

Determinants of Academic Achievement Among High School Seniors

This study determines what affects the academic achievement of senior high school students in the context of the individual, family, and school environment. The sample selection consisted of 1484 high school seniors in Korea. The following are the results of this study: First, female students scored higher in academic achievement than male students. Second, academic achievement by male students was related to levels of school satisfaction, academic motivation, and family strength, while academic achievement by female students was related to levels of parents' education, family income, ego-resiliency, school satisfaction, academic motivation, and family strength. Third, the most important predictor of academic achievement for male and female students is academic motivation, followed by school satisfaction. The present study highlighted the necessity to develop academic achievement improvement programs appropriate for both genders of senior high school students.

Academic achievement (as a result of learning activities attributable to various factors) refers to an extent to which a series of learning tasks were achieved in the teaching-learning process (Lee & Jung, 2006). The sum of all student academic achievements is usually regarded as a measure of a school's effectiveness (Good & Brophy, 1986);

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consequently, one of the major concerns of educators is to enhance student academic achievements. Academic achievement has an immediate effect on self-esteem and general wellbeing (Hoge, Smit, & Hanson, 1990; Schunk & Zimmerman, 1994) and poor academic achievement is related to school alienation and subsequent anti-social and health-compromising behaviors (Perry, Kelder, & Komro, 1993).

The great zeal for education and the national investment in education by South Koreans are confirmed in educational statistics. The development of Korean secondary education is remarkable in terms of enrollment rate, advancement rate to higher education, and student achievement. In Korea, a high academic achievement enhances the possibility of entering a prestigious university that is regarded as a path to social success; consequently, academic achievement is a major interest for parents and students. The interest in academic achievement increased since the 1997 Financial Crisis and subsequent emergence of social issues such as the deepening of social polarization and the succession of wealth (poverty). In this regard, Korea seeks to enhance the competitiveness of education and improve educational policies and curricula by building a national statistical system of academic achievement. According to the results of the Program for International Student Assessment (PISA) (2009) for about 470,000 students aged 15 years in 65 countries, Korea was the highest in the region and ranked 1st to 4th in the areas of reading, mathematics, and science. These achievements are

related to the facts that educational expenses (excluding private ones) account for 7.4% of GNP (3rd among OECD countries) and private educational expenses account for 3.5% of GDP. According to the French daily newspaper *Le Figaro* (Dec 10, 2010), Korean students attend additional classes after supper at private institutes and sleep only 5 hours and 24 minutes a day, with less than 1 hour of free time. The paper referred to this as an unprecedented international phenomenon. In the U. N. Happiness Index, Korea shows paradoxical results to the high academic achievement and adolescents show 53.9% (conspicuously lower than 84.8%) for the average Happiness Index of adolescents in OECD countries (The Institute of Social Development, 2010). A total of 18.4% of Korean adolescents contemplate suicide and high school students account for 70% of suicide victims (Ministry of Health and Welfare, 2005) due to the school related problems such as lowering in grade and college entrance stress (The Statistics of Korea, 2008).

Regardless, the Korean government continuously strives to boost the competitiveness of the education system due to the pressure of parents (who regard academic achievement as an important factor for the achievement of social status) and an obsession with international ranking assessments. Academic achievement (directly linked to college entrance scores) is closely related to various educational problems of excessive college entrance competition, cramming schools for education, and high adolescent suicide rates.

In terms of Korean academic achievements, male students were traditionally higher than females due to gender discrimination in the distribution of family resources (Kim, 2001). However, recent studies indicate that the difference in academic achievement is meaningless or that female students are rather higher than male ones in such achievement (Cho, 2010). Education in Korea does not sufficiently reflect the necessity that education should be customized for each gender. To resolve this problem, it will be necessary to investigate the academic achievement by gender more thoroughly and make an in-depth discussion on the results.

Academic achievement is influenced by

individual student characteristics, family background, and school resources. Educators are most concerned with the characteristics of the school since these can be modified most easily. Nevertheless, it is important to ascertain the influence of the family environment and individual characteristics that shape the academic growth of a student.

According to Bronfenbrenner and Ceci (1994), the outcomes of adolescents are related to proximal processes (which are the enduring forms of interaction) that occur in immediate family and school settings as well as to distal contexts in which the immediate settings are embedded. Furthermore, it is proposed that the effects of proximal processes on outcomes are more powerful than the influences of distal social contexts. Regarding proximal factors associated with academic achievement, the socio-demographic variables that influence academic achievement are documented in existing literature, such as the effect of socioeconomic status (Astone & McLanahan, 1991). The gender of the children (Demie, 2001) as well as the education levels and job types of parents (Phang & Kim, 2001); in addition, the income and structure of the family (Choo & Lim, 2007) and the employment status of their mother (Park & Do, 2005) are also related to academic achievement. To evaluate the determinants of adolescent academic achievement, studies have focused on parental attributions for their children's performance (such as parenting) (Bugental & Hapaney, 2002) and children's attributions (such as self-efficacy) an individual's belief that they can successfully execute the behavior required to bring about a desired outcome (Normandeau & Gobeil, 1998). Along with the self-efficacy, ego-resiliency refers to the dynamic ability of recovering to the previous level of self-control from the influence of temporary stress (Block & Block, 1980). For adolescents, it means the flexibility of meeting situational requirements or the ability to use problem-solving strategies. Adolescents who are flexible in adaptation have the character features or environmental protective factors that mitigate stress or negative pressures (Hernandez, 1993). Accordingly, ego-resilient adolescents are high in intellectual achievement and easily obtain family or school

support (Cho & Lee, 2010). Academic motivation is the tendency to see learning activities as valuable and earnestly engage them (Woolfolk, 1998) as well as to pursue significant and valuable learning activities to obtain the desired academic benefits; consequently, this has a significant impact on academic achievement (Brophy, 1987).

Social support from parents consists of positive resources such as love, compassion, information, and material (Turner & Avison, 1985). It is most effective for adolescent academic achievement to be emotionally supported by parental praise or encouragement (Park, Kim, & Tak, 2002). In particular, the stable attachment of the parent-child relationship has a significant influence on academic achievement through the enhancement of adolescent self-esteem. This relationship enables efficient problem-solving, strengthens self-discipline, and facilitates the ability to interpret social knowledge that increases the ability to maintain positive social interaction (Hamilton, 2000; Jacobsen & Hofmann, 1997). Matsen et al. (1999) argued the parent-child relationship quality has a unique and significant relationship with academic achievement and cognitive competence. High quality parent-child relationships are characterized by high levels of positive affection and warmth, emotional support, and the facilitation of independence (Kenny, 1987). These findings demonstrate the continuing importance of positive relationships with parents into young adulthood and support the powerful influence that family relationships have on individual success. Along with the parent-child relationship, family strength is a significant factor to prevent delinquent adolescent behavior and low academic achievement. A healthy family is characterized by open communication, high problem-solving ability, and close intimacy (Yun & Lee, 2007) that show a significant relationship between the family environment and academic achievement (Lee & Jung, 2006).

The school setting is where adolescents expand their sphere of life from home to society and establish a close relationship with teachers and peers; the school satisfaction life is highly significant. In practice, student academic achievement is significantly influenced by school factors students perceive

(Eamon, 2000). Increased satisfaction with the assistance and interest of teachers and the school environment in general results in higher student academic achievement (Samdal, Wold, & Bronis, 1999). A more positive relationship with peers as a socio-psychological environmental factor results in students with higher academic achievements (Rutter, 1985).

Adolescent academic achievement is directly or indirectly influenced by factors such as family attachments and environment due to the parent-child relationship, school environment (facilitated by teacher support), peer relationships, and psychological features (such as ego-resiliency and academic motivation). Nevertheless, previous studies have only partially address personal internal variables (parents, family, and school) and with a superficial investigation of the academic achievement in the Korean context of individual characteristics, family structure, and school setting.

Adolescent academic achievement is deemed indispensable in their growth into responsible social members and success in life. Consequently, this study examined the importance of individual, family, and school-related factors that account for academic achievement by Korean high school students in order to provide practical implications to improve the academic achievement of adolescents in positive and constructive ways as well design efficient future policies. The specific research questions in this study are as follows: First, is there any gender difference in the academic achievement of senior high school students? Second, what are the relationships between socio-demographic variables, ego-resiliency, parental attachment, school satisfaction, academic motivation, family strength, and the academic achievement of senior high school students by gender? Third, what are the predictors of the academic achievement of senior high school students by gender?

METHODS

Subjects

The subjects were 1,484 seniors from five high schools in the suburb of Seoul. Schools were drawn

Table 1. Demographic Characteristics of Subjects
(N=1484)

	Category	Frequency	%
Student's gender	Male	824	55.5
	Female	660	44.5
Family income level	Top	24	1.6
	Middle high	488	32.9
	Middle low	896	60.4
	Bottom	76	5.1
Father's education level	High school or lower	1048	70.6
	2 year college	76	5.1
	4 year college	252	17.0
	Graduate school	36	2.4
	No answer	72	4.9
Mother's educational level	High school or lower	1192	80.3
	2 year college	32	2.2
	4 year college	180	12.1
	Graduate school	8	0.5
Mother's employment status	No answer	72	4.9
	Employed	1072	72.2
	Unemployed	356	24.0
	No answer	56	3.8

from five sites to provide a broad sample size from which to analyze judgments and reasoning that varied based on family socioeconomic background and student academic achievement. Table 1 presents the demographic characteristics: approximately 55.5% of the 1,484 students were males and 80.9% of the students lived with both parents. For parents' educational level, "the high school or lower" is quite high in this study. Approximately, 70% of fathers and 80% of mothers had a high school diploma or less. All the subjects' fathers were employed and 70% of the mothers in the sample were employed; in addition, 60.4% of the students perceived their family income level as mid to low.

Measures

Measures with no existing Korean translations were translated into Korean by the authors. To verify the accuracy of these translations, these transcripts were back coded into English and checked against original transcripts with inconsistencies resolved by

a panel of experts consisting of specialists in parenting who were fluent in Korean and English. A pilot study was conducted for all measures to be adjusted to the Korean context.

Independent variables in this study were selected based on theoretical and empirical considerations that included previous research findings, data availability, and data comparability.

Academic achievement The academic achievement scores were collected from school records. It was computed as the average scores of mid-term and final exams in 11 subjects that included math, English, social studies, and the sciences for the first semester of the senior year.

Ego-resiliency The test of ego-resiliency was performed using the resilience scale from Atsushi et al. (2002). The 21 questions included diversity of concern and interest, emotional control and positive future-orientedness. Example items included "I can control my feelings" and "I have future goals." The scale was scored on a 4-point Likert scale from "not at all" (1 point) to "highly so" (4 points); higher scores indicated higher levels of ego-resiliency. Cronbach's *alpha* was .87.

Parental attachment Parental attachment was assessed through 28 questions on communication, sense of reliability, and alienation that used the IPPA (Inventory of Parent and Peer Attachment) of Armsden and Greenberg (1987). As regards to communication, it is asked whether parents try to respect my feelings, consider my viewpoint, and understand my opinion in interpersonal dialogue. As for the sense of reliability, it is asked whether parents listen to my problems, trust me, and are considered as good parents. As for alienation, it is asked whether I am understood by none and feel trusted or discouraged. The answer to each question was on a 4-point scale from "Not at all" (1 point) to "highly so" (4 points), higher scores indicated higher levels of parental attachment. Cronbach's *alpha* is .92.

School satisfaction The school satisfaction utilized 25 questions based on a school satisfaction scale of

Kim (2009). The question is about school life in general, interpersonal relationships, class and learning activities, educational environment, school rules and special activities and social support. Example items include “I am satisfied with my school” and “I actively participate in school activities.” The answer to each question is on a 4-point Likert scale from “not at all” (1 point) to “highly so” (4 points), higher scores indicated higher school satisfaction. Cronbach’s *alpha* was .85.

Academic Motivation The academic motivation was assessed through 33 questions on objective-orientedness, achievement value and academic efficacy based on Midgley et al. (1998). Example items include “I can do all my homework unless I give it up.” The answer to each question is on a 4-point Likert scale from “not at all” (1 point) to “highly so” (4 points), higher scores indicate a more positive academic motivation. Cronbach’s *alpha* was .92.

Family Strength Family strength was assessed using the family strength scale of Eo & Yoo (1995). A total of 34 questions were asked on emotional bond, problem-solving ability, and sharing of value system. Examples of items included “our family cares for each other” and “our family is honest and open one another.” The answer to each question is on a 4-point Likert scale from “not at all” (1 point) to “highly so” (4 points), higher scores indicate a higher family strength. Cronbach’s *alpha* was .96.

Procedures and Methods

To examine the scales’ difficulty and comprehensibility, preliminary surveys were conducted for 30 students from one high school in Seoul. No evidence problem was found in understanding the questions.

After the preliminary surveys, investigators visited the schools and the data was collected in the classroom with the aid of teachers after making the study objectives fully understood through a self-completed questionnaire. The procedure ensured confidentiality and anonymity. Students were provided written consent forms for their participation and were asked to complete them on the spot.

Table 2. *T*-tests for Variables by Gender (N=1484)

	Male student (n=824)	Female student (n=660)	t
	M(SD)	M(SD)	
Ego-resiliency	2.95(.44)	2.92(.36)	.75
Parent attachment	2.85(.44)	2.78(.48)	1.33
Satisfaction with school	2.60(.38)	2.64(.28)	-1.15
Academic motivation	2.39(.52)	2.49(.44)	-1.96
Family strength	2.83(.56)	2.81(.58)	.37
Academic achievement	59.48(17.25)	68.13(13.98)	-5.34***

*** *p*<.001

For data analysis, this study calculated frequency, percentage, mean and standard deviation, t-tests, Pearson’s correlation, and regression analysis.

RESULTS

Difference in Academic Achievement by Gender

T-tests were performed to determine the gender difference in high school seniors’ ego-resiliency, parent attachment, school satisfaction, academic motivation, family strength, and academic achievement (Table 2). None of the variables (except academic achievement) was statistically significant. Female students (*M*=68.13, *SD*=13.98) were higher in academic achievement than males (*M*=59.48, *SD*=17.25), showing a statistical significance (*p*<.001).

Relationship of Variables and Academic Achievement by Gender

Table 3 presents the correlations among the variables. They ranged from -.06 to .75 and -.07 to .75 in male and female high school seniors, respectively.

Small differences were seen according to gender. Specifically, male students’ academic achievement was correlated with school satisfaction (*r*=-.35, *p*<.001), academic motivation (*r*=.56, *p*<.001) and family strength (*r*=.25, *p*<.01). This suggests that the academic achievement of male high school seniors is in proportion to school satisfaction, academic motivation, and family strength. The academic

Table 3. Zero-order Correlations among Variables

(N=1484)

	Male	1	2	3	4	5	6	7	8	9	10
Female											
1. Mother's employment status*			-.06	.02	.10	-.09	.05	-.06	-.06	.04	-.04
2. Father's education level			.33***	.14*	.12	.11	.14*	.12	.17*	.13	
3. Mother's education level				.17*	.08	.09	.04	.01	.15*	.03	
4. Family income level		.05	.15*	.21**		.12	.19**	-.05	-.07	.24***	-.07
5. Ego-resiliency		.08	.13	.18*	.10		.39***	.32***	.29***	.37***	.12
6. Parent attachment		.13	.22**	.16*	.10	.39***		.19*	.75***	.20**	.09
7. Satisfaction with school		.11	.01	.03	-.07	.32***	.19*		.26***	.44***	.35***
8. Academic motivation		.02	.17*	.21**	.14	.37***	.20**	.44***		.27***	.56***
9. Family strength		.20*	.23**	.18*	.11	.30***	.75***	.26**	.27**		.25**
10. Academic achievement		-.06	.19*	.21**	.16*	.19*	.10	.34***	.50***	.11*	

*p<.05, **p<.01, ***p<.001
 0= Employed 1=Unemployed

achievement of female students correlated with the father's education level ($r=.19, p<.05$), mother's education level ($r=.21, p<.01$), family income level ($r=.16, p<.05$), ego-resiliency ($r=.19, p<.05$), school satisfaction ($r=.34, p<.001$), academic motivation ($r=.50, p<.001$), and family strength ($r=.11, p<.05$). This suggests that the academic achievement of female high school seniors is proportional to the level of parental education, family income, ego-resiliency, school satisfaction, academic motivation, and family strength.

Predictors of Variables on Academic Achievement by Gender

Prior to the regression analysis, it was examined is there was a problem of multicollinearity. The VIF values (1.095-3.313) were less than 10 and the TOL values (.354-.942) were more than 0.1 and indicated that there was no multicollinearity.

Table 4 presents the results from the multiple regression analysis to determine the predictors of the academic achievement of senior high school students by gender. In male students, academic motivation ($\beta=.54$) was the most powerful variable, followed by school satisfaction ($\beta=.21$) and family strength ($\beta=.19$). This produced a model that explained 35% of the regression (*Adj R*²) for the academic achievement of male high school students. For female students, academic motivation ($\beta=.39$)

Table 4. Summary of Regression Analyses of Variables on Academic Achievement by Gender

(N=1484)

Category	Academic achievement	
	Male student (n=824)	Female student (n=660)
	β	β
Mother's employment*	-.01	-.09
Father's education level	.07	.10
Mother's education level	.02	.08
Family income level	-.01	.10
Ego-resiliency	.09	.19*
Parent attachment	.13	.04
Satisfaction with school	.21**	.22**
Academic motivation	.54***	.39***
Family strength	.19*	.18*
F	11.78***	7.64***
adj R ²	.35	.31

*p<.05, **p<.01, ***p<.001
 0= Employed 1=Unemployed

was the most powerful variable, followed by school satisfaction ($\beta=.22$), ego-resiliency ($\beta=.19$), and family strength ($\beta=.18$). This produced a model that explained 31% of the regression (*Adj R*²) for the academic achievement of female high school students.

DISCUSSION

Academic achievement of high school seniors was one of the most important indicators that predicted the future social position in Korean society and was a critical factor for the successful transition to adult roles and responsibilities. Therefore, it is important to understand the factors associated with the academic achievements of high school seniors. The discussion focuses on the findings of the research questions.

First, gender is an important variable to consider in explaining the variations in academic achievement. Female students scored higher in academic achievement than males. This supports the previous study (Farkas et al., 1990) that when all other variables are constant, girls receive higher course grades than boys. Evidence indicates that girls score higher than boys in terms of student well-being, achievement motivation, and effort (Veenstra & Kuyper, 2004); this is different from male students who were traditionally higher in academic achievement than females (Kim, 2001). This corresponds to contemporary trends in Korean society where the self-fulfillment and social advancement of women have been drastically expanded. This is shown in the increase in women from 4.8% in 2001 to 9.8% in 2007 among senior public officials (5th rank or higher), from 25.3% in 2001 to 48.4% in 2007 for successful Higher Civil Service Examination candidates, from 31.3% in 2002 to 64.4% in 2007 for judicial nominees, and from 16.7% in 2002 to 44% in 2007 for prosecutor nominees (Korea Census Bureau, 2010).

Second, the variables regarding the academic chief's of high school seniors by gender appeared as school satisfaction, academic motivation, and family strength in male students and as education levels of parents, family income, ego-resiliency, school satisfaction, academic motivation, and family strength in female students. These results support the findings of previous studies (Davis-Kean, 2005; Kim, 2007) in that the socio-economic levels of parents have a strong static influence on the education achievement of children; in addition, the educational attainment of parents consistently

predicts subsequent school performance by children. Parents with limited education and fewer economic resources tend to feel less efficacious to help their children with schoolwork than do more advantaged parents; in addition, they also feel less comfortable interacting with teachers and other educational professionals (Zhan, 2005). Parents with higher education levels have greater access to a wide variety of economic and social resources (family structure, home environment, and parent-child interaction) that can be utilized to help their children succeed in school (Coleman, 2006; McNeal, 1999). As the results indicated, only female student academic achievement is influenced by socio-economic status (SES). This may partly be due to girls having a greater vulnerability to the family environment than boys (Davies & Windle, 1997). Stressful experiences in the social setting caused by lower SES probably decreased the student academic performance since they have to spend energy and resources to handle their stress. Further studies are needed to identify different (as well as similar) processes in which SES influence male and female student academic achievement.

The result of this study (which shows the relationship between family strength and academic achievement) is supported by the studies (Eo & Yoo 1995; Yoo, 2004) that family strength serves as a key factor for the academic achievement of adolescents. A supportive family environment with parenting behaviors such as approval, praise, help, encouragement, physical affection, open communication, and sharing ideas are positively related to academic achievement in adolescence (Wenz-Gross, Siperstein, Untch, & Widaman, 1997). Additionally, family activities are apt to have a direct impact on student attitudes, behavior, and learning when they involve home-based parental involvement, such as parental monitoring of homework or helping children by reviewing school reports (Hickman, Greenwood, & Miller, 1995). Student perceptions of parental support and involvement in school encourage them to achieve and are positively related to academic achievement since adolescents reciprocally internalize positive parental expectations toward school and reflect them in their school attitudes (Wang &

Wildman, 1995). Accordingly, it is required to develop and apply programs that reinforce the features of family strength.

In female students, the individual characteristics of ego-resiliency play a critical role in the academic achievement of adolescents. It is consistent with the study (Hilgram & Palti, 1993) that academic achievement is significantly related to ego-resiliency. However, it is necessary to further study why ego-resiliency only influences academic achievement in female students. One reason might be due to girls being more attuned to internal attributions than external attributions.

There was no relationship between parental attachment and academic achievement against expectations. This is different from previous studies (Granot & Maysel, 2001; Jacobsen & Hofmann, 1997) in that academic achievement is significantly affected by the stable attachment of parent and child (Jung & Lee, 2009); in addition, the academic achievement by adolescents is enhanced through a positive parent-child relationship. This is most ascribable to the fact that the subjects were senior high school students who spend most of their time in school and not primary and middle school students. This is because the influence of academic achievement is more deeply related to peer and teacher relationships in the school environment than the parent-child attachment. Additionally, senior high school students might perceive the level of family strength more importantly for academic achievement than the degree of parent attachment since the family environment is a more significant concept as it includes the parent-child attachment.

Third, academic achievement is affected by academic motivation and school satisfaction in order, regardless of gender. Academic motivation is an individual belief in the ability to regulate learning and successfully master school-related activities and is consistently found to be one of the strongest predictors of academic achievement. According to Dweck (1996) and Multon et al. (1991), children perform best and most persistently on a school task when they find the learning task enjoyable, interesting and the academic motivation continues to have a significant relationship with the academic

performance of students throughout their academic careers and into college. In addition, this result is supported by previous studies (Furrer & Skinner, 2003; Kim, 2004) where learning motives are in a static relation with academic achievement. Students who perceive themselves as capable tend to obtain better grades and higher test scores than students with lower capability beliefs.

Based on the cross-sectional data it is not possible to determine the causality of academic motivation and school satisfaction. It is likely that these two factors have a strong influence on each other and it is plausible to suggest that school satisfaction may be an important predictor of academic achievement by students. Accordingly, a higher level of school satisfaction is likely to induce greater motivation for learning. Therefore, it is important to convey messages about individual student abilities and capabilities on a regular basis to boost academic motivation. Educators should encourage internal attributions for student success, since such each attribution is more strongly related to positive school performance.

There were limitations to this study that should be considered in future research.

First, subjects are limited to general high school seniors in a major metropolitan city. In view of the homogeneity of the participating schools, the findings of this study should be interpreted with caution when compared with the findings of other studies that have included public and private schools from middle and high SES neighborhoods and schools located in a small city, agricultural, or fishing town. The samples from only 5 high schools from the suburbs of Seoul are not valid enough to represent all Korean high school seniors.

Second, this cross-sectional study deals with the scores of only one semester and it is necessary to verify the results through a longitudinal study. In addition, it is necessary to make an in-depth study for the subjects of more various age zones, since the variables that influence academic achievement may change in accordance to the developmental stages of learners.

Third, the data (that includes the SES of parents) collected through the questionnaires were all self-

reported by students and the accurateness of actual conditions in these self-reports is unknown. Future research should include teacher and parental reports and self-assessments that accurately, clearly, and fairly measure the results.

Fourth, the present study looked into various variables to determine their influences on the academic achievement. However, future research is needed to identify additional individual characteristic variables (differences in achievement levels upon entering school, intellectual ability, and self-esteem), family characteristics (home environment, family-child interaction, and parental aspirations) and school characteristics (classroom processes, school climate, and teacher motivation) that can accurately explain the academic achievements by high school seniors. It strongly suggests that further conceptual and empirical efforts focus on the identification of additional variables related to academic achievement.

Lastly, a comprehensive evaluation is needed on the implications of cross-national networks established to design interventions aimed to improve student perceptions of the work climate at school. The finding could be applied practically. For example, supplementary programs after school to could bridge the differences in academic achievement between male and female students in order to establish and implement policies that mitigate unequal education opportunities or courses due to the income differences of parents. Parents should be prioritized in lifelong learning programs given the positive effects of increased parental education on student achievement. Counseling programs provided by schools, municipalities, non-governmental organizations and other related social partners may help increase parental awareness of academic achievement. Such efforts would increase parental involvement and enhance the school-community partnership. Haghghat (2005) has argued that more resilient community-school networks and the creation of positive school environments represent a significant means to improve academic achievement in schools located in impoverished neighborhoods.

In conclusion, individual, family, school-related factors explain a significant and unique portion of the variance in academic achievement for senior

high school students. Therefore, it is important to recognize the value of examining multiple factors within one study and acknowledge the importance of the ecological context. In addition, the present study is significant in that it provides concrete and clear guidance to educators and policy makers in methods to improve academic achievement. It also highlights the importance of the development and management of academic achievement improvement programs customized to each gender of high school seniors.

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