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An Overview of Student Teachers' Academic Intrinsic Motivation

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Abstract

Student teachers' desire to learn is affected by a variety of motivational factors. In this study, the effect of some internal and external variables on Academic Intrinsic Motivation (AIM) was explored. First, the validity and reliability of the scale of AIM was determined, then the effect on AIM of variables such as grade levels, academic grade point averages, learning environments, and the desire to be a teacher were examined. The research was carried out with 780 student teachers in the fall semester of 2012-13, and a survey model was used for the study. The AIM scale and personal information forms were used to collect data. In order to determine the construct validity of the AIM scale, item analysis, as well as exploratory and confirmatory factor analysis methods, were employed, respectively. In the second phase of the study, descriptive statistics, independent sample t-tests, and one-way analysis of variance (ANOVA) techniques were used for the independent variables. Also, logistic regression analysis was used to compare the variable of student teachers' desire to be a teacher and their AIM. Results revealed that the AIM scale was comprised of four sub-scales, including a need for achievement, social acceptance, a fear of failure, and mastery. Additionally, the scale was found to be valid and reliable. Furthermore, significant differences were found between student teachers' AIM and their academic grade point averages, grade levels and their desires to be a teacher. Finally, the study found that student teachers who have medium and high-level AIM have a high likelihood of practicing teaching as a profession in the future.

Key Words

Academic Motivation, Extrinsic Motivation, Factor Analysis, Intrinsic Motivation, Logistic Regression, Student Teacher.

Motivation is a factor of prime importance in piquing students' interest, encouraging them to actively participate in lessons, and enabling them to be constructive, creative, and productive individuals. In a general sense, motivation is a propellant power that emerges with the desire and effort of students, driving them to reach a certain object or condition, and a process that starts, sustains and directs mental and physical activity (Budak, 2009; Eren, 2008; Pintrich, 2003; Pintrich & Schunk, 2002; Woolfolk, 1998). Dörnyei (2009) emphasized that even if individuals have a great quality of learning skills, they will not be able to reach long-term targets without motivation.

Several theories have been developed to explain the concept of motivation. These theories are categorized into two main groups: content and process theories (Koçel, 2003; Taştan, 2005). Additionally, there are several motivational theories such as behavioral, cognitive, humanistic, and social cognitive theories that mainly seek to explain the formation of learning (Akbaba, 2006; Yazıcı,

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2009). All these theories explaining the motivation have different impacts on human behaviors (Deci, Ryan & Williams, 1996; Glynn, Taasoobshirazi & Brickman, 2009; Nowruzi Khiabani & Nafissi, 2010). Impacts such as the different characteristics of each individual, environmental factors, former life experiences, self- perception, and physical environment affect motivation (Barrett, Patock-Peckham, Hutchinson & Nagoshi, 2005). These factors are classified as intrinsic or extrinsic (Duy, 2011). In intrinsic motivation, the individual develops behaviors aimed at his own intrinsic needs. On the other hand, extrinsic motivation emerges with extrinsic effects rather than focusing on the action being taken (Akbaba, 2006; Onaran, 1981; Vallerand et al., 1992; Woolfolk, 1998). According to some studies, internally motivated students are more successful than externally motivated students (Balaban Salı, 2002; Henderson-King & Smith, 2006; Lin, McKeachie, & Kim, 2003). However, the concept of motivation was examined by some researchers on a line from external to internal by grounding autonomy in the behaviors of the individual (Baltaş, 2002; Gagne & Deci, 2005; Kart & Güldü, 2008), thus, it is not possible to consider the two types of motivation independently from one another (Moore, 2001; Yıldırım, 2007).

Even though motivation is approached from different, lower dimensions in content theories explaining human needs, it is clear that these dimensions have a similar content. These dimensions generally include a need for success, a fear of failure, a need for social acceptance, and mastery (Bentley, 2003; Cüceloğlu, 1992; Erdem, 1997; Eren, 2009; Jacobsen, Eggen, & Kauchak, 2002; Koçel, 2005; Öztürk, 2006; Wentzel & Wigfield, 1998). In terms of education, students will be able to enjoy their activities, have an increased interest in work, and better success at problem solving only when these needs are met, and consequently, a high academic motivation is produced in the process of learning (Martin, Marsh, & Debus, 2001; Pressley et al., 1992; Schunk, 2009). According to researchers, academic motivation is a more specific concept and involves cognitive, behavioral, and affective training factors such as creative thinking and learning skills, students' satisfaction with school, and their performance in doing homework (Deci & Ryan, 2000; Vallerand, Pelletier & Koestner, 2008; Vallerand et al., 1992). In the process of learning, academic motivation is understood as what stimulates and sustains certain behavior. In this context, it is necessary to determine the factors affecting individuals' behavior to explain the actual reasons for behavior, and to understand what factors would motivate individuals in order to make a contribution to their learning development (Güney, 2000). According to the literature, factors such as gender, academic success, studying environment, and peer relations, as well as the requirements and expectations of authorities such as teachers and parents, affect the academic motivation of students (Aktürk, 2012; Cabı, 2009; Ceylan, 2003; Ertem, 2006; Horowitz, 2009; Jurisevic, Glazar, Pucko & Devetak, 2008; Mullis, Martin, Fierros, Goldberg & Stemler, 2000; Painter, 2011). It is important to note that the number of studies concerning the academic motivations of student teachers and their teaching desires is very limited (Acat & Yenilmez, 2004; Sinclair, 2008).

Aim of the Research

The main aim of this research was to reveal examine how intrinsic and extrinsic factors such as the learning environments, characteristics, and teaching desires of student teachers affected their motivation to learn, as well as to determine how accurately their AIM classified their teaching desire. In this study, sub-dimensions for the validity study of the AIM scale developed by Shia (1998) were primarily determined with exploratory factor analysis (EFA). Additionally, the applicability of the sub-dimensions for the Turkish culture was reconsidered and an adaptation study was conducted through confirmatory factor analysis (CFA). The study also aimed to research the relationship between student teachers who were specifically training in faculties of education, and the factors affecting their AIM, as well as to predict how accurately their teaching desires were classified by their AIMs.

Method

Research Model

The first phase of the research involved determining the structural validity and reliability of the AIM scale developed by Shia (1998). The second phase of the research employed a survey model that determined the relationships between AIM and learning environments, characteristics, teaching desires.

Participants of the Research

Participants of the research consisted of 780 student teachers training in different departments at Dokuz Eylul University in the fall semester of the school

year 2012-13. The same study group took part in the validity and reliability analyses of the AIM scale and the relationship between AIM levels and the factors that were specified in the participants' personal information form.

Data Collection Tools

The AIM scale developed by Shia (1998) and personal information forms were used as data collection tools in this research. Being a seven point Likert type scale, the AIM scale typically includes a total of 59 items. The AIM scale, after being tested in terms of validity and reliability in the second phase of the research, was conducted as 23 items and 4 sub-dimensions in this study. Personal information forms were prepared by researchers to obtain personal information from participants, and asked participants about variables such as their class levels, academic grade-point averages, study environments, and teaching desires.

Data Analysis

The AIM scale was tested in terms of validity and reliability in the first phase of the research. In order to conduct the structural validity test, the total score correlation of each item was measured and an item analysis was performed on the scale. Following the item analysis, the EFA was applied to the remaining items, and the factor numbers of the scale were determined. An adaptation study was conducted by applying the CFA to the scale for which factor numbers were determined. Cronbach's alpha (α) reliability coefficients were calculated for the reliability of the scale. In the second phase of the research descriptive statistics the independent sample t-test, and one-way analysis of variance (ANOVA) were used for independent variables of the study. Additionally, logistic regression analysis was used to compare between the variables of teaching desire and AIM. SPSS 15.00 and LISREL 8.71 statistics programs were used for the statistical analyses that were conducted during the research.

Results

Findings Regarding the Validity of the Academic Intrinsic Motivation Scale

When applying the AIM scale, special attention should be paid to features such as the scale format, application conditions, and language, all of which might affect the meaning and interpretation of scale items (American Educational Research Association, American Psychological Association, National Council on Measurement in Education, 1998). Thus, the items in the original English format of the AIM scale were examined by experts working in the Department of English Education and Turkish Education and translated into Turkish.

EFA was first applied to determine which factors included the AIM scale items of Shia (1998) and then CFA was applied to adapt it to our own culture. Before the factor analysis, the premises required for validity studies of the scale were tested and it was determined that the study sample size was sufficient, it met the normality hypothesis, there were no multiple and single outliers, and there were no lost or extreme values (Çokluk, Şekercioğlu & Büyüköztürk, 2010; Tabachnick & Fidell, 2001). Item-total score correlations of all items on the scale were also examined before the EFA and 18 items with a correlation coefficient lower than 0.20 were excluded from the scale. After these items were excluded, it was determined that there was no significant difference between upper and lower group averages of the remaining items as a result of the independent t-test analysis (t= -35.593; $p=0.000$). According to these results, the EFA application that aimed to examine structural validity was performed on the remaining 41 items. Considering the factor numbers necessary to meet the premises that were required for validity studies of the scale, it was observed that the scale of 41 items involved 10 factors with an eigenvalue greater than one. As a result of the analysis, factors with an eigenvalue of one and above were accepted as stable in determining the factor number (Pedhazur & Pedhazur Schmelkin, 1991 as cited in Çokluk et al., 2010). Accordingly, the scale was determined to have four factors based on a scree-plot diagram. In Shia's (1998) original AIM scale which was not tested in terms of structural validity, the factor number was six. Facione, Facione and Giancarlo (1998) indicated that both the factor structure and each item could differ when the scale development was applied in different cultures. In order to clearly determine the factor numbers and in which factors the items were involved, Varimax rotation was performed on scale items. As a result of this analysis, some items were excluded from the scale as they were observed to have factor loads lower than 0.32, andcould not be accepted. Some items were determined to be found in various factors. As a result of all EFA analyses, 10 overlapping items (1, 11, 19, 27, 30, 35, 39, 45, 49 and 51) and six items that were not involved in the scale (5, 13, 18, 28, 42 and 53) were excluded. The factor structure, which was determined as a result of

examining the factors comprising the 23-item AIM scale, as well as the items in these factors, was observed to be a bit different from the original scale. It was observed that the items of "authority expectation" and "peer relations" were collected under the same factor on the scale and consequently, the two factors were combined. In both factors, the individual takes the views and thoughts of other people into account (Acat & Yenilmez, 2004; Aktürk, 2012; Koçel, 2003; Şimşek, 1999). With a thorough consideration of scholarly work by Nisbett, Peng, Choi & Norenzayan (2001) and Yeh (2002), these two sub-factors that could be considered complementary to one another were combined by the researcher under "social acceptance". Social acceptance includes the views and thoughts of other people about the individual (Ben-David & Leichtentritt, 1999; Öztürk, 2006; Şahin, 2003; Yüncü, Yıldız, Kesebir, Altıntoprak & Coşkunol, 2005). As a result of the analyses conducted for the 23 items of the AIM scale, it was determined that the acquired factors had high factor loading values and that their variance rates were 10.644%; 12.824%; 7.978% and 8.790%. On the other hand, the total variance explained by all four factors was 40.236%. The variance rate of 40% and 60% explained in multi-factor patterns are considered sufficient (Büyüköztürk, 2007; Tavşancıl, 2005). It could also be asserted that, within this context, the contribution of four factors to the total variance is sufficient. Finally, according to the results of the EFA that was conducted, the KMO value of the scale was 0.824, which could be considered an acceptable value. Furthermore, considering the results of Bartlett's test of sphericity, the acquired chi-square value was observed to be significant (χ^2 =3604.576; sd=253; $p< 0.050$). The fact that the KMO value was greater than 0.60 and that Bartlett's test of sphericity was significant shows that the data were suitable for the factor analysis (Büyüköztürk, 2002, 2011). Accordingly, it was accepted that the data were derived from the multivariate normal distribution.

To evaluate whether or not the four-factor structure determined after the EFA was suitable for the data, a CFA was performed with the data obtained from the AIM scale pilot study. The modification results were examined, as well as fit indexes for the four-factor structure. It is required that the t value is significant, error variances are low, and explained variance is high in order to enable each item to explain its factor in this analysis, conducted within the scope of the structural equation model (Çokluk et al., 2010; Şimşek, 2007). Examining the model that was presented according to the first CFA, it was primarily determined that t values of each item were significant and error variances were not high. Examining the goodness-of-fit indexes in the scale according to the first CFA results, its rate to $\chi 2$/sd was determined as 4.443. While rates of three and lower are accepted as good; rates up to five are accepted as having sufficient coherence (Kline, 2005; Sümer, 2000).Additionally, the fact that the GFI, CFI, NNFI, AFGI and IFI values are higher than 0.90 and equal to 0.90, and that RMSEA and RMR values are lower than 0.08, indicates that the factor structure is coherent in general (Brown, 2006; Hooper, Coughlan, & Mullen, 2008; Jöreskog & Sörbom, 1993; Thompson, 2004). Accordingly, it was determined that the coherence values, except for the coherence value of GFI goodness, were low as a result of the first analysis in DFA and thus, DFA modification suggestions were examined. It was observed that the rate of $\chi 2$ / sd decreased after conducting the modification and repeating the analysis, and it was determined that other coherence goodness indexes gained values of 0.90 and above and met the standard values. Only the AGFI value was found to be below 0.90. Since AGFI is sensitive to the sample size and factor loadings, it could produce lower values in smaller samples and lower factor loadings (Shevlin & Miles, 1998). Based on the above, the items in question show coherence with the four-factor structure and the model shows a sufficient coherence.

Reliability Studies of the AIM Scale

Reliability studies of the scale were examined by using internal consistency coefficients. In order to do this, reliability coefficients of the Cronbach's alpha (α) in the total scale were calculated. The fact that this coefficient remained between 0.60-0.80 proves that the scale is highly reliable and homogeneous, and there is homogeneity between the scale items (Alpar, 2003; Kayış, 2006; Tezbaşaran, 1996). Considering the reliability coefficients of the sub-factors of the AIM scale, it was determined that above mentioned condition was met and the reliability coefficient of the scale was 0.769.

Findings Regarding the Demographic Features of Participants

In this research, the independent variables that were assumed to possibly affect the AIM of participants were examined descriptively. Academic grade-point averages were examined in six different groups according to the scale 4 ECTS. While the highest percentage of the academic grade point averages was observed in student teachers with a grade-point average of 2.0-2.5 (35.0%), the lowest percentage was observed in student teachers with a grade-point

average of 3.5-4.0 (3.1%). A significant difference was found between the total score averages of AIMs of student teachers with the lowest academic grade-point average ("below 1.8") and the score averages of AIMs of student teachers with higher grade-point averages. It was also concluded that the variable of one's study environment, initially thought to have an effect upon AIM as an extrinsic factor in terms of physical conditions, did not display a significant effect on the total motivation scores. As for the effect of class level on student teachers' AIM, it was observed that student teachers at the first grade level had the highest AIM score. Generally, this score showed a gradual decline from the first grade level towards higher class levels. Additionally, score averages of participants' AIMs showed a significant difference according to their teaching desire. Student teachers who desired to teach had higher AIM scores compared to those who did not desire to teach.

Findings Regarding the Logistic Regression Analysis

The estimation of the likelihood of student teachers pursuing their desire to teach the accuracy levels of student teachers according to their AIM scores was obtained with logistic regression analysis, which was used to explain the cause-effect relation between the dependent and independent variables (Mertler & Vannatta, 2005). This study estimated the realization probability of student teachers, which constituted the continuous variable, regarding their desire to be a teacher, which constituted the categorical variable, according to their AIM scores. A logistic regression analysis, which estimated the probability for the realization of one of the values to be gained by the dependent variable, was used in the study. While the dependent variable being used in this study is supposed to gain categorical values, the independent variable might gain either categorical or continuous values (Agresti, 1996; Işığıçok, 2003). The principal focus of this analysis is to form a regression equation to be used in estimating the group of individuals with minimum error (Çokluk et al., 2010; Tatlıdil, 2002). The effect of a variable upon the dependent variable is determined as the probability (Hosmer & Lemeshow 2000; Özdamar, 2002; Özdemir, 2010). In our study, the logistic regression analysis was applied to the teaching desires of participants and the factors of the AIM scale (*Need of Success, Social Acceptance, Fear of Failure and Mastery)*. In the logistic regression model, it was determined that motivational factors other than the fear of failure had an effect upon the probable variables (factors) that were thought to be related with teaching desire, which is a dependent variable, at a significance level of 0.050 in univariate logistic regression results. In the study, the odds value of each factor that was involved in the model was greater than one, which increased the probability of participants being a teacher as much as their coefficients (Field, 2005). As a result of the Hosmer and Lemeshow tests that were aimed at the validity of the model, the chi-square value was calculated as 6.773 and the p value was 0.561. This model concluded that, regarding the findings based on 780 participants, it was estimated that AIM factors had an effect upon the teaching desires of participants at an accuracy rate of 72.2%. As a result of this analysis, 185 student teachers who did not desire to be a teacher were classified wrongly in the voluntary group and 32 student teachers who desired to be a teacher were classified wrongly in the involuntary group. Considering these estimation rates, student teachers who did not desire to be a teacher were estimated at an accuracy rate of 19.9% and those who desired to be a teacher were estimated at an accuracy rate of 94.2%. Accordingly, it is estimated that a student teacher with an average AIM score shows a teaching desire at a probability rate of 76.7%.

Discussion and Conclusion

Depending on individual needs, the sources of AIM might vary according to condition, time, and social values. The literature provides valid and reliable intrinsic motivation scales measuring academic motivation, in addition to intrinsic and extrinsic motivation scales concerning the process of learning (Güvendik, 2010; Pintrich, Smith, Garcia, & MacKeachie, 1991; Tuan, Chin, & Shieh, 2005; Vallerand et al., 1992). The difference between Shia's (1998) AIM scale f and other scales is that it involves different sub-dimensions of intrinsic and extrinsic motivation. According to Shia's suggestion, the validity and reliability of the AIM scale were tested in this study, and the scale was finalized. Following the EFA that was performed for the AIM scale, which originally involves 59 items and 6 sub-dimensions, 23 items were retained. The remaining scale items were collected under four sub-dimensions as the *Need of Success, Social Acceptance, Fear of Failure and Mastery.* Furthermore, the adaptation study of the scale was performed by applying a CFA on 23 items under four sub-dimensions, and it was found to be suitable for the Turkish culture. Finally, a reliability analysis was performed on the whole scale and it was determined that items in the scale were consistent with one another and consequently, the 23-item AIM scale was reliable.

In some educational research, it was observed that students training in an intense program had higher intrinsic motivations compared to other students (Anastasi, 2007; Bahl & Black, 2011; Ho & Polonsky, 2009; Scott, 1994; Young, 2005) and an increase was observed in the motivation as the class level increased (Aluçdibi & Ekici, 2012; Eymur & Geban, 2011; Gürşimşek, 2002). According to the findings of this study, a decrease was observed in the AIMs of student teachers as their class level increased. A different way of looking at this might be that the ages of student teachers increase as their class level increases, and according to the results of some educational studies, a decrease was observed in the AIMs of students as they aged (Hegarty, 2010).

Many studies on motivation and academic success show that motivation is positively related to learning results (Andrew & Vialle, 1998; Brophy, 1998; Jacobsen et al., 2002; Lee, Luchini, Michael, Norris & Soloway, 2004; Pajares, 1996; Pintrich, Marx, & Boyle, 1993; Schunk, 1991; Ural Aşlan, 2009; Zusho, Pintrich, & Coppalo, 2003). In this study, the findings obtained from comparisons between the academic grade-point averages and AIMs of student teachers support this statement. Parallel to these results, other scholarly research shows that students with high grade-point averages would have high academic intrinsic motivation, as well (Eymur & Geban, 2011; Karsenti & Thibert, 1994).

There was no effect of having an academic study environment and the AIMs of student teachers in this study. Other scholarly studies have asserted that students without such motivating physical conditions will have lower academic success (Altınkurt, 2008; Bahar & Aydın, 2002; Baltaş, 2002; Gülcan, Kuştepeli, & Aldemir, 2002; Keser & Sarıbay, 2007; Memduhoğlu & Tanhan, 2006; Topçu & Uzundumlu, 2012). Even though this contradicts the present research's finding that study environment, which is an extrinsic factors, does not affect motivation, this might be caused by personal differences of student teachers. It is concluded that there is a need for further research of this aspect.

According to the study findings, the difference between the AIM scores of student teachers who desire to be a teacher and the scores of those who do not desire to be a teacher was statistically significant. As a consequence, it is determined that student teachers who desire to be a teacher have high AIMs.

According to the results of the logistic regression analysis that was conducted between the sub-factors of AIM and the teaching desires of student teachers, it was observed that the state of desiring and not desiring to teach was moderate (74.2%). Additionally, while the most important variable predicting teaching desire was the factor of mastery, the prediction level of the fear of failure was not found to be statistically significant. In the literature, it is indicated that students with a high intrinsic motivation feel themselves to be sufficient and competent while doing an activity, which might increase their performance (Amabile, 1997; Wigfield & Eccles, 2000). That the fear of failure is not an important predictor of AIM in the present study might be due to the fact that student teachers do not have high anxiety concerning this subject. Other research has shown that student teachers expecting high levels of failure had high levels of anxiety, which decreased their beliefs on their competence, motivation and success (Cüceloğlu, 1992; Ekenel, 2005; Moore, 2001).

According to the findings that were obtained from the logistic regression equation in this study, it is predicted that a student training at a faculty of education with a moderate-level AIM will pursue his or her job in the future at a probability of 76.7%. On the other hand, it could be asserted that a student teacher with a higher AIM will pursue this job with a higher probability. It is asserted that AIM displays a positive effect on the views of students training at faculties of education regarding the pursuit of their jobs. In studies on the academic successes and intrinsic motivations of student chemistry teachers, it is indicated that a high-level of intrinsic motivation will make positive contributions to student teachers for improving their teaching career and quality, and the variables of motivation will have an important effect upon the teaching desire and transition to the profession (Eymur & Geban, 2011; Sinclair, Dowson, & McInerney, 2006). In his study that examined reasons for student teachers to teach, Aktürk (2012) similarly found that students who made statements regarding their reasons to teach such as "this is my ideal profession" and "I like the profession of teaching" had higher intrinsic motivations. According to the study results, it is necessary to focus on qualitative rather than quantitative studies by analyzing intrinsic and extrinsic factors affecting the AIMs of student teachers, and to examine the effect on their intrinsic motivations based on a detailed situation analysis. Furthermore, it is also important to pursue studies that might raise awareness of AIM in order to make a contribution to the teaching desires of student teachers.

References/Kaynakça

Acat, M. B. ve Yenilmez, K. (2004). Eğitim fakültesi öğrencilerinin öğretmenlik mesleğine ilişkin motivasyon düzeyleri. *Manas Sosyal Bilimler Dergisi*, *12,* 125-139.

Agresti, A. (1996). *An introduction to categorical data analysis.* Hoboken, New Jersey: John Wiley and Sons. Inc.

Akbaba, S. (2006). Eğitimde motivasyon. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi, 13*, 343-361.

Aktürk, O. A. (2012). Öğretmen adaylarının öğrenmeye ilişkin tutumlarının öğretmenlik mesleğini tercih etme nedenlerine ve akademik başarılarına göre incelenmesi. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi (KEFAD),13*(3), 283-297.

Alpar, R. (2003). *Uygulamalı çok değişkenli istatistiksel yöntemlere giriş 1.* (2. bs). Ankara: Nobel Yayınevi.

Altınkurt, Y. (2008). Öğrenci devamsızlıklarının nedenleri ve devamsızlığın akademik başarıya olan etkisi. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, 20*, 129-142.

Aluçdibi, F. ve Ekici, G. (2012). Ortaöğretim öğrencilerinin biyoloji dersi motivasyon düzeylerinin farklı değişkenlere göre incelenmesi. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi,12*(1), 197-227.

Amabile, T. M. (1997). Motivating creativity in organization: On doing what you love and loving what you do. *California Management Review, 40*(1), 39-58.

Amerikan Eğitim Araştırmaları Birliği, Amerikan Psikoloji Birliği, Eğitim Ölçümleri Uluslararası Konseyi (1998). *Eğitimde ve Psikolojide Ölçme Standartları* (Çev. S. Hovardaoğlu ve N. Sezgin). Ankara: Türk Psikologlar Derneği Yayınları. No 14.

Anastasi, S. J. (2007). Full semester and abbreviated summer courses: An evaluation of student performance. *Teaching of Psychology, 34*(1), 19-22.

Andrew, S., & Vilalle, W. (1998). *Nursing students' self-efficacy, self-regulated learning and academic performance in science teaching.* Retrieved from http://www.aare.edu.au/ 98pap/abs98.html.

Bahar, M. ve Aydın, F. (2002). Üniversite öğretmenlerini ve öğrencilerini sınıf ortamında motive eden faktörler. *V. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi* içinde (s. 269). Ankara: ODTÜ.

Bahl, A., & Black, G. S. (2011). Demographics and motivation as predictors of student selection of intensive course formats in an American University. *Interdisciplinary Journal of Research in Business, 1*(8), 10-20.

Balaban Salı, J. (2002). *Bilgisayar destekli öğretimde güdülenme kaynağı ve yetkinlik düzeyinin öğrenci başarı ve tutumları üzerinde etkisi* (Doktora tezi, Anadolu Üniversitesi, Sosyal Bilimler Enstitüsü, Eskişehir). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Baltaş, A. (2002). *Ekip çalışması ve liderlik*. İstanbul: Remzi Kitabevi.

Barrett, D. W., Patock-Peckham, J. A., Hutchinson, G. T., & Nagoshi, C. T. (2005). Religious orientation and social cognitive motivation. *Personality and Individual Differences, 38*(2), 461-474.

Ben-David, A., & Leichtentrit, R. (1999). Ethiopian and Israeli students' adjustment to college: The effect of the family, social support and individual coping styles. *Journal of Comparative Family Studies*, *30*(2), 297-313.

Bentley, J. (2003). *İnsanları motive etme* (Çev. O. Yıldırım). İstanbul: Hayat Yayınevi.

Brophy, J. (1998). *Motivating students to learn*. Boston: McGraw Hill.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research.* NY: Guilford Publications, Inc.

Budak, S. (2009). *Psikoloji sözlüğü.* Ankara: Bilim ve Sanat Yayınları.

Büyüköztürk, Ş. (2002). Faktör analizi: Temel kavramlar ve ölçek geliştirmede kullanımı. *Kuram ve Uygulamada Eğitim Yönetimi, 32,* 470-483.

Büyüköztürk, Ş. (2007). *Sosyal bilimler için veri analizi el kitabı: İstatistik, araştırma deseni, SPSS uygulamaları ve yorum* (7. Baskı). Ankara: PEGEM A Yayıncılık.

Büyüköztürk, Ş. (2011). *Sosyal bilimler için veri analizi el kitabı: İstatistik, araştırma deseni, SPSS uygulamaları ve yorum* (12. bs). Ankara: PEGEM A Yayıncılık.

Cabı, E. (2009). *Öz düzenlemeye dayalı karma öğrenimin öğrenci başarısı ve motivasyonuna etkisi* (Doktora tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Ceylan, M. (2003). *Sınıfta motivasyon* (Yüksek lisans tezi, Eskişehir Anadolu Üniversitesi, Eğitim Bilimleri Enstitüsü, Eskişehir). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Cüceloğlu, D. (1992). *İnsan ve davranışı* (3. bs). İstanbul: Remzi Kitabevi.

Çokluk, Ö., Şekercioğlu, G. ve Büyüköztürk, Ş. (2010). *Sosyal bilimler için çok değişkenli istatistik: SPSS ve LISREL uygulamaları.* Ankara: PEGEM A Yayıncılık.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11,* 227-268.

Deci, E. L., Ryan, R. M., & Williams, G. C. (1996). Need satisfaction and the self-regulation of learning. *Learning and Individual Differences, 8*(3), 165-183.

Duy, B. (2011). Güdülenme ve bireysel farklılıklar. *Eğitim psikolojisi* içinde (s. 505-551). Ankara: PEGEM A Yayıncılık.

Ekenel, E. (2005). *Matematik dersi başarısı ile biliş ötesi öğrenme stratejileri ve sınav kaygısının ilişkisi* (Yüksek lisans tezi, Anadolu Üniversitesi, Eğitim Bilimleri Enstitüsü, Eskişehir). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Erdem, A. R. (1997). İçerik kuramları ve eğitim yönetimine katkıları. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, *3*, 68-76.

Eren, E. (2008). Ö*rgütsel davranış ve yönetim psikolojisi* (11. bs). İstanbul: Beta Basım.

Eren, E. (2009). *Yönetim ve organizasyon.* İstanbul: Beta Basım Yayım.

Ertem, H. (2006). *Ortaöğretim öğrencilerinin kimya derslerine yönelik güdülenme tür (içsel ve dışsal) ve düzeylerinin bazı değişkenler açısından incelenmesi* (Yüksek lisans tezi, Balıkesir Üniversitesi, Fen Bilimleri Enstitüsü, Balıkesir). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Eymur, G., & Geban, Ö. (2011). An investigation of the relationship between motivation and academic achievement of pre-service chemistry teachers. *Education and Science, 36*(161), 246-255.

Facione, P. A., Facione, N. C., & Giancarlo, C. A. (1998). *Professional judgment and the disposition toward critical thinking.* Millbrae, CA.: California Academic Press.

Field, A. (2005). *Discovering statistics using SPSS*. London: Sage.

Gagne, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior, 26,* 331-362.

Glynn, S. M., Taasoobshirazi, G., & Brickman, P. (2009). Science motivation questionnaire: Construct validation with nonscience majors. *Journal of Research in Science Teaching, 46*, 127-146.

Gülcan, Y., Kuştepeli, Y. ve Aldemir, C. (2002). Yükseköğretimde öğrenci doyumu: Kuramsal bir çerçeve ve görgül bir araştırma. *Süleyman Demirel Üniversitesi İ.İ.B.F. Dergisi, 7*(1), 99-114.

Güney, S. (2000). *Davranış bilimleri.* Ankara: Nobel Yayın Dağıtım.

Gürşimşek, I. (2002). Öğretmen adaylarında öğrenmeye ilişkin motivasyonel inançlar ve strateji kullanımı. *Muğla Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 8,*135-155.

Güvendik, F. (2010). *Kimya motivasyon ölçeğinin uyarlanması ve yapı geçerliliğinin incelenmesi* (Yüksek lisans tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Hegarty, N. (2010). Application of the academic motivation scale to graduate school students. *The Journal of Human Resource and Adult Learning, 6*(2), 48-55.

Henderson-King, D., & Smith, M. (2006). Meanings of education for university students: Academic motivation and personal values as predictors. *Social Psychology of Education, 9*(2), 195-221.

Ho, H., & Polonsky, M. (2009). Exploring marketing students' attitudes and performance: A comparison of traditional and intensive delivery. *Marketing Education Review, 19*(3), 41-47.

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modeling: Guidelines for determining model fit. *The Electronic Journal of Buisness Research Methods*, *6*(1), 53-60.

Horowitz, G. (2009). Do students experience project-based laboratory curricula as motivating? A study of an organic chemistry laboratory curriculum. In *Conference Proceedings of the Annual National Association for Research in Science Teaching (NARST)* (p. 218). Garden Grove, California.

Hosmer, D. W. Jr., & Lemeshow, S. (2000). *Applied logistic regression* (2nd ed.). New York: Wiley

Işığıçok, E. (2003). Bebeklerin doğum ağırlıklarını ve boylarını etkileyen faktörlerin lojistik regresyon analizi ile araştırılması. *IV. Ulusal Ekonometri ve İstatistik Sempozyumu* içinde (s. 3). Ankara: Gazi Üniversitesi.

Jacobsen, D. A., Eggen, P., & Kauchak, D. (2002). *Methods for teaching, promoting student learning* (6th ed.). New Jersey: Meririll Prentice Hall.

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the simples command language.* Lincolnwood: Scientific Software International, Inc.

Jurisevic, M., Glazar, S. A., Pucko, C. R., & Devetak I. (2008). Intrinsic motivation of pre-service primary school teachers for learning chemistry in relation to their academic achievement. *International Journal of Science Education, 30*(1), 87-107.

Karsenti, T., & Thibert, G. (1994, April). *The influence of gender on within-term changes in junior college student motivation.* Paper presented at the American Educational Research Association, New Orleans, Louisiana.

Kart, M. E. ve Güldü, Ö. (2008). Özerk benlik yönetimi ölçeği: Uyarlama çalışması. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 41*(2), 187-207.

Kayış, A. (2006). Güvenirlik analizi. Ş. Kalaycı (Ed.), *SPSS uygulamalı çok değişkenli istatistik teknikleri* içinde (3. bs., s. 403-424). Ankara: Asil Yayın Dağıtım.

Keser, İ. ve Sarıbay, E. (2007). İzmir'deki özel ve devlet üniversitelerindeki öğrencilerin başarılarını etkileyen faktörlerin belirlenmesi ve karşılaştırılması. *Muğla Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 18,* 39-48.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). NY: Guilford Publications, Inc.

Koçel, T. (2003). *İşletme yöneticiliği.* İstanbul: Beta Yayınevi.

Koçel, T. (2005). *İşletme yöneticiliği: yönetim ve organizasyon, organizasyonlarda davranış, klasik-modern-çağdaş ve güncel yaklaşımlar* (gen. 10. bs). İstanbul: Beta Yayınları.

Lee, J., Luchini, K., Michael, B., Norris, C., Soloway, E. (2004). More than just fun and games: Assessing the value of educational video games in the classroom. In *CHI '04 Extended Abstracts on Human Factors in Computing Systems* (pp. 1375-1378). Vienna, Austria: ACM.

Lin, Y. G., McKeachie, W. J., & Kim, Y. C. (2003). College student intrinsic and/or extrinsic motivation and learning. *Learning and Individual Differences, 13*(3), 251-258.

Martin, A. J., Marsh, H. W., & Debus, R. L. (2001). Self-handicapping and defensive pessimism: Exploring a model of predictors and outcomes from a self-protection perspective. *Journal of Educational Psychology, 93*(1), 87-102.

Memduhoğlu, H. B. ve Tanhan, F. (2006). *Üniversite öğrencilerinin akademik başarılarını etkileyen örgütsel faktörler ölçeğinin geliştirilmesi.* www.eab.org.tr/eab/oc/egtconf/pdfkitap/pdf/187.pdf. adresinden edinilmiştir.

Mertler, C. A., & Vannatta, R. A. (2005). *Advanced and multivariate statistical methods: Practical application and interpretation* (3rd ed.). Los Angeles, CA: Pyrczak.

Moore, K. D. (2001). *Classroom teaching skills.* Boston: Mc Graw Hill.

Mullis, I. V. S., Martin, M. O., Fierros, E. G., Goldberg, A. L., & Stemler, S. E. (2000). *Gender differences in achievement, IEA'S third international mathematics and science study.* Boston: International Study Centre, Boston College.

Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, *108,* 291-310.

Nowruzi Khiabani, M., & Nafissi, Z. (2010). Promoting EFL learners' academic motivation and reading comprehension via portfolio development of concept maps. *JELS*, *1*(2), 59-82.

Onaran, O. (1981). *Çalışma yaşamında güdülenme kuramları.* Ankara: Ankara Üniversitesi Siyasal Bilgiler Fakültesi Yayınları, No: 470, Sevinç Matbaası.

Özdamar, K. (2002). *Paket programlar ile istatistiksel veri analizi* (Cilt 1, 2. bs). Eskişehir: Kaan Kitabevi.

Özdemir, A. (2010). *Yönetim biliminde ileri araştırma yöntemleri ve uygulamalar* (2. bs). İstanbul: Beta Basım Yayın A. Ş.

Öztürk, T. (2006). *İlköğretim öğretmenlerinin motivasyonunu artıran ve idame ettiren faktörler* (Yüksek lisans tezi, Beykent Üniversitesi, İstanbul). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Painter, J. (2011). *Autonomy, competence and intrinsic motivation in science education: A self-determination theory perspective* (Doctoral dissertation). Retrieved from http://www.cdr.lib.unc.edu/

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4), 543-578.

Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology, 95*(4), 667-686.

Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education: Theory, research, and applications* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Pintrich, P. R., Marx, R. W., & Boyle, R. A. (1993). Beyond cold conceptual change: The role of motivational beliefs and classroom contextual factors in the process of conceptual change. *Review of Educational Research, 63*(2), 167-199.

Pintrich, P. R., Smith, D. A., Gracia, T., & MacKeachie, W. J. (1991). *A Manual for the use of motivated strategies for learning questionnaire (MLSQ)*. Technical Report No. 91-B-004. The Regents of the University of Michigan.

Pressley, M., El-Dinary, P. B., Gaskins, I., Schuder, T., Bergman, J. L., Almasi, J., & Brown, R. (1992). Beyond direct explanation: Transactional instruction of reading comprehension strategies. *Elementary School Journal, 92,* 511-554.

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

Schunk, D. H. (2009). *Öğrenme teorileri: Eğitimsel bir bakışla* (Çev. Ed. M. Şahin). Ankara: Nobel Yayın Dağıtım.

Scott, P. A. (1994, March). *A comparative study of students' learning experience in intensive and semester -length courses and of the attributes of high-quality intensive and semester course learning experience.* Paper presented at the Meeting of the North American Association of Summer Sessions.

Shevlin, M., & Miles, J. N. V. (1998). Effects of sample size, model specification and factor loadings on the GFI in confirmatory factor analysis. *Personality and Individual Differences*, *25*(1), 85-90.

Shia, R. M. (1998). *Assessing academic intrinsic motivation: A look at student goals and personal strategy*. Retrieved from http://www.cet.edu/research/student.html.

Sinclair, C. (2008). Initial and changing student teacher motivation and commitment to teaching. *Asia Pacific Journal of Teacher Education, 36*(2), 79-104.

Sinclair, C., Dowson, M., & McInerney, D. M. (2006). Motivations to teach: Psychometric perspectives across the first semester of teacher education. *Teachers College Record, 108*, 1132-1154.

Sümer, N. (2000). Yapısal eşitlik modelleri. *Türk Psikoloji Yazıları, 3*(6), 49-74.

Şahin, A. (2003). *Türk kamu ve özel kesim yöneticilerinin motivasyon durumu* (Doktora tezi, Selçuk Üniversitesi, Sosyal Bilimler Enstitüsü, Konya). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Şimşek, Ö. F. (1999). *Bir grup rehberliği programının öğretmenlerin disiplin anlayışına etkisi* (Yüksek lisans tezi, Ankara Üniversitesi, Ankara). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Şimşek, Ö. F. (2007). *Yapısal eşitlik modellemesine giriş (Temel ilkeler ve LISREL uygulamaları)*. Ankara: Ekinoks.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston: Allyn and Bacon.

Taştan, S. (2005). *Motivasyon ve motivasyonun iş yaşamına etkileri.* http://www.kisiselbasari.com adresinden edinilmiştir.

Tatlıdil, H. (2002). *Uygulamalı çok değişkenli istatistiksel analiz.* Ankara: Ziraat Matbaacılık.

Tavşancıl, E. (2005). *Tutumların ölçülmesi ve SPSS ile veri analizi* (2. bs). Ankara: Nobel Yayınları.

Tezbaşaran, A. A. (1996). *Likert tipi ölçek geliştirme kılavuzu*. Ankara: Türk Psikologlar Derneği Yayınları.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications.* Washington: American Psychological Association.

Topcu, Y. ve Uzundumlu A. S. (2012). Yüksek öğretimde öğrencilerin başarısızlığına etki eden faktörlerin analizi. *Iğdır Üniversitesi Fen Bilimleri Enstitüsü Dergisi* [Ek: A], *2*(2), 51-58.

Tuan, H. L., Chin, C. C., & Shieh, S. H. (2005). The development of a questionnaire for assessing students' motivation toward science learning. *International Journal of Science Education, 27*, 639-654.

Ural Alşan, E. (2009). *Kimya öğretmen adaylarının akademik başarılarına öğrenme stili tercihleri, öz kontrollü öğrenme ve motivasyon faktörlerinin etkisi* (Doktora tezi, Hacettepe Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara). http://tez2.yok.gov.tr/ adresinden edinilmiştir.

Vallerand, R. J., Pelletier, L. G., & Koestner, R. (2008). Reflections on self-determination theory. *Canadian Psychology*, *49*, 257-262.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Senécal, C. B., & Vallières, E. F. (1992). The academic motivation scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement, 52,* 1003-1017.

Wentzel, K. R., & Wigfield, A. (1998). Academic and social motivational influences on students' academic performance. *Educational Psychology Review*, *10*, 155-173.

Wigfield, A., & Eccles, S. J. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology, 25,* 68-81.

Woolfolk, A. E. (1998). *Educational psychology* (7th ed.). Boston: Allyn and Bacon.

Yazıcı, H. (2009). Öğretmenlik mesleği, motivasyon kaynakları ve temel tutumlar: Kurumsal bir bakış. *Kastamonu Eğitim Dergisi, 17*(1), 33-46.

Yeh, M. L. (2002). Assessing the reliability and validity of the Chinese version of the California critical thinking disposition inventory. *International Journal of Nursing Studies*, *39*(2), 123-132.

Yıldırım, F. (2007). İş doyumu ile örgütsel adalet ilişkisi. *Ankara Üniversitesi Siyasal Bilgiler Fakültesi Dergisi, 62*(1), 253-278.

Young, M. R. (2005). The motivational effects of the classroom environment in facilitating self-regulated learning. *Journal of Marketing Education, 27*(1), 25-40.

Yüncü, Z., Yıldız, U., Kesebir, S., Altıntoprak, E., & Coşkunol, H. (2005). Alkol kullanım bozukluğu olan olguların sosyal destek sistemlerinin değerlendirilmesi. *Bağımlılık Dergisi, 6*(3), 129-135.

Zusho, A., Pintrich, P. R., & Coppalo, B. (2003). Skill and will: The role of motivation and cognition in the learning of college chemistry. *International Journal of Science Education, 25*(9), 1081-1094.