

Development of Forman Attribute Success Scale for Undergraduate Students

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Abstract

This research was aimed at developing an indigenous scale that can be used with university students to investigate if they possess the attributes that are associated with academic success. A 42 item self-report scale, the Forman Attribute Success Scale was developed after interviews were conducted with academically successful students. The test was administered on a sample of male and female undergraduate students (N=379) from a private university. The psychometric properties of the FASS were established using appropriate statistical analysis on SPSS. Exploratory factor analysis revealed five factors of the FASS which were associated with academic achievement; Conscientiousness, independent learner, people person, organizational ability and academic skills. Internal consistency for the FASS was high ($\alpha = 0.85$). Convergent validity was established using Self-Efficacy for Learning and Performance subscale from the Motivated Strategies for Learning Questionnaire (MSLQ) and a significant correlation was found between the two scales which indicate that FASS is a valid predictor of student competence. Test re-test and split half reliability were also high for the FASS. The implications for using the Forman Attribute Success Scale are discussed and suggestions for further research have been offered.

Keywords: Success, Academic Achievement, Attributes, University Student, Indigenous Scale

Introduction

Academic success is considered to be important as it is associated with other valued positive outcomes like a successful career (Regier, 2011). Academic success can have different interpretations for example universities may consider grades while students may consider earning a degree as a parameter of academic success (Denham

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et al., 2018). York, Gibson and Rankin (2015) in their attempt to develop a more comprehensive definition conducted an extensive literature review and concluded that academic success is a multidimensional construct comprised of academic achievement, satisfaction, acquisition of skills and competence, persistence, attainment of learning outcomes and career success.

While this definition provided by York et al aims to be all encompassing, a number of earlier studies use a more narrow and conventional measure of academic success using students' overall grades or the GPA (York et al., 2015). These differences in defining academic success highlight how researchers may view the concept differently. Previous studies using GPA as a measure of academic success have found that it is positively correlated with self-efficacy, emotional intelligence, perceived control over time and hope (Abouelfettoh and Al Ateeq, 2013; Nonis, Hudson, Logan & Ford, 1998; Snyder et al., 2002; Zajacova, Lynch & Espenshade, 2005).

Many first year undergraduates expect to improve their career prospects with their degree (Scutter, Palmer, Luzeckyl, Burke da Silva & Brinkworth, 2011), so academic achievement is an important goal for a number of university students (Gámez, Marrero & Díaz, 2015). It is important to consider student expectations as unmet expectations especially not achieving academic success or poor academic performance may result in student attrition (Hassel & Ridout, 2018).

Additionally, the transition to university is a challenging period for young adults as they are expected to adjust in a new environment so they can perform well academically (De Clercq, Roland, Brunelle, Galand & Frenay, 2018). Adjustment in the university was in fact found to be an indicator of first year students' GPA (Van Rooij, Jansen, Ellen & van de Grift, 2018). The students who perform well academically, despite the challenging adjustment phase and go on to finish their degrees while keeping up their academic performance, may then have certain attributes which set them apart from the rest. The following section contains a review of literature highlighting the factors associated with academic success.

A broad classification of the attributes associated with academic success includes student's motivations, beliefs, values and goals (Wentzel & Wigfield, 1998). Gabre and Kumar (2012) measured the effect of student's perceived stress on their academic performance and Facebook usage, the results showed that increase in perceived stress negatively affected student's academic performance. The higher amount of Facebook usage also resulted in a drop in academic performance when controlled for stress. So, perceived stress can negatively impact student performance but there are a few variables that can moderate the effect of perceived stress. A close and supporting relationship with the instructors, similarity of university curriculum with the school curriculum and a smaller number of students are some of the factors which

can control the effect of perceived stress on academic performance among university students (Rafidah et al., 2009).

In addition to perceived stress, which is likely to be different for each student, teacher related variables are also shown to affect academic performance. When teachers had higher expectations of a student's competence, they showed better scores in a foreign language learning class. The explanation provided for this is that when teachers have high expectations of a student, these expectations are also conveyed to the student who then acts accordingly. Thus teachers' expectations become a self-fulfilling prophecy for the students (Tsiplakides & Keramida, 2010). Similarly, Parks and Kennedy (2007) reviewed the effect of teacher's perception of the student's race, physical attractiveness and gender on students' academic performance. They found that teachers perceived unattractive children, boys and Black children as less competent, providing more support for the self-fulfilling prophecy explanation.

In addition to the environmental variables that influence performance, some literature suggests students' personal characteristics may also be involved. One such characteristic is learned resourcefulness which has been defined as a set of skills that can help to control internal events such as emotions which if not controlled can be disruptive. So, students who are able to manage their internal mental events may be more successful at dealing with stress and ultimately may perform better academically (Akgun & Ciarrochi, 2003). Other internal attributes of students that have been shown to predict academic success are self-efficacy, hope and emotional intelligence - EI (Abouelfetoh & Al Ateeq, 2013; McKenzie & Schweitzer, 2001; Rand, Martin & Shea, 2011; Zajacova, Lynch & Espenshade, 2005). As with learned resourcefulness a higher EI also indicates more control over internal mental states. So, it appears that internal control over mental states is important for academic achievement and this may also explain why in a research students who perceived greater control over time had better academic performance (Nonis et al., 1998).

Along with these student attributes, specific personality traits have also shown to predict academic performance. A longitudinal study conducted on two British university samples examined the relationship between the big five personality traits and academic performance. It was found that the most significant factor for adversely affecting academic performance was neuroticism whereas conscientiousness was associated with academic success (Chamorro-Premuzic & Furnham, 2003). Later Conard (2006) also confirmed that the personality trait that significantly predicted academic success over the course of three years was conscientiousness, among university students in US. She also found that the behavioral trait that predicted academic success was high attendance in classes (Conard, 2006).

Additionally, McKenzie and Schweitzer (2001) found that among freshmen at a university, the best predictor of academic performance was the previous academic performance in the former institutions that students were enrolled in. This suggests that academic performance may remain consistent over the years and therefore may rely more on students' individual characteristics that have been discussed before. Interestingly they also found that a high level of integration in the university led to poorer academic performance. Also those students who had more employment responsibilities also had lower GPAs.

As poor performance during the first year in university can lead students to drop out, it can be concluded that academic success especially during the first year may be quite important for students and institutions (Gómez, Marrero & Díaz, 2015). Also as a number of university students aim to attain academic success, it further emphasizes the usefulness of studying the factors responsible for academic success. Specifically it might be of interest for researchers to see what sets apart academically successful students from the others. However, at present it appears that there is no scale available to test specifically the attributes of academically successful students. So, the purpose of the current research is to develop an instrument that assesses whether or not the students possess the attributes that are essential to their success in university.

As Pakistan has a collectivist culture, it is expected that the norms, beliefs and values would be different in Pakistan than in other Western countries where most tests are developed (Hofstede, 1980). As various constructs have different manifestations in different cultures therefore it would be useful to have an indigenous tool to measure academic competence among university students in Pakistan. The current study will therefore take up an exploratory approach to find out which attributes among students lead to academic success later on.

Method

Phase I: Exploring Phenomenon using Interview Method

Pilot Phase

A pilot phase was conducted to test that out of two questions, which question would generate a greater number of responses for the interview phase to be carried out next. Ten undergraduate students with a CGPA higher than 3.8 were interviewed and their responses were recorded. The final question which generated a greater number of responses and was chosen for use in the next phase was, "What is it that you have been doing that has made you academically successful?"

Main Phase

For the purpose of this study, students considered to be academically successful were those who were in their senior year of study and had a CGPA of 3.8 or higher. This criterion was used as most previous studies had also used GPA as a measure of academic achievement and students in their senior year were selected as it shows persistence – these students were able to maintain a high CGPA till the end of their degree and were also very likely to complete their degree. Fifteen undergraduate students from a private university in Lahore consented to be interviewed. The researcher noted the responses of the participants verbatim and also recorded the interviews. The researcher kept probing the participant by saying, “Tell me more” until the participant could no longer think of any other response. As a result a list was generated consisting of different attributes of academically successful students.

Phase II: Empirical Validation

The test items were constructed on the basis of the list generated in phase 1, and each item was settled upon after the consensus of the researcher, the co-researcher and the research supervisor. A five point Likert type rating scale was used for the tool where 1 stood for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree. The first draft of the tool, which was to be given for empirical validation, consisted of fifty items.

Five experts and five students were asked to evaluate all items in terms of clarity and usefulness. They were also asked to check if they felt anything had been left or was missing. The five experts chosen were professors of a private university who had won the award of ‘Best Teacher’ in the last five years. The rationale for selecting them as experts was that as the test purports to measure attributes associated with academic success, therefore, the teachers (especially the ones who are deemed as the best teachers) who evaluate the students would have acquired experience in this area. The changes that were recommended were made and two items were deleted as a consequence.

Phase III: Main study

Participants and Procedure

A convenient sample of 400 undergraduate students was recruited from a private university. After discarding incomplete responses, the final sample consisted of 379 (193 males and 186 females) students ranging in age from 18 to 27 ($M = 21.02$, $SD = 1.54$).

The students were given a questionnaire booklet in which they first filled out a consent form followed by a demographic profile after which they were finally administered the Forman Attribute Success Scale. The consent form informed

participants that the data collected would be confidential. Before administration, the students were informed that their participation is voluntary and they may leave at any point in the study if they feel uncomfortable with any of the procedures. Administration of the tool took around 10 minutes on average. After completion of the tests by the test takers, only those were retained that had all the responses filled out while 21 data sets with missing information were discarded.

Instruments

Demographic questionnaire: It was used to record the participants' age, gender, CGPA, year of study, major, previous educational qualification, ethnicity, birth order, number of siblings, family system, average monthly family income, parents' highest level of education and occupation.

Informed consent form: It was used to take the consent of the participants and to let them know of the purpose of the research.

Self-Efficacy for Learning and Performance subscale from the Motivated Strategies for Learning Questionnaire (MSLQ) for College students: This scale was used to establish the convergent validity of the Forman Attribute Success Scale. It is an instrument designed to assess the academic self-efficacy of college students. It is a self-report questionnaire with 8 statements each of which is rated on an 7 point Likert scale ranging from 1 (not at all true of me) to 7 (very true of me). The internal consistency of the instrument is high as the Cronbach Alpha value of this scale was 0.93 which was higher than all other subscales of the MSLQ. The MSLQ also demonstrated sound predictive validity, for which each of the subscales' scores were correlated with the final course grade of the students and quite modest correlations were found (Pintrich et al., 1993).

Statistical Analysis

Descriptive analysis was done on the data obtained in order to get a summary of the data. Further exploratory factor analysis was also conducted in order to obtain a meaningful factor structure for the scale. To establish the test – retest reliability, split half reliability and convergent validity, Pearson correlations were done using SPSS.

Results

Section I: Characteristics of the Sample

In this section the demographics of the sample ($N = 379$) have been discussed.

Table: 1

Frequencies and Percentages of Gender, Year of Study, and Average Monthly Family Income

Variables	Male <i>f</i> (%)	Female <i>f</i> (%)	Total <i>f</i> (%)
Gender	193 (51)	186 (49)	379 (100)
Year of study			
Freshman	31 (40)	47 (60)	78 (21)
Sophomore	68 (56.2)	53 (43.8)	121 (32)
Junior	35 (47.9)	38 (52.1)	73 (19)
Senior	59 (55)	48 (45)	107 (28)
Average monthly family income			
Below Rs. 40,000	17 (61)	11 (39)	28 (7.4)
Rs. 40,000 – 60,000	21 (40)	31 (57)	52 (13.7)
Rs. 60,000 – 80,000	33 (49)	34 (51)	67 (17.7)
Above Rs. 80,000	122 (53)	110 (47)	232 (61.2)

The proportion of males and females in this sample is nearly equal. The students who make up the highest proportion of the sample are sophomores while the lowest are the ones who are in their junior year. A large proportion of the students (61%) had an average monthly family income greater than Rs 80,000 while only a small proportion had less than Rs 40,000 (7%). The mean age of the 379 participants is 21.02 ($SD = 1.54$) and the mean of the CGPA is 3.06 ($SD = 0.48$).

Section II: Psychometric Properties of FASS

Table: 2

Components found by the Principal Component Analysis and the Items that load on them (N=379)

S. No	Item No.	F1	F2	F3	F4	F5
1.	1	0.57	0.06	0	0.09	0.15
2.	6	0.50	0.19	0.28	-0.06	-0.04
3.	7	0.40	0.14	0.13	0.40	0.03
4.	15	0.33	0.28	0.16	-0.12	0.22
5.	16	0.47	0.20	0.16	-0.02	0.24
6.	17	0.66	0.07	0.13	0.23	-0.09
7.	18	0.46	0.20	0.09	0.14	0.12
8.	19	0.61	0.27	0.05	0.19	0.02
9.	23	0.53	0.05	0.16	0.25	0.24
10.	36	0.41	0.41	-0.02	0.21	0.002

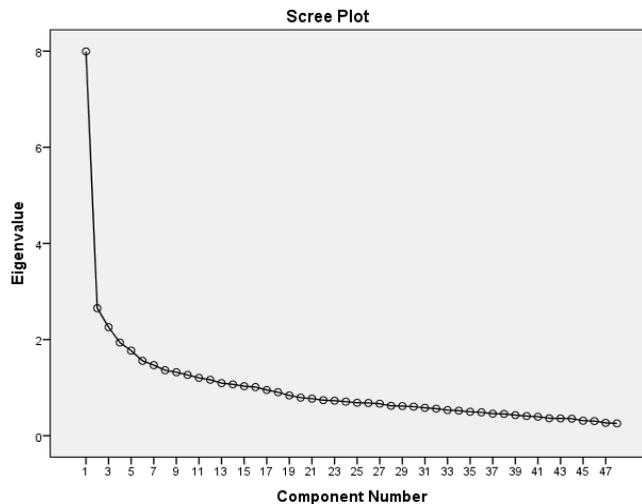
11.	27	0.12	0.50	0.30	-0.20	0.18
12.	28	0.02	0.42	0.25	-0.03	0.15
13.	31	0.19	0.55	0.12	-0.009	0.16
14.	33	0.24	0.42	0.06	-0.05	0.10
15.	42	0.13	0.38	0.015	0.21	0.07
16.	43	0.33	0.54	-0.11	-0.02	-0.02
17.	45	0.17	0.57	0.25	0.29	-0.06
18.	46	0.04	0.47	0.31	0.39	-0.14
19.	47	0.11	0.61	0.10	0.17	-0.17
20.	4	-0.19	-0.22	0.59	0.123	-0.07
21.	5	0.17	-0.04	0.60	-0.10	0.03
22.	9	0.17	0.04	0.61	0.08	0.07
23.	12	0.10	0.06	0.37	-0.03	0.01
24.	20	0.04	0.001	0.58	0.04	0.02
25.	21	0.11	-0.01	0.46	0.13	0.02
26.	24	0.22	0.01	0.52	0.001	0.41
27.	32	0.03	0.26	0.62	0.01	-0.06
28.	34	-0.07	0.25	0.52	0.13	-0.06
29.	37	0.27	0.11	0.58	0.13	0.15
30.	38	0.05	0.14	0.37	0.26	0.33
31.	48	0.09	0.02	0.41	-0.009	-0.08
32.	11	0.09	0.03	-0.11	0.25	0.49
33.	35	0.24	0.12	0.24	0.45	0.04
34.	39	0.05	-0.03	0.06	0.69	0.23
35.	40	0.06	0.12	-0.02	0.75	0.12
36.	41	0.18	-0.11	0.11	0.63	0.20
37.	2	-0.04	0.15	0.13	0.15	0.42
38.	8	0.27	0.12	-0.09	0.30	0.43
39.	22	0.42	0.09	0.17	0.15	0.46
40.	25	0.16	-0.01	0.25	0.05	0.49
41.	26	0.16	0.02	-0.10	0.2	0.53
42.	44	-0.09	0.43	0.03	-0.05	0.47

Note. The major factor loadings for each item are bolded

The data were analyzed by means of a principal component analysis with Varimax rotation. Five factors with eigenvalues greater than 1.0 were found. Ten items loaded on factor 1; 9 items on factor 2; 12 on factor 3; 5 on factor 4; and 6 on factor 5 respectively. The descriptive label was assigned to each factor as Conscientiousness Independent learner, People Person, Organizational ability, and Academic skills. Six items were removed as they showed factor loadings lower than .30. So, the final version of the FASS after factor analysis comprises of 42 items

Figure: 1

Scree Plot for Principal Component Analysis



A scree plot was also obtained as an additional method to decide how many factors should be retained. As a scree plot provides a more conservative estimate of the number of items that should be retained (Pallant, 2013), the scree plot obtained for our data also suggested that only one factor should be retained. However the solution provided using Kaiser’s criterion, according to which factors with eigenvalues greater than 1 should be retained (Pallant, 2013), made theoretical sense. Hence five factors were retained for the FASS.

Description of Factors

Factor 1: Conscientiousness

This describes a student who is quite hard working, determined and is concerned for his/ her academics. This factor is comprised of 10 items. Some of the items are “I’m hard working”, “I’m determined in terms of getting the grades that I desire”, “I am concerned about my academics”, and “I attempt every question on an exam/ quiz”.

Factor 2: Independent Learner

The second factor describes a student who likes to study by himself, believes in his own academic abilities and is clear about his goals. There are 9 items in this factor and some of the items are, “I prefer to work/ study on my own”, “I have the ability to focus on the task at hand”, and “I’m goal oriented”.

Factor 3: People Person

The third factor is about students who are outgoing, like to study in a group, and have good communication skills. Some of the items are, “I actively participate in extracurricular activities”, “I prefer to do group study”, “I discuss academic concepts with my friends”, “I generally try to consume a healthy diet” and “I’m optimistic”.

Factor 4: Organizational Ability

The fourth factor describes a student who is very organized. There were five items in this factor and some of the examples are, “I make time tables to manage my time”, “I make lists of everything I have to do”, and “I finish my work/ assignments ahead of time”.

Factor 5: Academic Skills

The fifth factor was about academic skills, and it entails the academic tendencies of the student. Some of the items are, “I would rather stay back and study/work than go out with friends”, “I take morning classes because I get to take my afternoon nap and perform better”, and “I read books outside of curriculum.”

Most of the factors correlated significantly with each other. Each of the scales also had an alpha coefficient of 0.7 or higher. Alpha values of above .7 are considered acceptable evidence of internal consistency of a scale (Pallant, 2013). Overall, the scale had an alpha value of 0.85 which shows that the scale had high internal consistency.

Table: 3

Summary of the Means, Standard Deviations, Inter factor Correlations of the Five Factors of the FASS (N=379)

Factors	F1 Conscientiousness	F2 Independent Learner	F3 People Person	F4 Organizational Ability	F5 Academic Skills	Alpha Coefficient
F1 Conscientiousness	----	.545**	.439**	.425**	.480**	.80
F2 Independent Learner	----	----	.360**	.237**	.390**	.74
F3 People Person	----	----	----	.298**	.281**	.70
F4 Organizational Ability	----	----	----	----	.450**	.72
F5 Academic Skills	----	----	----	----	----	.72

<i>M</i>	39.47	35.88	42.65	15.83	18.70
<i>SD</i>	5.64	4.64	5.90	3.92	4.04

Convergent Validity

Self-Efficacy for Learning and Performance subscale from the Motivated Strategies for Learning Questionnaire (MSLQ) for College students (Pintrich et al., 1993) was used to establish the convergent validity of the FASS. According to Trochim (2006) convergent validity for a scale can be established using other scales which measure a similar construct that is empirically related to the construct of the tool under study. As students' academic self-efficacy has been found to be the strongest predictor of academic success (Richardson, Bond & Abraham, 2012), the MSLQ was thereby used for the purpose of establishing the convergent validity because it measures academic self-efficacy which strongly correlates with academic success.

A positive correlation was found $r=0.62$ between the 'Conscientiousness' subscale of the FASS with the Self-Efficacy for Learning and Performance Scale (Pintrich et al., 1993). A positive correlation was also found $r=0.52$ between the Independent Learner subscale of the FASS and the Self-Efficacy for Learning and Performance Scale. The rest of the subscales of the FASS, People Person, Organizational Ability and Academic skills, also had a positive correlation with the Self-Efficacy for Learning and Performance Scale, $r=0.52$, $r=0.29$ and $r=0.354$ respectively.

Test Re-test Reliability

Test re-test reliability was also established for the FASS. The re-test was administered after a gap of one week on 13% (N=50) of the total sample. The correlation coefficient of the first factor with the retest was 0.86, for the second it was 1, for the third factor it was 1, for the fourth it was 1 and for the fifth it was 0.82.

Split Half Reliability

The test was split into even and odd items for the split half reliability and the correlation coefficient was 0.76 between the even numbered items and the odd numbered items.

Discussion

It was the aim of the current study to develop a tool that would distinguish the attributes associated with academically successful university students. There are a number of variables, specific to the student that can help predict his academic performance like his self-confidence, participation in extracurricular activities etc (Prevatt, Li, Welles, Festa-Dreher, Yelland & Lee, 2011). Such a scale, as has been developed in the current study, is expected to help educators predict how a student will perform academically. Those who show a tendency for low academic achievement can

be helped by planning academic interventions. Following, each factor has been discussed in the light of relevant literature.

Conscientiousness

The first sub scale Conscientiousness describes a student who is very hard working and diligent when it comes to academics. According to the Expectancy Theory, these students may have associated their conscientious behavior with academic achievement which could lead to another reward or be a reward in itself (Vroom, 1964). Alternatively these individuals may have developed feelings of inferiority during the industry vs. inferiority stage (Erikson, 1963). Adler (1939) has asserted that feelings of inferiority are the source of human striving. So, the motivation to excel academically may be a compensation for inferiority feelings.

This finding, that conscientiousness is the attribute underlying many of academically successful students' behavior supports the previous studies which sought to determine the relationship of personality traits with academic achievement. Two studies, both of which used the Big Five Personality Inventory, found that conscientiousness was the trait most strongly associated with academic success (Chamorro-Premuzic & Furnham, 2003; Conard, 2006). In addition Conard (2006) also found that the one behavior that most significantly predicted GPA was high attendance in classes. This particular finding was also supported by our results as some students explicitly mentioned their high attendance as one of the reasons for their academic success.

Independent Learner

The Independent Learner is the one who would prefer to study by himself/herself. Such students would be intrinsically motivated to study and they would be likely to be focused on their goals. They may also be ascetic; adhering strictly to their set of moral values. So, they would be less likely than others to cheat on exams. A number of these attributes are shared with Gardner's (2011) concept of intrapersonal intelligence. People with this kind of intelligence or self-smart individuals, have the ability to understand their own emotions and states at a much deeper level, as a result of self-reflection. They like to set goals for themselves and are internally motivated to meet them. They are likely to write about their personal experiences and feelings (Gardner, 2011).

Additionally Karen Horney's detached personality is somewhat consistent with the student who is the independent learner (Ewen, 2009). Individuals with the detached personality tend to be self-sufficient in order to avoid contact with others (Ewen, 2009). Independent learners therefore may excel academically as in their struggle to be self-sufficient, they use their faculties like intelligence and logic to the maximum.

Previous researchers have found that self-efficacy is a strong predictor of academic success among college students and the two constructs are positively correlated (Richardson, Bond & Abraham, 2012; Salanova, Martínez & Llorens, 2012; Zajacova, Lynch & Espenshade, 2005). The independent learners showed a strong belief in their abilities which is reflected in the items of this subscale which are “I have good comprehension skills as I am usually able to understand concepts/ instructions”, and “I have good writing skills”. Therefore the current findings are also congruent with the previous researches which looked at self-efficacy and academic achievement.

People Person

The next factor is dedicated to the student who is quite outgoing, likes to study in groups and is quite proactive generally. He also would be likely to take up the role of a leader if in a group. The people person may have the interpersonal intelligence, proposed by Gardner (2011), which helps them do well in academics. Interpersonal intelligence is the one which enables a person to be very well aware of other peoples' emotions, behavior or intentions. They are very easily able to relate to other people. The individuals who possess interpersonal intelligence have considerable insight into what others might be intending or wishing to do, and they have the potential to use this knowledge to their own advantage.

Previous researches have shown that hope is a significant predictor of academic performance; high levels of hope contribute to better academic performance (Rand, Martin & Shea, 2011; Snyder et al., 2002). Therefore the current results support the previous findings as it was indicated that students in the people person category are optimistic, it may be that they have higher levels of hope which in turn helps them achieve academically. In addition as Holden (1999) had recognized the traits of highly successful post docs, he had found that those who had good interpersonal skills were more likely to be successful at their jobs, were more likely to be hired and even had more job offers. This research also appears consistent with the current findings as students in the people person sub scale who have good interpersonal skills also achieve academic success.

Organizational Ability

The fourth sub-scale labeled as organizational ability concerns the student who is very concerned with being organized and has a very systematic approach. He/ she is likely to be very meticulous in managing his/ her affairs for example color coding literature, making lists, filling out organizers. According to Freud's theory of personality, if the superego is overdeveloped in an individual, it becomes relentless. The person may become a perfectionist and then he / she may even undermine genuine achievements. So students who have an overdeveloped superego may not get a sense of

achievement from whatever they have achieved as they would be more likely to focus on the minor errors that they had made (Ewen, 2009). As they strive to achieve perfection, they may appear overly organized and quite punctual. This may also be the reason that they excel academically as they want to have a perfect academic record.

Academic Skills

The academic skills sub scale entails the behaviors and attributes related to academics which may include those academic skills that although are not a mandatory requirement yet these are the supplementary skills practiced by academically successful individuals which may actually contribute towards their academic success. Some of these academic skills and habits are reading online about academic concepts as well as reading books outside of curriculum, taking the front seats in class, taking morning classes so that they can be productive in the evenings.

These students may score high on ‘the need for achievement’ as proposed by Henry Murray (Schultz & Schultz, 2005). The need for achievement was defined as the desire to excel, to overcome obstacles and to live up to a certain standard. It was found that individuals who range high on the need for achievement usually are found more in middle and upper socioeconomic classes. They were more likely to be resilient, attain higher education and be involved in extracurricular activities in college (Schultz & Schultz, 2005).

Another explanation may be given in the light of The Carrot and Stick Theory by Jeremy Bentham (Guidi, 2007), which proposes that there are two factors which guide human motivation which are incentives and fears. So the students who have been grouped together in the academic skills subscale may be motivated to perform all the additional work related to their academics because they may be expecting some reward in return like a scholarship, getting a good job in the future or praise from parents, relatives or teachers. While on the other hand they might as well be motivated due to fear which may be fear of reprimand from a family member, teacher or someone else, the fear of failure and so on.

General Discussion

All the factors which have been described explain how academically successful students differ. If viewed holistically, it may appear as Darwin had suggested in his Theory of Evolution that all these individuals are those who have successfully learnt to adapt themselves to their environment (Schultz & Schultz, 2008). So in a university these may be those students who have successfully adjusted themselves to the system of the university. Further as another biologist Pearse (1926) who added to Darwin’s work noted that additionally for success individuals need to be specialized so they should also have other skills, that set them apart and that would help them function. So,

individuals should be specialized yet versatile according to Pearse. Among the academically successful individuals the factors obtained classify them into different categories which may be seen as their specialization while some of the factors also show strong correlations with other factors, which may show that these individuals while specialized are also versatile.

The current study also sought to find the specific attributes of academically successful students in a collectivist culture. However, the attributes like conscientiousness, self-efficacy, optimism, being focused, punctual and confident that have been found as a result of the current study have similarly been linked with academic success in researches conducted in the West (Chamorro-Premuzic & Furnham, 2003; Conard, 2006; McKenzie and Schweitzer, 2001; Rand, Martin & Shea, 2011; Zajacova, Lynch and Espenshade, 2005).

Therefore in contrast to the assumption that attributes of academically successful individuals in the collectivist culture would be different from those in an individualist culture, in light of the current results it appears that the attributes associated with academic success that have been identified in the current study are similar to those that have been identified in the previous studies which were conducted in the individualistic cultures.

The current findings about culture may be viewed in light of the fact that the university, in which the current study has been conducted, follows the American- style curriculum. As most educationists who have been instrumental in the reestablishment of the institution were American, the overall system of the university may be more westernized than other institutions in Pakistan (Bangash, 2011). Moreover, Nauman (2015) found that Pakistani youth has moved to some extent from traditional thought to more modern ways of thinking.

It is also evident from the data collected that around 61% of the students in the sample had monthly family incomes above Rs. 80, 000 which was the highest income bracket in the current study. So it can be seen that the sample consisted mostly of students who came from financially well established and educated backgrounds. Hence these students may only be reflecting a part of the society of Pakistan who may have more exposure to the Western ways of life and may even have adapted somewhat to it. Thereby the results might have suggested that there is no significant difference between the academically successful students in the West and here in Pakistan.

Implications and Limitations

The development of the FASS which is an indigenous scale would allow different educational institutions to administer it to prospective university students and be able to evaluate and predict their academic abilities. Academic interventions can be

planned for students who show significantly low academic ability. The current study used convenient sampling, but it may be possible that due to the use of convenient sampling certain type of students may not have been included in the sample, however, convenient sampling helped ensure that students from various disciplines and different years of study were selected. Lastly as the data was collected using interviews, it may be possible that participants under influence of demand characteristics did not report certain factors or they may have inappropriately reported certain traits. Therefore it might be possible that the presence of the researcher could have biased responses of the participants.

Conclusion

Overall, a number of attributes that academically successful individuals have were identified in this study. With statistical analysis, these attributes were then classified into five broader categories that are conscientiousness, independent learner, organizational ability, people person and academic skills. The FASS has 42 items and it has shown satisfactory reliability and validity. The FASS may be used in universities where it can be administered to prospective university students. The scale may help predict future academic performance and therefore can help those at risk of failure reducing the risk of dropping out.

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