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Assessment of Achievement Motivation, Personality, and their relationship with Socio-Economic Class of the Engineering students

R. S. Pathania

Sant Baba Bhag Singh University, India
Correspondence: E-mail: pathaniarandhir1972@gmail.com

A B S T R A C T S

The study examined the relationships between engineering students' personalities, socioeconomic status, and drive for achievement. Six hundred engineers were chosen at random from the engineering institutes at Punjab Technical University. The primary goals of the study were to examine the associations between engineering students' socioeconomic level and their motivation for academic accomplishment as well as the associations between their personalities and their socioeconomic status. The results showed no significant difference in the relationship between achievement motivation and socioeconomic status of engineering students, and it was also found that there was no significant difference between the personality and socioeconomic status of engineering students. At the threshold, the significant connection was determined.

A R T I C L E   I N F O

1. INTRODUCTION

Man's existence is largely physical. Physical education is one of a child's first lessons learned (Jin, 2013). The quality and quantity of the motor activities that the human body engages in greatly influence its growth, development, and efficiency. The human body is a gift from nature. Muscle is the cradle of the recognized mind (Pérez *et al*., 2022), according to Sherrington, which appears to have emerged in association with the motor act where integration progressed and where motor conduct gradually grew, the mind gradually evolved. The foundation of "intelligent conduct" is sufficient muscle activity, which is more than just a biological requirement (Vesely Maillefer *et al*., 2018).

Sports give us plenty of chances to break away for a while and indulge in delightful excitement that is hard to come by in other parts of society. People can fulfill their desire for thrills, challenges, and risk by placing artificial limitations on themselves that they can then try to surpass. Being competent and in charge in real life brings about a lot of satisfaction. Achievement Motivation cannot be described as something that occurs during competition but mostly as a trait having 'permanent character', being formed during the preceding weeks, months, and years. Achievement motivation also referred to as the need for achievement is an important determinant of aspiration, efforts, and persistence when an individual expects that his performance will be evaluated concerning some standard of excellence.

Recent research shows that a complex set of many personalities that define each individual can have a significant impact on the sport of choice. Extraversion and introversion are two main categories of personality quality (Shehni & Khezrab, 2020). People with extroverted traits are sociable, extroverted, lively, friendly, and impulsive (Giyazova, 2022). Introversion manifests itself in a discreet, withdrawn, thoughtful, calm, and rational person (Silaban *et al*., 2021). They are more interested in their spiritual well-being, perform better on their own, are more disciplined in social situations, and prefer deeper, more personal relationships.

An important part of an individual's personality is the strength and consistency of their interests, attitudes, motivations, values, and other related variables (Luttrell & Sawicki, 2020). These characteristics have a great impact on his career goals and other important aspects of daily life.

In recent years, PE educators have become increasingly aware of the close relationship between an individual's personality and the culture of the social class to which they belong. The importance of socioeconomic stratification (SES) in the development of achievement motivation stems from similar early life experiences, values, and attitudes of training procedures that support similar motivational configurations in the same subset of society. A particular group of people will be homogenized through similar later experiences in the context of a particular childhood.

Various studies in the past have shown that middle-class subjects are more motivated than working-class subjects. However, people of different social classes (fathers' education, profession, and income-based social classes) did not make a big difference in this regard (Ghavani & Mistry, 2019).

2. METHOD

A total of 600 individuals were chosen at random from various engineering institutes affiliated with Punjab Technical University. Achievement Motivation Questionnaire developed by V. P. Bhargava, Psychological Questionnaire of Personality by Eysenck Personality Inventory test, and Rajbir Singh, Radhey Shyam, and Satish Kumar's socio-economic status scale Questionnaire was administered to engineering Students to get the

data. Detailed study of achievement motivation, personality, and socioeconomic status was done. Chi-square was implemented as well as Karl Pearson's correlation coefficient was applied.

3. RESULTS AND DISCUSSION

The first results are shown in **Tables 1** and **2**. **Table 1** is the frequency distribution of achievement motivation of engineering students and the socio-economic status of their families, whereas **Table 2** is the chi-square test of achievement motivation v/s socio-economic status of their family.

Table 1. Frequency distribution of achievement motivation of engineering students and socio-economic status of their families.

			SES					Total
			Low SES	Middle L SES	Middle A SES	Middle U SES	High SES	
ACMTCATE	High	Count	50	27	33	34	22	166
		% within ACMT	30.1%	16.3%	19.9%	20.5%	13.3%	100.0%
		% within SES	33.3%	24.8%	21.7%	30.9%	27.8%	27.7%
	Above Avg	Count	46	32	44	34	26	182
		% within ACMT	25.3%	17.6%	24.2%	18.7%	14.3%	100.0%
		% within SES	30.7%	29.4%	28.9%	30.9%	32.9%	30.3%
	Avg	Count	14	15	30	15	9	83
		% within ACMT	16.9%	18.1%	36.1	18.1%	10.8%	100.0%
		% within SES	9.3%	13.8%	19.7%	13.6%	11.4%	13.8%
	Below Avg	Count	20	14	23	13	10	80
		% within ACMT	25.0%	17.5%	28.8%	16.3%	12.5%	100.0%
		% within SES	13.3%	12.8%	15.1%	11.8%	12.7%	13.3%
	Low	Count	20	21	22	14	12	89
		% within ACMT	22.5%	23.6%	24.7%	15.7%	13.5%	100.0%
		% within SES	13.3%	19.3%	14.5%	12.7%	15.2%	14.8%
		Count	150	109	152	110	79	600
		% within ACMT	25.0%	18.2%	25.3%	18.3%	13.2%	100.0%
		% within SES	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2. Chi-square test of achievement motivation v/s socio-economic status of their family.

Pearson Chi-Square	Value	d.f.	Asymp.sig.(2-sided)
	13.754	16	0.617*

Note: * p- value insignificant (0.05)

The score in **Table 1** indicates that highly motivated students belong to middle socioeconomic status. For 371 students (61.8%), they fall in middle socioeconomic status. In other ways of 431 students (71.8), students fall in average, above average and high categories. 169 students (28.1%) fall under low and below the average category of achievement motivation. **Table 2** indicates that the respondents' achievement motivation is not affected by the socio-economic status of their families.

The next issues are shown in **Tables 3** and **4**. **Table 3** is the frequency distribution of personality(extroversion/introversion) of engineering students v/s socio-economic status of their family. **Table 4** is the chi-square test of personality(extroversion/introversion) of engineering students v/s socio-economic status of their family.

Table 3. Frequency distribution of personality(extroversion/introversion) of engineering students v/s socio-economic status of their family.

					SES			Total
			Low SES	Middle L SES	Middle A SES	Middle U SES	High SES	
Personality	Extrovert	Count	16	14	24	14	13	81
		% within EXT	19.8%	17.3%	29.6%	17.3%	16.0%	100.0%
		% within SES	10.7%	12.8%	15.8%	12.7%	16.5%	13.5%
	Average	Count	95	60	93	56	52	356
		% within EXT	26.7%	16.9%	26.1%	15.7%	14.6%	100.0%
		% within SES	63.3%	55.0%	61.2%	50.9%	65.8%	59.3%
	Introvert	Count	39	35	35	40	14	163
		% within EXT	23.9%	21.5%	21.5%	24.5%	8.6%	100.0%
		% within SES	26.0%	32.1%	23.0%	36.4%	17.7%	27.2%
		Count	150	109	152	110	79	600
		% within EXT	25.0%	18.2%	25.3%	18.3%	13.2%	100.0%
		% within SES	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4. Chi-square test of personality (extroversion/introversion) of engineering students v/s socio-economic status of their family.

Pearson Chi-Square	Value	d.f.	Asymp.sig.(2-sided)
	12.817	8	0.118*

Note: * p- value insignificant (0.05)

The scores of **Tables 3** indicate that 371 students (61.8%) fall in Middle socioeconomic status. 356 students i.e. 59.3% were average in their personality. In other words, 81 students (13.5%) were extroverts and 163 students (27.2%) were introverts. **Table 4** indicates that the respondents' personality (Extroversion/Introversion) is not affected by the socioeconomic status of their family (Patel *et al.,* 2019). **Tables 5 and 6** are, respectively, the frequency distribution of personality (neuroticism/stable) of engineering students v/s socio-economic status of their family and the chi-square test of personality (neuroticism/stable) of engineering students v/s socio-economic status of their family.

Table 5. Frequency distribution of personality (neuroticism/stable) of engineering students v/s socio-economic status of their family.

			SES					Total
			Low SES	Middle L SES	Middle A SES	Middle U SES	High SES	
Personality	Neurotics	Count	14	11	8	8	2	43
		% within EXT	32.6%	25.6%	18.6%	18.6%	4.7%	100%
		% within SES	9.3%	10.1%	5.3%	7.3%	2.5%	7.2%
	Average	Count	97	67	114	68	58	404
		% within EXT	24.0%	16.6%	28.2%	16.8%	14.4%	100.0%
		% within SES	64.7%	61.5%	75.0%	61.8%	73.4%	67.3%
	Stable	Count	39	31	30	34	19	153
		% within EXT	25.5%	20.3%	19.6%	22.2%	12.4%	100.0%
		% within SES	26.0%	28.4%	19.7%	30.9%	24.1%	25.5%
		Count	150	109	152	110	79	600
		% within EXT	25.0%	18.2%	25.3%	18.3%	13.2%	100.0%
		% within SES	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6. Chi-square test of personality (neuroticism/stable) of engineering students v/s socio-economic status of their family.

Pearson Chi-Square	Value	d.f.	Asymp.sig.(2-sided)
	12.087	8	.147*

Note: * p- value insignificant (0.05)

The scores in **Table 5** indicate the condition of 404 students. 67.3% were average in their personality and fell in middle socioeconomic status. 371students (61.8%) fall in middle socio-economic status in other words 43 students (7.2%) were neurotic. 153 students (25.5%) were stable. **Table 6** indicates that the respondents' personality (Neuroticism/Stable) is not affected by the socioeconomic status of their family (Zhang *et al.,* 2018).

Table 7 shows Karl Pearson's Correlation coefficient and the significant p-value between all pairs of achievement motivation with socio-economic status, extrovert, and neuroticism. Here we see that the correlation coefficient between extrovert and neuroticism is significant.

Table 7. Relationship of achievement motivation, personality traits, and socio-economic status of engineering students.

		ACMT	EXTROVERT	NEURO.	SESS
ACMT	Pearson Correlation	1	0.063	-0.042	-0.017
	Sig. (2-tailed)	.	0.121	0.307	0.672
	N	600	600	600	600
EXTROVERT	Pearson Correlation	0.063	1	0.131**	-0.007
	Sig. (2-tailed)	0.121	.	0.001	0.868
	N	600	600	600	600
NEURO.	Pearson Correlation	-0.042	0.131**	1	0.012
	Sig. (2-tailed)	0.307	0.001	.	0.768
	N	600	600	600	600
SESS	Pearson Correlation	-0.017	-0.007	0.012	1
	Sig. (2-tailed)	0.672	0.868	0.768	.
	N	600	600	600	600

Table 8 is the estimation of regression equation of achievement motivation with personality traits (extroversion/introversion and neuroticism/stable) and socio-economic status of engineering students. This study used the estimated equation in equation (1).

$$ACMT = \beta_0 + \beta_1 * Extrovert + \beta_2 * Neuroticism + \beta_3 * SESS \qquad (1)$$

where ACMT is the achievement motivation and SESS are the socio-economic status. Other components such as β_0, β_1, β_2, and β_3 are constant. Extrovert and Neuroticism are the conditions of students.

Tables 8 and 9 show that the regression analysis describes that the effect of socio-economic status and personality (Extroversion/Introversion and neuroticism/Stable) on Achievement Motivation are insignificant for Engineering Students. The Chi-Square test revealed that the family's socioeconomic level had no bearing on the engineering Students' Achievement Motivation, personality attributes (extroversion/introversion), and (Neuroticism/Stable). The significant p-values of Karl Pearson's correlation coefficients between all pairs of socioeconomic status and personality. In the case of engineering Students, we can deduct from the table that the correlation coefficient is significant for Extroversion and Neuroticism.

Table 8. Estimation of regression equation of achievement motivation with personality traits (extroversion/introversion and neuroticism/stable) and socio-economic status of engineering students.

Model Summary									
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Change Statistics**				
					R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
1	0.083(a)	0.007	0.002	4.944	0.007	1.365	3	596	0.252
a Predictors: (Constant), extrovert, SESS, NEUT									

Table 9. The statistical results.

No	Model	Unstandardized coefficients		Standardized Coefficients	T	Sig
		B	Std. Error	Beta		
1	(Constant)	19.946	1.222		15.959	0.000
	Extrovert	0.105	0.062	0.070	1.696	0.090
	Neuro	-0.069	0.056	-0.051	-1.232	0.218
	SES	-0.002	0.005	-0.016	-0.398	0.691
	a dependent Varaible: ACMT					

4. CONCLUSION

The study looked at the connections between the personalities, socioeconomic standing, and motivation of engineering students. From the engineering programs at Punjab Technical University, 600 engineers were randomly selected. Examining the relationships between engineering students' socioeconomic situation and their motivation for academic achievement as well as the relationships between their personalities and socioeconomic status were the study's main objectives. In addition, it was determined that there was no substantial difference between engineering students' personalities and socioeconomic position in terms of the relationship between accomplishment motivation and socioeconomic status. The meaningful relationship was established at the 0.05 cutoffs.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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