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Gender differences in self-concept, locus of control, and goal orientation in Mexican high-achieving students

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ABSTRACT

The study compares self-concept, locus of control, and goal orientation characteristics of male and female Mexican high school high-achieving students. Three scales were administered to 220 students; 106 (49%) were males and 114 (51%) females. By means of a discriminant analysis, both groups were compared in relation to the variables such as social self-concept, academic self-concept, achievement motivation toward study, and attributions regarding academic success or failure. It was found that female students have a better academic self-concept and a higher achievement motivation than males. Findings are consistent with previous studies in Mexico that provide evidence of females having greater emotional resources associated with school success.

KEYWORDS

Goal orientation; locus of control; high-achieving students; self-concept

Research on the psychological characteristics of Mexican high-achieving students is scarce. Hence, services for these students lack the empirical support that informs teachers, counselors, parents, and school administrators regarding their social and emotional needs, their motivation, and expectations, and, indeed, little has been depicted about their psychological profile. Furthermore, Mexican teachers receive little training to deal with high-achieving students, despite the political interest of the Mexican educational authorities to guide these students toward scientific and technological fields (Sánchez & Ramírez, 2013).

In addition, a number of scholars have argued that talent development and the enhancement of high-achieving students' potential can be promoted or hindered depending on social and emotional characteristics that modulate their cognitive abilities and motivation to focus on academic tasks (Gagne, 2012; Plucker & Stocking, 2001; Richards, Engel, & Shute, 2003). Furthermore, psychological factors have influence in school success and social adaptation, and they are instrumental to greater expectations toward higher education (Rubinstein, Del Siegle, Reis, McCoach, & Burton, 2012).

Only three publications in the last 10 years were located regarding psychological characteristics of

high-achieving Mexican students, and all studies were carried out in primary-school settings. In general, they evidenced that high-achieving students demonstrate a greater commitment to academic tasks (Zacatelco & Acle, 2009), that there are more females identified as intellectually outstanding (Zuñiga, 2007), and that high-achieving children show greater concern for social problems, especially health issues (Valadez, Meda, & Matsui, 2004).

Although research on high-achieving students is scarce in Mexico, information available on gender differences in high school students shows, in general, a consistent dominance in psychological resources and school performance in Mexican female students (Blanco, Ornelas, Aguirre, & Guedea, 2012; Contreras & Lozano, 2011; De Garay & Del Valle, 2012; Flores & Gómez, 2010).

The main purpose of this study was to inquire into gender-related psychological differences, and it addresses the question: Are there significant differences in self-concept, achievement orientation, and locus of control in male and female Mexican high-achieving students?

Another goal was to validate previously reported gender differences in these psychological traits that are associated with the strategies used to address cognitive and social demands (Good &

Brophy, 2008; Ray & Elliot, 2006; Wouter, Germeijs, Colpin, & Verschueren, 2011).

Locus of control

Locus of control refers to the extent to which individuals believe they can control events affecting them as originally postulated by Rotter in 1954. This is a central concept of the student personality, and it is categorized either as internal, when one believes that life is under one's general control, or as external, when outcomes are attributed to environmental factors, chance, or fate (Hébert, 2002).

Individuals with a strong internal locus of control believe events in their life derive primarily from their own actions. For example, when receiving test results, people with an internal locus of control tend to praise or blame themselves and their abilities. People with a strong external locus of control tend to praise or blame external factors such as the teacher, destiny, fate, or the test itself. In general, studies show that males tend to have more frequently an internal locus of control since they attribute their school performance to effort or lack of it. Females, on the other hand, tend to attribute school performance to luck and destiny rather than effort (Reis, 1991). Likewise, females tend to show lower expectations toward school achievement than males (Ritchotte, 2013).

Self-concept

Self-concept is a construct that includes the assessment of the person itself in academic and nonacademic aspects (Esnaola, Goñi, & Madariaga, 2008). The academic dimension refers to beliefs about the abilities to meet school demands involving cognitive elements (McInerney, Wing-Yi, Ching, & Hap, 2012). It is reported that high-achieving students have a better academic self-concept in relation to those found in the average (Colangelo, Kelly, & Schrepfer, 1987; McCoach & Siegle, 2002). The findings relating to gender-related differences in this construct are not conclusive, since some studies report no significant differences by gender (Swiatek, 2005); others report that females have lower academic self-concept than males, especially in the areas of science (Alvino, 1991; Reiss, 1991).

Social self-concept refers to the degree of social adaptation, acceptance by others, and relationships with peers and family members—for example, a person's ability to interact with others (Byrne & Shavelson, 1996). Previous studies reported that high-achieving students use humor to relate more frequently than their peers and give less importance to peer acceptance (Clark, Moritz, & Callahan, 2006; Kline & Short, 1991; Reis, 1998; Swiatek, 2001; Véliz & Apodaca, 2012).

Goal orientation

The concept of goal orientation was used in educational research in the late 1970s to understand student achievement and was defined as a disposition toward developing or demonstrating ability in achievement situations (Eison, 1979). Goal orientation has been useful to understand motivation to learn; researchers who study goal orientations acknowledge that both students' individual characteristics and contextual influences affect the types of goals that students adopt in various learning environments. Results of studies indicate that the environments in which students learn influence students' goal orientations in important ways (Kwan & Downing, 2012; Printich & Schunk, 2006).

Method

Participants

There were a total of 220 students, ages 16 to 18 years old and considered high-achieving students. Students were nominated by at least two teachers and one school administrator to participate in the study. They were all ranked in or above the 90th percentile on the school general grade average distribution. All were enrolled in one of the public high schools in the state of Sonora, Mexico. Of these, 106 (48%) were males and 114 (52%) females.

Instruments

Locus of control scale

This scale was designed and validated by Valdés, Terrazas, Madueño, Carlos, and Urías (2010), and it aims to establish the degree to which students used controllable functions by themselves to explain their

success or failure at school. The instrument consists of 10 Likert-type items (1 = *strongly agree*, 5 = *strongly disagree*) addressing attribution to school success. Example items include success in school depends on luck, or grades depend on my effort. Cronbach's alpha was .76.

Multidimensional self-concept scale

This scale was designed and validated by La Rosa and Diaz-Loving (1991). It consists of 11 items, six measuring aspects related to social self-concept and addressing issues such as self-perception of being friendly, happy, and understanding. The five remaining items addressed perceptions on academic self-concept such as intelligence, hard-working, and success in studies. Response scale was a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alpha was .88.

Goal orientation scale

Authors designed a scale based on general theories of goal orientation specifically for this study. To elaborate items that were sound and familiar for high school students, two focus groups were conducted in a high school not included in the sample. Students were asked to describe personal and scholastic characteristics of behaviors they believe would characterize a high-achieving student. From the analysis of the responses, seven items were prepared and sent to five expert judges (three researchers on the subject and two high school teachers) to assess the relevance of these items to measure the construct in this group of students. Finally, five of the seven items were selected to build an instrument to estimate the student's degree of goal orientation. Items related to behaviors such as *It is important for me to do my homework the best possible way* and *I strive to learn the contents of my subjects*.

Response scale was a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha was .75. Since this instrument was designed for the study, an additional confirmatory factor analysis was performed using the method of maximum likelihood estimation with the support of Amos 5. The fit indices show the empirical sustainability of the proposed measurement model ($X^2 = 5.72$, $X^2/df = 1.14$; CFI = .98; RMSEA = .026).

Procedures

Informed consent and permissions from the parents were obtained. Those who voluntarily consented to participate in this study attended a special session, organized by the investigators, in one of the school's designated classrooms. They all answered the three scales with no preset time limit.

Descriptive and parametric tests were used for data analysis (student's *t* for independent samples) and discriminant analysis with SPSS. 22 statistical software support.

Results

Descriptive analyses indicate the participants show high levels of goal motivation, internal locus of control, and a good academic self-concept. However, females' scores were significantly higher on academic self-concept and internal locus of control than males. The effect size of difference with regard to academic self-concept ranges on medium and small in the locus of control and goal orientation (see Table 1.).

A stepwise discriminant analysis showed a significant discriminant function ($X^2 = 26.84$, $p < .001$; Wilk's $\Lambda = .71$; canonic coefficient .69) due to academic self-concept, locus of control, and goal orientation (see Table 2.). This function explains 34% of the variance and adequately discerns 77% of cases.

Table 1. Means, standard deviations, and test of group differences in male and female students.

Variable	Range	Males (N = 106)		Females (N = 114)		MD	t	Cohen's d
		M	SD	M	SD			
Social Self-Concept	1-7	6.02	1.06	6.18	1.10	.16	-1.43	.15
Academic Self-Concept	1-7	5.66	1.15	6.36	1.04	.7	-3.45*	.64
Locus of Control	1-5	3.93	.82	4.28	.73	.35	-3.19*	.45
Goal Orientation	1-5	3.09	.90	3.38	.83	.29	-2.28*	.33

* $p < .05$.

Table 2. Correlation of the predictor variables with discriminant function.

	F	Standardized coefficients	Structural coefficients
Academic Self-Concept	21.9	-.661	-.817
Locus of Control	19.06	-.681	-.712
Goal Orientation	15.26	-.404	-.630

Discussion

Results indicate the need of further investigating gender differences in Mexican high-achieving students. In fact, consistent and significant gender differences were found regarding academic self-concept, locus of control, and goal orientation. These results are consistent with other studies (Blanco et al., 2012; Contreras & Lozano, 2011; De Garay & Del Valle, 2012; Flores & Gómez, 2010) and reaffirm the idea that gender differences should be considered in the care programs for high-achieving students (Brody & Mills, 2005; Stanley, 2005).

Results indicate that high-achieving Mexican female students have better psychological resources to meet the demands of school than males. These findings differ from those reported with the Anglo population where it is reported either that female students have lower academic self-concept and achievement orientation than men (Clark et al., 2006; Reis & Hébert, 2010) or that there are no differences between groups for these variables (Swiatek, 2005).

However, rather consistent research findings with high-achieving students in Mexico support the notion that Mexican women have better academic performance than men. For example, the number of Mexican female students in higher education has increased, and Mexican women increase every year their incursion into careers that were before almost exclusively attended by male students (Arias & Flores, 2005; Bustos, 2003; Izar, Ynzunza, & López, 2011).

Greater psychological resources related to school success are also reported in Mexican female students.—for instance, better adaptation and perception of self-efficacy (Blanco et al., 2012), greater motivation to study (Contreras & Lozano, 2011), and a general internal locus of control (Flores & Gómez, 2010).

Despite the relatively few studies in Mexico regarding high-achieving students, results seem to


be rather consistent in providing evidence of greater probability of school success in women (Zacatelco, 2005; Zacatelco & Acle, 2009). These gender differences favoring women should be contrasted with research results in the Anglo-Saxon population that tend to favor men (Hyde, Lindberg, Linn, Ellis, & Williams, 2008).

Differences may be explained by differences in parenting practices and expectations associated with male and female roles within specific cultural contexts (Kerr, Vuyk, & Rea, 2012; Maccoby, 2002).

In the specific case of Mexico, the increasing expectations of parents regarding the academic inclusion and success of their daughters have constituted a remarkable change. No longer do the majority of Mexican parents prioritize traditional expectations toward women that emphasize chores related to the maintenance of the home and caring for siblings (García, Rivera, Díaz-Loving, & Reyes, 2006; García, Salguero, & Pérez, 2010; Torres, 2005).

Further research is needed to better understand origins of the more adaptive and positive situation of women in the school system. Answers seem to require more complex and multidimensional information. Studies focusing on high-achieving students should consider, indeed, psychological variables such as emotional resources, cognitive functioning, career choice, and professional demands and expectations, to name a few.

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