

An Investigation of Gender, Perceived Gender-Barriers to a Future Occupation, and Academic Achievement among Delinquent Adolescents

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This research was supported by a grant to the second author from the Faculty Assembly Women's Committee Grant Program at the University of Colorado, Colorado Springs.

Abstract

The current study assesses perceptions of gender-related barriers to a future occupation and its association with academic achievement among delinquent adolescents aged 12-19 years old. It was hypothesized that the perception of gender related barriers to a future occupation would have similar effects on male and female adolescents' academic achievement. Data included self-reported perceived barriers to a future occupation and academic achievement. Results indicated that females and males reported similar amounts of perceived barriers to a future occupation. Regression analysis indicated the relationship between perceived barriers and academic achievement varied across gender. For males, more perceived gender-barriers were associated with lower academic achievement, whereas, for females gender-barriers did not predict academic achievement. Although our hypothesis was not supported, the findings reveal an interesting phenomenon provoking the need for further study of gender, perceived barriers, and academic outcomes in delinquent populations.

Keywords: Gender, Perceived, Barriers, Achievement, Adolescents, Delinquent

Introduction

Although there has been an increase in the number of women pursuing a post-secondary education, adolescent females continue to experience persistent impediments to both educational and occupational attainment (National Center for Educational Statistics [NCES], 2000, 2005, & 2007; U.S. Census Bureau, 2009). Additionally, a gender gap persists between the types of occupations pursued and/or obtained by males and females, particularly in the fields of math, science, and engineering (NCES, 2000 & 2005; Simpkins, Davis-Kean, & Eccles, 2006). Accompanying the imbalance in career pursuits is an approximate \$11,000 difference between wages earned by men and women (NCES, 2000). It is important to note that adulthood income is highly impacted by the level of education one has obtained. This is evident in the following levels of earnings, as reported by the U.S. Census Bureau (2009): \$20,873 without high school completion, \$31,071 for a high school diploma, and \$56,788 for Bachelor's degree.

To address gender disparities in educational and occupational attainment, researchers have focused

on adolescents' expectations for future schooling and work and the extent to which they perceive barriers to obtaining an occupation or education (Stevens, Puchtell, Ryu, & Mortimer, 1992; Watson, Quatman, & Edler, 2002). In a longitudinal study of over 10,000 participants, Mello (2008) found that adolescent males who reported high occupational aspirations obtained more professional occupations in adulthood than their counterparts with lower expectations. However, among females, expectations in adolescence were not related to occupational attainment in adulthood (Mello, 2008). Most interestingly, the author found that females were nearly twice as likely to expect a professional occupation, compared to males. The results of this study reveal the complexities in assessing the relationship between gender and perceived future attainment. In order to contribute research towards understanding gender barriers in adolescence, this study examined male and female adolescents' perceptions of barriers to occupational attainment and academic achievement.

Theoretical Perspectives

Perceptions of barriers. Scholars have described several different avenues in which perception of barriers to a future occupation may relate to academic achievement. Some theories on perceived barriers propose that challenges in personal, educational, and/or occupational attainment may be anticipated or experienced by marginalized groups, more so than their non-marginalized counterparts (Gottfredson, 1981, 1996; Ogbu, 1988, 1998). Marginalized individuals represent those at a disadvantage due to various forms of oppression, those whom have been victimized or been subjected to prejudice resulting from innate, personal, and unchangeable characteristics (Lent, Brown, & Hackett, 1994). Challenges to this group may include family obligations, discrimination, financial support, or the lack of available concurrent education and employment (Gottfredson, 1981, 1996; Grotevant & Cooper, 1988; Lent, Brown, & Hackett, 1994; Lent, Hackett, & Brown, 2000). An adolescent's desire for educational and occupational attainment may be restricted by their perceptions of barriers, thus disrupting the progression from aspiration to achievement (McWhirter, Rasheed, & Crothers, 2000; Swanson & Woitke, 1997). Indeed, research focusing on gender differences in vocational development has noted a strong inverse relationship between individuals' perceptions of barriers and the pursuit of educational goals (Gottfredson, 1981; McWhirter, 1997; Lent, et al. 2000).

Gottfredson (1997) explored the variables contributing to one's perceived impediments to occupational goals through assessing early childhood processes which shape the occupational desires acted upon later in adolescence and early adulthood. Gottfredson's *Circumscription and Compromise Theory of Vocational Aspirations* relies on three developmental processes: the development of a representation or *image* of the self and the occupational world, a progressive *circumscription* of career options as one ages, and finally a *compromise* as the child begins to assess their goals in terms of realities. The author posits by adolescence individuals have an understanding of the occupational world and can therefore conceptualize a future occupation framed by gender and level of prestige, similar to the occupational evaluations of adults. This representative occupational image leads to circumscription as the individual's self-image restricts or eliminates entire occupational arenas. Finally, Gottfredson's theory relies on the developmental process of "compromise" through which the individual releases the desire for certain, seemingly unattainable occupations. Gottfredson believes this can erroneously occur due to inaccurate perceptions of

accessibility. It is important to note that this theory asserts that one's gender only becomes a compromising factor if it manifests as a confrontational issue in the occupational decision process (Gottfredson, 1997).

In contrast, another theoretical perspective growing out of Social Cognitive Theory argues that an individual's aspirations and achievement are mediated by their perceptions of barriers to their future education and career and that individuals may vary in their response to the perceptions of barriers (Lent, et al., 2000). Similarly, Luzzo (1995) posits that for some, the perception of barriers may be a catalyst for occupational aspiration and exploration. The pursuit of higher education, as well as the formation of goals towards a desired occupation, is inherently accompanied by obstacles that one must estimate the ability of surpassing.

Adolescence. Perceived barriers in adolescence is worthy of investigation due to the important developmental processes occurring during this stage of life. Erikson (1968) described identity formation as a hallmark of adolescence, and contended that adolescents living in oppressive or exploitative environments become aware of their lowered status in society through the process of developing their identity (p. 303). Not only may the adolescent's identity be affected by the environment in which he or she exists, but internal evaluations can shape the individual's concept of their self. Grotevant and Thorbecke (1982) believe the assessment of one's own values and skills, and the exploration and commitment to a particular course of action are noted characteristics of identity formation.

The social milieu of the adolescent has drawn the focus of research towards the child's educational experiences and familial background. Ollech (1997) posits that a female adolescent's identity is more challenging to attain due to familial and socially oppressive factors such as gender stereotyped treatment by parents and siblings. These perspectives on identity formation acknowledge that the roles of barriers, and likewise how they are perceived by the adolescent, help shape their identity, thus highlighting this period as a pertinent area of examination.

Extant Research on Gender-Related Barriers and Academic Outcomes

Gender Barriers. Research has varied in its findings regarding gender-related barriers and its effect on occupational goals, with some results showing that females expect more barriers as a result of their gender (Swanson & Tokar, 1991), yet others showing an equalization across gender (Luzzo, 1995). In Luzzo and

McWhirter's (2001) study of perceived career barriers, the authors found that due to their gender, college females perceived more obstacles to a career than their male counterparts. Additionally, research has reported career-family conflicts to be a more salient barrier among women as compared to men (Luzzo, 1995). Research on college students revealed that females reported the expectation of discrimination as a result of their gender, as well as an anticipated conflict between their career and motherhood (Swanson & Tokar, 1991). However, Luzzo (1995) found that although anticipating similar barriers to occupational attainment as males, females were much more solidified in their decisions of college, major, and occupational aspiration.

Recent results have shown females to be much more determined when assessing their future than prior studies had found. This divergence of findings were noted in a study by Kenny et al. (2003) who found that males and females perceived equal amounts of barriers to their future educational and occupational achievement. Adding further support for this trend, results of McWhirter's (1997) study of high school students showed that although females did anticipate sexual discrimination in their occupational pursuit, there were no differences in males and females perception of barriers pertaining to financing, family, or ability. Additionally, a trend has been noted in the literature towards an equalization in the career aspirations of male and female adolescents (e.g., Stevens, Puchtell, Ryu, & Mortimer, 1992; Watson, Quatman, & Edler, 2002).

In a study of the effects of gender on career aspirations, Watson and colleagues found that gender had no impact on the career aspirations of the adolescents in their sample, which ranged from low-achieving to high-achieving adolescents (Watson, Quatman, & Edler, 2002). Although prior research on adolescents' perceptions of barriers has resulted in conflicting findings regarding its effects across gender, this variation may be attributed to the diversity of measures used throughout the various studies (McWhirter, Hackett, & Bandalos, 1998).

Perceptions of barriers and academic outcomes. Although a large number of researchers studying adolescence have focused on school-level factors such as teacher expectations and school belonging (Klem & Connell, 2004; Goodenow, 1993), a smaller number of studies have assessed the relationship between school achievement and the anticipation of barriers to a future occupation. Early work by Sewell and Hauser (1975) focused on occupational aspirations and academic achievement

through the analysis of adolescents' IQ and social status in relation to their desired future occupation (Sewell & Hauser).

Studies using self-report measures of academic achievement have shown a relationship with career aspirations (Seigel, Aten, & Roghmann, 1998). In a large sample of high-school students, Farmer (1985) assessed the relationship between students' self-reported GPA in Math and Verbal courses, and occupational aspirations. The author found that higher grades in Math and Verbal courses significantly predicted positive career aspirations for females but not for males. Likewise, higher math scores significantly predicted a more positive motivation for a long-range career when considering social status, academic self-esteem, and parental support (Farmer, 1985).

Delinquent adolescents. The limited research addressing delinquent adolescents' perceptions of barriers to future occupation has been completed with the comparison of delinquent and nondelinquents. In a study by Picou, Cosby, Lemke, & Azuma (1974) both delinquent and nondelinquent individuals perceived low financial resources for training as the greatest impediment to their occupational future (Picou, et al., 1974). However, delinquents in the study held higher occupational expectations than the nondelinquents, and also cited discrimination and a lack of intelligence as barriers to their future career.

Greater attention has been given to incarcerated populations by scientists studying delinquent adolescent's academic achievement (Brown, Riley, Walrath, Leaf, and Valdez, 2008). In one such investigation, Meltzer, Levine, Karniski, Palfrey, & Clarke (1984) assessed the academic performance of institutionalized adolescents in order to identify seminal elements of delinquent behavior. The authors found a large gap between the academic achievement of delinquent and nondelinquent adolescent males, with deficiencies manifesting themselves as early as second grade (Meltzer, et al., 1984). The delinquent adolescents exhibited much lower writing speeds and poorer spacial organization compared to their nondelinquent counterparts. The authors believes these factors represent a lack of mastery in the early stages of learning, and interpret their findings as evidence for a qualitative difference in the learning styles of delinquents and non-delinquents. Research by Brown, et al. (2008) addresses the limitations of prior studies by the assessment of academic achievement in a nonincarcerated sample of delinquent adolescents. Data for females were also collected, and results showed that 41% of males exhibited poor school performance, compared to 34% of females. Additionally, on a test of

school functioning, over half of the individuals in the study scored one standard deviation below the mean score from an average school-based sample (Brown, et al., 2008).

The Current Study

The current study addresses the relationship between gender related barriers to future occupation and academic achievement in a sample of delinquent adolescents. Supported by recent research which has noted a trend towards gender “equalization” in adolescent’s pursuits of occupational goals (Watson, Quatman, & Edler, 2002), this study posits the following research question; do perceived gender related barriers to a future occupation affect academic achievement differently for delinquent male and female adolescents? Given the limited nature of research focusing on academic achievement and gender related barriers (Farmer, 1985), it was expected that our results would reflect the “equalization” found in recent studies (Watson, Quatman, & Edler, 2002). Therefore, it was hypothesized that perceptions of gender related barriers to a future occupation would have a similar impact on academic achievement for male and female delinquent adolescents.

Method

Participants

The sample of 125 delinquent adolescents, $M_{age} = 15.54$ years ($SD = 1.69$) were represented by the following grade distribution: 6th (4%, $n = 5$), 7th (5%, $n = 7$), 8th (13%, $n = 16$), 9th (24%, $n = 30$), 10th (19%, $n = 24$), 11th (17%, $n = 21$), 12th (13%, $n = 17$), and missing (4%, $n = 5$). Participants included 64 females, with five missing values for gender. All participants were compensated with ten dollars. Self-reported racial/ethnic group memberships were represented by the following distribution: African American (14%, $n = 18$), American Indian (1%, $n = 1$), European American/White (25%, $n = 31$), Hispanic (38%, $n = 48$), Multi-Ethnic (14%, $n = 17$), Other (5%, $n = 6$), and Missing (3%, $n = 4$).

Measures

Perceived barriers. We assessed adolescents’ perceptions of barriers to a future occupation with four Likert-type items. Response options ranged from 1 (*totally disagree*) to 5 (*totally agree*). Participants responded to the stem “In my future job, I will probably...” Items included “be treated differently because of my gender, experience negative comments about my gender, have a harder time getting hired than

people of the opposite gender, and experience discrimination because of my gender.”

Academic achievement. We assessed academic achievement with self-reported grade point average. Participants responded to one item that asked “Generally, what grades do you get in your classes?” Responses ranged from 1 (*A’s*) to 5 (*F’s*).

Procedure

Data were collected in the spring of 2010 over a one-week period as part of a larger project assessing adolescents’ academic achievement. The data collection site comprised a school for adjudicated and troubled adolescents in a Southwestern state. Participants received materials in class on a Monday from trained research assistants. Materials included the self-report questionnaire, a consent form requiring parental signature, an assent form requiring participant’s signature, and a receipt for \$10 requiring a signature. All student researchers were trained according to Institutional Review Board procedures, and took great caution in order to maintain the anonymity of all individuals involved. Surveys were collected each day for the five school days following their distribution, which included the Monday of the following week as many participants failed to provide at least one required signature. All materials were stored in a manner as to preserve participant anonymity.

Results

Preliminary Analyses

Table 1 shows gender barriers and academic achievement variables were not significantly associated with one another ($r = -0.06$, $p > .05$). Descriptive statistics shown in Table 2 indicate that the sample average for perceived gender barriers (2.07) was approximately .5 a standard deviation below the midpoint response option (i.e. *disagree* to *neutral*). Additionally, the sample average for academic achievement (2.58) was approximately at the midpoint (i.e. *B’s* to *C’s*). Preliminary analyses using t-tests were conducted to determine if gender barriers and academic achievement varied by gender. Gender barriers did not vary between males and females, $t(117) = -1.17$, $p = .24$. Academic achievement also did not vary by gender, $t(94) = .66$, $p = .51$.

Primary Analyses

Multiple regression analyses indicated an association between gender, gender barriers, and academic achievement. Coefficients are shown in Table 3 revealing that gender barriers were highest when

grades were the lowest ($\beta = -0.30, p < 0.05$). A significant interaction between gender and gender barriers indicates gender barriers did not predict academic achievement the same for males and females ($\beta = 0.64, p < 0.05$). The adjusted R-square value (i.e., 0.02) indicates that only a small portion of the variance in academic achievement was explained with this model. Effect size was calculated ($f^2 = 0.02$). Figure 2 illustrates the interaction between gender, gender-related barriers, and academic achievement. The size of the standardized coefficient indicates the effect size between gender and gender-related barriers was strong for academic achievement. The results observed revealed something we did not expect in the relationship between gender, gender-related barriers, and academic achievement. For the males, reporting high levels of gender-related barriers was related to lowered academic achievement. Conversely, lower perceived gender barriers to a future occupation were associated with more positive academic achievement. However, for females academic achievement remained constant in relation to either high or low perceived gender barriers to a future occupation. Although these females did perceive barriers to their future occupation, these barriers were not related to academic achievement.

Discussion

It was hypothesized that adolescent perceptions of gender-related barriers to a future occupation would have similar effects on academic achievement across gender. The mean perceived gender-related barriers score for male and female delinquent adolescents in this study did not differ. However, when comparing the relationship between perceived gender barriers and academic achievement between males and females, our results showed gender differences, with males reporting a stronger association between barriers and academic achievement than females.

These findings would appear enigmatic, as typically females are more aware of their gender as a factor in occupational aspirations (Swanson & Tokar, 1991; Luzzo & McWhirter, 2001; Luzzo 1995). However, in this study, females' grades were unaffected by their perceptions of gender related barriers, thus supporting past research that has found gender differences in adolescents' expectation of future occupations (Mello, 2008). Males require a more creative approach in the assessment of their perceived barriers, and it may be that they perceived more barriers due to lowered aspirations resulting from poor school performance. In the study by Brown et al. (2008) the author found that 41% of the male delinquents

exhibited poor school performance. Perhaps our study was comprised of a large number of delinquent males who showed signs of poor academic achievement, and only for these individuals were gender barriers a salient factor. Due to the differing impact of gender barriers on delinquent adolescents in this study, future studies could address the similarities or differences through the comparison with non-delinquents..

It is possible that for many of the males in the current study, poor academic achievement became a salient factor and limited their occupational aspirations to more gender-typed or seemingly socially acceptable professions, thus constructing some level of hindrance due to their gender. Sullivan and Arthur (2006) propose that when assessing possible career options, individuals address the possibilities of negotiating through different professions or careers, called "physical mobility." Likewise, aspirations are channeled by "psychological mobility", which is the adeptness one believes they have for various careers. Forret, Sullivan, and Mainiero (2010) assert that psychological mobility for men may be restricted by social expectations that may urge them to settle for more traditional gender-typed occupations. Although Forret et al. focused on the effects of occupational mobility in adulthood, their work sheds light on possible adolescent perceptions. Future research into the differences in males and female's perception of occupational barriers could benefit from assessing societal effects on adolescents perceptions of adeptness in a variety of career fields across gender-typed professions.

Although this study provides strong evidence for gender differences in the effects of adolescent's perceptions of barriers to a future career, limitations to the study are necessary to address. Due to our small sample size, the results of this study cannot be generalized to all adolescents. Additionally, the results of this study employed data from self-report surveys. Participants reported the approximate type of grades they received in current classes, and it is possible that reported values were not congruent with actual performance. Likewise, the environment of the school where data collection took place may have had an effect on the participants' perceptions of their abilities due to gender. Work by Eccles and Midgley (1989) provide evidence for an increase in academic disengagement among adolescents due to persistent discipline, teacher control, and an overall decline in "positive student-teacher interactions... during the middle school years" (p. 61). Many of the participants of this study were placed into this school environment through judicial processes for a variety of problem behaviors. It is possible that a person such as this has

experienced a prodigious amount of authoritarian treatment by teachers, juvenile centers, and parents. Future research may also provide insight into the relationship between these environmental factors and adolescent's perceptions of their future selves.

Although this study may have been affected by these limitations, the findings highlight the complexity and variability in the influence of gender on adolescents' ability to perceive and attain their future goals.

References

- Brown, J. D., Riley, A. W., Walrath, C. M., Leaf, P. J., Valdez, C. (2008). Academic achievement and school functioning among nonincarcerated youth involved with the juvenile justice system. *Journal of Education for Students Placed at Risk, 13*, 59-75. doi:0.1080/10824660701860409
- Erikson, E. (1968). *Identity: Youth and crisis* (First ed.). New York: Norton.
- Farmer, H. S. (1985). Model of career and achievement motivation for women and men. *American Psychological Association, 32*, 363-390. doi: 10.1037/0022-0167.32.3.363
- Forret, M. L., Sullivan, S. E., Mainiero, L. A. (2010). Gender role differences in reactions to unemployment: Exploring psychological mobility and boundaryless careers. *Journal of Organizational Behavior, 31*, 647-666. doi: 10.1002/job.703
- Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationship to motivation and achievement. *Journal of Early Adolescence, 13*, 21-43.
- Gottfredson, L. S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology Monograph, 28*, 545-579. doi: 10.1037/0022-0167.28.6.545
- Gottfredson, L. S. (1996). Gottfredson's theory of circumscription and compromise. In D. Brown & L. Brooks (Eds.), *Career choice and development* (3 ed., pp. 179-232). San Francisco: Jossey-Bass.
- Gottfredson, L. S., & Lapan, R. T. (1997). Assessing gender-based circumscription of occupational aspirations. *Journal of Career Assessment, 5*, 419-441. doi: 10.1177/106907279700500404
- Grotevant, H. D., & Cooper, C. R. (1988). The role of family experience in career exploration: A life-span perspective. In P. B. Baltes, D. L. Featherman & R. M. Lerner (Eds.), *Life-span development and behavior* (pp. 231-258). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Grotevant, H. D. & Thorbecke, W. L. (1982). Sex differences in styles of occupational identity formation in late adolescence. *Developmental Psychology, 18*, 396-405. doi: 10.1037/0012-1649.18.3.396
- Kenny, M. E., Blustein, D. L., Chaves, A., Grossman, J. M., & Gallagher, L. A. (2003). The role of perceived barriers and relational support in the educational and vocational lives of urban high school students. *Journal of Counseling Psychology, 50*, 142-155.
- Klem, A. & Connell, J. (2004). Relationships matter: linking teacher support to student engagement and achievement. *Journal of School Health, 74*, (7), 262-273.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*, 79-122. doi: 10.1006/jvbe.1994.1027
- Lent, R. W., Hackett, G., & Brown, S. D. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology, 47*, 36-49.
- Luzzo, D. A. (1995). Gender differences in college-students career maturity and perceived barriers in career-development. *Journal of Counseling and Development, 73*, 319-322.
- Luzzo, D. A., & McWhirter, E. H. (2001). Sex and ethnic differences in the perception of educational and career-related barriers and levels of coping efficacy. *Journal of Counseling and Development, 79*, 61-67.
- McWhirter, E. H. (1997). Perceived barriers to education and career: Ethnic and gender differences. *Journal of Vocational Behavior, 50*, 124-140. doi: 10.1006/jvbe.1995.1536
- McWhirter, E. H., Hackett, G., & Bandalos, D. (1998). A casual model of the educational plans and career expectations of Mexican American girls. *Journal of Counseling Psychology, 45*, 166-181. doi: 10.1037/0022-0167.45.2.166
- McWhirter, E. H., Rasheed, S., Crothers, M. (2000). The effects of high school career education on social-cognitive variables. *Journal of Counseling Psychology, 47*, 330-341. doi: 10.1037/0022-0167.47.3.330
- Mello, Z. R. (2008). Gender variation in developmental trajectories of educational and occupational expectations and attainment from adolescence to adulthood. *Developmental Psychology, 44*, 1069-1080. doi: 10.1037/0012.1649.44.4.1069
- National Center for Education Statistics (2000). *Educational Equity for Girls and Women*. U.S. Department of Education. NCES 2000-030. Washington, D.C.: U.S. Government Printing Office. U.S. Department of Education, Institute of Education Sciences: Bae, Y., Choy, S., Geddes, C., Sable, J. and Snyder, T.
- National Center for Education Statistics (2005). *Gender differences in participation and completion of undergraduate education and how they have changed over time*. NCES 2005169: U.S. Department of Education, Washington, DC: U.S. Government Printing Office. Peter, K., & Horn, L.
- National Center for Education Statistics (2007). *Status and trends in the education of racial and ethnic minorities*. NCES 2007039. U.S. Department of Education, Institute of Education Sciences: Ramani, A. K., Gilbertson, L. and Fox, M. A.

- Ogbu, J. U., & Simons, H. D. (1998). Voluntary and involuntary minorities: A cultural-ecological theory of school performance with some implications for education. *Anthropology and Education Quarterly*, *29*, 155-188.
- Ollech, D., McCarthy, J. (1997). Impediments to identity formation in female adolescents. *Psychoanalytic Psychology*, *14*, 65-80. doi: 10.1037/h0079724
- Picou, J. S., Cosby, A. G., Lemke, F. W., Azuma, H. T. (1974). Occupational choice and perception of attainment blockage: A study of lower-class delinquent and non-delinquent black males. *Adolescence*, *9*, 289-298.
- Sewell, W., & Mauser, R. (1975). *Education, occupation, and earnings: Achievement in the early career*. New York: Academic Press.
- Siegel, D. M., Aten, M. J., R.N., Ph.D., & Roghmann, K. J., Ph.D. (1998). Self-reported honesty among middle and high school students responding to a sexual behavior questionnaire. *Journal of Adolescent Health*, *23*, 20-28. doi: 10.1016/S1054-139X(97)00274-7
- Simpkins, S. D., Davis-Kean, P. E., & Eccles, J. S. (2006). Math and science motivation: A longitudinal examination of the link between choices and beliefs. *Developmental Psychology*, *42*, 70-83. doi: 10.1037/0012-1649
- Stevens C. J., Puchtell, L. A., Ryu, S., Mortimer, J. T. (1992). Adolescent work and boys and girls orientations to the future. *Sociological Quarterly*, *33*, 153-169. doi: 10.1111/j.1533-8525.1992.tb00369.x
- Swanson, J. L., & Tokar, D. M. (1991). College-students perceptions of barriers to career-development. *Journal of Vocational Behavior*, *38*, 92-106. doi: 10.1016/0001-8791(91)90020-M
- Swanson, J. L., & Woitke, M. B. (1997). Theory into practice in career assessment for women: Assessment and interventions regarding perceived career barriers. *Journal of Career Assessment*, *5*, 443-462. doi: 10.1177/106907279700500405
- U.S. Census Bureau (2009). Housing and Household Economic Statistics Division. Mean Earnings of Workers 18 Years and Over, by Educational Attainment, Race, Hispanic Origin, and Sex: 1975 to 2006. Retrieved on April 21, 2009 from <http://www.census.gov/population/www/socdemo/educ-attn.html>.
- Watson, C.M., Quatman T., Edler E. (2002). Career aspirations of adolescent girls: Effects of achievement level grade, and single-sex school environment. *Sex Roles*, *46*, (9-10), 323-335. doi: 10.1023/A:1020228613796

Table 1

Gender Variation in the Relationship Among Gender-Related Barriers and Academic Achievement.

	Academic Achievement		
	b	SE	β
Gender Barriers	-0.36 *	0.18	-0.30
Gender	-1.03 *	0.51	-0.06
Gender X Gender Barriers	0.46 *	0.23	0.64
Intercept	3.34 **	0.37	
F	1.63		
R Square	0.02		

Note. ** $p < 0.001$, * $p < 0.05$. SE = Standard Error. Adjusted R-Square shown.

Figure Caption

Figure 1. Female and male adolescents' perceptions of gender barriers and academic achievement.



