

The Relationship Between Self-Adjustment, Social Support from Peers, and Self-Regulation with Learning Outcomes Among High School Students in Biology

Muhammad Khalifah Mustami

Department of Biology Education, Faculty of Teaching and Science, Universitas Islam Negeri Alauddin Makassar, Makassar, South Sulawesi 90245, Indonesia

ABSTRACT

It is pertinent for students to be aware of their learning achievements. Previous research shows that many factors are related to achieving learning outcomes such as self-adjustment, social support from peers, and self-regulation. Whilst these factors may be enough to produce students who will be able to understand biology, they may not be sufficient to produce high achieving students who are motivated to learn biology. This study aims to determine the relationship between self-adjustment, social support from peers, and self-regulation and the outcomes of biology learning through motivation in learning in high school students. Data was collected through a questionnaire and documentation. The findings show that self-adjustment, social support, and self-regulation have a direct relationship with motivation and biology learning outcomes. Self-adjustment has an indirect relationship with learning outcomes through motivation in learning biology with a path coefficient of 0.14; social support from peers has an indirect relationship with the

learning outcomes through student learning biology motivation with a path coefficient of 0.20; and self-regulation has an indirect relationship with learning outcomes through student learning motivation with a path coefficient of 0.26. The conclusion of this study shows that it is important to foster the factors that determine student learning outcomes.

Keywords: Learning outcomes, motivation, self-adjustment, self-regulation, social support

ARTICLE INFO

Article history:

Received: 5 October 2018

Accepted: 9 January 2019

Published: 28 June 2019

E-mail address:

muhkhalifahmustami@gmail.com

INTRODUCTION

Education in Indonesia is high priority for which improvement is continuously pursued (Sumintono & Mislana, 2011). However, the number of underachieving students in schools continues to increase alongside learning difficulties, and the motivation to learn decreases over time. To make matters worse, students present negative feelings such as boredom, anxiety, frustration, and tension, with low self-adjustment in learning (Bandura, 1993, 1994; Bandura & Locke, 2003).

The problem of self-adjustment in the school context occurs when students enter a new school environment. They are expected to adapt to this new environment which, in itself, can be considered a stressful situation. Good adaptation and social support from peers will affect students' learning motivation. Learning motivation has a significant effect on learning outcomes because good friends tend to have similar academic attitudes and achievements (Springer, 2008).

Teachers and friends are important aspects of adaptation within the school environment. Good self-adjustment can be seen in the acceptance of the teacher's authority, interest and participation in school activities, willingness to accept responsibility and demonstration of a close relationship with friends, teachers, and the school environment in general. Individuals as social beings need the help of others to adapt to their environment (Frey et al., 2009).

Students who receive good social support from their peers will feel that they are loved and cared for, which enhances their sense of self-worth. Peer support is needed in building closer social relationships in schools. According to Vollmeyer and Rheinberg (2006), the proximity of social relations serves as an exercise for future relationships, is mutually supportive and motivating, and which in turn, will provide positive value to the development of student learning outcomes.

Self-regulation is the ability to organize and direct what is thought and perceived, which is then implemented into a behavior plan to achieve both physical and mental success. Good self-regulation tends to make students more confident and encourages maximum performance and actions that lead to the achievement of desired goals. Despite failing in exams, students with good self-regulation are able to evaluate their mistakes and then improve them with better efforts and motivation (Ablard & Lipschultz, 1998).

Learning outcome is important in order to gauge students' knowledge of a subject at the end of the learning period. Although factors such as self-adjustment and social support are needed in these learning outcomes, these students may not be able to achieve good results in their subject without incorporating self-motivation into their learning routine. Every process in learning influences behavior changes in certain aspects of students. The changes in question must be in accordance with the learning objectives (Bahri & Corebima, 2015).

According to Muzlia et al. (2012) intrinsic motivation is important for students to achieve learning goals. However, extrinsic motivation such as social support can maximize the function of intrinsic motivation to achieve learning goals.

Learning motivation is the overall driving force that leads students towards continuous learning activities (Mustami & Safitri, 2018). Therefore, it is important to understand and know the position of motivation in relation to other factors related to learning outcomes. According to Mezei (2008), motivation explains what makes people do something, keep it up, and accomplish their tasks.

METHOD

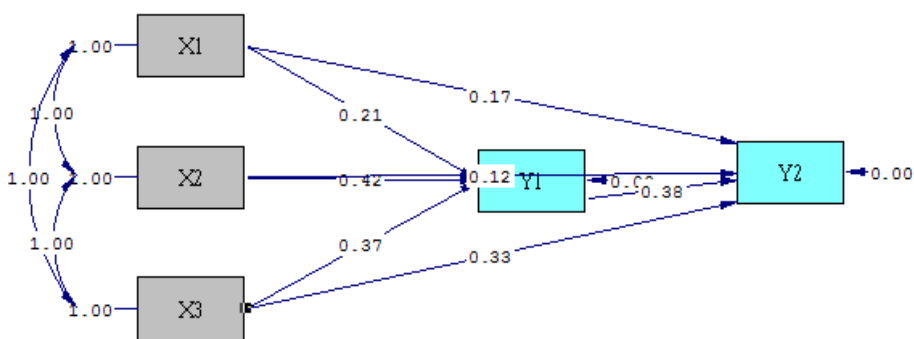
This research used an *ex-post facto* correlation design to determine the relationship among the self-adjustment variable (X_1), social support from peers (X_2), self-regulation (X_3),

students' motivation in learning biology (Y_1), and biology learning outcomes (Y_2). The research sample comprised 176 students with an average age of 17 from class XI in Makassar high school who studied biology. A cluster random sampling technique was used in the research. The data was collected through a questionnaire and documentation. To determine the relationship between the variables, path analysis with the structural equation modeling (SEM) technique was used from the LISREL 8.70 program.

RESULTS

The results of data analysis of the relationship between the variables in this research can be seen as follows:

Based on Figure 1, it can be argued that the values of the relationship in the form of path coefficients among the variables are as follows: self-adjustment (X_1) with motivation in learning biology (Y_1) has



Information:

- X₁ = Self-adjustment
- X₂ = Social support from peers
- X₃ = Self-regulation

Y₁ = Motivation to learn biology

Y₂ = Biology learning outcomes

Figure 1. Results of path analysis on the research variables

a path coefficient of 0.21; social support from peers (X_2) with motivation in learning biology (Y_1) has a path coefficient of 0.42; self-regulation (X_3) with motivation in learning biology (Y_1) has a path coefficient of 0.37; self-adjustment (X_1) with biology learning outcomes (Y_2) has a path coefficient of 0.17; social support from peers (Y_2) has a path coefficient of 0.12; self-regulation (X_3) with biology learning outcomes (Y_2) has a path coefficient of 0.33; and the relationship between biology learning motivation (Y_1) and biology learning outcomes (Y_2) has a path coefficient of 0.38.

The significance of the path coefficient of the relationship between the variables is based on the value of t-arithmetic among the variables and is as follows:

Based on Figure 2, the values of t-arithmetic among the variables are evident. The conditions of the significance of the

relationship among the variables follow the provision that if the value of t-arithmetic > 1.96 , then the relationship among the variables expressed is significant. Based on this, it can be argued that there is a significant relationship between X_1 and Y_1 (t-arithmetic $2.67 > 1.96$), X_2 and Y_1 (t-arithmetic $4.23 > 1.96$), X_3 and Y_1 (t-arithmetic $3.91 > 1.96$), X_2 and Y_2 (t-arithmetic $2.37 > 1.96$), X_3 and Y_2 (t-arithmetic $6.81 > 1.96$), and Y_1 and Y_2 (t-arithmetic $7.36 > 1.96$). The results of the analysis also show that since X_1 with Y_1 and Y_1 with Y_2 show a significant relationship, then the result of X_1 with Y_2 through Y_1 also shows a significant relationship. The significance of the relationship is also shown by X_2 with Y_1 and Y_1 with Y_2 ; consequently, X_2 with Y_2 through Y_1 indicates a significant relationship as well. Similarly, the significance of the relationship of X_3 with Y_1 and Y_1 with Y_2 indicates the

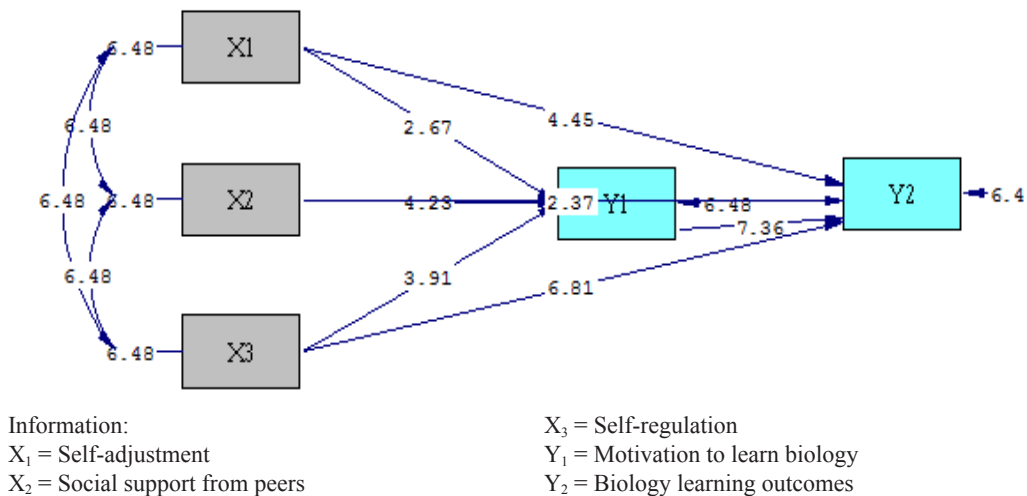


Figure 2. The value of t-arithmetic among the research variables

same thing; consequently, the result of X_3 with Y_2 through Y_1 shows a significant relationship.

DISCUSSION

The discussion is intended to place the results of the research in tandem with the theories and previous research results. The results of the data analysis show that there is a significant correlation between self-adjustment and motivation in learning in high school students, with a path coefficient of $2.67 > 1.96$. The opinion of Tallent (1978) that self-adjustment would increase learning motivation is therefore true. If students can adapt well to the stage of development according to their ages, they tend to be more sociable, open to face others, and more tolerable of the weaknesses of others, so their motivation to learn will be better (Wang et al., 2008).

The results of the data analysis also show that there is a relationship between social support from peers and motivation to learn biology in high school students with a t-arithmetic of $4.23 > 1.96$. These findings are in line with the opinion that students who are accepted by their peers and have good social skills are often better at school, and have positive academic motivation (Waiten et al., 2009).

Santrock (2011) described the effectiveness of a classmate's tutorial programme in the larger reading field shown by students involved in classroom tutorials, as compared with those who did not receive tutoring. Thus, it can be argued that social support from peers and/or other students

is helpful in accelerating the increase in student learning motivation. Santrock (2015) explained that peer support can be both positive and negative. Students usually maintain friendships with those who share common learning motivations. Papalia et al. (2006) suggested that teenagers' involvement with peers could be a source of emotional support.

Bambacas and Patrickson (2008) suggested that individuals with strong social support would have better life experiences, higher self-esteem, and a more positive outlook on life than individuals with lower social support. Research conducted by Izzo et al. (2008) showed that the function of social support was also very influential towards improving an individual's self-esteem. Additionally, with the support gained by the individual, he or she would be able to increase his or her self-confidence and became self-motivated to improve, because individuals who have strong social support tend to have a positive mindset, confidence, and optimism about life compared to individuals with low social support. It is similar to learning. Students with high social support tend to have more motivational value than students who do not receive social support from their peers.

The results of the data analysis show a positive relationship between self-regulation and motivation in learning biology in high school students, with a t-arithmetic of $3.91 > 1.96$. This is in accordance with the research of Vollmeyer and Rheinberg (2006) which testified that students who had high learning motivation and interest in the subject

matter used more self-regulated learning strategies. Good regulation tends to make students more confident and motivated to achieve maximum performance, and strive to take actions that lead to the achievement of desired goals. Despite failing in exams, students with good self-regulation are able to evaluate their mistakes and fix them. Research conducted by Mok et al. (2008) in China found that students who have self-regulation in learning will become more active and confident in seeking help when there are problems that need to be solved. This is possible because self-regulation in learning functions as a controller of learning activities, independently monitors motivation and academic goals, manages human resources and objects, and becomes a behavior in the process of decision making and implementation in the learning process (Mezei, 2008).

The results of the data analysis show that there is a significant correlation between self-adjustment and motivation in learning biology in high school students, with a t-arithmetic of $4.45 > 1.96$. This result supports the opinion of Banyard et al. (2015) that self-adjustment is an important factor in human life. In a human's lifetime, adjustments are necessary in order to survive. In the context of learning, students are expected to make adjustments so that the learning process can be achieved steadily. Hurlock (2002) argued that well-adjusted students knew when to learn and when to play, and how to effectively solve problems.

The results of the data analysis show that there is a significant correlation between

social support from peers and biology learning outcomes in high school students with a t-arithmetic of $2.37 > 1.96$. This means that social support from peers has a positive relationship with learning outcomes. Many students who experience increased learning outcomes do so because of the influence of peers who are able to provide motivation for them to learn (Fleisher, 2009).

In line with this, Santrock (2015) found that, in general, social support from peers would open up opportunities for students to evaluate and improved their understanding as they interacted with others and participated directly in arriving at a mutual understanding. Furthermore, Santrock (2015) says that peers played a role in more important developments during high school rather than in elementary school. This is because teenagers reveal more information to their friends. Teenagers also say that they are more dependent on their friends than their parents to satisfy their need for a sense of togetherness, certainty, and closeness. Therefore, learning outcomes relate to social support from good peers. With social support from peers, students feel appreciated and loved by their friends, and this helps to boost their confidence.

Peers are an important part of the social support network. This enhances their quality of life and self-esteem. Emotional support and social approval in the form of confirmation from others are an important part of the relationship with students' self-confidence (Santrock, 2015). Qualified personal relationships provide the stability of trust and attention that can provide a

positive atmosphere for student learning. Positive interpersonal support from peers, environmental influences, and a good learning process can minimize the factors that can cause student performance failure (Santrock, 2011).

The results of the data analysis show that there is a significant correlation between self-regulation and biology learning outcomes in high school students with a t-arithmetic of $6.81 > 1.96$. This finding is in accordance with research done by Zimmerman (1989) and Carneiro et al. (2007) that with the ability of self-regulation, one would be able to develop and manage a plan so that the desired goal will be achieved. Students who have better self-regulation also have high academic achievement (Zimmerman & Cleary, 2009). In line with this Gholami and Alinasab (2016) suggested that self-regulation was significantly correlated with students' decisions to carry out their tasks.

According to Ormrod (1999), good self-regulation tends to make students believe in their ability, and feel motivated for maximum achievement. Despite failing in exams, it was found that students with good self-regulation are able to evaluate their mistakes and then correct them with better effort. A person who has good self-regulation can motivate him/herself towards achieving the desired goals, including the results of learning. In contrast, Damon (1998) argued that self-regulation was likely to make students less consistent and less motivated towards achieving their goals and giving their best performance.

The results of the data analysis show that there is a significant correlation between learning motivation and biology learning outcomes in high school students with a t-arithmetic of $7.36 > 1.96$. This result is in accordance with the opinion of Cecco and Margaret (2008) that motivation to learn is a non-intellectual psychological factor, a role in the growth of passion, feelings of pleasure, and the spirit to learn. Students with strong motivation are more energised by learning activities (Mustami & Safitri, 2018). This means that motivation relates to learning because motivation is crucial in learning. Learning outcomes will be optimal if accompanied by strong motivation. The stronger and more appropriate the motivation, the more successful one will be in learning.

Based on the results of the LISREL 8.70 analysis, there is an indirect relationship between self-adjustment and learning outcomes through learning motivation in high school students with a path coefficient of 0.14. This means that the relationship between self-adjustment and learning motivation is very close to the learning outcomes. Students who have good self-adjustment indirectly have high learning motivation, so the learning outcomes would be higher. Conversely, students who do not have good self-adjustment indirectly have low learning motivation, so the learning outcomes are also low. According to Schneiders (1964) self-adjustment is a process that includes individual mental and behavioral responses. In relation to learning, Hurlock (2002) and Santrock (2005) argued

that well-adjusted students know when to learn and when to play, and were resolute in addressing and finding solutions to pressing issues.

Based on the results of the LISREL 8.70 analysis, there is an indirect relationship between social support from peers and learning outcomes through motivation to learn biology in high school students with a path coefficient of 0.20. This means that the relationship between self-adjustment and learning motivation is very close to the learning outcomes. Students who have good social support from peers indirectly have high learning motivation, so the learning outcomes are higher. Conversely, students who do not have good social support from peers indirectly have low learning motivation, so the learning outcomes are also low. These findings are consistent with research conducted by Carter et al. (2008) that showed a significant relationship between social support and achievement motivation, where the higher the social support, the higher the achievement motivation. Conversely, the lower the social support, the lower the achievement motivation.

Theoretically, in accordance with the opinion of Rubin et al. (2006) peer support can veer teenagers towards the same circle of friends who share the same interests, carry out creative activities, feel comfortable, and mutually reinforce and grow, which is positive. In the context of learning, Cutrona et al. (1994) state that social support is very influential in learning achievement because when someone receives comfort

and support psychologically/socially, it increases the spirit and confidence of a person in learning or performing tasks, so the learning achievement improves.

Based on the results of the LISREL 8.70 analysis, there is an indirect relationship between self-regulation and biology learning outcomes through learning motivation in high school students with a coefficient value of 0.26. This finding is in line with Fleisher's (2009) research that self-regulatory aspects contributed effectively to learning achievement. Thus, it can be concluded that self-regulation of students is closely related to learning motivation, and further affects the value of student learning outcomes. According to Zimmerman (1989), students who have problems with learning motivation can improve on the condition that they apply self-regulation mechanisms. Students with the ability to monitor the progress of their learning process will increase their level of satisfaction and confidence in the ability to display high-level expertise (Collins, 2016).

CONCLUSION

Based on the results of the analysis and discussion of the research, it can be concluded that (1) self-adjustment, peer social support, and self-regulation have a direct correlation with motivation and biology learning outcomes in high school students with varying path coefficient values; (2) learning motivation has a direct correlation with biology learning outcomes in high school students; and (3) self-adjustment, peer social support, and self-regulation have an indirect relationship

with learning outcomes through motivation in learning biology in high school students with varying coefficient path values. It can also be deduced that in the learning process, students should be motivated by their teachers in order for these students to show their willingness to absorb biology lessons. Teachers should facilitate and encourage these students to like this subject. This will create a conducive environment in the classroom where students and teachers help each other to ensure that these classroom lessons do not become mundane, as biology can be a challenging subject. If these factors are taken into consideration well enough, they can create the right learning atmosphere and lead teachers in gearing students to become high achievers.

REFERENCES

- Ablard, K. E., & Lipschultz, R. E. (1998). Self regulated learning in high achieving students: Relation to advanced reasoning, achievement goals, and gender. *Journal of Educational Psychology, 90*(1), 94-101.
- Bahri, A., & Corebima, A. D. (2015). The contribution of learning motivation and metacognitive skill on cognitive learning outcome of students within different learning strategie. *Journal of Baltic Science Education, 14*(4), 487-500.
- Bambacas. M., & Patrickson. M. (2008). Interpersonal communication skills that enhance organizational 222 Fatimah Saguni & Sagir M. Amin commitment. *Journal of Communication Management, 12*(1), 51-72.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). New York, USA: Academic Press.
- Bandura, A., & Locke, E. (2003). Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology, 88*(1), 87-99.
- Banyard, P., Davies, M. N. O., Norman, C., & Winder, B. (2015). *Essential psychology* (2nd ed.). New York, USA: SAGE Publications, Ltd.
- Carneiro, R., Lefrere, P., & Steffens, K. (2007). Self-regulated Learning in Technology Enhanced Learning Environments: *A European Review*. Retrieved July 15, 2018, from <http://www.lmi.ub.es/taconet/documents/srlintele3.pdf>
- Carter, E. W., Cushing, L. S., & Kennedy, C. H. (2008). *Peer support strategies for improving all students' social lives and learning*. New York, USA: Paul H. Brookes Publishing Co.
- Cecco, J. D., & Margaret, S. (2008). *Boys' motivation towards the learning of modern foreign languages. British Educational Research Association Annual Conference*. Edinburgh, Scotland: Heriot-Watt University. Retrieved August 1, 2018, from <http://www.leeds.ac.uk/educol/documents/174575.pdf>
- Collins, N. (2016). *Motivation and self-regulated learning: Theory, research, and applications*. Retrieved October 1, 2018, from <http://dx.doi.org/10.1080/00221546.2009.11779027>
- Cutrona, C. E., Cole, V., Colangelo, N., Assouline, S. G., & Russell, D. W. (1994). Perceived parental social support and academic achievement: An attachment theory perspective. *Journal of Personality and Social Psychology, 66*(2), 369-378.
- Damon, W. (1998). *Handbook of child psychology*. Texas, USA: John Wiley & Sons, Inc.

- Fleisher, S. (2009). Book review: Motivation and self-regulated learning: Theory, research, and applications. *International Journal for the Scholarship of Teaching and Learning*, 3(1), 1-2.
- Frey, N., Fisher, D., & Everlove, S. (2009). *Productive group work*. Virginia, USA: Scott Willis ASCD.
- Gholami, J., & Alinasab, M. (2016). Iranian EFL learners' use of self-regulatory, test-wiseness and discourse synthesis strategies in integrated writing tasks. *Pertanika Journal of Social Sciences & Humanities*, 24(2), 839-854.
- Hurlock. (2002). *Child development* (5th ed.). Tokyo, Japan: Mc Graw-Hill. Kogakusha Ltd.
- Izzo, C., Weiss, L., Shanahan, T., & Brown, F. R. (2008). Parental self-efficacy and social support as predictors of parenting practices and children's socioemotional adjustment in mexican immigrant families. *Journal of Prevention & Intervention in the Community*, 20(1-2), 197-213.
- Mezei, G. (2008). Motivation and self regulated learning: A case study of a pre-intermediate and An upper intermediate adult student. *WoPaLP*, 2, 79-104.
- Mok, M. M .C., Kennedy, K. J., Moore, P. J., Shan, P. W., & Leung, S. O. (2008). The use of help-seeking by chinese secondary school students: Challenging the myth of "the Chinese Learner". *Evaluation & Research in Education*, 21(3), 188-213.
- Mustami, M. K., & Safitri, D. (2018). The effects of numbered heads together-assurance relevance interest assessment satisfaction on students' motivation. *International Journal of Instruction*, 11(3), 123- 134.
- Muzlia, S., Habibah, E., Sidek, M. N., & Roslan, S. (2012). Testing a measurement model of multidimensional intrinsic motivation in studying for examination. *Pertanika Journal of Social Sciences & Humanities*, 20(S), 215-235.
- Ormrod, J. E. (1999). *Human learning* (3rd ed.). Upper Saddle River, USA: NJ Merrill Prentice Hall.
- Papalia, E. D., Olds, W. E., & Feldman, D. R. (2006). *Human development*. New York, USA: McGraw-Hill Companies, Inc.
- Rubin, K. H., Bukowski, W., & Parker, J. (2006). *Peer interactions, relationships, and groups*. In N. Eisenberg (Ed.), *Handbook of child psychology: Social, emotional, and personality development* (6th ed., pp. 571-645). New York, USA: Wiley.
- Santrock, J. W. (2015). *Adolescence* (15th ed.). New York, USA: McGraw-Hill Companies, Inc.
- Santrock, J. W. (2005). *Psychology essential* (2nd ed.). New York, USA: McGraw-Hill Companies, Inc.
- Santrock, J. W. (2011). *Educational psychology* (5th ed.). New York, USA: McGraw-Hill Companies, Inc.
- Schneiders, A. A. (1964). *Personal adjustment and mental health*. New York, USA: Holt, Rinehart and Winston, Inc.
- Springer, A. K. (2008). What motivates adolescents, especially Eighth Grader to Learn? *EDCI 6304 Learning and Cognition School of Education*. Texas, USA: Universty of Texas at Brownsville.
- Sumintono, B., & Mislán, N. (2011). Struggling to improve: A case study of the Indonesia's International Standard School in Improving its Capacity Building. *Policy Research on Child Education Conference*, Tangerang, Indonesia. Retrieved November 17, 2018, from https://www.academia.edu/1097723/Struggling_to_Improve_A_case_Study_of_the_Indonesia_s_International_Standard_School_in_Improving_its_Capacity_Building
- Tallent, N. (1978). *Psychological adjustment understanding one self and other*. New York, USA: D. Van Nostrand Company, Inc.

- Vollmeyer, R., & Rheinberg, F. (2006). Motivational effects on self-regulated learning with different tasks. *Educational Psychology Review*, 18(3), 239-253.
- Waiten, W., Dunn, D. S., & Hammer, E. Y. (2009). *Psychology applied to modern life: Adjustment in the 21 st century* (9th ed.). Boston, USA: Wadsworth Cengage Learning.
- Wang, Y., Peng, H., Huang, R., Hou, Y., & Wang, J. (2008). Characteristics of distance learners: Research on relationships of learning motivation, learning strategy, self-efficacy, attribution and learning results. *Open learning: The Journal of Open, Distance and e-Learning*, 23(1), 17-28.
- Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, 81(3), 329-339.
- Zimmerman, B. J., & Cleary, T. J. (2009). Motives to self-regulate learning: A social cognitive account. In K. R. Wenzel & A. Wigfield (Eds.), *Educational psychology handbook series. Handbook of motivation at school* (pp. 247-264). New York, USA: Routledge/Taylor & Francis Group.

