Abstract
The present study aimed at analyzing whether the engineering students with high and low achievement motivation differed from each other in personality or not? Total sample of 559 (305 boys and 254 girls) engineering students was taken from different engineering colleges of Punjab. This study focused at investigating how big five factors of personality i.e. Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness differentiated between students having high or low achievement motivation. t-test was applied to find out which of these factors differentiate significantly on achievement motivation among the sample under study. The results of the study revealed that Conscientiousness and Extraversion differentiated both boys and girls having high achievement motivation from their counterparts having low achievement motivation. Thus, the results revealed that personality factors play a significant role in differentiating engineering students having high and low achievement motivation.

Key Words: Achievement Motivation, Neuroticism, Extraversion, Openness to Experience, Agreeableness, Conscientiousness

Introduction
Achievement in a person’s life can be meaningfully viewed, as a process over time, in which, a whole series of inter-related activities and their consequences combine to produce a judgment, either by a person or by others, concerning accomplishments in life. The factors that result in achievement are many and varied, but it is widely assumed that one of the primary elements in all fields of achievement is motivation. In times of ever-changing demands of vocation and everyday life, a high motivation to learn is a fundamental requirement. Over the past two decades, there has been an increasing emphasis on the importance of the role of personality variables in academic performance.

Review of Related Literature
Siegel and Shaugnessy (1992) concluded that whenever, able students underachieve, it may be because they are deficient in the personality. Personality variables, in general, according to Abouserie (1995), have a substantial influence on students’ approaches to study and levels of information processing. Moreover, they may be important factors in differentiating between good and poor students (Purdie and Hattie, 1995).

Various researchers have emphasized that personality measures, on their own are powerful enough to explain a moderate percentage of the variance, in academic performance (Cacioppo et al., 1996; Rindermann and Neubauer, 2001). Improving the prediction of academic performance with standardized, non-cognitive measures, such as, personality is
desirable because such measures can complement commonly used predictors, without sharing their limitations such as a lack of comparability, adverse impact for gender and race and variability in how information is used (Oswald et al. 2004).

There is now-a-days a more or less unique consensus about the description of personality based on five universal traits (Costa and McCrae, 1995). These five personality factors are usually named extraversion, agreeableness, conscientiousness, neuroticism and openness to experience. According to De Raad and Schouwenburg (1996), the big five factors are educationally relevant.

Extraversion refers to the degree to which people are tended towards sociability, experience positive emotions and high activity. Conversely, introverts can be broadly sketched as, quiet and reserved, more socially aloof, and less interpersonally effective. With regard to the relationship between extraversion/ introversion and achievement motivation in academic settings, De Raad and Schouwenburg (1996) suggested that extraversion predicted higher grades in middle school but lower grades at the college level. Further, research findings of De Fruyt and Mervielde (1996) also revealed positive correlations between extraversion and academic success. Whereas, Rothstein et al. (1994) found mixed evidence about the relationship between extraversion and academic success at the graduate level, with some criterion variables, suggesting a positive relationship and others suggesting no such relationship. On the other hand, some researchers did not find any significant correlations between extraversion and any of a wide range of measures of academic success (Halamandaris and Power, 1999; Heaven et al. 2002). Rather, O’Connor and Paunonen (2007) also found that extraversion was sometimes negatively related to the academic achievement.

Further, conscientiousness, another dimension of personality, has to do with the will to achieve, self-control, persistence, and dependability. Conscientious people are neat, punctual, well-organized, self-disciplined, careful, hard-working and persevering. While studying the relation between personality and achievement motivation, it was found that achievement was best explained by conscientiousness (Komarraju and Karau, 2005). Further, Conard (2006) reported that conscientiousness incrementally predicted each criterion over SAT. Also, O’Connor and Paunonen (2007) showed conscientiousness, in particular, to be the most strongly and consistently associated with academic success. Cheng and Ickes (2009) found that conscientiousness and self-motivation mutually compensated for each other in predicting university-level academic performance. Contrary to abovementioned research findings, Robert and Cheung (2010) examined the relationship between conscientiousness and job performance in groups engaged in a creative task. The results of the study highlighted a significant negative relationship between group conscientiousness and group performance.

Agreeableness is associated with a disposition toward nurturance, altruism, trust and friendly compliance. While researching relationship between personality variables and academic performance of children, Heaven et al. (2002) reported that academic performance was positively related to agreeableness. Further Laidra et al. (2007) found that agreeableness correlated positively with GPA in almost every grade. On the other hand, De Fruyt and Mervielde (1996) found that agreeableness had neither been associated positively with final grades nor with the performance, during the first examination period of the final year among undergraduates.

Openness to experience is associated with receptivity to new ideas, a preference for varied sensations, and intellectuality. While studying relationship between personality and academic success, Barbaranelli et al. (2003) reported positive correlations between GPA and openness to experience in elementary school and junior high school children. Noftle and Robins (2007) highlighted that openness to experience was the strongest predictor of SAT verbal scores. O’Connor and Paunonen (2007) found that openness to experience was
sometimes positively associated with scholastic achievement. However, Wolfe and Johnson (1995) could not find systematic relation between openness to experience and academic success.

Neuroticism refers to the degree to which people experience negative emotions, psychological distress, mood swings and dissatisfaction in many aspects of their life. While studying relationship between achievement motivation and neuroticism in academic settings, Kuhl (2000) opined that neuroticism had a detrimental effect on motivational processing during skill learning and performance. Heaven et al. (2002) found a negative correlation between neuroticism and achievement among school children. Laidra et al. (2007) also found in their study that neuroticism correlated negatively with GPA in almost every grade. However, De Fruyt and Mervielde (1996) found mixed evidence about the relationship between neuroticism and undergraduate academic success. Rather, Farsides and Woodfield (2003) concluded that neuroticism is positively related to academic achievement in middle school but negatively at college age.

In nutshell, several research studies have highlighted that the personality factors play crucial role with regard to achievement motivation in academic settings.

Present Work

In the present scenario, the students perceive education as a medium for getting better employment opportunities that is why; there is an increase in the demand for professional courses such as engineering courses. The admission in these engineering courses is generally held on the basis of entrance tests, which primarily focus on assessing subject knowledge, abilities and aptitude of the students aspiring to be engineers. But the researchers in the field of educational psychology have suggested the inclusion of well-established personality measures in academic selection procedures and have emphasized that personality measures are promising predictors of academic outcomes and personality factors could account for variance in academic performance beyond that accounted for by measures of cognitive ability. Hence, it is quite significant to study whether personality factors differentiate engineering students on high and low achievement motivation.

Objective

To study whether personality factors differentiate significantly between students having high and low achievement motivation?

Research Methodology

Sample

In the present study, the sample consisted of 559 engineering students (305 boys and 254 girls) of age ranging between 17-23 years. The sample was taken from various engineering colleges of Punjab. Care was taken that the colleges so chosen were more or less homogenous with regard to socio-economic, cultural background and academic milieu. The sampling technique was incidental in nature.

Psychological Measures

Following tests were used in the present study to collect the required information from the subjects:

i) Deo-Mohan Achievement Motivation (n-Ach) Scale – (Deo and Mohan, 1985)
This is a self-rating type scale which is used to measure achievement motivation. The scale consists of 50 items, 13 are negative and 37 are positive items. The items of the scale are based on three factors i.e. academic factors, factors of general interest and factors of social interest. The scale is a reliable and valid one. The authors reported reliability coefficient 0.69 (p<.01) for mixed group, 0.67 (p<.01) for males and 0.78 (p<.01) for females’ sample and of validity, the coefficient was 0.75 (p<.01).

ii) Neo Five Factor Inventory (Neo-FFI) – (Costa and McCrae, 2003)

The NEO Five-Factor Inventory (NEO-FFI) is a shortened version of the NEO PI-R, designed to give quick, reliable and valid measures of the five domains of personality. The NEO-FFI is widely used to understand one’s basic emotional, interpersonal, experiential, attitudinal, and motivational styles. The Neo FFI consists of five 12-item scales that measure each domain i.e. Neuroticism, Extraversion, Openness to experience, Agreeableness and conscientiousness. The NEO-FFI scales show correlations of .75 to .89 with the NEO-PI validimax factors. Internal consistency values range from .74 to .89. i.e.: N = .79, E = .79, O = .80, A = 0.75, C = 0.83. Costa and McCrae reported the convergent and discriminate validity of the NEO –FFI.

Results and Discussion

The present work aimed at studying whether personality factors differentiate engineering students with high achievement motivation from their counterparts having low achievement motivation.

To compare the boys having high achievement motivation with boys having low achievement motivation, on personality factors, t-test was applied. It was done to find out the significance of difference between means of scores obtained by these two groups on the variables under study. Means and standard deviations of different scores on the psychological measure used in the study were calculated for boys. Then t-ratios were calculated. Similar procedure was adopted for comparing girls having high and low achievement motivation on personality factors. Results obtained of both male and female engineering students have been reported in Table 2 and Table 3 respectively.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low Achievement Motivation</th>
<th>High Achievement Motivation</th>
<th>t-ratios</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
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<tr>
<td>Neuroticism</td>
<td>25.15</td>
<td>5.49</td>
<td>24.4</td>
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<td>Conscientiousness</td>
<td>25.33</td>
<td>5.31</td>
<td>32.1</td>
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<td>Extraversion</td>
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<td>5.52</td>
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<td>25.46</td>
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<tr>
<td>Agreeableness</td>
<td>24.55</td>
<td>4.51</td>
<td>24.95</td>
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** Values Significant at 0.01 level

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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Neuroticism</td>
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<tr>
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<tr>
<td>Openness to Experience</td>
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<tr>
<td>Agreeableness</td>
<td>26.48</td>
<td>4.11</td>
<td>25.50</td>
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</table>

** Values Significant at 0.01 level
Perusal of Table I suggests that boys with high and low achievement motivation differ significantly on two personality factors i.e. Conscientiousness (CO = 9.287, p < 0.01) and Extraversion (EX = 3.394, p < 0.01). Further, t-ratio analysis shown in Table 3 highlights that the girls possessing high achievement motivation and those with low achievement motivation also differ significantly on two personality factors i.e. Conscientiousness (CO = 7.137, p < 0.01) and Extraversion (EX = 3.422, p < 0.01). Thus, two factors of personality i.e. Conscientiousness and Extraversion significantly differentiate between engineering students having high and low achievement motivation.

These results highlight that the engineering students having high achievement motivation differed significantly from students having low achievement motivation on conscientiousness. Conscientiousness describes task and goal directed behaviour and socially required impulse control. So, it deals with will to achieve, self-control, persistence, and dependability. Thus, the engineering students, who scored high on conscientiousness, approached their academic tasks in more planned and deliberate manner. They were well-organized, punctual, self-discipline, careful, reliable, persevering and hard working. All these factors facilitated them to perform well in academics. Thus, highly conscientious students possessed higher need for achievement, in comparison to those, who scored low on this dimension. Other researchers have also reported that conscientiousness was associated with academic achievement (Barbaranelli et al. 2003, Cheng and Ickes, 2009).

Further, Extraversion refers to the degree to which people are tended towards sociability, experience positive emotions and high activity. Table 1 and Table 2 highlight that both boys and girls with high achievement motivation and those having low achievement motivation differed significantly on their score on extraversion. As the students who were extroverts, along with being active, assertive and optimistic, they were ambitious, hard working, and achievement-oriented too. Besides, Extrovert students interact more in the classroom with their peers as well as with their teachers. They enjoy participating in meeting, group discussions etc. As engineering education involves large number of activities, such as, group discussions, seminars, team based projects etc. that is why results of the present study are in the favour of extroverts. Such kinds of interactions with others, helped these students, in getting more ideas from others, as well as getting their problems, related to academics, easily sorted out. In turn, this facilitated them in scoring better in achievement related endeavours than those students who scored low on this dimension and labeled as introverts. Thus, on achievement related tasks, they outperformed their counterparts, who scored low on extraversion. Furnham and Medhurst (1995) and De Fruyt and Mervielde (1996) also revealed positive correlations between extraversion and academic success.

Overall, the results reveal that personality factors differentiate engineering students on high achievement motivation and low achievement motivation. Self-discipline, sense of responsibility and degree of sociability differentiates between engineering students having high and low need for achievement.

References


