
A gender study on college students' academic self-efficacy

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To cite this article:

Juan Francisco Aguirre Chavez, Francisco Muñoz Beltran, Alejandro Chavez Guerrero, Maria del Carmen Zueck Enriquez, Jesus Jasso Reyes. A Gender Study on College Students' Academic Self-Efficacy. *Science Journal of Education*. Vol. 2, No. 6, 2014, pp. 180-184. doi: 10.11648/j.sjedu.20140206.12

Abstract: The purpose of this study is to compare female and male college students' academic self-efficacy. The overall sample consisted of 1,995 participants, 862 women and 1,133 men, all freshman students at the Universidad Autónoma de Chihuahua (Autonomous University of Chihuahua). The average age is 18.18 years (SD= 0.68). This quantitative study has a survey-type, descriptive design. Differences found between men and women regarding their perceived self-efficacy, suggest that any effort to improve perceived self-efficacy must take gender into consideration.

Keywords: Student's Beliefs, Gender Differences, Higher Education, Academic Performance, Students Characteristics

1. Introduction

Traditionally, self-efficacy is understood as limited to a specific task or domain. However, some researchers have also bestowed a broad sense to self-efficacy, focusing on an ample and stable sense of personal achievement in which the individual performs effectively under a variety of stressful circumstances [1-3]. Thence, it is possible to define the concept of self-efficacy along two lines: as the judgments each individual makes about his/her own abilities, based on which s/he will organize and perform his/her deeds to achieve his/her desired performance. Or it can also be defined as the individual's beliefs about his/her ability to organize and carry out action-paths required by expected situations or based on performance levels [4]. Bandura [5] advocates for a specific conceptualization of perceived self-efficacy. Therefore, self-efficacy refers to people's beliefs on their own skills to achieve specific results. Hence, the efficacy belief system is not a global feature, but a set of self-beliefs linked to differentiate functioning.

Bandura's [6] socio-cognitive theory emphasizes the role of self-referential phenomena as the means by which a human being is capable of performing in his environment; hence, change it. People create and develop self-perception of their own capacity, which then becomes the means to decision-making and goal accomplishment [7, 8]. Thus, people's performance is the result of their beliefs mediation on what they are capable of.

Within the educational realm, there is a genuine interest in understanding the cognitive and behavioral factors that enhance or interfere with the student's academic performance, and how it impacts the student's overall development. Educational psychology pays special attention to the concept of self-efficacy. Major research breakthroughs, which have contributed to the improvement of teaching and pedagogical practices, have taken place [9]. Empirical research has broadly demonstrated that self-efficacy is a more reliable academic performance predictor than other cognitive variables [9-11]. It also forecasts further success [12], and it is an important competence and performance cognitive mediator [13, 14] since it enhances cognitive processes.

Perceived self-efficacy plays a key role in human performance, since not only does it directly impact behavior, but also affects fundamental elements such as goals, ideals, target expectations, affective trends, and perceived obstacles and opportunities in the social environment [8, 15].

People's beliefs about themselves represent a basic factor achieving their activities, or taking decisions during their lifetime. The higher self-efficacy is perceived, the higher will be the degree of effort made and the persistence of achievement of their proposed goal; this is very important for success in a person who is in a learning process [16, 17].

Therefore the belief self-efficacy can be developed and to increase the people's opportunity to get a better performance. It consolidates the idea of improving the perception of being able to learn is a valuable educational objective. The

empowerment will serve as a carrier for improving other outcomes such academic achievement and self-esteem.

The present descriptive study compares the self-efficacy profiles of Mexican, male and female college students. Its purpose is to provide data and evidence fostering diversity-aimed educational mediation.

This study pretends as an applied research to provide information that results into an higher quality educative practice in the context of attention to diversity; contributing to the pedagogical knowledge clarifying the factors which form a school performance model and an integral human development.

2. Method

2.1. Participants

Table 1. Subject distribution according to academic field and gender.

Academic Field	Gender		Total
	Female	Male	
Physical Education	81	209	290
Education and Liberal Arts	94	70	164
Health Sciences	116	105	221
Administration and Social Sciences	170	118	288
Political Sciences	194	85	279
Engineering and Technology	131	425	556
Farming Sciences	76	121	197
Total	862	1133	1995

The sample consists of 1,995 subjects, 862 women and 1,133 men. All participants are UACH undergraduate students. A convenience sample representing the various undergraduate majors was used (Table 1). The participants' age ranges between 17 and 20 years, with a mean of 18.18 (SD=0.68).

2.2. Instrument

Self-efficacy in academic behaviors was measured by the Self-efficacy Academic Behaviors Scale [18]. This questionnaire consists of a 13-item scale with three subscales: communication (4 items), attention (5 items), and excellence (4 items). According to previous studies, [19, 20], due to the Mexican academic context in which students are commonly assessed on a scale from 0 to 10, the present study is based on a 0 to 10, Likert-type scale. For each domain (item), participants are asked how capable they feel, how much interest they have, and if they would make an effort to change how they may become capable. Therefore, all the participants responded to each of the 13 items in the questionnaire, in the three different scenarios: (a) Scenario of perceived ability, responding within the context of "how capable I feel to... to manage in each of the aforementioned competence domains"; (b) Scenario of interest in being able, responding within the context of "how much interest I have in being able to... to manage in each of the aforementioned competence domains"; and (c) Scenario of change to be able to, responding within the context of "if I would make an effort to change, how capable I would be able to... to manage in each of the aforementioned competence domains".

When calculating the scores for the three subscales (communication, attention and excellence), five different scores or indexes were calculated: (1) Perceived self-efficacy, obtained from the average scores in the scenario of perceived ability; (2) Desired self-efficacy, calculated from the average scores in the scenario of interest of being able; (3) Reachable self-efficacy, obtained from the mean scores in the scenario of being able; (4) Dissatisfaction or dissonance in self-efficacy, calculated from the mean difference between desired self-efficacy and perceived self-efficacy; and (5) Possibility of improvement in the perceived self-efficacy, calculated from the mean difference between reachable self-efficacy and perceived self-efficacy. A higher score indicates greater self-efficacy, whereas a lower score represents lesser self-determination. The Self-efficacy Academic Behavior Scale demonstrated adequate psychometric properties (GFI = .936; RMSEA = .063; Cronbach coefficient alphas = .836, .800 and .740 for attention, excellence and communication, respectively) [4].

2.3. Design and Variables

Regarding the study design, a quantitative approach with a descriptive and transversal survey design was used [21]. The independent variable was gender (women and men) and the dependent variables were the mean scores on the five Self-efficacy indexes of the subscales communication, attention and excellence.

2.4. Procedure

All freshman university students from each undergraduate major offered by the Autonomous University of Chihuahua were invited to participate in this present study. These university students were fully informed about all the project features. Then, all the students that had agreed to participate were asked to sign a written informed consent. After the students' approvals were obtained, participants completed the above mentioned questionnaire by means of the instrument module administrator of the Scales Editor Version 2.0 [22].

Participants completed the questionnaire in the computer rooms of their faculties during a session. At the beginning of the session the researchers gave a general introduction about the importance of the research and how to access the questionnaire through the software. When the participants were in the editor, the instructions about how to correctly fill out the questionnaire appeared before the instrument. Additionally, the participants were advised to ask for help if confused concerning either the instructions or the clarity of a particular item. Completion of the entire questionnaire took approximately 20 minutes. At the end of the session their participation was welcomed. Afterward, when all the participants had completed the questionnaire, the data was collected by means of the results generator module of the Scales Editor Version 2.0 [22].

2.5. Data Analysis

Descriptive statistics (means and standard deviations) were calculated for all the variables. Subsequently, after verifying

that the data met the assumptions of parametric statistical analyses (normality and homogeneity of variances), a one-way multivariate analysis of variance (MANOVA), followed by the one-way univariate analysis of variance (ANOVA), were used to examine the differences between men and women in the reported self-efficacy scores in communication, attention and excellence. Moreover, the effect size was estimated using the eta-squared (η^2). All statistical analyses were performed using the SPSS version 20.0 for Windows (IBM® SPSS® Statistics 20). The statistical significance level was set at $p < .05$.

3. Results

3.1. Communication Subscale

Table 2 indicates the mean and standard deviation self-efficacy values for the communication variable, including MANOVA and ANOVA results. MANOVA results showed

significant global gender differences in the self-efficacy scores for the communication variable (Wilks' $\lambda = .994$; $p < .01$; $\eta^2 = .006$). Furthermore, the ANOVA results showed women with a higher desired self-efficacy ($F(1) = 9.060$, $p < .01$) and reachable self-efficacy ($F(1) = 5.942$, $p < .05$) than men. There were no significant differences ($p > .05$) in the other self-efficacy studied indexes.

Table 3 indicates the mean and standard deviation self-efficacy values for the attention variable, including MANOVA and ANOVA results. MANOVA results showed significant global gender differences in the self-efficacy scores for the attention variable (Wilks' $\lambda = .988$; $p < .001$; $\eta^2 = .012$). Furthermore, ANOVA results indicated that women scored higher perceived self-efficacy ($F(1) = 5.393$, $p < .05$), desired self-efficacy ($F(1) = 15.665$, $p < .001$), and reachable self-efficacy ($F(1) = 21.255$, $p < .001$) than men. There were no significant differences ($p > .05$) in the other self-efficacy studied indexes.

Table 2. MANOVA results for gender differences in the five self-efficacy indexes for the Communication factor.

Column1	Women (n = 862)	Men (n = 1133)	F	p	η^2
Perceived self-efficacy	7.54 (1.53)	7.49 (1.56)	3.915	< .01	.006
Desired self-efficacy	9.22 (0.92)	9.09 (0.97)	0.628	.428	.000
Reachable self-efficacy	9.30 (0.86)	9.20 (0.86)	9.060	< .01	.005
Dissatisfaction or dissonance in self-efficacy	1.67 (1.25)	1.59 (1.22)	5.942	< .05	.003
Possibility for improving perceived self-efficacy	1.75 (1.16)	1.71 (1.19)	1.738	.188	.000
			0.553	.457	.000

Note. Descriptive values are reported as mean (standard deviation)

3.2. Attention Subscale

Table 3. MANOVA results for gender differences in the five self-efficacy indexes for the Attention factor

Column1	Women(n = 862)	Men (n = 1133)	F	p	η^2
Perceived self-efficacy	8.27 (1.04)	8.16 (1.03)	7.974	< .001	.012
Desired self-efficacy	9.43 (0.69)	9.30 (0.69)	5.393	< .05	.003
Reachable self-efficacy	9.59 (0.52)	9.47 (0.59)	15.665	< .001	.008
Dissatisfaction or dissonance in self-efficacy	1.15 (0.76)	1.13 (0.81)	21.255	< .001	.011
Possibility for improving perceived self-efficacy	1.32 (0.80)	1.31 (0.82)	0.183	.669	.000
			0.054	.817	.000

Note. Descriptive values are reported as mean (standard deviation)

3.3. Excellence Subscale

Table 4 indicates the mean and standard deviation self-efficacy values for the excellence variable, including MANOVA and ANOVA results. MANOVA results showed significant global gender differences in the self-efficacy scores for the excellence variable (Wilks' $\lambda = .962$; $p < .001$; $\eta^2 = .038$). Furthermore, ANOVA results indicated that

women scored higher perceived self-efficacy ($F(1) = 66.531$, $p < .001$), desired self-efficacy ($F(1) = 36.938$, $p < .001$), and reachable self-efficacy ($F(1) = 51.480$, $p < .001$), as well as lower dissatisfaction or dissonance in the excellence item than men ($F(1) = 36.594$, $p < .001$). However, women showed a lower perceived self-efficacy improvement possibility ($F(1) = 39.975$, $p < .001$) than men.

Table 4. MANOVA results for gender differences in the five self-efficacy indexes for the Excellence factor

Column1	Women (n = 862)	Men (n = 1133)	F	p	η^2
Perceived self-efficacy	8.56 (1.16)	8.10 (1.30)	25.899	< .001	.038
Desired self-efficacy	9.69 (0.50)	9.53 (0.64)	66.531	< .001	.032
Reachable self-efficacy	9.75 (0.42)	9.59 (0.54)	36.938	< .001	.018
Dissatisfaction or dissonance in self-efficacy	1.13 (1.01)	1.43 (1.14)	51.480	< .001	.025
Possibility for improving perceived self-efficacy	1.19 (0.98)	1.48 (1.08)	36.594	< .001	.018
			39.975	< .001	.020

Note. Descriptive values are reported as mean (standard deviation)

4. Discussion and Conclusions

According to the studied behavior, the following results stand out: In the Excellence variable (accomplishing assigned tasks, submitting assigned tasks/papers on time, and attending class meetings), compared to men, women perceived themselves as more self-efficient, with a greater need and possibility of being more self-efficient. Moreover, women show lower dissatisfaction and improvement possibility.

Similarly, in the Attention variable (being attentive and listening to professors and classmates, asking or making comments during lectures and class meetings) women perceive themselves as more self-efficient, with a greater need and possibility of improving their self-efficacy.

In the Communication variable (expressing ideas clearly, making relevant comments and contributions, being able to argue when in disagreement, being at ease with public speaking), women perceive themselves with a greater need of being more self-efficient just as they see themselves with a lower possibility of being more self-efficient than men do.

These results agree with those of [23], and [24] in similar studies on gender differences on academic perceived self-efficacy.

Differences found between men and women may be explained by the social cognitive theory [25] which claims that self-efficacy expectations are one of the main gender-difference elements in decision-making. These differences are the result of a socialization process giving men and women a different perception of the appropriate tasks, activities, and occupations appropriate to each gender.

Finally, differences found between men and women on their perceived self-efficacy also suggest that any mediation design aiming to improve perceived self-efficacy must take gender into consideration. More research must be done in México regarding this topic since almost all other studies have been developed in other countries.

Acknowledgements

This study is part of a project funded by the “Secretaría de Educación Pública Sub-secretaría de Educación Superior-Dirección General de Educación Superior Universitaria de México” [Mexican Ministry of Education-Department of Higher Education-General Directorate of the University Education] (OF-13-6894).

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