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Academic Self-concept and its Relationship to Academic Achievement among University Students

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Abstract

This research sought to study the academic self-concept and the relationship between the academic self-concept and students' academic achievement among university Qatari students. Research of the academic self-concept is well documented in Western cultures, but the academic self-concept research is limited among Qatari students. A sample composed of 274 undergraduate university students was utilized in this study. Tools of data collection consisted of demographic characteristics such as gender and age; students' cumulative Grade Point Average (GPA) as academic achievement; and the Academic Self-concept Questionnaire (Byrne, 1996) to measure the academic self-concept, which was composed of 40 items, distributed in 4 subscales namely Maths, Verbal, Academic, and Problem Solving. The result of the study revealed a significant but weak relationship between the academic self-concept and the academic achievement.

Introduction

Student's self-concept about their academic abilities plays an important part in student's learning (Herrera, Al-Lal & Mohamed, 2020; Perret et al., 2019; Sewasew & Schroeders, 2019). As a result, a high self-concept is valued as a desirable outcome in many disciplines such as educational, social science, health, and personality psychology (Herrera, Al-Lal & Mohamed, 2020; Marsh & Martin, 2011; Peperkorn & Wegner, 2020). And consistent with this, self-concept is a valued outcome and variable in relation to emotional and cognitive outcomes, including academic achievement (Branden, 2003). Self-concept, broadly defined by Shavelson, Hubner and Stanton (1976), as a person's self-perceptions formed through experience with and interpretations of one's environment. This importance was reflected in many studies, such as those that examined the dynamics of academic achievement and different psychological constructs, including self-concept (e.g., Abu-Hilal, 2010; Herrera, Al-Lal & Mohamed, 2020; Jaiswal & Choudhuri, 2017; Kopal & Musek, 2001; Sewasew & Schroeders, 2019; Stocker et al., 2021; Susperreguy et al., 2018; Wolff et al., 2018). To this end, studies (Abu-Hilal et al., 2019; Abu-Hilal & Bahri, 2000; Eshteewe, 2016; Herrera, Al-Lal & Mohamed, 2020) indicated that students assess their self-value through the level of their academic achievement and performing better in academics.

Recognizing this role of self-concept, empirical data showed that for doing well academically, high self-concept is an important needed prerequisite (Chen et al., 2013; Herrera, Al-Lal & Mohamed, 2020; Marsh et al., 2005;

Sewasew & Schroeders, 2019; Susperreguy et al., 2018; Wolff et al., 2018). In particular, the academic self-concept is considered a significant construct that has prompted extensive research (Chen et al., 2013; Sewasew & Schroeders, 2019). According to Bandura (1993), self-concept is multidimensional and includes cognitive, affective, and behavioral aspects; and academic self-concept refers to one's perception of their academic competence. Based on their study of academic self-concept theory and research, Trautwein et al. (2006) indicated that the academic self-concept is perceived as a student's self-perception concerning specific academic domains or abilities, and Gresham (1995) defined the academic self-concept as how the individual feels about their ability to perform academic tasks. Moreover, Byrne and Shavelson (1986) defined the academic self-concept as involving a description and an evaluation of one's perceived academic competence. In general, a high academic self-concept can work to motivate one to improve their academic performance (Marsh, 2007), and researchers and educators agree that students' academic performance plays a part in producing quality graduates (Han, 2019; Herrera, Al-Lal & Mohamed, 2020; Paredes-Valverde, Quispe-Herrera & Garate-Quispe, 2020).

With regards to the relationship, in their research (DeDonno & Fagan, 2013; Marsh et al., 2005; Reynolds, 1988; Sewasew & Schroeders, 2019), showed a positive relationship between the academic self-concept and the academic achievement. It was also concluded (Haque & Khan, 1998; Jaiswal & Choudhuri, 2017) that the academic self-concept and the academic achievement were strongly correlated. Although, Trusty, Watts and House (1996) concluded that there is a negative relationship between the social self-concept and the academic achievement. Furthermore, Muijs (1997) concluded that the academic self-concept and the academic achievement were best predictors of one another. In this regard, researchers (Ghazvini, 2011; Guo et al., 2016; Hannover and Zander, 2020; Marsh & Martin, 2011; Sen Akcay & Senemoğlu, 2021; Wu et al., 2021) stated that academic self-concept predicts academic achievement.

Theoretically, the academic self-concept is more closely related to the academic achievement than is general self-concept; and is therefore a better predictor of academic achievement (Marsh, 1990). Research by Byrne (1986) presented that self-concept, and the academic self-concept can be considered two separate constructs; the academic achievement may impact one's self-concept, but it is most directly related to the academic self-concept. With respect to what comes first – the academic self-concept or the academic achievement, research supports reciprocal effects that the academic self-concept both affects and is affected by the academic achievement (Marsh, 2007; Marsh & Craven, 2006; Marsh & Scalas, 2010; McInerney et al., 2012).

Literature review shows a relationship between the academic self-concept and the academic achievement, which is well established outside Qatar. It is needed in the Qatar context of university Qatari students to assess the academic self-concept and its relationship with the academic achievement specially for educators to use in their attempt to understand the academic achievement level of Qatari students. This is important because the results of the present study may provide useful knowledge that can possibly help educators improve students' academic achievement and self-concept. In the light of the above empirical evidence and rationale, the aim of this research is twofold, first to study the academic self-concept among university Qatari students, second, to study the relationship between the academic self-concept and the academic achievement of these students.

Method

Subjects

A sample of 274 students participated in this study. In this sample, 82 (29.9%) were men and 192 (70.1%) were women, similar to the student population in the university. Age ranged from 18 to 37 years, with an average age of 21.6 ($SD = 2.15$). As for year in the university, 53 (19.3%) students were freshmen, 58 (21.2%) were sophomores, 62 (22.6%) were juniors, and 101 (36.9%) were seniors. These students were enrolled in three credit hour core curriculum baccalaureate courses as general requirements for university students. The language of instruction, "Arabic," is their mother tongue. Most (182; 66.4%) of the sample were Qataris and the others (33.6%) were mainly from the 22 Arab nationalities, with all participants' first language being Arabic, while English was their second language. The sample comprised of students in seven different Colleges at the university, 1.5% of the students were from Pharmacy, 3.6% were from Law, 8.1% were from Sharia and Islamic Studies, 11.7% were from Engineering, 14.2% were from Education, 19.7% were from Business and Economics, and 41.2% were from Arts and Sciences. Qatar University consists of nine colleges, including the College of Health Sciences and the College of Medicine that were established after the data collection of this study. The College of Arts and Sciences is the largest college via its number of programs and student population at Qatar University, including approximately one-third of the student body. The average cumulative GPA score for this sample was 2.82 on a 4.0 scale ($SD = 0.51$, minimum = 1.46, maximum = 4.00, range = 2.54), based on their grades at the time of data collection.

Measure

A questionnaire sheet composed of demographic characteristics was used to collect personal data about students, including gender, age, nationality, college, year in the university, and GPA. The academic achievement was measured by self-reported cumulative Grade Point Average (GPA) at the time of the data collection. GPA was used as the criterion measure of the academic achievement in this study. The Academic Self-concept Questionnaire of the Self Description Questionnaire III (SDQIII) (Byrne, 1996) was utilized to measure the academic self-concept in this study and served as the predictor variable. The questionnaire was attached with the demographic information sheet. It consisted of four subscales, which are, Maths, verbal, academic, and problem solving. Only these four subscales of SDQIII making the Academic Self-concept Questionnaire were used as the study was restricted to only the academic self-concept. The remaining subscales of SDQIII (e.g., physical ability, physical appearance, parent relations) were not used. The academic self-concept questionnaire contains 40 items total, which gives a total academic self-concept score. Each of the four subscales of the academic self-concept contains 10 items. The added score of all ten items of a particular subscale of the academic self-concept provides the score for that particular subscale of the academic self-concept. 20 items were negatively phrased. A high score on the academic self-concept questionnaire indicates a higher academic self-concept, while a low score shows low academic self-concept. The four subscales used in this study were translated into Arabic language. Back translation was done by two researchers. Responses were delimited to 8-point scale ranging from "definitely false" to "definitely true" description of the academic self-concept for the positive and negative items. A brief description of the study's purpose was provided, and informed consent was granted from each participant.

Anonymity and confidentiality measures were taken in the data coding process. Participants' names were not required. This study was quantitative in nature and descriptive statistics and correlation and regression analysis using SPSS were applied to attain the aims of the study.

Results

The internal consistency reliability was measured to identify the extent to which the items of the Academic Self-concept Questionnaire measure the same concept and correlate with each other. Reliability of the questionnaire was obtained using Cronbach alpha test, and it was found to be .87 for the total academic self-concept measure, which is acceptable in social science research. Henson (2001) indicated that a value of .65 may be rather low as a reliability above .70 is typically acceptable (Streiner, 2003). Reliability coefficients of the questionnaire four subscales vary from 0.68 to 0.89, which were moderate to high measuring each specific subscale of the academic self-concept. Previous research with the Academic Self-concept Questionnaire of SDQIII documented that the internal consistency of the scale and the different subscales generally ranges from the lower to middle 0.80s. The descriptive results and alpha values of the academic self-concept and the questionnaire subscales are presented in Table 1.

Table 1. Subscale Mean and Standard Deviation Scores, and Values of Coefficient Alpha for the Academic Self-concept Questionnaire ($n = 274$).

Subscale	Mean	SD	Alpha
Maths	5.19	1.51	0.89
Verbal	5.70	0.96	0.72
Academic	5.52	1.08	0.81
Problem Solving	5.65	0.94	0.68
Academic Self-concept (SDQIII)	5.52	0.76	0.87

The negatively stated items were reverse scored in the mean calculations. The academic self-concept mean of 5.52 is only slightly above the midpoint of 4.5 on an 8-point scale, indication that students' academic self-concept is fairly typical. The mean scores obtained were similar to those reported in earlier studies with this measure (Jaiswal & Choudhuri, 2017; Lau, 1990; Marsh, 1989). Analysis by gender revealed women (mean = 5.54, $SD = 0.77$) had slightly higher academic self-concept than men (mean = 5.44, $SD = 0.73$), the calculated t -value ($t = 1.00$, $df = 272$, $p = .321$) was not significant. In terms of the academic self-concept subscales scores, there were no significant differences between men and women. This is similar to other studies (Haque & Khan, 1998; Hirsch & Rapkin, 1987; Schulte & Wegner, 2021) that found no significant difference in the academic self-concept with respect to gender. However, other research found gender differences in the academic self-concept (Herrera, Al-Lal & Mohamed, 2020; Jaiswal & Choudhuri, 2017; Skaalvik & Rankin, 1990). For example, Kling et. al. (1999) noted that male students had a higher academic self-concept than female students. Eshteewe (2016) found statistically significant differences in self-concept in favor of female students.

The descriptive results of the academic self-concept questionnaire items of the study are presented in Table 2. It

is noted that the negatively stated items were reverse scored in the above overall mean calculations but not reversed in the item mean calculations below. Thus, items in this table are presented as they appeared in the survey. The table indicated that, the high mean score was for item “I have good reading comprehension” (mean = 6.71) followed by “Relative to most people, my verbal skills are quite good” (mean = 6.19), and both items were in Verbal. While the lowest mean score was for item in Academic “In school I had more trouble learning to read than most other students” (mean = 2.17) in Verbal followed by “I would have no interest in being an inventor” (mean = 2.75) in Problem Solving.

Table 2. Item Mean and Standard Deviation Scores of Academic Self-concept ($n = 274$).

Item	Measure	Mean	Std Dev
Maths			
1	I find many mathematical problems interesting and challenging	5.35	2.11
2*	I have hesitated to take courses that involve mathematics	4.51	2.50
3	I have generally done better in mathematics courses than other courses	4.50	2.25
4*	Mathematics makes me feel inadequate	3.41	2.10
5	I am quite good at mathematics	5.70	1.83
6*	I have trouble understanding anything that is based upon mathematics	3.62	2.11
7	I have always done well in mathematics classes	5.44	1.87
8*	I never do well on tests that require mathematical reasoning	3.78	2.04
9	At school, my friends always came to me for help in mathematics	4.99	2.19
10*	I have never been very excited about mathematics	3.75	2.42
Verbal			
11*	I have trouble expressing myself when trying to write something	3.39	2.04
12	I can write effectively	5.98	1.78
13*	I have a poor vocabulary	3.12	1.82
14	I am an avid reader	4.99	2.05
15*	I do not do well on tests that require a lot of verbal reasoning ability	3.54	2.02
16	Relative to most people, my verbal skills are quite good	6.19	1.63
17*	I often have to read things several times before I understand them	5.59	1.85
18	I am good at expressing myself	5.96	1.78
19*	In school I had more trouble learning to read than most other students	2.17	1.67
20	I have good reading comprehension	6.71	1.34
Academic			
21	I enjoy doing work for most academic subjects	5.72	1.73
22*	I hate studying for many academic subjects	3.77	1.94
23	I like most academic subjects	5.30	1.77
24*	I have trouble with most academic subjects	3.59	1.79
25	I am good at most academic subjects	5.67	1.56
26*	I am not particularly interested in most academic subjects	3.90	1.90
27	I learn quickly in most academic subjects	5.51	1.57

Item	Measure	Mean	Std Dev
28*	I hate most academic subjects	3.40	1.82
29	I get good marks in most academic subjects	5.90	1.55
30*	I could never achieve academic honours, even if I worked harder	3.27	2.22
Problem Solving			
31*	I am never able to think up answers to problems that haven't already been figured out	2.86	1.88
32	I am good at combining ideas in ways that others have not tried	5.89	1.58
33*	I wish I had more imagination and originality	5.97	2.02
34	I enjoy working out new ways of solving problems	6.16	1.76
35*	I am not much good at problem solving	2.96	1.76
36	I have a lot of intellectual curiosity	5.32	1.92
37*	I am not very original in my ideas thoughts and actions	3.27	1.88
38	I am an imaginative person	5.93	1.85
39*	I would have no interest in being an inventor	2.75	2.16
40	I can often see better ways of doing routine tasks	6.00	1.76

*Negatively stated items (2, 4, 6, 8, 10, 11, 13, 15, 17, 19, 22, 24, 26, 28, 30, 31, 33, 35, 37, 39) were not reverse scored in this table.

To find the relationship between the academic self-concept and the academic achievement, bivariate product moment correlation “ r ” was computed. The correlation between the academic self-concept and the students’ academic achievement was $r = 0.261$ supported by a significant p -value of < 0.01 , which is descriptively interpreted as “low correlation”. It implies that the students’ academic self-concept was positively related to their academic achievement although the relationship was not strong. Maths ($r = 0.235$, p -value < 0.01), academic ($r = 0.258$, p -value < 0.01), and problem solving ($r = 0.119$, p -value < 0.05) were significantly related to students’ academic achievement, however, they are regarded as “low correlation”. These correlation results suggest that the academic self-concept is useful in understanding students’ academic achievement. Verbal was not significantly correlated ($r = 0.049$) with students’ academic achievement, which entails that it was not a significant factor to consider when measuring the academic achievement of the students. To determine the extent to which the academic self-concept contributes on the prediction of the academic achievement, linear regression analysis (method = enter) was used. The result indicated that the regression analysis was statistically significant ($F = 7.85$, $p < .01$, $R^2 = .091$). The academic self-concept accounted for 9.1% of the variance in participants GPA. This finding suggests that students’ academic achievement was better when they had a good level of academic self-concept.

Discussion and Conclusion

The results of this study revealed that university Qatari students have a fairly typical academic self-concept. The findings were similar to the findings of earlier studies (Jaiswal & Choudhuri, 2017; Lau, 1990; Marsh, 1989). It was reported (Blazar & Kraft, 2017; Hyvärinen, et al., 2022; Vasalampi et al., 2020) that teacher-related factors,

such as teachers' positive and constructive feedback towards performance, pedagogical choices and teaching-learning models, teacher and peer encouragement, and teachers' courage are prime activities that support and enhance students' self-concept. Also, students' exploring self-fulfillment habits; enthusiasm; disciplined actions, parental engagement in students' learning, overall realistic goals are factors that support students' self-concept (Darling-Hammond et al., 2020; Hyvärinen, et al., 2022; Yong, 1994). The importance of academic self-concept is well sought, with some studies implying that high academic performance positively influences students' academic self-concept, and vice versa (e.g., Marsh & Craven, 2006; Peperkorn & Wegner, 2020). It was further indicated that gifted students display high academic self-concept due to an improved performance at school (McCoach & Siegle, 2003; Van der Meulen et al., 2014). In addition, increased academic performance can lead to a higher academic self-concept, which in turn can result in more motivation to learn (Freund-Braier, 2009). However, it is noted that high but balanced academic self-concept is desired. There are studies which found that individuals with unrealistic self-concepts showed unpleasant behavior towards social interaction partners, like having the tendency to interrupt conversations (see Colvin, Block & Funder, 1995; Peperkorn & Wegner, 2020).

The results in this study showed a significant relationship between the academic self-concept and the academic achievement of university Qatari students, although the relationship was not strong. This is supported by the findings of Marsh (2004) and Joyce and Yates (2007) that showed a significant relationship between the academic self-concept and the academic achievement in their studies. The results of this study also showed that academic self-concept is a significant predictor of academic achievement. Similarly, it was found that academic self-concept is one of the variables affecting academic achievement in a high school physics course using regression analysis (Sen Akcay & Senemoğlu, 2021). Also, according to Hannover and Zander (2020), many studies found that self-concept predicts academic achievement. The present study supports the understanding that students' self-concept regarding their capabilities and academic competence are important and influential of their educational achievement. The results further suggest that the academic self-concept is a potential construct for educators as it may fill a gap in their understanding of student achievement. As with any study there are some limitations. In this study students were asked to self-report their perceptions related to self-concept. Students' actual perceptions were not measured, and no other reports of perceptions were obtained. This may have affected the study's outcome. Although most researchers would agree that self-report is the best way to assess self-concept, there are concerns in self-report measures to consider (Bosson, 2006). Future research may want to consider longitudinal studies. A longitudinal study could examine the effects of improving simultaneously both the academic self-concept and the academic achievement in ensuring positive development of students' academic outcomes. Conducting studies about the academic self-concept with other variables such as motivation and studies to investigate the variables influencing academic self-concept are also needed.

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