The Big Five Personality Traits, Self-regulated Learning, and Academic Achievement

Asina Christina Rosito

Departement of Psychology, University of HKBP Nommensen, Medan, Indonesia

Keyword: Personality, Self-regulated Learning, Academic Achievement.

Abstract: The previous studies in educational psychology indicated that the role of personality as well as self-regulated learning in the academic achievement prediction. However, there are few studies attempt on the relation of personality and self-regulated learning in determining academic performance. This study aimed to explore the dynamic of personality factors according to the Big Five Personality Traits model, self-regulated learning (SRL) strategies, and academic achievement. 342 college students of University of HKBP Nommensen were participated in this study. The Big Five Personality Traits scale with five dimensions: extraversion, neuroticsm, openness to experience, conscientiousness, and agreeableness and the SRL strategies scale were employed. Academic achievement was assessed by the participants' GPA reported. The results revealed that both of personality factors and self-regulated learning strategies were significant predictors of academic achievement. Moreover, it was found that among five personality factors, three of them had significant contribution to GPA. They were conscientiousness, extraversion, and neuroticsm. Regarding to several self-regulated learning strategies, only two of them were giving a significant contribution to GPA, critical thinking and effort regulation. The findings implied that educators need to concern about how the personality characteristics of learners would affect on their self-regulatory activities.

1 INTRODUCTION

Numerous research in educational psychology had been done in order to understand what and how individual factors and social factors influence the academic performance. This present study questionned about how latent variable (i.e., personality) related to academic achievement and how the motivational factors that reflected in self-regulated learning influenced the performance.

1.1 Big Five Personality and Academic Achievement

The previous studies found significant correlation between personality and academic achievement (Buju, 2013; Chamorro-Premuzic & Furnham, 2003; Hakimi, Hejazi & Lavasani, 2011; Hazrati-Viari, Rad & Torabi, 2012, Komarajju, Karau, Schmeck & Avdic, 2011; Zarafshani, Sharafi, & Rajabi, 2011). Further, Martin, Montgomery & Saphian (2006) also propose correlation between personality and academic performance of undergraduate students. It

was found that personality differences able to demonstrate the academic performance across 4 years of coursework.

The big five factor model of personality has been widely used in educational studies. Those five factors namely, neuroticsm, extraversion, openness to experience, conscientiousness, and agreeableness. Recent studies suggested that conscientiousness as the strongest predictor of academic performance both the secondary levels and tertiary levels of education (Poropat, 2009).

Few studies resulted negative association between neuroticsm and academic performance, but mostly showed non-significant findings (Martin, et al. 2006). Ridgell & Lounsbury (2004) found that neuroticsm failed to predict scholastic achievement over and above cognitive ability. The studies found inconsistently correlation between extraversion with academic achievement (i.e., positive, negative, and non-significant). In the other hand, different facets of extraversion may relate to academic success in different ways (Martin, et al. 2006). Furthermore, openness has been positively correlated with final school grades and to strategies that emphasize critical

thinking (Bidjerano & Dai, 2007; Komaraju & Karau, 2005), approach to learning (Vermetten, Lodewijks, & Vermunt, 2001) and learning motivation (Tempelaar, Gijselaers, Schim Van Der Loeff & Nijhuis, 2007). Agreeableness is related to classroom behavior (Graziano, Jensen-Campbell, & Finch, 1997) and compliance with teacher instructions (Vermetten, Lodewijks, & Vermunt, 2001). Nevertheless, its impact was relative small and inconsistent across samples (e.g. Poropat, 2009). Conscientiousness was associated with sustained effort and goal setting (Barrick, Mount, & Strauss, 1993), which contribute to academic success (Steel, 2007). In addition, each facet of conscientiousness (e.g., diligence, dependability, self-discipline, prudence, competence, dutifulness, order, and achievement striving) has important role in terms of performance in academic settings, attainment of honors and lower disciplinary infractions (MacCann, Duckworth, & Roberts, 2009).

1.2 Big Five Personality and Self-regulated Learning Strategies

Personality traits are defined as stable individual differences characteristics which are explaining an individual's disposition to particular patterns of behavior, cognitions and emotions (Hogan,Hogan & Roberts, 1996). Personality traits include the self-regulatory tendencies. For example, conscientiousness includes feature such as persistency, well organized, responsibility. Openness to experience can be related to positive attitude to learning experiences (McCrae & Costa, 1987).

Previous studies have demonstrated the correlation of personality in learning. Conscientiousness is associated with motivation, effort expenditure and persistence (Chamorro-Premuzic & Furnham, 2003). Neuroticsm is usually associated with the lack of effective cognitive skills (Eysenck, 1967). However, there is also evidence that neuroticsm can also facilitate motivation and effort expenditure, expecially for anxious individuals. In order to anticipate failure, they improve their efforts (Norem & Cantor,1986).

Agreeableness is positively correlated with effort and surface learning (Vermetten, Lodewijks, & Vermunt, 2001). It implies cooperativeness, compliance and comformity. Thus, it means that agreeable individuals tend to regulate their learning based on the external situations.

Extraversion was facilitate social behaviors such as help seeking and peer learning. In the other side, it is poor in reflecting problem solving (Matthews,

1997). It can be concluded that conscientiousness and openness were more theoretical and empirical justification in theirs correlation with self-regulated learning.

1.3 Self –regulated Learning Strategies and Academic Achievement

Self-regulated learning concept refers to the learners' capacity in managing and organizing individuals' learning process, by becoming a regulator in order to pursue learning goals (Zimmerman, 1989). It involves cognitive, metacognitive, and motivational beliefs factors (Vanderstoep, Pintrich & Fagerlin, 1996). Cognitive strategies regard to strategies to understand the learning materials encompass rehearsal, elaboration, organizational strategies and critical thinking. Rehearsal, the most basic learning strategy for processing of information, represents a verbal repetition of material with the goal of memorization. Elaboration also need to be involved, a higher order learning skills, which is operationally defined as paraphrasing and summarizing. Not to mention organization which includes strategies such as outlining, taking notes and connecting different aspects of the material studied. Finally, critical thinking consists of critical evaluations of ideas and applications of knowledge to new situations (Pintrich, et al. 1993). Therefore, by using various organizational strategies, learners involved in deeper level of cognitive engangement which might lead to more comprehensive understanding and better academic achievement.

Metacognitive strategies encompass planning in learning (e.g. setting goals), monitoring the progress in learning (e.g. assessing comprehension while reading), and regulating (e.g., adjusting reading rate for text difficulty) (Vanderstoep, Pintrich & Fagerlin, 1996). When a learner involves actively in planning, monitoring and regulating their study, they are more accurate in predicting their level of comprehension of their study, more flexible in adjusting their strategies, eventually better in academic performance. Metacognition is defined as the individual's awareness, knowledge, and control exercised over cognitive process (Pintrich, et al. 1993).

Motivational beliefs have important rule, especially in leading the learning process are intrincis motivation, self-efficacy, and task value. Learners who are motivated by intrinsic factors are focused on learning and mastery so that they use better strategies eventuallty they get better academic achivement (Ames, 1992). Self-efficacy refers to how learners

perceived their capability to learn. Learners with high self-efficacy are more effective in strategy used and higher in academic achievement (Schunk, 1991)

More over, task value is related to perception of importance, utility, and interest of task. Learner who finds an interest in learning and perceives the useful beneath the task will be more effective in strategy and in turn will effect the academic achievement (Vanderstoep, Pintrich & Fagerlin, 1996).

It can be concluded that self-regulated learners were more self-efficacious, more enganged in self-evaluation when compare the progress to goals, and also more persistence. They attribute success to ability and effort as well as failure to use of ineffective strategies. They also perceive task activities as important and useful (Schunk, 2005).

1.4 Big Five Factor Model Personality, Self-regulated Learning, and Academic Achievement

There were many studies conducted to examine the contribution of personality in learning, specifically in determining the academic achievement. Conscientiousness was found as the most consistent factor of personality in predicting the academic performance (Bidjerano & Dai, 2007; Geramian, Mashayeki, & Hj. Ninggal, 2012; Hakimi et al., 2011; Marcela, 2015; Mitrofan & Ion, 2013). However, various results were found for the other four factors. The relationship between openness and academic achievement was less strong (e.g. Geramian, Mashayeki, & Hj. Ninggal, 2012; Marcela, 2014) but in another study, indicated that there was not significant correlation between openness and academic performance (e.g. Mitrofan & Ion, 2013). The findings which related to neuroticsm, extraversion, and agreeableness were inconclusive.

Studies in self-regulated learning suggested that various components of self-regulated learning strategies were associated with academic achievement. They encompassed, for instance, elaboration (Savoji, Niusha, & Boreiri, 2013), effort regulation (Chen, 2002), metacognition, elaboration, and critical thinking (Pintrich, et al. 1993).

Few studies overlooked the relationship between aspects of learning. Therefore, the present study attempts to investigate the correlation among personality, self-regulated learning, and academic achivement.

1.5 Aims

This study had three spesific aims. First, to asses empirical relationship between the Big Five factor model of personality and academic achievement. Second, to asses empirical relationship between self-regulated learning and academic achievement. Third, to asses correlation between the Big Five factor model of personality and self-regulated learning. Using linear regression analysis, the study aimed to establish the Big Five factor model of personality and self-regulated learning to predict academic achievement.

Based on the literature review described above, the study proposed following hypotheses:

H1: personality will significantly predict academic achievement

H2: self-regulated learning strategies will significantly predict academic achievement

H3: personality will significantly correlate to self-regulated learning strategies

H3: personality and self-regulated learning strategies will significantly predict academic achievement.

2 METHODS

2.1 Participants

There were 342 undergraduate students of University of HKBP Nommensen, one of favourite universities in North Sumatera. The subjects were chosen using incidental sampling technique. Firstly, they were asked to involve by explaining the goal and the procedure of this study. After they were agree to be involved, they were asked to fill in the questionnaire. They were 134 males (39.2 %) and 208 females (60.8%) who completed the Big-Five Personality Inventory and the self-regulated learning strategies scales of Motivated Strategies for Learning Questionnaire (MSLQ), reported their current GPA, and provided demographic information. Students represented all undergraduate classes (44.7% freshmen, 37.4% sophomores, 16.4% juniors, and 1.5% seniors), came from several majors (education, law, agriculture, psychology, and economics), with 97% of the students age ranging between 17 and 23 years old.

2.2 Instruments

Big five personality scale was adapted from *Oliver's Big Five Inventory*. The questionnaire consists of 76 items, revealing the dimension of the Big Five model of personality: neuroticsm (13 items) , extraversion (16 items), openness (18 items), agreeableness (16

items) and conscientiousness (13 items).

The self-regulated learning strategies scale was adopted from self-report questionnaire Motivated Strategies for Learning Questionnaire (MSLQ) proposed by Pintrich, et al. (1993). The reliability of the learning strategies scales is reasonable with range from .52 to .70 (Pintrich, et al. 1993). Another analysis by Duncan & Mckeachie (2005) revealed that learning strategies are varied with range between .52 and .80. The learning strategies scale includes nine scales: rehearsal (4 items), elaborations (6 items), organizations (4 items), critical thinking (5 items), metacognitive self-regulation (12 items), time and study environment management (8 items), effort regulation (4 items), peer learning (3 items), and help-seeking (4 items).

Academic achievement was measured by grade-point average (GPA) as reported by the participants. The data analysis process started with statistics descriptive of dimensions of personality and self-regulated learning strategies. The step was followed by multiple regression analysis in order to test the hypoteheses of this study.

3 RESULTS

Table 1 shows the mean and standard deviation of each dimension of personality and self-regulated learning strategies.

Regression analysis was conducted to find the answer of whether the personality would predict the academic achivement. It was found that personality significantly predict the academic achievement (F= 19.56, p = .000, R^2 = .054, β = .23). This finding confirmed hypothesis 1, indicating a significant role of personality in predicting the academic achievement.

Table 1: Means and standard deviations.

	Mean	SD
Personality		
Neuroticsm	46.42	8.35
Extraversion	64.02	8.16
Openness	77.35	7.92
Agreeableness	72.40	7.64
Conscientiousness	53.09	7.43
Self-regulated learning strategies		
Rehearsal	17.14	2.97
Elaboration	25.65	4.45
Organization	16.15	3.49
Critical thinking	20.63	3.67

Metacognitive self-regulation	50.61	6.58
Time and study environment management	31.54	4.86
Effort regulation	15.30	2.84
Peer learning	13.30	2.34
Help seeking	16.64	2.65
GPA	3.14	.45

More spesific analysis was conducted to find which dimension of personality that significantly predict the academic achievement. As shown in Table 2, neuroticsm, extraversion, and conscientiousness significantly predicted the GPA.

Regression analysis was conducted in order to test the hypothesis 2, whether self-regulated learning strategies would predict the academic achievement. The result showed that the self-regulated learning strategies significantly predicted the academic achievement (F= 26.73, p = .000, R^2 = .073, β = .27), confirming hypotheses 2.

Table 2 : Regression analysis for personality predictors of academic achievement.

	B	SE B	B
Constant	1.474	.361	
Neuroticsm	.010	.003	.19**
Extraversion	.008	.004	.13*
Openness	.002	.003	.04
Agreaableness	-.007	.004	-.001
Conscientiousness	.010	.004	.16*

* p <.05. ** p < .01, N = 342

A more spesific analysis was conducted in order to find which dimensions of self-regulated learning strategies that significantly predicted the academic achievement. As described in Table 3, only critical thinking and effort regulation significantly predicted the GPA.

Table 3: Regression analysis for self-regulated learning strategies predictors of academic achievement.

	B	SE B	B
Constant	1.960	.225	
Rehearsal	.012	.014	.07
Elaboration	.013	.010	.12
Organization	-.014	.011	-.10
Critical thinking	-.020	.010	-.16*
Metacognitive self-regulation	.013	.007	.19
Time and study environment management	-.002	.007	-.02
Effort regulation	.026	.011	.16*
Peer learning	.009	.013	.04
Help seeking	.010	.011	.05

* p <.05. ** p < .01, N = 342

A correlation analysis was conducted in order to test the hypothesis 3, whether there would be a significat correlation between personality and self-regulated learning. It was found that there was a positive and significant correlation between personality and self-regulated learning (r=.52, p <.001).

Finally, in order to test the hypotesis 4, multiple reggresion analysis was conducted. Personality and self-regulated learning strategies, serving together in a model, were found to be significant predictors of academic achievement (F= 15.65, p = .000, R^2 = .085). Both of them were significant predictors, in which for personality (β = .12, t = 2.07, p = .038) and for the self-regulated learning strategies (β= .20, t = 3.34, p = .001).

Table 4 described correlations between each dimension of personality, dimension of self-regulated learning and GPA. Related to personality, neuroticsm had no correlation with GPA. On the other hand, neuroticsm had a significant negative correlation with other dimensions of personality (extraversion, agreeableness, and conscientiousness) and with most of dimension of self-regulated learning strategies (rehearsal, critical thinking, metacognitive self-regulation, time and study environment management, and effort regulation).

Extraversion had a significant positif correlation with GPA. The strategies that correlated significantly with extraversion were rehearsal, elaboration, critical thinking, metacognitive self regulation, effort regulation, peer learning, and help seeking. Openness also had a positive significant correlation with GPA and all the self-regulated learning strategies. Agreeableness had a significant correlation with GPA and all the self-regulated learning strategies. Moreover, conscientiousness had a positive significant correlation with GPA and all the self-regulated learning strategies.

Related to self-regulated learning strategies, the study found that all the strategies had a positive significant correlation with the academic achievement, with the strongest correlation achieved by effort regulation (r=.27)

4 DISCUSSION

The results of this study strenghtened the findings of previous research of how personality in terms of Big Five model of personality and self-regulated learning could predict the academic performance of undergraduate students.The findings of this study

therefore could give some insights related to the implications.

First, related to personality, conscientiousness was positively and significantly associated with all the self-regulated learning strategies. It also significantly predicted academic achivement. It indicated that conscientiousness could facilitate many of effective strategies in learning. Conscientious students tend to use various strategies in surface approach (e.g. rehearsal) as well as deeper approach (e.g elaboration and critical thinking) so they are more engaged in learning process. Moreover, conscientious students tend to more effective in managing their time as well as the environment in order to make sure they get a whole understanding of the learning material. In turn, conscientious students get higher academic outcome. This finding confirmed the previous studies that conscientiousness was the most consistent predictor of academic performance. We also found that extraversion predicted the learning outcome significantly. This indicated that by being sociable, assertive, and talkative would facilitate the learning process. This finding was not consistent with previous study, suggesting no significant correlation between extraversion and academic achievement (e.g. Geramian, Mashayekhi & Ninggal, 2012). What an interesting finding was the significant role of neuroticsm in predicting academic achievement. Study by Babakhani (2014) found different results that neuroticsm was the only factor from the five factors of personality that did not have any significant contribution in predicting academic achievement. This findings indicated that neuroticsm facilitate motivation and effort expenditure, as manifestation of anticipating a failure (Norem & Cantor, 1986).

Second, this study also found that among the self-regulated learning strategies, only critical thinking and effort regulation significantly predicted the academic achievement, eventhough all the strategies are positively correlated with academic achievement. It could be explained that the deeper the individual enganged cognitively in learning and the more efforts they make in seeking for accomplishment, than the academic performance would be higher. The findings of this study were consistent with the previous research that found the effort regulation is one of the most salient predictor of academic achievement (Chamorro-Premuzic & Furnham, 2003; Chen, 2002; Pintrich, et al. 1993).

The results of this study showed that personality along with self-regulated learning predicted the academic achievement in undergraduate students, eventhough the effect size was relative small due to the collection of the criterion. The academic

achievement used in this study was based on participant's self report, which based on participants' memory of their current GPA. This information might be inaccurate since the data collection process was conducted several months after GPA results announced. In addition, different information between the current GPA and previous GPA could happen when participants were asked to recall their current GPA.

Eventhough this study provided several insights regarding the topic discussed, there were some limitations. First, the majority of the participants were the Batak, one of tribes in North Sumatera. Therefore, this study may not generalize to others etnic group. Second, related to self-reported GPA, which could be inaccurate when recalled by the participants. Future study could use more accurate data for this type of learning outcome or develop instrumen containing behavioral indicators of academic performance.

Finally, the findings of this study give some important contribution in understanding of academic performance by identifiying the correlation among personality, self-regulated learning strategies and academic achievement. Future research could further investigate other individual difference factors (such as learning style or self-efficacy) as well as environmental factors such as type of college (public or private, small or large) and socioeconomic status.

REFERENCES

Babakhani, N. 2014. The relationship between the big five model personality and self-regulated learning strategies and academic performance of Islamic Azad University students. *Procedia-Social and Behavioral Science,* 3542-3547.

Barrick, M. R., Mount, M., K., & Strauss, J. R. 1993. Conscientiousness and performance of sales representatives: Test of the mediating effects of goal setting. *Journal of Applied Psyholocy, 78,* 715-722.

Bidjerano, T. & Dai, D. Y. 2007. The relationship between the big-five model of personality and self-regulated learning strategies. *Learning and Individual Differences, 17,* 69-81.

Buju, S. 2013. Personality profile of students with technical academic performance. *Procedia-Social and Behavioral Science, 78,* 56-60.

Chamorro-Premuzic, T. & Furnham, A. 2003. Personality traits and academic examination performance. *European Journal of Personality,17,* 237-250.

Chen, C. S. 2002. Self-regulated learning strategies and achievement in an introduction to information systems course. *Information Technology, Learning, and Performance Journal, 20,* 11-25.

Duncan, T. G. & Mckeachie, W. J. 2005. The Making of the Motivated Strategies for Learning Questionnaire. *Educational Psychologist, 40* (2), 117-128.

Eysenck, H. J. 1967.*The bilogical basis of personality*. Springfield, IL: Charles C. Thomas.

Feist, J., & Feist, G. 2002. *Theories of Personality, fifth edition*. New York: McGraw-Hill Companies, Inc

Furnham, A. & Chamorro-Premuzic, T. 2008. *Personality, intelligence and approaches to learning as predictors of academic performance*. University College London: Elsevier.

Geramian, S. M., Mashayekhi, S. Hj. Ninggal, M. T. 2012. The relationship between personality traits of international students and academic achievement. *Procedia-Social and Behavioral Science*, 46, 4374-4379.

Graziano, W. G., Jensen-Campbell, L. A., & Finch, J.A. 1997. The self as a mediator between personality and adjustment. *Journal of Personality and Social Psychology, 73*, 392-404.

Hakimi, S., Hejazi, E., & Lavasani, M.G. 2011. The relationship between personality traits and students' academic achievement. *Procedia-Social and Behavioral Science, 29*, 836-845.

Hazrati-Viari, A., Rad, A. T., & Torabi, S. S. 2012. The effect of personality traits on academic performance: the mediating role of academic motivation. *Procedia-Social and Behavioral Science, 32,* 367-371.

Hogan, R., Hogan, J., & Roberts, B. W. 1996. Personality measurement and employment decisions: Questions and answers. *American Psychologist, 51*, 469-477.

Howard, P. J. & Howard, J.M. 2004. *The Big Five Quickstart: An Introduction to the Five Factor Model of Personality for Human Resource Professionals.* Charlotte: CentACS. (online)

Jhon, O.P. & Srivastava, S. 1999. *The Big Five Trait Taxonomy: History, Measurement, and theoretical perspectives.* Barkeley: Department of Psychology University of California.

Komarraju, M., & Karau, S.J. 2005. The relationship between the big five personality traits and academic motivation. *Personality and Individual Differences, 19,* 451-458.

Komarraju, M., Karau, S.J., & Schmeck, R. R. 2009. Role of the Big five personality traits in predicting college students' academic motivation and achievement. *Personality and Individual Differences, 19*, 47-52.

Komarraju, M., Karau, S.J., Schmeck, R. R., & Avdic, A. 2011. The Big five personality traits, learning styles, and academic achievement. *Personality and Individual Differences, 51*, 472-477.

Marcela, V. 2015. Learning strategy, personality traits and academic achievement of university students. *Procedia-Social and Behavioral Sciences, 174*, 3473-3478.

Martin, J.H., Montgomery, R.L., & Saphian, D. 2006. Personality, achievement test scores, and high school percentile as predictors of academic performance accross four years of coursework. *Journal of Research in Personality, 40*, 424-431.

MacCann, C., Duckworth, A.L., & Roberts, R. 2009. Empirical identification of the major facets of conscientiousness. *Learning and Individual Differences, 19,* 451-458.

McCrae, R. R., & Costa, P. T. 1987. Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52* (1), 81-90.

Matthews, G. 1997. *Extroversion, emotion, and achievement: A cognitive–adaptive model*. In G. Matthews (Ed.), Cognitive science perspectives on personality and emotion. Amsterdam: Elsevier.

Mitrofan, N., Ion, A. 2013. Predictors of academic performance: the relation between Big Five factors and academic performance. *Procedia-Social and Behavioral Sciences, 78*, 125-129.

Norem, J. K., & Cantor, N. 1986. Defensive pessimism: Harness anxiety as motivation. *Journal of Personality and Social Psychology, 51*, 1208-1217.

Pintrich, P. R., Smith, D. A., Garcia, T., & McKeachie, W. J. 1993. *A manual for the use of Motivated Strategies for Learning Questionnaire (MSLQ). National Center for Research to improve postsecondary teaching and learning*. Ann Arbor: University of Michigan.

Pintrich, P. R., Roeser, R. W., & De Groot, E. A. M. 1994. Classroom and individual differences in early adolescents' motivation and self-regulated learning. *Journal of Early Adolescence, 14,*139-161.

Pintrich, P.R., Smith, D.A.F., Garcia, T., & Mckeachie, W.J.1993. Reliability and predictive validity of the motivated strategies for learning questionnaire (MSLQ). *Educational and Psychological Measurement, 53*, 801-813.

Poropat, A. E. 2009. A Meta-analysis of the five factor model of personality and academic performance. *American Psychological Association, 135* (2), 322-338.

Rami M.A. & Bayan U. 2014. The relationship between student's MBTI, preferences and academic performance at a Syrian university. *Education and Training, 56,* (1), 78 – 90.

Ridgell, S.D., & Lounsbury, J.W. 2004. Predicting academic success: General intelligence, "Big Five" personality traits, and work drive. *College Student Journal, 38*, 607-618.

Savoji, A. P., Niusha, B., Boreiri, L., 2013. Relationship between epistemological beliefs, self-regulated learning strategies and academic achivement. *Procedia-Social and Behavioral Sciences, 84*, 1160-1165.

Schunk, D. H. 1991. Self-efficacy and academic motivation. *Educational Psychologist, 26*, 207-231.

Schunk, D. H. 2005. Self-regulated learning: The educational legacy of Paul R. Pintrich. *Educational Psychologist, 40*, 85-94.

Steel, P. 2007. The nature of procrastination: A meta-analytic an theoretical review of quintessential self-regulatory failure. *Psychological Bulletin, 133,* 65-94.

Tempelaar, D.T. , Gijselaers, W.H., Schim Van Der Loeff, S., & Nijhuis, J. 2007. A structural equation model analyzing the relationship of student achievement motivations and personality factors in a range of academic subject-matter areas. *Contemporary Educational Psychology, 32,* 105-131.

Vanderstoep, S. W., Pintrich, P.R., & Fagerlin, A. 1996. Disciplinary differences in self-regulated learning in college students, *Contemporary Educational Psychology, 21,* 345-362.

Vermetten, Y. J. , Lodewijks, H. G., & Vermunt, J. D. 2001. The role of personality traits and goal orientations in strategy use. *Contemporary Educational Psychology, 26,* 149-170.

Zarafshani, K. Sharafi, L., & Rajabi, S. 2011. Using the Myers-Briggs Type Indicator (MBTI) in the teaching of entrepreneurial skills. *International Journal of Science and Technology Education Research, 2,* (4), 66-74.

Zimmerman, B.J. 1989 .A social cognitive view of self-regulated academic learning. *Journal of Education Psychology, 81*, 329-339.

Zimmerman, B. J. 1990. Self-regulated Learning and academic achievement: An overview. *Educational Psychology, 25* (1), 3-17.

Zimmerman, B.J. & Labuhn, A.S. 2012. *Social cognitive theory, APA Educational Handbook*, 1, 399-425.

Table 4: Correlations.

	1	2	3	4	5	6	7
Personality							
1. Neuroticsm	-	-.24**	-.06	-.22**	-.30**	-.05**	-.04
2. Extraversion	-.24**	-	.25**	.51**	.20**	.16**	.15**
3. Openness	-.06	.25**	-	.31**	.40**	.39**	.42**
4. Agreeableness	-.22**	.51**	.31**	-	.46**	.29**	.28**
5. Conscientiousness	-.30**	.20**	.40**	.46**	-	.45**	.45**
Self-regulated learning strategies							
6. Rehearsal	-.05	.16**	.39**	.29**	.45**	-	.70**
7. Elaboration	-.04	.15**	.42**	.28**	.45**	.70**	-
8. Organization	-.09	.10	.32**	.25**	.50**	.74**	.70**
9. Critical thinking	-.14**	.17**	.46**	.21**	.41**	.63**	.69**
10. Metacognitive self-regulation	-.14**	.17**	.42**	.28**	.51**	.71**	.79**
11. Time and study environment management	-.13*	.08	.17**	.29**	.55**	.57**	.49**
12. Effort regulation	-.17**	.15**	.23**	.25**	.44**	.38**	.44**
13. Peer learning	-.04	.33**	.24**	.35**	.27**	.47**	.42**
14. Help seeking	.06	.30**	.15**	.30**	.11**	.28**	.29**
15.Academic achievement	.10	.13*	.13*	.11*	.15**	.21**	.24**

* p <.05. ** p < .01. N = 34

Table 5: Correlations.

	8	9	10	11	12	13	14	15
Personality								
1. Neuroticsm	-.09	-.14**	-.14**	-.13*	-.17**	-.04	.06	.10
2. Extraversion	.10	.17**	.17**	.08	.15**	.33**	.30**	.13*
3. Openness	.32**	.46**	.42**	.17**	.23**	.24**	.15**	.13*
4. Agreeableness	.25**	.21**	.28**	.29**	.25**	.35**	.30**	.11*
5. Conscientiousness	.50**	.41**	.51**	.55**	.44**	.27**	.11**	.15**
Self-regulated learning strategies								
6. Rehearsal	.74**	.63**	.71**	.57**	.38**	.47**	.28**	.21**
7. Elaboration	.70**	.69**	.79**	.49**	.44**	.42**	.29**	.24**
8. Organization	-	.61**	.69**	.58**	.39**	.42**	.28**	.16**
9. Critical thinking	.61**	-	.73**	.38**	.28**	.35**	.23**	.11**
10. Metacognitive self-regulation	.69**	.73**	-	.56**	.54**	.44**	.27**	.26**
11. Time and study environment management	.58**	.38**	.56**	-	.53**	.29**	.19**	.18**
12. Effort regulation	.39**	.28**	.54**	.53**	-	.21**	.19**	.27**
13. Peer learning	.42**	.35**	.44**	.29**	.21**	-	.54**	.17**
14. Help seeking	.28**	.23**	.27**	.19**	.19**	.54**	-	.15**
15.Academic achievement	.16**	.11**	.26**	.18**	.27**	.17**	.15**	-

* p <.05. ** p < .01. N = 34