

University Students' Academic Confidence: Comparison between Social Sciences and Natural Science Disciplines

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Abstract

The objective of this study was to determine the academic confidence of students in relation to gender, age, qualification and program of studies. Academic confidence means one's strong beliefs or definite expectancy in academic field of the student (Sander & Sanders, 2004). It was hypothesized that there is a significant difference in students' academic confidence among social sciences and natural sciences disciplines. To measure the students' academic confidence a five point Likert type scale 'Academic confidence', based on the six factors of 'Studying' 'Understanding', 'Attendance' 'Grade' 'Verbalization' and 'Clarifying' developed by (Sander and Sanders, 2002), was administrated to collect data from students through random sampling. The results indicated that female students held significantly higher levels of academic confidence than their male counterparts. Students enrolled in the Masters' Education programs and students of public universities following Arts disciplines held significantly higher academic confidence. This study further recommends a more in-depth study of academic confidence as it applies particularly to a Pakistani audience.

Keywords: Academic confidence, Studying, understanding, attendance, grade, verbalization, clarifying.

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Introduction

Academic confidence is the student's belief about performing a task at a particular level in order to attain a specific academic goal (Sander & Sanders, 2005). It reflects a strong belief or sure expectation of success in an academic field. Generally, students perform those task and activities in which they feel competent (Bandura, 1977; Eccles & Wigfield, 2002).

Confidence plays a significant role in students' learning. Students with higher level of academic confidence are proved to be high achievers. Internal motivation is an important component in improving students' academic confidence (Georgiou's, 1999). It has been found that the child who perceives himself confident has a high level of academic achievement. The child who perceives himself as worthless is less confident and may not come up to the optimum level of attainment (Stevens, 2005). Students with low academic confidence enter college with lower academics skill and are found to be less engaged and face more transition difficulties (Shoemaker, 2010; Sander & Sanders, 2005).

Academic confidence is believed to effect performance through the influence on task perception. For example, research studies suggest that high academic confidence creates a feeling of calmness when approaching a difficult task. Conversely, low academic confidence may result in an individual perceiving a task as more difficult than it really is, which leads to stress and a narrowness of ideas when tackling the solution of the problem (Cole, 2008; Eccles & Wigfield, 2002; Stevens, 2005).

Student academic confidence can change if the student enters into the academic environment where the form and processes of education itself are demystified. This involves giving learning opportunities to refine the students' academic skills (Tett, 2000). An understanding of students' confidence could be beneficial in helping teachers create more effective learning environments. It helps teachers to understand their students, which enhances the teaching process even if just through a psychometric profile. Academic confidence can developed from the mastery of skills, various experiences and social and emotional support (Sander and Sander, 2005).

In a gender research study of 2429 psychology undergraduate students in Spain and the UK, males were found to have the higher levels of verbalizing confidence, while females showed higher confidence in studying and attendance (Sander, Putwain & Fuente, 2013).

Ochoa, Aguila and Sander (2012) investigated academic confidence in Mexican and European psychology students, by using the Academic Behavioral Confidence (ABC) confidence scale (Sander, 2009) to show that European students have a higher level of confidence in their academic abilities. The ABC scale was validated in the Mexican university system with a sample of 97 undergraduates, and the findings were compared with pre-existing data from 2685 European students on the four subscales of Grade, Verbalizing, Studying and Attendance. By using the mean confidence levels for the modified subscales, it was found that the Mexican psychology students had higher Grade and Verbalizing confidences as compared to their European counterparts.

Dhall and Thukral (1987) investigated the relationship between intelligence, self-confidence and academic achievement using a sample of 1000 Grade 9 students from government schools from four districts of Punjab, Pakistan. Intelligence was found to be positively correlated with both self-confidence and academic achievement. Farooq et al., (2011) researched the impact of different factors on the academic confidence of 10th grade school students (300 male & 300 female) in a metropolitan city of Pakistan. The results of the questionnaire study revealed that socio-economic status (SES) and parents' education had significant effects on students' overall academic confidence scores.

Perceiving oneself as confident has a positive influence on the academic performance of the child (House, 1997). An understanding of students' confidence

- a. helps teachers to create a more effective learning environment;
- b. identifies differences in individual capabilities and learning style needs to enhance academic achievement;
- c. will reveal differences between males and females with respect to different age groups, disciplines and qualifications.

Objective of the study

- a. To identify the difference in students' academic confidence between social sciences and natural sciences disciplines.

Hypotheses

- a. There is no significant difference in students' academic confidence between male and female.
- b. There is no significant difference in students' academic confidence among different age groups.
- c. There is no significant difference in students' academic confidence among different qualification groups.
- d. There is no significant difference in students' academic confidence between Arts and Science disciplines.
- e. There is no significant difference between students' academic confidence enrolled in public and private universities.

Methodology

Sample

The sample of the study was comprised of 200 post-graduate students from public and private universities of different disciplines. Detailed information about demographic variables appears in Table 1.

Table 1
Demographic variables information

| N | Variables | | N | %age |
|---|------------------|-----------------------|-----|------|
| 1 | Gender | Male | 105 | 52.5 |
| | | Female | 95 | 47.5 |
| 2 | Age | 20-23 | 67 | 33.5 |
| | | 24-26 | 105 | 52.5 |
| | | 27-30 | 28 | 14.0 |
| 3 | Program of study | M.Sc Chemistry | 46 | 23.0 |
| | | M.Sc Computer science | 57 | 28.5 |
| | | M.A Education | 53 | 26.5 |
| | | M.A English | 44 | 22.0 |
| 4 | Discipline | Science | 116 | 58.0 |
| | | Arts | 84 | 42.0 |
| 5 | University | Public | 98 | 49.0 |
| | | Private | 100 | 50.0 |
| | | Missing | 2 | 1.0 |

Instrument

To measure academic confidence, a 5-point Likert type scale developed by Sander & Sanders, (2003) was used, the scale ranging from '*strongly agree* (5)' to '*strongly disagree* (1)'. The Academic Confidence scale was based on 24 statements with 6 factors; studying, understanding, attendance, grades, verbalizing, clarifying. The overall Cronbach's Alpha reliability of this scale is given as 0.89. The reliability of F1 "Studying" was 0.74, F2 "Understanding" 0.74, F3 "Attendance" 0.70, F4 "Grade" 0.72, F5 "Verbalization" 0.60 and F6 "Clarifying" 0.53.

Procedure

Convenient sampling was used for data collection. Researchers distributed 200 samples of questionnaires among students of different programmes of studies. The questionnaire took only 10 minutes to complete, so this was easily done in the students' study hours. Statements on the scale were self-explanatory, however researchers explained to students if they faced any kind of problems about the reading and understanding of the statements. Participants also completed demographic information before filling up the questionnaire. Incomplete questionnaires were discarded before data entry.

Data Analysis

t-tests were used to check for significant gender, discipline and institutional differences in academic confidence and its sub-scales. Analysis of variance (SPSS-ANOVA) was used to test for significant breakdowns in academic confidence by age group and program of study.

Results

The following tables show the analysis results for the academic confidence scores and the separate sub-scales.

Table 2*Means scores difference between male and female students' academic confidence*

| Academic confidence scale | Male (n=105) | | Female (n=95) | | <i>t</i> | <i>p</i> |
|---------------------------|--------------|-------|---------------|-------|----------|----------|
| | M | SD | M | SD | | |
| F1 Studying | 20.84 | 6.56 | 22.41 | 6.18 | -1.72 | 0.08 |
| F2 Understanding | 17.09 | 5.04 | 18.00 | 4.43 | -1.34 | 0.18 |
| F3 Attendance | 8.16 | 3.12 | 9.11 | 3.24 | -2.11 | 0.03* |
| F4 Grade | 11.75 | 3.52 | 12.90 | 3.53 | -2.30 | 0.02* |
| F5 Verbalization | 8.71 | 2.93 | 9.51 | 2.58 | -2.04 | 0.04* |
| F6 Clarifying | 8.73 | 2.95 | 9.10 | 2.24 | -0.99 | 0.32 |
| Composite scale | 51.61 | 14.02 | 56.04 | 12.30 | 0.01 | 0.42 |

df=198, **p*<0.05, small effect size

Table 2 shows results about male and female students' academic confidence on academic confidence scale. Female students have significantly higher level of academic confidence in terms of attendance, grades and verbalization as compare to male students.

Table 3*Mean scores difference of students' academic confidence among different age groups*

| Academic confidence scale | 20-23 (n=67) | | 24-26 (n=105) | | 27-30 (n=28) | | <i>F</i> | <i>p</i> |
|---------------------------|--------------|-------|---------------|-------|--------------|-------|----------|----------|
| | M | SD | M | SD | M | SD | | |
| F1 Studying | 21.58 | 6.49 | 21.58 | 6.43 | 21.64 | 6.41 | 0.00 | 0.99 |
| F2 Understanding | 17.62 | 5.27 | 17.36 | 4.45 | 17.89 | 4.81 | 0.15 | 0.85 |
| F3 Attendance | 8.49 | 2.91 | 8.67 | 3.31 | 8.67 | 3.59 | 0.07 | 0.93 |
| F4 Grade | 12.01 | 3.34 | 12.40 | 3.67 | 12.60 | 3.75 | 0.35 | 0.70 |
| F5 Verbalizing | 8.97 | 2.88 | 9.23 | 2.87 | 8.85 | 2.30 | 0.30 | 0.73 |
| F6 Clarifying | 8.85 | 2.61 | 9.23 | 2.87 | 8.85 | 2.30 | 0.02 | 0.97 |
| Composite scale | 53.23 | 13.47 | 53.88 | 13.45 | 54.25 | 13.36 | 0.07 | 0.93 |

df= 199

Table 3 represents results regarding students' academic confidence among different age groups of students. No significant difference was found.

Table 4

Mean scores difference of students' academic confidence among different qualification programs

| Academic confidence scale | <i>M.ScChem</i> (<i>n=46</i>) | | <i>M.ScCom.sci</i> (<i>n=57</i>) | | <i>M.A Edu</i> (<i>n=53</i>) | | <i>M.A Eng</i> (<i>n=44</i>) | | <i>F</i> | <i>p</i> |
|---------------------------|------------------------------------|-----------|---------------------------------------|-----------|-----------------------------------|-----------|-----------------------------------|-----------|----------|----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | |
| F1 Studying | 21.97 | 4.57 | 20.28 | 4.97 | 23.69 | 7.83 | 20.34 | 7.25 | 3.43 | 0.01* |
| F2 Understanding | 18.43 | 4.02 | 16.50 | 3.77 | 18.49 | 5.60 | 16.72 | 5.28 | 2.60 | 0.05 |
| F3 Attendance | 8.67 | 2.67 | 8.82 | 3.36 | 9.28 | 3.47 | 7.47 | 2.98 | 2.76 | 0.04* |
| F4 Grade | 12.28 | 2.85 | 12.63 | 3.16 | 12.77 | 3.56 | 11.31 | 4.53 | 1.60 | 0.19 |
| F5 Verbalizing | 9.26 | 2.48 | 8.89 | 2.33 | 10.01 | 3.09 | 8.06 | 2.96 | 4.25 | 0.00** |
| F6 Clarifying | 9.21 | 2.12 | 9.10 | 2.67 | 9.33 | 2.48 | 7.81 | 3.02 | 3.40 | 0.01* |
| Composite scale | 54.92 | 9.31 | 52.63 | 11.01 | 57.81 | 15.02 | 48.93 | 16.1 | 3.95 | 0.00** |

*df=199, **p<0.00, *p<0.05, small effect size*

Table 4 represents significant mean scores differences in students' academic confidence among different qualification groups on composite scale, factor one "Studying" factor three "Attendance" factor five "Verbalizing" and factor six "Clarifying". Post- Hoc test revealed that students enrolled in M.A education held significantly more academic confidence than M.Sc Chemistry students, M.A English students and M.Sc Computer Sciences students.

Table 5

Mean scores difference of students' academic confidence between Science and Arts disciplines

| Academic confidence scale | Science (<i>n=116</i>) | | Arts (<i>n=84</i>) | | <i>t</i> | <i>p</i> |
|---------------------------|-----------------------------|-----------|-------------------------|-----------|----------|----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | |
| F1 Studying | 20.44 | 4.98 | 23.16 | 7.73 | -3.01 | 0.00** |
| F2 Understanding | 16.89 | 4.12 | 18.39 | 5.46 | -2.20 | 0.02* |
| F3 Attendance | 8.55 | 3.05 | 8.70 | 3.42 | -0.32 | 0.74 |
| F4 Grade | 12.18 | 3.08 | 12.45 | 4.16 | -0.51 | 0.60 |
| F5 Verbalizing | 8.81 | 2.47 | 12.45 | 4.16 | -1.70 | 0.09 |
| F6 Clarifying | 8.83 | 2.57 | 9.01 | 2.74 | -0.46 | 0.64 |
| Composite scale | 52.37 | 10.70 | 55.58 | 16.27 | 14.14 | 0.00** |

*df=198, **p<0.00, *p<0.05, small effect size*

Table 5 shows significant mean scores differences in students' academic confidence between Arts and Science disciplines. Generally students enrolled in Arts disciplines had significantly higher academic confidence than science disciplines on composite scale and factor 1 (Studying) and factor 2 (Understanding).

Table 6

Mean scores difference between students' academic confidence enrolled in public and private universities

| Students' Academic Confidence | Public (n=98) | | Private (n=100) | | <i>t</i> | <i>P</i> |
|-------------------------------|---------------|-------|-----------------|-------|----------|----------|
| | M | SD | M | SD | | |
| F1 Studying | 22.42 | 5.60 | 20.60 | 6.98 | 2.02 | 0.04* |
| F2 Understanding | 18.06 | 4.36 | 16.87 | 5.06 | 1.77 | 0.07 |
| F3 Attendance | 8.38 | 2.61 | 8.77 | 3.70 | -0.83 | 0.40 |
| F4 Grade | 12.53 | 3.36 | 11.96 | 3.70 | 1.13 | 0.25 |
| F5 Verbalizing | 9.48 | 2.73 | 8.65 | 2.80 | 2.13 | 0.03* |
| F6 Clarifying | 9.14 | 2.41 | 8.62 | 2.82 | 1.39 | 0.16 |
| Composite scale | 54.83 | 11.34 | 52.19 | 14.88 | 11.41 | 0.00** |

df= 196, **p<0.00, *p<0.05, small effect size

Table 6 shows significant mean scores differences between students' academic confidence enrolled in public and private universities. Students enrolled in Public universities had significantly higher academic confidence than Private on composite scale and factor 1 (Studying) and factor 5 (Verbalization).

Discussion

Firstly, the finding that female students' mean scores of academic confidence were significantly higher on the factors of Attendance, Grade and Verbalization. It may be assumed that female students spend more time on studies compared to male students. This research finding is consistent with the research study of Gneezy and Niederle (2003) who reported that female students were more self-disciplined so helping them to get higher grades on achievement tests. Female students pay full attention in class during lectures and they show a more responsive attitude towards classroom activities. Female students have a strong cognitive capacity to recall facts and figures (Delzell, 1995). Male students get more involved in social and physical activities due to their social responsibilities. As compared to male students, females devote more time towards study, and they work hard to get high achievement scores.

Secondly, the variation of academic confidence across the study programs. The results showed that the overall academic confidence of students enrolled in the M.A Education program was significantly higher than those enrolled in the M.Sc Chemistry, M.Sc Computer science and M.A English programs. The difference was present on academic confidence sub-scales of Studying, Attendance, Verbalization and Clarifying factors. An explanation of the significance of the M.A Education course is due to its comprehensive and broader nature. On the Education course,

students face more concepts related to learning theories and teaching pedagogies, and get more awareness about confidence developing strategies (Shoemaker, 2010). The curricula of M.A. Education addresses concept mapping strategies to clarify the concepts of theories. In-depth knowledge of methodologies and teaching techniques make students more confident towards study (Farooq et al., 2011).

Thirdly, students enrolled in Arts disciplines showed significantly high academic confidence on Studying and Understanding factors than those students who were enrolled in Science disciplines. The reason behind this finding is associated with the comprehensive nature of the Arts curricula. Arts education encourages and assists in the improvement of students' attitudes toward the development of academic confidence (Hussain, et al., 2011). It accelerates thinking process and develops understanding of concepts. Reasoning ability, intuition, perception, imagination, inventiveness, creativity, problem-solving skills and expression are among the thought processes associated with study of the arts (Sandra and Ruppert, 2006, Catterall et al., 1999). On the other hand, science education in Pakistan is heavily biased towards rote learning (Pell, Iqbal and Sohail, 2010).

Fourthly, students enrolled in public institutions had significantly more academic confidence than students enrolled in private institutions, which could be due to the more focused confidence building strategies used in public institutions. Teachers try to adopt more interactive methods to teach students to compete with global needs, while 'private' teachers use general methods of teaching (Newton, & Norris, 1999).

Conclusion

The main objective of this study was to determine the academic confidence of students in relation to gender, age, and qualification programs, disciplines, and institutions. The scales used were from the USA, and the factors were assumed to be applicable in the different cultural base of Pakistan. Within this overall model, the further limitations of using a sample from just a few public and private universities in one location means generalization of the findings of the study are not possible, and indeed were not aimed for.

It is recommended that the next stage in this research be to investigate in-depth information in form of qualitative methods to look in depth about students' academic confidence. This should then be followed by a validation of the academic confidence factors in the Pakistani context, and a report on the differences between the local and USA psychological mind-sets.

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