PRINT: ISSN 0972-0073 ONLINE: 2456-6802
Anthropologist 25(3): 240-248 (2016)
DOI: 10.31901/24566802.2016/25.03.07

Academic Motivation and Academic Achievement among Preservice English Teachers: A Structural Equation Modeling Approach

Huseyin Oz

Faculty of Education, Hacettepe University, Ankara 06800, Turkey
E-mail: hoz@hacettepe.edu.tr

KEYWORDS Intrinsic Motivation. Extrinsic. Self-determination. External Regulation. Self-regulation. Self-regulated Learning

ABSTRACT This paper reports on findings of an investigation that explored the role of academic motivation in predicting the academic performance of pre-service English teachers. Participants were 98 university students enrolled in an English teacher education program at a state university. Data was gathered using the Academic Motivation Scale and self-reported measure of their cumulative grade point average. Findings revealed a statistically significant relationship between academic motivation and academic achievement. Further, academic motivation significantly contributed to predicting participants' academic achievement, with stimulus subcomponent being the strongest predictor variable. Intrinsic motivation had more predicative power than extrinsically oriented regulations. Findings underscore the importanceof intrinsic and extrinsic dimensions of academic motivation in university students' achievement, supporting the contention that pre-service teachers' behavior can be intrinsically and extrinsically motivated or even demotivated. These findings are interpreted within the context of English teacher education programs to promote pre-service English teachers' motivation and achievement.

INTRODUCTION

In recent years, research into second or foreign language (L2) field has established the importance of the role of individual differences in successful L2 learning (Dornyei and Ryan 2015; Liu 2016; Martinez et al. 2016). It is maintained that individual differences in motivation and achievement greatly influence academic achievement (Komarraju 2009). Additionally, higher levels of motivation is believed to contribute to learning processes and outcomes of students as well astheir interest, choice of learning tasks, and amount of efforts made to accomplish a difficult task (Zimmerman 2012). There has also been a growing interest in students' self-regulations of their academic performance (Zimmerman et al. 1992). The key point here is that an individuals' ability is by no means the only factor to accomplish a learning task. Rather, psychological and individual factors are at work when a person is engaged in doing an academic activity. Indeed, "the duration and quality of human performance depend on both intrinsic motivation and external incentives" (Marsden et al. 2014: 276). The rationale for conducting the current study is that there is a research gap in L2 learning field, and unfortunately, the prior research has mainly focused on the role of academic motivation in areas other than the field of learning a second or foreign language (Komarraju et al. 2009). Additionally, what distinguishes the present study from other studies within educational research in general and L2 learning research in particular is that the current study was an attempt to investigate the role of academic motivation in academic performance of pre-service English teachers in teacher education programs. It is assumed, therefore, that this study would of its nature add to the knowledge and understanding of how academic motivation can influence and even shape the pre-service teachers' academic performance and their professional wellbeing in their practical teaching. Thus, this study explores the viable relationship between academic motivation operationalized within the Self-Determination Theory (SDT) framework (Deci and Ryan 1985) and academic achievement among Turkish pre-service teachers of English.

Address for correspondence:
Dr. Huseyin Oz
Hacettepe University, Faculty of Education
Department of Foreign Language Education
Beytepe, Ankara 06800, Turkey
Telephone: +90-312-297-8575
Fax: +90-312-297-6119
E-mail: hoz@hacettepe.edu.tr

Literature Review

Motivation is widely viewed as an important factor influencing academic learning and achievement (Dornyei and Ryan 2015; Elliot and Dweck 2005; Ersanli 2015; Liu 2016; Liu et al.

2016; Martinez et al. 2016). It is a multifaceted construct connected with a variety of outcomes including curiosity, persistence, learning, performance, and achievement (Deci and Ryan 1985; Ayub 2010). Motivation is an individual difference variable, which serves as an impetus or inspiration to act or to do something. "It is a zest and determination with a kind of excitement that leads one to persevere to reach greater heights, in no matter what avenue of their life, be it personal or professional" (Singh 2011: 61) and is mainly concerned with the "activation of goal-oriented behavior" (Singh 2011: 162). Motivation is generally a key factor in language achievement and shaping learner behavior. Martinez et al. (2016: 136), for instance, maintain that there is a reciprocal relationship between motivation and strategy use and that "motivation leads to strategy use, and strategy use to motivation".

According to the Self-Determination Theory (SDT; Deci and Ryan 1985, 2000; Ryan and Deci 2000), there are different types of driving force or motivation based on various reasons and goals that inspire a person to do an action.The motivation to do an action may come from internal or inherent enjoyment, that is, intrinsic motivation, or maybe caused by an external pressure, that is, extrinsic motivation. Since its introduction in 1985 by Deci and Ryan, the SDT and different types of motivation have gone through many changes, and attempts have been made to re-conceptualize motivation by Deci and Ryan and many other scholars in the field from various perspectives (Deci et al. 2001; Elliott and Dweck 2005; Ryan and Deci 2013; Marsden et al. 2014; Deci et al. 2015). Notwithstanding miscellaneous conceptualizations, self-determination theory is now viewed as "a comprehensive theoretical framework,which encompasses different parameters of motivation (Liu 2016: 94). The key to successful learning, according to SDT, is the internalization process and "the more internalized the reason for language learning, the more comfortable and persevering students claimed to be" (Liu 2016: 101).

According to Ryan and Deci (2000: 56), intrinsic motivation refers to "the doing of an activity for its inherent satisfactions rather than for some separable consequence". Put differently, it concerns with doing "an activity for itself, and the pleasure and satisfaction derived from participation" in and accomplishment of certain tasks (Ryan and Deci 2000: 56). Indeed, intrinsic motivation originates from inherent psychological needs (Ayub 2010) and self-determination operationalized through internalization process. The current literature on motivation highlights three categories, that is,intrinsic motivation to know, intrinsic motivation to accomplish, and intrinsic motivation to experience stimulation (Deci and Ryan 1985; Ryan and Deci 2000; Vallerand et al. 2009). Consequently, according to the self-determination theory, individuals with intrinsic motivation have inherent locus of control and intrinsic intellectuality, enjoy accomplishment of a task for pleasure, engage in activities that give rise to experience of stimulating sensations, and are eager to learn new things (Deci and Ryan 1985; Vallerand et al. 1992; Komarraju et al. 2009; Ayub 2010).

On the other hand, extrinsic motivation is mainly concerned with the instrumental value of "the performance of an activity in order to attain some separable outcome (Ryan and Deci 2000: 71). It deals with a number of behaviors that serve as a means to an end and not an end in itself. Like intrinsic motivation, extrinsic motivation consists of three types, that is, *external regulation,* which is controlled through outside rewards, punishments, and constraints, *introjected regulation,* which concerns with the internalizing the importance of and the reasons for doing certain activities, and *identified regulation,* which involves "choosing to identify with the values associated with academics" (Komarraju et al. 2009: 47). In other words, through identified regulation, an individual values and judges the importance of a behavior chosen by oneself, and then, regulates the internalization of the extrinsic motive through identification.

Finally, the third type of motivation is termed *amotivation,* which concerns with the "state of lacking an intention to act" (Ryan and Deci 2000: 61). According to the Self-Determination Theory, amotivation depicts a situation in which individuals are neither intrinsically nor extrinsically motivated due to the uncontro-llability of their behavior by themselves. Indeed, they perceive that their activities and behaviors are controlled and regulated by forces other than their own control (Deci et al. 1991; Vallerand et al. 1992). When individuals feel incompetent in performing an action, or when they are not sure of the desired outcomes of their activities, they do not respond to external influences and may stop participating in and accomplishing academic activities.

Over the past few decades, studies carried out all over the world (Areepattamannil et al. 2011; Henning and Shulruf 2011; Singh 2011; Strobel 2012; Gamboa et al. 2013; Kusurkar et al. 2013; Sikhwari 2014; van den Berg and Coetzee 2014; Cetin 2015) investigated the role of academic motivation in academic achievement. Henning and Shulruf (2011), for instance, examined motivational beliefs and self-regulated learning strategies and their relationship with academic achievement. Their findings showed strong associations between the self-regulated learning strategies and motivational beliefs at both the pre and post-stages of measurement. Moreover, they found an intriguing interaction between engagement in self-regulated learning strategies and their direct effect on academic achievement. While McGhee (2010) reported a low negative association between motivation and academic achievement, Onder et al. (2014) found that academic motivation had an important influence on academic achievement.

Similar results were found by Areepattamannil et al. (2011) who studied the relations among academic achievement, extrinsic motivation, and intrinsic motivation of the Indian immig-rantsin Canada, comparing them with their counterparts in India. Their findings revealed that intrinsic motivation of both groups of Indian adolescents had positive predictive effects on their academic achievement. Their findings also showed that extrinsic motivation had a negative predictive effect on the participants' academic achievement in Canada whereas it did not have an important predictive effecton academic achievement of the participants in India.

Recent research also validates and supports prior research on the importance of affective and motivational factors in language learning and other disciplines. Liu (2016), for instance, found that Chinese students were equally motivated extrinsically and intrinsically. Bedel (2016) explored the relationship among academic motivation, academic self-efficacy and attitudes toward teaching in 251 pre-service early childhood education teachers in Turkey. Results revealed a statistically significant relationship between academic motivation and academic self-efficacy, with self-efficacy as the only predictor of academic motivation. Likewise, Genc et al. (2016) found that Turkish undergraduate students majoring in English held strong beliefs about the significant role motivation plays in their learning process. Furthermore, their beliefs and motivation are highly influenced by their English self-efficacy.

The Purpose of the Study

According to the Self-Determination Theory (SDT), not all learning tasks are inherently enjoyable for the students. Hence, understanding intrinsic motivation as well as different types of extrinsic motivation and fostering them is an important issue for educators. Even though the importance of motivational factors in participating in and accomplishing learning and academic activities has been established by a significant body of research (Emmanuel et al. 2014; Marsden et al. 2014; Dornyei and Ryan 2015) all over the world, there seems to be a research gap in L2 learning field, especially in college and higher education programs, in the Turkish context. The present study, therefore, is an attempt to address this gap by exploring the effect of academic motivation on academic achievement of Turkish pre-service English teachers. Thus, the following research questions were formulated to guide the present study.

1. To what extent does academic motivation predict the variability in participants' academic achievement?
2. Is there any difference between male and female participants in relation to their academic motivation?

METHODOLOGY

Research Design

This study was conducted with a quantitative research design and survey methodology to collect data. Participants provided perceptions of their academic motivation and socio-demographic charact-eristics. For a cross-sectional study conducted at one point in time, this design is useful to empl-oy when researchers try to gather information quickly and economically (Creswell 2012).

Setting and Participants

Participants were pre-service teachers of English enrolled in an EFL teacher education program at a major state university in Turkey. The participants (N = 98; females: 73, 74.5%;

males: 25, 25.5%) voluntarily completed an online survey and gave consent for data collection. They ranged in age from 18 to 22 years (M = 20.26, SD = 0.95).

Measures

In addition to a self-report measure of the participants' current grade point averages (GPA), the Academic Motivations Scale (AMS) (Vallerand et al. 1992, 1993) was used to assess the participants' academic motivation. The AMS is a 28-item scale with extensively supported psychometric properties. It measures the participants' academic motivation on three subscales of intrinsic motivation (twelve items), three subscales of extrinsic motivation (twelve items), and amotivation (four items). Participants rated how well the items described them on a 7-point scale ranging from *1 = does not correspond at all* to *7 = corresponds exactly*. In this study, the internal consistency of the scales ranged from.73 to.91, and was.92 for overall scale. The internal consistency coefficients of the scale with all its components are presented in Table 1. The data regarding academic achievement was collected from a self-report measure of the participants' GPA.

Table 1: Variables and reliabilities

Variables	*# of items*	*Cronbach's Alpha*
Intrinsic Motivation (Total Score)	12	
Intrinsic motivation to know	4	.91
Intrinsic motivation to accomplish	4	.88
Intrinsic motivation to experience stimulation	4	.84
Extrinsic Motivation (Total)	12	
Extrinsic motivation identified	4	.79
Extrinsic motivation introjected	4	.84
Extrinsic motivation external regulation	4	.73
A Motivation	4	.87
Total	28	.92

Data Collection and Analysis Procedures

This study was carried out in a pre-service EFL teacher education program at a major state university in Ankara. The participants voluntarily completed a survey administered online. Data analysis was conducted to address the previously formulated research questions. The statistical analyses were performed using IBM SPSS Statistics 22, a comprehensive computer program used to help researchers perform statistical analysis quickly and accurately.

In order to explore the overall relationship between different dimensions of academic motivation and academic achievement, Structural Equation Modeling (SEM) was conducted using IBM AMOS 22 statistical package. Structural equation modeling was used because it enables the researchers to examine the interrelated relationships in a single model (Kline 2005; Hair et al. 2006). Moreover, the independent samples t-test was used to find out the role of gender differences in the participants' perception of academic motivation.

RESULTS

The present study sought to investigate the role of academic achievement in predicting preservice English as a foreign language (EFL) teachers' academic achievement. This section of the present study presents the results, followed by a discussion of the findings and conclusions.

In order to find out whether there was a relationship between academic motivation and the participants' cumulative grade point averages, that is, their overall academic achievement, structural equation modeling (SEM) was conducted. As illustrated in Figure 1, intrinsic motivation with all its subcomponents significantly predicted the rate of academic achievement among Turkish pre-service teachers of English. Intrinsic motivation for knowledge (β= .26, p< .01), intrinsic motivation for accompli-shment (β= .34, p< .001), and intrinsic motivation for stimulation (β= .42, p < .001) were significant predictors of the participants' GPA, respectively. Goodness-of-fit indices were χ^2/df= 3.46, GFI=.97, CFI=.98, and RMSEA=.04, which show that the proposed model fits the data adequately. The findings also showed significant strong correlation paths among all predictor variables (p< .001). An inspection of squared multiple correlations further revealed that intrinsic motivation with its three subcomponents accounted for nearly thirty-five percent of the variance in the participants' academic achievement.

Likewise, the results of structural equation modeling revealed that there was statistically a significant relationship between academic achievement and extrinsic motivation. Compared with intrinsic motivation, however, extrinsic mo-

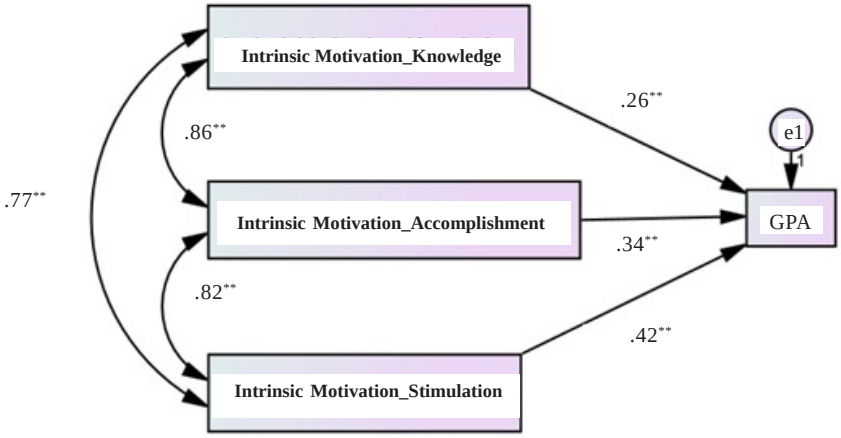

Fig.1. The relationship between intrinsic motivation and academic achievement

tivation was found to have less predictive power. Indeed, intrinsic motivation was stronger than external regulations in predicting the participants' academic achievement. Extrinsic motivation identified (β=.39, $p < .001$), extrinsic motivation or external regulation (β=.27, $p<.001$), and extrinsic motivation introjected (β =.21, $p < .01$) significantly predicted the participants' GPA with the identified regulation as the strongest predictor subcomponent. A careful scrutiny of the squared multiple correlations demonstrated that extrinsic motivation accounted for twenty-six percent of the variance in the participants' academic achievement. Goodness-of-fit indices were χ^2/df= 5.39, GFI=.95, CFI=.97, and RMSEA=.05, showing that the proposed model fits the data adequately. As shown in Figure 2, there were also significant correlational paths among the three subcomponents of extrinsic motivation ($p < .001$).

Regarding the relationship between amotivation and academic achievement, the findings revealed no significant relationship between the two variables, and on the whole amotivation explained only two percent of the variance in the participants' GPA. Finally, the findings showed no significant differences (p > .05) in the participants' academic motivation by gender.

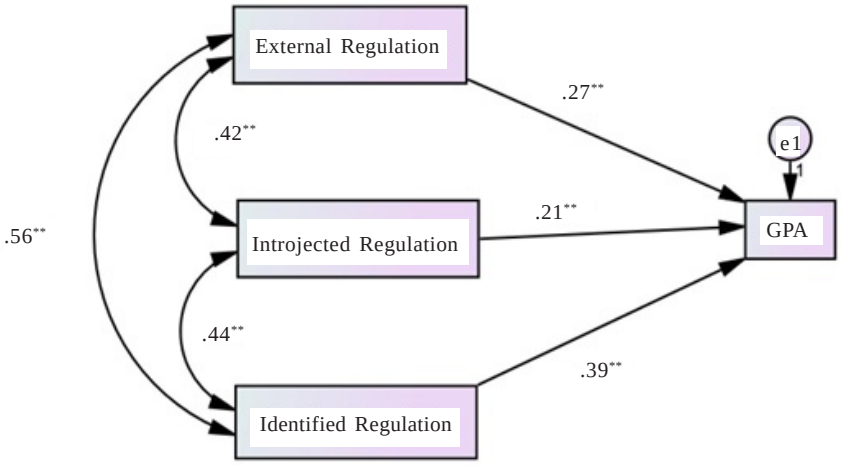

Fig. 2. The relationship between extrinsic motivation and academic achievement

DISCUSSION

The findings of this study showed a significant relationship between academic motivation and academic achievement of Turkish pre-service teachers of English. As seen in the results section, both intrinsic and extrinsic motivations are potentially predictors of academic achievement, explaining a significant proportion of academic achievement among the participants. These findings provide significant support for the previous studies in second or foreign language (L2) research and add to a significant body of research that emphasizes the role of academic motivation in academic achievement (Amrai et al. 2011; Areepattamannil et al. 2011; Sikwari 2014). Sikhwari (2014) reported a significant correlation between academic achievement and motivation. While emphasizing on the importance of motivation in academic performance of the students, Sikhwari (2014: 24) maintains,"it is therefore necessary to give adequate attention to the enhancement of academic self-concept and motivation when offering psycho-educational interventions in order to improve academic performance of students". Likewise, Bedel (2016: 146) observes, "students will have increased levels of academic motivation as they progress through their training program because of teaching experience, which supposedly offers more opportunity to be autonomous". However, the findings of the current study are in contrast with Emmanuel et al. (2014) who found no significant association between academic achievement and academic motivation. Similarly, Cetin (2015) found that academic motivation had nothing to do with academic motivation even though the students' academic motivation and academic self-regulation learning level were increased through the educational program provided. The findings of this study also add to the emerging body of recent research that underscores the importance of individual differences in L2 learners' academic behavior (Andreou 2006; Deciand Ryan 1985; Dornyei 2005, 2014; Dornyei and Ryan 2015; Dornyei et al. 2015; Dornyei et al. 2016).

Another important finding of the study is that intrinsic motivation to experience stimulation is the strongest predictor of academic achievement among the participants, indicating that most participants tend to continue higher education for the intense feelings they experience while communicating their ideas to others, the pleasure of reading interesting authors and the writings of certain authors, and the high feelings that they seem to experience when reading about a variety of interesting subjects. Additionally, intrinsic motivation toward accomplishment was the second strongest predictor of academic achievement. That is, the pleasure of surpassing themselves in their studies and their personal accomplishments, the satisfaction felt while accomplishing difficult academic activities, and experiencing personal satisfaction in their quest for excellence in their studies serve as motivational factors influencing academic achievement among pre-service English teachers. This suggests that students who are highly motivated intrinsically may achieve greater academic success than those who are not motivated or amotivated. These findings corroborate and improve those of Komarraju et al. (2009) who argue that intrinsic motivation to accomplish things coupled with conscientiousness and self-disciplined and organized behavior can influence students' academic achievement. In their study, intrinsic motivation to accomplish things accounted for five percent of the variance in college students' GPA. These findings are, however, in contrast with those of Cetin (2015) who examined the relationship between academic motivation, academic self-regulated learning and academic achievement among early childhood education majors. His findings did not reveal any correlation between grade point average, academic self-regulation learning, and academic motivation. These discrepancies may be attributed to the L2 learning context and level of the participants, indicating that students' perceptions of academic motivation at early childhood can noticeably differ from those of college students.

Surprisingly, intrinsic motivation to know, though significant, was found to have less predictive power than the other two subcomponents of intrinsic motivation. Indeed, the pleasure of learning and discovering new things, the experience of broadening knowledge of subjects appealing to students, and all in all, learning many interesting things do not seem to greatly influence the participants' academic achievement. It can be understood, therefore, that most students do not go to college or university mainly because they are interested in broadening their knowledge of new subjects. Rather, the experience of pleasure and satisfaction while engag-

ing in fully volitional activities (Deci et al. 1991) and the feeling of satisfaction while accomplishing certain academic activities without external pressure and constraints may provide more insightful results and end up with more promising and quality learning than knowledge-oriented intrinsic motivation.

The findings also revealed a significant relationship between external motivation and academic achievement. These findings run counter to Komarraju et al. (2009) who reported no significant relationship between extrinsic motivation and academic achievement. Komarraju et al. (2009), however, argue that even students with extrinsic motivation can be motivated to achieve their academic goals through providing external rewards for hard work, training to develop learning strategies to increase learners' confidence in their abilities, and "providing students with multiple learning and assignment options may also facilitate motivation" (Komarraju et al. 2009: 51). Likewise, Kusurkar et al. (2013) argue that quality of motivation plays a vital role in determining the quality of performance among students when they employ good study strategy and keep high effort. All in all, the findings of this study provide support for Self Determination Theory, which claims that the main purpose of SDT is to enhance a learner's motivation through cultivating learner autonomy (Dornyei 2014; Nie et al. 2014; Deci et al. 2015). This is necessary since enhancing student motivation is central to teaching and learning an L2 successfully. Therefore, there is a compelling reason "to inform not only students who have lower-levels of language learning motivations but also parents about the benefits of acquiring communicative competence in a foreign language" (Erslani 2015: 477).

The findings of the present study showed no significant relationship between academic amotivation and academic achievement of the Turkish pre-service English teachers, suggesting that the participants perceive contingencies between their academic outcomes, that is, academic achievement, and their academic activities in the program. This is supported by the findings of the present study, which underscore the findings of previous research (Bedel 2016) suggesting that students are both intrinsically and extrinsically motivated and that they perceive that their activities and performance are under their own control and not completely controlled by forces out of their control. Finally, gender differences did not reach to statistical significance in relation to their academic motivation, suggesting that academic motivation, self-determination and self-regulation seem to equally influence the students without any constraints by gender factor.

CONCLUSION

The findings of the present study revealed that academic motivation is connected with academic achievement. This implies that learners' academic motivation can affect their academic performance and achievement. As stated previously, the findings indicated that learners, regardless of gender differences, could be both intrinsically and extrinsically motivated. It seems plausible to conclude that the participants were motivated in a mixed manner. Assessing academic motivation of second or foreign (L2) learners, therefore, can provide a well-documented guide for teachers to take necessary measures in order to motivate their students toward undertaking learning tasks enthusiastically. That is, academically motivated are more likely to enjoy engaging in learning activities than those who are not or amotivated. The findings of this study, based on self-reported data though, provide a foundation for further research on the impact of academic motivation on academic achievement in English teacher education programs, more specifically in under-researched context of Turkey.

RECOMMENDATIONS

Drawing upon the findings of the current paper, it is recommended that training and development in the areas of students' academic motivation, both intrinsic and extrinsic, should be addressed through the teacher education programs as a developmental plan not only by teachers but also by other stakeholders who can intervene in their professional development including experts and professionals in the field, program designers, policymakers, and even parents. When both parents and teachers get actively involved with their students in a way that supports autonomy, the students will probably maintain their motivation for learning as well asattain more independent types of self-regulation by means of integration and internalization processes. Viewing the results of the present

study in light of self-determination theory, it seems necessary to give adequate attention to self-concept, self-regulation, and natural curiosity of the students as their intrinsic motivation, and academic motivation throughout teacher education processes in order to help the students to improve academic achievement.

ACKNOWLEDGEMENTS

This research was supported by the Research Fund of Hacettepe University (Project Number: SED-2015-7186).

REFERENCES

Amrai K, Motlagh SE, Zalani HA, Parhon H 2011. The relationship between academic motivation and academic achievement students. *Procedia-Social and Behavioral Sciences*, 15: 399-402.

Andreou G, Andreou E, Vlachos F 2006. Individual differences in second language learning among university students. In: SN Hogan (Ed.): *Trends in Learning Research*. New York: Nova Science Publishers, pp. 81-99.

Areepattamannil S , Freeman JG, Klinger DA 2011. Intrinsic motivation, extrinsic motivation, and academic achievement among Indian adolescents in Canada and India. *Social Psychology of Education*, 14: 427-439.

Ayub N 2010. Effect of intrinsic and extrinsic motivation on academic performance. *Pakistan Business Review*, 8: 363-372.

Bedel EF 2016. Exploring academic motivation, academic self-efficacy and attitudes toward teaching in pre-service early childhood education teachers. *Journal of Education and Training Studies*, 4: 142-149.

Cetin B 2015. Motivation and self-regulated learning in predicting academic achievement in college. *Journal of International Education Research (JIER)*, 11: 95-106.

Creswell JW 2012. *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research.* 4th Edition. Boston, MA: Pearson.

Deci EL, Koestner R, Ryan RM 2001. Extrinsic rewards and intrinsic motivation in education: Reconsidered once again. *Review of Educational Research*, 71: 1-27.

Deci EL, Ryan RM 1985. *Intrinsic Motivation and Self-determination in Human Behavior*. New York: Springer Science & Business Media.

Deci EL, Ryan RM (Eds.) 2002. *Handbook of Self-determination*. Rochester: University of Rochester Press.

Deci EL, Ryan RM 2014. The importance of universal psychological needs for understanding motivation in the workplace. In: M Gagne (Ed.): *The Oxford Handbook of Work Engagement, Motivation, and Self-determination Theory*. New York, NY: Oxford University Press, pp. 13-32.

Deci EL, Ryan RM, Guay F 2013. Self-determina-tion Theory and Actualization of Human Potential. In: D McInerney, H Marsh, R Craven, FGuay (Eds.): *Theory Driving Research: New Wave Perspectives on Self processes and Human Development*. Charlotte, NC: Information Age Press, pp. 109-133.

Deci EL, Ryan RM, Schultz PP, Niemiec CP 2015. Being aware and functioning fully: Mindfulness and interest-taking within self-determination theory. In: KW Brown, JD Creswell, RM Ryan (Eds.): *Handbook of Mindfulness: Theory, Research, and Practice*. New York, NY: Guilford Press, pp. 112-129.

Deci EL, Vallerand RJ, Pelletier LG, Ryan RM 1991. Motivation and education: The self-determination perspective. *The Educational Psychologist*, 26: 325-346.

Dornyei Z 2005. *The Psychology of the Language Learner: Individual Differences in Second Language Acquisition.* Mahwah, NJ: Lawrence Erlbaum.

Dornyei Z 2014. Motivation in second language learning. In: M Celce-Murcia, DM Brinton, MA Snow (Eds.):*Teaching English as a Second or Foreign Language*. 4th Edition. Boston, MA: National Geographic Learning/Cengage Learning, pp. 518-531.

Dornyei Z, Henry A, Muir C 2016. *Motivational Currents in Language Learning: Frameworks for Focused Interventions*. New York: Routledge.

Dornyei Z, MacIntyre P, Henry A (Eds.) 2015. *Motivational Dynamics in Language Learning*. Bristol: Multilingual Matters.

Dornyei Z, Ryan S 2015. *The Psychology of the Language Learner Revisited*. New York: Routledge.

Elliott AJ, Dweck CS 2005. *Handbook of Competence and Motivation*. New York: Guilford Press.

Emmanuel AO, Adom EA, Josephine B, Solomon FK 2014. Achievement motivation, academic self-concept and academic achievement among high school students. *European Journal of Research and Reflection in Educational Sciences*, 2: 24-34.

Ersanli CY 2015. The relationship between students' academic self-efficacy and language learning motivation: A study of 8th graders. *Procedia-Social and Behavioral Sciences*, 199: 472-478.

Gamboa LF, Rodriguez Acosta M, Garcia-Suaza A 2013. Differences in motivations and academic achievement. *Lecturas de Economia*, 78: 9-44.

Genc G, Kulusakli E, Aydin S 2016. Exploring EFL learners' perceived self-efficacy and beliefs on English language learning.*Australian Journal of Teacher Education*, 41: 53-68.

Hair JF, Black WC, Babin BJ, Anderson RE, Tatham RL 2006. *Multivariate Data Analysis*. 6th Edition. Upper Saddle River, NJ: Prentice Hall.

Henning MA, Shulruf B 2011. Academic achievement: Changes in motivational beliefs and self-regulated learning strategies over time. *Psychologia*, 54: 135-144.

Kline RB 2005. *Principles and Practice of Structural Equation Modeling*. 2nd Edition. New York, NY: The Guilford Press

Komarraju M, Karaub SJ, Schmeck RR 2009. Role of the Big Five personality traits in predicting college students' academic motivation and achievement. *Learning and Individual Differences*, 19: 47-52.

Kusurkar RA, Ten Cate TJ, Vos CMP, Westers P, Croiset G 2013. How motivation affects academic performance: A structural equation modelling analysis. *Advances in Health Sciences Education*, 18: 57-69.

Liu L 2016. Why do Chinese college students learn ESP: An analysis of language learning motivations within SDT framework. *English Language Teaching*, 4: 92-105.

Liu WC, Wang CK, Ryan RM 2016. *Building Autonomous Learners: Perspectives from Research and Practice Using Self-Determination Theory*. Singapore: Springer.

Marsden KE, Ma WJ, Deci EL, Ryan RM, Chiu PH 2014. Diminished neural responses predict enhanced intrinsic motivation and sensitivity to external incentive. *Cognitive, Affective, Behavioral Neuroscience*, 15: 276-286.

Martínez JJR, Perez VLM, Navarrete JH, de la Paz SB 2016. Language learning strategy use by Spanish EFL students: The effect of proficiency level, gender, and motivation. *Revista de Investigacion Educativa*, 34: 133-149.

McGhee RMH 2010. *Asynchronous Interaction Online Technologies Self- efficacy and Self-regulated Learning as Predictors of Academic Achievement in an Online Class*. PhD Dissertation,Unpublished. Baton Rouge, Louisiana, USA: The Faculty of the Graduate School Southern University and A & M College.

Nie Y, Chua BL, Yeung AS, Ryan RM, Chan WY 2014. The importance of autonomy support and the mediating role of work motivation for well-being: Testing self-determination theory in a Chinese work organisation. *International Journal of Psychology*, 50: 245-255.

Onder I, Besoluk S, Iskender M, Masal E, Demirhan E 2014. Circadian preferences, sleep quality and sleep patterns, personality, academic motivation and academic achievement of university students. *Learning and Individual Differences*, 32: 184-192.

Ryan RM, Deci EL 2000. Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25: 54-67.

Ryan RM, Deci EL 2002. An overview of self-determination theory. In: EL Deci, RM Ryan (Eds.): *Handbook of Self-determination Research*. Rochester, NY: University of Rochester Press, pp. 3-33.

Ryan RM, Deci EL 2013. Toward a social psychology of assimilation: Self-determination theory in cognitive development and education. In: BW Sokol, FME Grouzet, U Muller (Eds.): *Self-regulation and Autonomy: Social and Developmental Dimensions of Human Conduct*. Cambridge, UK: Cambridge University Press, pp. 191-207.

Sikhwari TD 2014. A study of the relationship between motivation, self-concept and academic achievement of students at a University in Limpopo Province, South Africa. *International Journal of Educational Science*, 6: 19-25.

Singh K 2011. Study of achievement motivation in relation to academic achievement of students. *International Journal of Educational Planning & Administration*, 1: 161-171.

Strobel KR 2012. *Academic Motivation and School Engagement and Their Links to Academic Achievement: A Follow Up Report*. Stanford, CA: John W. Gardner Center.

Vallerand RJ, Pelletier LG, Blais MR, Briere NM, Senecal C, Vallieres EF 1992. The academic motivation scale: A measure of intrinsic, extrinsic and amotivation in education. *Educational and Psychological Measurement*, 52: 1003-1017.

Vallerand RJ, Pelletier LG, Blais MR, Briere, NM, Senecal C, Vallieres EF 1993. On the assessment of intrinsic, extrinsic and amotivation in education: Evidence on the concurrent and construct validity of the academic motivation scale. *Educational and Psychological Measurement*, 53: 159-172.

van den Berg G, Coetzee LR 2014. Academic self-concept and motivation as predictors of academic achievement. *International Journal of Educational Science*, 6: 469-478.

Zimmerman BJ 2012. Goal setting: A key proactive source of academic self-regulation. In: DH Schunk, BJ Zimmerman (Eds.): *Motivation and Self-regulated Learning Theory, Research, and Applications*. New York and London: Routledge Taylor & Francis, pp. 267-295.

Zimmerman BJ, Bandura A, Martinez-Pons M 1992. Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, 29: 663-676.