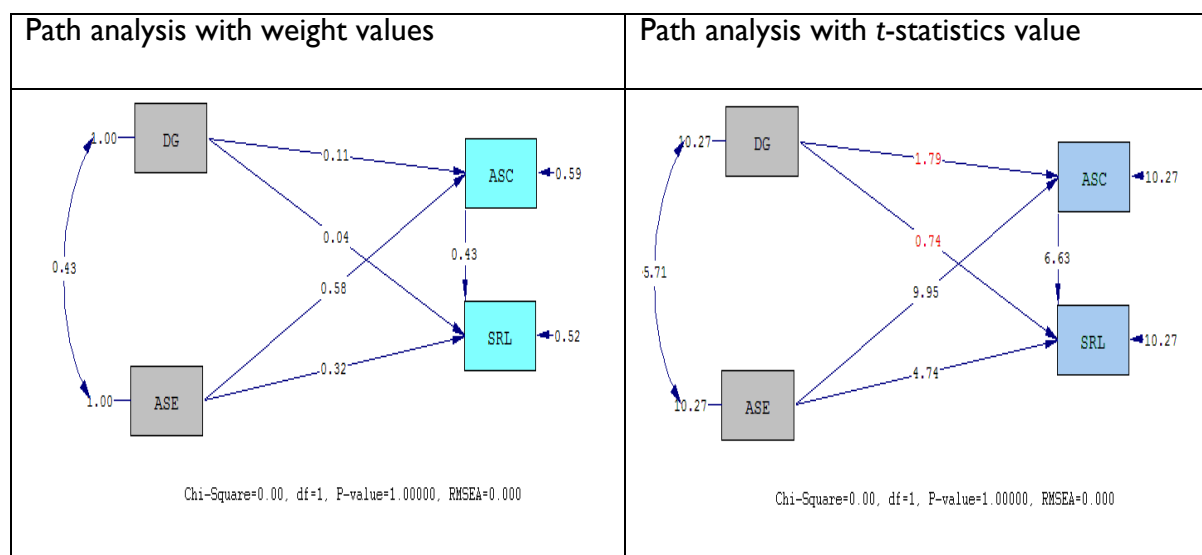


Figure 2. The path model of the influence of ASE and TSS on SRL, mediated by ASC.

Figure 2 shows the *t*-statistics value of the independent variables on the dependent variable through a mediating variable. Table 2 depicts the interpretation of the *t*-test results.

Table 2
 Path Analysis

Variables	Relationship Characteristic	t-statistics	t-table	Testing Result
Social Support on Self-Regulated Learning	Direct : Teachers Social Support (TSS) to Self-Regulated Learning (SRL)	0,74	1,97	Not significant
	Through mediator: Social Support Teachers (TSS) to Academic Self-Concept (ASC),	1,79	1,97	Not significant
	and Academic Self-Concept (ASC) to Self-Regulated Learning (SRL)	6,63	1,97	Significant
Academic Self-Efficacy (ASE) Variable on Self-Regulated Learning (SRL)	Direct : Academic Self-Efficacy (ASE) to Self-Regulated Learning (SRL)	4,74	1,97	Significant
	Through mediator: Academic Self-Efficacy (ASE) to Academic Self-Concept (ASC),	9,95	1,97	Significant
	And Academic Self-Concept (ASC) to Self-Regulated Learning (SRL)	6,63	1,97	Significant

Table 2 concludes that TSS affects SRL by using ASC as a mediator. However, this relationship is not statistically significant. On the contrary, ASE is found to have a significant influence on SRL with ASC as a mediator. Based on Figure 2, we also found the weight of the independent variables on the dependent variable through the mediator variable. Table 3 presents the weight between variables.

Table 3
The Weight of the Independent Variable on the Dependent Variable through Mediator

Variables	Relationship Characteristic	Weight of influence	Total weight of influence
Variable Social Support Teachers (TSS) on Self-Regulated Learning (SRL)	Direct: Social Support Teachers (TSS) to Self Regulated Learning (SRL)	0,04	0,09
	Through mediator: Social Support Teachers (TSS) to Academic Self Concept (ASC), and Academic Self Concept (ASC) to Self Regulated Learning (SRL)	$0,11 \times 0,43 = 0,05$	
Variable Academic Self Efficacy (ASE) on Self Regulated Learning (SRL)	Direct: Academic Self Efficacy (ASE) to Self Regulated Learning (SRL)	0,32	0,57
	Through mediator: Academic Self Efficacy (ASE) to Academic Self Concept (ASC), and Academic Self Concept (ASC) to Self Regulated Learning (SRL)	$0,58 \times 0,43 = 0,25$	

Based on Table 3, we discovered that the most substantial weight comes from the relationship between ASE and SRL, which is equal to 0.57. Meanwhile, the weight of TSS on SRL is 0.09. The weight value is in line with the t-test results where the influence of ASE was found to be significant on SRL, while the influence of TSS is not significant. Furthermore, from path analysis, the goodness of fit value is also discovered. Table 4 presents a comparison of the goodness of fit value with the criteria.

Table 4
The Comparison the Value of the Goodness of Fit with the Index Criteria

Goodness of Fit Value (GoF)	Index Criteria	goodness of fit value	Information
Chi Square (λ^2)	The value of chi square counts $< \text{table value } \lambda^2_{(5\%,1)}$	$0,00 < 3,84$	Model fit
Sig. Probability	The value of sig. $\geq 0,05$	$1,00 \geq 0,05$	Model fit
RMSEA	The value of RMSEA $\leq 0,05$	$0,00 \leq 0,05$	Model fit

Table 4 indicates that all goodness of fit meets the criteria for model fit. Thus, it can be concluded that the path model of the influence of academic self-efficacy and teacher support

on self-regulated learning with academic self-concept as a mediator has a good model fit. In other words, the model is in accordance with existing data.

Discussion

Based on the findings, the first path between TSS and SRL has a total weight of 0.09, derived from the influence between TSS to SRL and TSS to ASC to SRL with weights 0.04 and 0.05 respectively. The relationship between the TSS to SRL shows a positive linear relationship, meaning that a one point increase of the TSS will result in a 0.09 increase in the SRL.

Based on our findings, we found that TSS could improve the SRL of physically disabled students. TSS include all types of activities that teachers perform to motivate, guide, and facilitate students in achieving their learning outcomes. Despite the small effect size found in this study, the importance of TSS should not be underestimated nor ignored. This finding is in line with Stevens et al. (1996) study who stated that students with disabilities who study in inclusive schools have many obstacles in learning. Therefore they need to receive support from other people such as teachers, parents, and classmates.

Teachers who regularly support students, both inside and outside the class, are proven to significantly improve students' academic achievement (Frey et al., 2011). TSS is an important source of support for students, particularly teachers who always make the time to help and assist students in achieving their goals (Rosenfeld et al., 2000).

The finding of the analysis on the first path is consistent with Steinberg and Darling's (1994) study which stated that social support, or in this case teacher support, is the first source of support that students use as a reference. Support received by students can reduce psychological problems by ensuring them that they have teachers who will continuously motivate and inspire them. Steinberg and Darling, (1994) also emphasize that TSS can overcome any psychological disorders.

Next, the second path is the relationship between ASE and SRL with ASC as a mediator. The total effect on the second pathway is 0.57, derived from the relationship of ASE to SRL and

ASE to ASC to SRL with weights of 0.32 and 0.25 respectively. The total relationship value of the second path is positively linear. In other words, one unit increased in ASE will result in a 0.57 increase in SRL.

The influence of ASC on SRL with ASC as a mediator has a significant weight value. This study confirm Cobb study (2003) who found that ASE influences SRL. This conclusion is also in line with the ASE definition according to Bandura (1997), that it is the individual's assessment of his/her competence to perform tasks, achieve goals, or overcome obstacles in learning. Furthermore, Zimmerman (2000) stated that students in their studies would succeed if they can adequately manage their studies, both regarding ASR and ASC.

SRL is not only owned by regular students but also students with special needs such as those who are physically disabled. Children with physical disabilities can also be independent and have plenty of achievements if they receive proper support (Ormrod, 2008). Every student has some level of SRL. Those with great ASC and motivation will not find it too difficult to achieve their learning goals. This is because SRL and one's self-concept are interconnected (Meece et al., 2014).

Person with excellent self-efficacy can effectively manage his or her own learning experience through various strategies, increasing the probability to achieve optimal learning outcomes. Low self-efficacy will greatly affect a person in completing his or her task to achieve specific results. This can be attributed to the lack of information about their ability; thus, hampering their confidence in doing assignments (Santrock, 2007).

Conclusion

Our findings conclude several results. Firstly, based on the goodness of fit assessment, we found our proposed model to be fit. In other words, ASE and TSS both influence SRL, with the former being a mediating variable. Meanwhile, TSS was found to have no significant influence on SRL. This result is in contrary to ASE, which has a significantly high influence on SRL. Thus, ASE has a vital role as a mediator towards the SRL of physically disabled students.

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