Source Traits of Adolescents' Personality as a Predictor of their Academic Achievement: A Cross-Sectional Study

Hakim Ali [*], Bashir Hussain[**] and Muhammad Nadeem Iqbal [***]

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Abstract

A bulk of research has been conducted to investigate the relationship of the personality traits of students with their academic achievement in international context. This area, however, has yet been rarely explored in the context of Pakistan. This cross-sectional survey study, therefore, investigated the degree to which selected primary source traits of the personality of students can serve as a predictor of their academic achievement at secondary school level in the context of Pakistan. Three hundred fifty seven (357) secondary school students (182 boys and 175 girls) attending class 10th participated in this study. A 43-item Likert 5-point trait scale, following the example of the items included in the ''Big Five Questionnaire – Children version (BFQ-C)'' by Barbaranelli et al., (2003), was developed for measuring the eight selected primary source traits, namely: independence, intelligence, sociable, easy going, generous, friendly, emotionally stable, and dominance. Academic achievement of the representative sample of the students was measured on the basis of their annual examination results of class 9th.Collected data were analyzed and interpreted by applying descriptive and the inferential statistics as well as factor analysis. Values of regression analysis revealed that, among the eight primary source traits, "Independence", "Intelligence" "Emotionally stable" and "Friendly" were the only factors that predicted students' academic achievement to some extent while the role of other four traits found to be minimal or negative in predicting academic achievement.

Keywords: Academic Achievement, Personality Traits, Primary Source Traits, Secondary Schools

[*] Assistant Professor, Department of Education, Govt. Willayat Hussain Islamia College, Multan.
Email: hakimalimphil@gmail.com
[**]Assistant Professor, Department of Education, Bahauddin Zakariya University, Multan.
Email: bashirhussain@bzu.edu.pk
[***] Assistant Professor, Institute of Social Sciences, Bahaddudin Zakaraiya University, Multan.

Introduction

Educational psychologists and researchers have always been concerned about understanding the major reasons of individual's academic performance. As a result, educators have been interested in knowing in advance about the potential performance of the students, enrolled in different academic programs. This sort of information not only helps them in differentiating between poor-performers and high-performers but also helps them in planning effective teaching and learning activities. Furthermore, it is also an admitted fact that the success of students in school performance plays a vital role in predicting future opportunities for them.

Academic success of the students is influenced by a number of factors and the knowledge of those factors has significant implications for the teaching and learning planning, processes, and activities. For instance, Chamorro-Premuzic and Furnham (2005) identified intelligence and personality as the two most fundamental factors that are significantly correlated with students' academic achievement. Earlier researchers also observed a direct relationship between personality and academic achievement (Diseth, 2003; Pintrich & Schunk, 2002). A number of studies further emphasized that both the cognitive and personality variables should be considered while determining the future academic achievement of the students (Chammorro-Premuzic & Furnham, 2005; Rindermann & Nevbauer, 2001).

In connection with the relationship of personality with academic achievement, it has a number of traits, which are vital to predict behaviour. A trait is a dimension or a basic element of personality, which can be measured and describes the consistent behaviour of an individual. Bandura (1997) described personality traits as inherently dynamic temperaments that interact with opportunities, experiences and challenges of the context. In this context, the traits could not be seen or directly observed but could be inferred from the behaviour which an individual shows in different situations of a life. Kundo and Tuton (1985) argued that a trait of a personality refers to a distinctive character of a person's thoughts, beliefs, feelings, and actions as marks him or her off from other persons. Theorists often differentiate between the traits which are readily observable and those which are relatively 'deeper' and nearer to the core personality. Cattel (1950) described the readily observable traits as 'surface traits' and deeper ones as 'source traits'.

The primary source traits are the basic structures and are generally regarded as constituting the core of personality (Cattel, 1950). Source traits refer to the underlying sources that are essentially responsible for inter-correlation of traits. Revelle (2009) stated that surface traits refer to clusters of observed correlations whereas source traits thought to be the causes of observed correlations. Cattel (1950) found that the source traits are generally small in number than their surface counterparts but they are better indicators of behaviour.

Although a huge number of studies have been conducted to determine a direct relationship between academic achievement of school students and their personality traits but the results are not as straightforward as they are for the relationship between intelligence of students and their academic achievement. For example, Farsides and Woodfield (2003) used the Five-Factor Model of the personality for organizing the previous research studies and concluded that the results regarding the role of the big-five personality traits in predicting students' academic performance are mixed. They suggested a number of causes for such kind of difference in the results including: the age specificity of the relationship; small sample sizes; varying time lapses between the collection of predictor and criterion data; and the use of different tools and criteria for measuring personality and academic success of the students.

Ainsworth (1967) conducted a study to determine the relationship between the personality traits and academic performance and found that the conscientiousness, self-sufficiency along with intelligence were the most prominent determinants of academic success of school students. Butcher (1968) undertook a study to predict academic attainment and creativity. For this purpose, he used ability, personality and motivation measures and concluded that the primary source traits, such as the conscientiousness, submissiveness, friendship and dependability, were positively correlated with school achievement.

Later, Eysenck and Eysenck (1969) found that a positive relationship exists between personality traits of extraversion and the academic achievements. Likewise, Astington (1996) conducted a study on students of grade 9 to examine the relationship between their personality traits and achievement. He found that high achiever male students got higher scores on personality traits of persistence, independence and interest and considered them-selves comparatively less extraverted and less sociable than their low achiever fellows. However, Mishra (1997) found that none of the personality factors, except self-sufficiency, was significantly correlated to the academic success.

Similarly, Simon and Eachus (2000) observed that high achievers were better in self-control as compared to low achiever students. Likewise, other researchers also reported the results that academic achievement is positively correlated with the factors of personality (Rau & Durand, 2000; Rindermann & Neubauer, 2001). For example, Mahmood (2003) conducted a study to investigate the relationship between selected traits of students' personality and their achievement at the graduation level. This study observed a relationship between all the eight selected personality traits of the students (i.e., ascendancy, responsibility, emotional stability, sociability, cautiousness, original thinking, personal relations and vigour) and their academic achievement.

Furnham (2003) conducted two longitudinal studiesto investigate the extent to which personality traits predict academic performance of the students and concluded that trait of neuroticism was negatively correlated with the academic performance of the students while personality trait of conscientiousness contributed positively to higher academic performance. Some other researchers found in their research studies that certain personality factors are prominent predictors of the school success (Barrick & Mount, 2005; Bratko, Premuzic & Zaks, 2006).

Laidra, Pullman and Allik, (2006) observed in their study that intelligence was the best indicator of students' academic success in schools at all the levels from grade 2 to grade 12. They further found that three personality traits, namely, "openness", "agreeableness" and "conscientiousness" were positively correlated with the GPA of the student, while "neuroticism" was found to be negatively correlated with the GPA of the students at almost all class levels.

Yahaya, Ramli, Boon, Ghaffar, and Zakariya (2009) also reported that there is no significant relationship between the whole personality traits of the students and their academic achievement. Al-Qaisy and Khuffash (2012) conducted a study to differentiate between the personality traits of high and low achiever male and female students. They observed that high achievers were found to be more intelligent and bright than their counterpart low achievers. The results also found that "high achieving females" showed the highest scholastic capacity than the "high achieving males", "low achieving males" and the "low achieving females". The study also found that the trait of emotional stability was found to be of higher degree in high performers as compared to their low performing class fellows. However, there was no difference between high achievers and low achievers in excitability.

Rationale and Purpose of the Study

The above cited literature indicates that prior research studies have observed significant effect of personality traits on students' achievement in schools. However, most of these studies have focused only on super or broad traits of personality (e.g., neuroticism and extraversion) rather than on primary source traits (e.g., sociability, dominance, dutifulness, etc.). In this background, an investigation into the primary source traits would provide significant information about the specific non-cognitive variables that may affect an individual's school success, especially in the context that people with identical super factor scores may have very different primary trait factor scores.

The literature reveals that a number of other researchers and scholars have also reported the significance of understanding the relationship of personality factors with academic performance of students (Craven & Marsh, 1996; Marsh & O'Mara, 2008; Prixten, De Fraine, Van Damme & D'Haenens, 2010; Rau & Durand, 2000; Urhahne, Chao, Florineth, Luttenberger, & Paechter, 2011).However, very little or no research has been conducted on the relationship between personality traits of students and their academic achievement in the context of Pakistan (Mahmood, 2003).

The review of literature particularly reveals that rarely such a study has been reported in the context of Pakistan on the relationship between primary source traits of students and their academic achievement. This gap in research-based literature has motivated the researchers to investigate the association between primary source traits of personality and academic achievement of secondary school students. It will also help to determine the possible influences of personality factors on academic attainment and will contribute to the literature in the area for better understanding of the influences on academic achievement. In view of the above, academic performance may not be simply a reflection of the innate capabilities of the students but their self-concept of ability in general and primary personality traits in particular.

Considering the above cited background and situation, this research study has attempted to explore whether and to what extent the primary source traits might affect and are related to the secondary school students' academic achievement in the context of Pakistan. Furthermore, this study has determined those primary source traits which might be considered the most significant predictors and indicators of the adolescents' (i.e., secondary school students) academic success.

Research Questions

The main objective of the present study was to document how source traits of adolescents' personality can serve as the predictor of their academic attainment in Pakistani secondary schools. The following research questions guided the researchers to achieve the research objective.

1. To what extent do the secondary school students possess selected primary source personality traits as perceived by them at trait scale?
2. To what extent are the mean scores of the sub-groups of students included in the sample different on the basis of area or location, gender, and public-private sectors?
3. Do the primary source personality traits of secondary school students serve as predictors of their academic achievement?

It was hypothesized that primary source traits of personality of the students would correlate significantly and positively with their academic success. It was further hypothesized that variables such as students' scores, gender, location and the type of the school mediated significantly and positively with primary source traits of the personality and academic achievement.

Research Methodology

The traditional quantitative survey methodology was used to achieve the objective of the study. The cross-sectional survey research design was employed as a means of exploring and evaluating relationship between primary source traits and academic achievement of students in different types of schools, and situated in different locations. The research design involved data collection from a larger sample at one particular point in time than it would be generally possible with experimental or quasi-experimental research designs (Creswell, 2012; Fraenkel, Wallen, & Hyun, 2012). The research was cross-sectional in the context that the target population of the students was diverse in gender, academic performance, school location, and in the types of schools. Keeping in view the diversity of the population of interest on the basis of gender, area and sector, proportionate stratified sampling technique was used for selecting a representative sample. It was ensured that sample is selected on the basis of these three dimensions. As a result, the final sample of 357 students included 202 urban (i.e., 56.6%) and 155 rural (i.e., 43.4%) students; 182 male (i.e., 50.98%) and 175 female students (i.e., 49.02%); and finally 256 students were from public sector schools (i.e., 71.7%) and 101 students from private sector schools (i.e., 28.3%).

A 43-item Likert5-point trait scale was developed on the basis of the literature review and following the example of the items included in the Big Five Questionnaire – Children version (BFQ-C) by Barbaranelli, Caprara, Rabasca, and Pastorelli (2003). The original 65-item BFQ-C measures the Big Five via self-report in students having 8 years of age or more (Laidra 2006). While adapting the selected items of the BFQ-C, the particular attention was given that trait scale is appropriate for secondary school students in cultural context of Pakistan. The scale includes 6 items for assessment of the primary source trait of Independence (e.g., "I believe in high level of self-esteem"), 6 items for source trait of Intelligence (e.g., "I pick the missing links of things well before time"), 6 items for Sociable (e.g., "I enjoy friends' company"), 5 items for trait of Easy-going (e.g., "I prefer smooth-sailing to achieve my goals"), 5 items for Friendly (e.g., "I favour others without reservation"), 5 items for Generous (e.g., "I can go to any extreme for the welfare of my friends"), 5 items for Emotionally stable (e.g., "I keep myself cool and patient in odd situations"), and 5 items for Dominance (e.g., "I want to get my wishes fulfilled at all costs").The scale was translated into national language Urdu for better understanding of non-English speaking Pakistani students and got validated by seeking expert opinion from two senior professors of educational psychology. The research tool was redesigned and improved in the light of the suggestions given by the experts. The students were asked to provide their self-report on a Likert5-point scale, ranging from strongly agree to strongly disagree. To measure the academic achievement of the students, the annual examination results of 9thclass were used as a basis.

Regarding primary source traits of personality, there are three limitations that must be kept in mind while interpretations of the findings of this research study. First, sample size and area of the study was not adequate enough to generalize the results of the study over the entire population of the secondary school students in Pakistan. Second, partly use of students' self-report of their academic scores and finally cross-sectional nature of collected data were also two obvious limitations. Irrespective of the mentioned limitations, the findings of this study might be beneficial for policy intervention and has the ability to contribute to the existing literature regarding determination of the important role of the selected primary source personality traits of students in predicting their academic attainment at secondary school level.

Data Analysis and Results

For the analysis of the data, both descriptive and the inferential statistics were used. To determine the significance of difference between the mean scores of the sub-groups on the basis of area or location, gender, and public-private sectors, independent sample t-test was applied. Factor analysis was employed to identify the most influential traits possessed by students. Finally, Kendall's tau_b Correlation Methodand regression analysis was used to examine the predictions about the academic achievement of students on the basis of their primary source traits.

Trait-wise Analysis of the whole Scale

As mentioned earlier, the statements of the trait scale were divided into eight (08) factors on the basis of the different nature of primary source personality traits. The mean scores and standard deviation of each of these traits were calculated and are presented in the following table1.

Table 1
Trait-wise Description of the whole Scale

Trait No.	Nature of Trait	Integrated Mean	Mean	Standard Deviation
1	Independence	19.9	3.31	2.95
2	Intelligence	19.7	3.28	2.73
3	Sociable	19.1	3.18	2.61
4	Easy – going	15.6	3.12	3.18
5	Friendly	18.5	3.70	2.61
6	Generous	19.6	3.24	3.26
7	Emotionally stable	18.1	3.62	2.29
8	Dominance	16.9	3.38	4.08
Total	Primary Traits	343.6	3.47	65.58

The mean scores in Table 1 shows that respondents believe that they possess all of the eight primary source traits in a moderate way. Respondents further believe that the trait of 'independence' is possessed by most of the students while the trait of 'easy-going' is possessed by the least number of respondents. Likewise, the traits of 'friendly' and 'emotionally stable' are possessed by a good number of respondents with good level of consensus as the values of standard deviations for these factors are comparatively low than the other factors.

Tests of Significance

To find out the significance of difference between mean scores of respondents on the basis of area/location, gender, and public-private sectors for determining the extent of possession of primary source traits, the "t" statistics was used and the results were recorded and interpreted in the following manner.

Table 2
Gender-wise t-test for Difference on Trait Scale Scores

Group	N	Mean	S.D.	df	t-value	p-value
Girls	175	148. 58	10.54	355	0.12	.903
Boys	182	148. 43	12.40			

First, the Table 2 presents the results of an independent sample t-test, applied to compare trait scale scores for girls and boys. The results show that statistically there was not a significant difference in scores for girls (M= 148.58, SD=10.54) and boys (Mean= 148.43, SD= 12.40): t=0.12, p=.903 (two-tailed). Although, the mean score of the girls is slightly higher than that of boys, it was inferred that the difference between boys and girls participants was not a statistically significant regarding they possess primary source traits in their personalities. It shows that possession of primary source personality traits for both groups on the basis of gender was found to be almost equal and the observed difference might be due to some sampling error.

Table 3
Sector-wise t-test for Difference on Trait Scale Scores

Group	N	Mean	S.D.	Df	t-value	p-value
Public	256	149.26	11.25	355	1.99	.048
Private	101	146.58	11.98			

As presented in Table 3, an independent sample t-test was applied to compare primary source trait scale scores for public and private school students. Statistically, there was a significant difference in scores for students of public schools (M= 149.26, SD=11.25) and private ones (Mean= 146.58, SD= 11.98): t=1.99, p=.048 (two-tailed). The mean score of public school students is better than that of private school students' group. It was inferred that the students from public schools relatively possess higher degree of primary source traits than the students from private schools. It also shows that the difference of the possession of primary source traits between students from public and private schools is statistically significant and thus a real one.

Table 4

Area-wise t-test for Difference on Trait Scale Scores

Group	N	Mean	S.D.	Df	t-value	p-value
Rural	155	149.37	11.66	355	0.87	0.38
Urban	202	148.32	10.97			

Table 4 shows the results of an independent sample t-test, applied to compare the trait scale scores for students from rural and urban secondary school background. Statistically, there was not a significant difference in scores for students from the rural (M= 149.37, SD=11.66) and urban background (Mean= 148.32, SD=10.97): t=0.87, p=0.38 (two-tailed). Although, the mean score of rural students is slightly higher than that of urban students, it was inferred that difference was not statistically significant regarding the possession of primary source traits in students from the rural and urban background. The results show that the degree of the possession of primary source personality traits of students from both rural and urban background was found to be almost equal and the observed difference was thus not statistically significant and, the results of sampling error.

Factor Analysis

Factor analysis (Principal Components Analysis (PCA) using Varimax Rotation Method) was applied to gain useful insights from the responses of participants regarding the match or mismatch of the supposed allocation of items to the supposed source traits and to identify the most influential traits possessed by students at secondary school level. Both the tests i.e., Bartlett's test of sphere city and the Kaiser-Meyer-Olkin are used for measuring the sampling adequacy to determine the factorability of the matrix as a whole. The values of Bartlett's test of sphere city found to be significant (p=0.000) and the Kaiser-Meyer-Olkin measure 0.698 was greater than 0.6. Based on these initial findings, it was considered appropriate to proceed with Factor Analysis to examine primary source traits that are possessed by a good number of students and affect their academic achievement. Table 5 depicts the total variance explained for three extracted factors.

Table 5

Total Variance Explained

Factor	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	1.971	24.636	24.636
2	1.455	18.182	42.818
3	1.036	12.955	55.773

Table 5 reveals that the percentage of variance explained for three extracted primary source personality traits was 24.636, 18.182, and 12.955 respectively at three stages for traits that are possessed by majority of secondary school students. These three traits/factors were extracted on the basis of their eigenvalues which was found to be above 1. When three factors/traits were extracted, then 55.773 percent of the variance would be explained.

Furthermore, Varimax Rotation Method with Kaiser Normalization was performed and factor loadings above 0.45 were selected because loadings equal to 0.45 are considered average (Tabachnick & Fidell, 2001). It was found that six items loaded on factor 1 and the factor loadings ranged from 0.46 to 0.77. The items in this factor were 39, 38, 37, 19, 18, and 8. Factor 2 consisted of four items and the factor loadings ranged from 0.47 to 0.70. The items in this factor were 30, 27, 11, and 29. Similarly, three items loaded on factor 3 and the factor loadings ranged from 0.45 to 0.69. The items in this factor were 9, 36, and 7. Finally, three factors/primary source personality traits were successfully identified employing Principal Component Analysis (PCA) and assigned as the traits possessed by majority of the secondary school students. Table 6 presents the names of the traits and percentages of variance explained.

Table 6

Name of Extracted Factors with the Percentages of Variance Explained

Factor	Name	% of Variance
1	T1 Independence	24.636
2	T2 Intelligence	18.182
3	T7 Emotionally stable	12.955

Table 6 reveals that the first factor i.e., trait of independence shows the highest percentage of variance explained (24.636) followed by trait of intelligence (18.182) and trait of emotional stability (12.955) when these was extracted. It was inferred that these three primary source traits were possessed by a good number of secondary school students.

Inter-correlation between each Trait and Academic Achievement

To determine the inter-correlations between all the eight primary source traits, and academic achievement of students, the values of correlation coefficient were calculated and presented in Table 7:

Table 7

Inter-correlation of Primary Personality Traits and Academic Achievement (N= 357)

	Variable	T1	T2	T3	T4	T5	T6	T7	T8	Score
	T1	1.000								
	T2	.122**	1.000							
	T3	.112**	.144**	1.000						
Kendall's tau_b	T4	.079*	.168**	.082*	1.000					
	T5	.064	.069	.071	-.095*	1.000				
	T6	-.003	.004	.072	-.071	.245**	1.000			
	T7	.007	.089*	.023	-.001	.067	.009	1.000		
	T8	.144**	.360**	.205**	.251**	-.041	-.060	-.059	1.000	
	Score	.035	.039	-.038	-.012	.015	-.061	.021	-.046	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Note: T= Trait, T1= Independence, T2= Intelligence, T3= Sociable, T4=Easy-going, T5=Friendly, T6= Generous, T7= emotionally stable, T8=Dominance

The table 7 shows inter-correlation between all the primary source traits and that of academic scores which were computed through use of Kendall's tau_bCorrelation Method. The values of "r" in all the twenty eight (28) cases regarding trait scale were between –.001 and +.360, which indicates relatively a low degree of relationship between the eight primary source traits. To be more specific, it was observed that the values of the 'r' for four pairs of traits, namely: (T2 & T8), (T3 & T8), (T4 & T8) and (T5 + T6), were relatively higher (between .205and .360). This shows that the primary source trait of 'being dominance' is related to the primary source traits of 'intelligence', 'sociable', and 'easy-going' to a reasonable degree. The values of the 'r' for five pairs of traits, namely:(T1 & T2), (T1 & T3),(T1 & T8), (T2 & T3), (T2 & T4), was comparatively lower (between .112 & .168) than the earlier ones. However, the values of 'r', for remaining seventeen pairs, were either very low positive (i.e. in 12 cases) or negative (i.e., in 07 cases). Overall, the positive values of 'r' on twenty one (21) pairs (75%) showed that there was inter-consistency between most of the traits which determined the validity of the instrument to some extent. Further analysis showed that weakly positive correlations (though not significant) were observed between students' academic achievement scores and trait of Independence (r =.035), Intelligence (r = .039), Friendly (r=.015) and emotionally stable (r=.021). However, remaining four traits showed negative correlation with academic achievement.

In order to determine and further confirm the independent contribution of each predictor, regression analyses were also performed including academic achievement as the dependent variable and eight primary source traits as independent variables. Regression analysis depicted that only the traits of independence, intelligence, friendly and emotionally stable factors of personality showed somewhat positive (but not significant) relationship with academic achievement of students.

Table 8

Standard Multiple Regression Analysis of Primary personality Traits as Predictor of Academic Achievement

Model	Unstandardised Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Achievement)	384.204	53.025		7.246	.000
T1 Independence	.882	1.253	.040	.703	.482
T2 Intelligence	1.372	1.460	.057	.940	.348
T3 Sociable	-.309	1.460	-.012	-.212	.833
T4 Easy-going	-.038	1.221	-.002	-.031	.975
T5 Friendly	.271	1.456	.011	.186	.853
T6 Generous	-1.985	1.151	-.099	-1.725	.085
T7 Emotionally stable	1.034	1.574	.036	.657	.512
T8 Dominant	-1.425	1.056	-.089	-1.349	.178

Analysis of Table 8revealed that personality explained only 1.7% of variance in secondary school students' academic attainment [R^2 = .017, F (5,155) = 2.044, ρ = .091]. As far as individual contribution of different primary source personality traits of the students to their academic performance at secondary schools level is concerned, only four traits, namely: T1 or independence(β = .040, ρ >.05); T2 or intelligence(β = .057, ρ >.05); T5 or being friendly (β = .011, ρ >.05); and T7 or emotionally stable (β = .036, ρ >.05), positively (but not statistically significantly) predicted secondary school students' academic attainment. However, the remaining four traits, namely: T3 or being sociable (β= -.012, ρ >.05); T4 or easy-going (β= -.002, ρ >.05); T6 or being generous (β= -.099, ρ >.05); and T8 or the dominance (β= -.089, ρ >.05), contributed negatively to academic achievement of secondary school students. Overall analysis of the results presented in Table 7 and Table 8 further indicates that the hypothesis stated as: "primary source traits of personality will significantly correlate with and predict students' academic achievement at secondary school level" is partially supported. In summary, the impact of primary source personality traits as perceived by the students as a predictor of their academic achievement is partially supported.

Discussion

This study investigated the potential differences in the relationship between the primary source personality traits of secondary school students and their academic attainment in Pakistani context. Due to geographical differences and the diversity of research strategies applied in prior studies, the findings of those researches are not directly comparable to the results of this study. In this context, the researchers intended to validate some of the earlier findings by employing essentially the same research techniques at secondary education level. This research study is more likely to be the first study in its nature in Pakistani context that investigated the relationship of primary source personality traits of secondary schools with their academic attainment.

The results of this research study showed that four out of the eight primary source personality traits, namely: independence; intelligence; friendly and being emotionally stable, were found to be positive (but not statistically significant) predictors of academic achievement of secondary school students. These results signify the fact that the students who have the ability and are more intended to organize and plan their activities independently and intelligently but being helpful to their peers perform better. Results of the current study further indicate that the students who are stable emotionally and experience less amounts of stress and anxiety are more likely to do well in their academic tasks.

However, contrary to previous researches (Diseth, 2003; Pintrich & Schunk, 2002) that found significant influences of personality on academic achievement of the students, the current study did not showed any such significant relationships between the two. This fact thus suggests that there is a need to look at the personality measures in Pakistani geographical, socio-economic, and in cultural perspective. Nonetheless, in consistency with research works of several prior researchers (Farsides & Woodfield, 2003; Rindermann & Neubauer, 2001), primary source personality trait of intelligence was found to be a positive predictor of academic achievement. But the contribution of personality factor was not even more than approximately 1.7% of the total variance in school success. According to expectations, the traits of intelligence, independent and emotionally stable were clearly found to be the best predictors of academic attainment as compared to other traits under analysis. The magnitude of the correlation between academic scores and intelligence was generally around 0.05, and in accordance with previous research findings (Jensen, 1980).

In a number of previous studies on the relationship between personality of the students and their academic achievement (Chamorro-Premuzic & Furnham, 2008; Conrad & Patry, 2012; De Raad & Schouwenburg, 1996; Noftle & Robbins, 2007), the trait of conscientiousness has been found an important factor for prediction. This factor describes that being organized, independent, motivated and stable individual is one of the most prominent predictors of success in school contexts. Concordantly, in this study, primary source traits of independence and emotional stability were found to be correlated positively with academic achievement scores at secondary school level. Furthermore, the prominent role of the traits of emotional stability and intelligence in prediction of school attainment is likely to be based in the common sense notion that any kind of success is a result of ability and effort (Gagne´ & St Pe´re, 2001). Primary source traits of sociable and generous, however, correlated almost negatively in all the categories with academic scores of the secondary school students. This result is likely to be in agreement with the findings of Barbaranelli et al. (2003) and Maqsud (1993), who found that the detrimental effects of preferring social activities becomes more pronounced among adolescents.

Conclusion

The study concludes that there do not appear to be dramatic differences as compared to previous findings in the way source traits of personality predict and relate to academic scores students get in Pakistani schools at secondary school level. Although some of the primary source personality traits have comparatively more effect on secondary school students' academic success and others showed negative or generally close to zero association with academic scores, adolescents' academic achievement seems to be relied most strongly on their cognitive ability and effort. Overall, trait-wise analysis of the data shows that the students possess all the selected eight primary source traits, but to somewhat varying degrees i.e., the trait of 'generous' is possessed by most of the students while the trait of 'easy-going' is possessed by the least number of respondents. With reference to the analysis of the data on the basis of students from public and private schools, it was found that, students from public schools relatively possess higher degree of primary source traits compared to the students from private schools, and this difference is significant. Three factors were successfully identified by employing Principal Component Analysis (PCA) and assigned as the traits possessed by majority of the secondary school students.

Furthermore, Matrix correlation showed that there was inter-consistency between most of the primary source traits which determined the validity of the instrument to some extent. It could be further concluded from matrix correlation that most of these primary source traits are integrated and schools need to focus all of these primary source traits for making decisions regarding students' achievement. Through matrix correlation and multiple regression analysis, it was concluded that primary source traits of "independence", "intelligence", "friendly" and "being emotionally stable" are somewhat positively correlated with academic achievement of secondary school students and, thus, it can be inferred that these four primary source traits of personality can potentially serve as a good predictors of students' academic achievement at secondary level. However, the primary source traits of "easy-going", "sociable", "generous" and the "dominance" were found to be negatively correlated with academic achievement. The research opens possibilities of promoting those primary source personality traits in students that are related with higher academic achievement for the purpose of improving their performance. In addition, teachers, counselors and educational psychologists can make efforts to identify and screen out those students who are experiencing academic problems with reference to primary source traits. The study recommends for future researchers to investigate personality traits in connection with other psychological constructs such as attitude, interests, classroom participation, etc.

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