



Impact of Learning Styles, Personality and Self-Esteem on Academic Achievement

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Abstract: The present study attempted to assess the impact of learning styles, personality and self-esteem on the academic achievement of university students. Participants N=120 were 60 male students, mean age of 22 years and 60 female students, mean age of 20.5 years. Data was collected using Rosenberg's Self-Esteem Scale, John et al's Big Five Inventory and O'Brien's Learning Style questionnaire. Descriptive statistics, correlation and regression revealed (using SPSS version 22) self-esteem, and personality had a significant relationship with academic achievement.

Keywords: Learning Styles, Personality, Self-Esteem, University, Academic Achievement

1. Introduction

Academic achievement is a complex phenomenon influenced by various factors, including learning styles, personality traits, and self-esteem Arends (2014). Learning styles refer to the ways in which individuals prefer to learn, process, and retain information Felder and Silverman (1988) and personality traits are enduring patterns of thoughts, feelings, and behaviours that influence how individuals interact with their environment McCrae and Costa (1997). Finally, self-esteem refers to an individual's overall evaluation of their self-worth and is closely linked to motivation and academic achievement (Marsh and Craven (2006). This paper aims to explore the relationship between these three factors and their impact on academic achievement.

2. Literature Survey

2.1 Personality

Personality is a complex and multidimensional construct that has been studied extensively in psychology. Researchers have proposed various theories and frameworks to understand and measure personality, such as the five-factor model, social-cognitive theories, and evolutionary perspectives. For instance, the five-factor model proposes that personality can be described in terms of five broad dimensions: openness, conscientiousness, extraversion, agreeableness, and neuroticism Costa and McCrae (1992). On the other hand, social-cognitive theories emphasize the interaction between personal characteristics

and situational factors in shaping behaviour Bandura (1997). Evolutionary perspectives highlight the adaptive functions of personality traits in promoting survival Buss (1991). These approaches have been used to study various aspects of personality, such as its development, stability, and links to mental health and well-being Roberts and DelVecchio (2000), Roberts et al. (2007) and Weiss et al. (2019). Personality traits such as conscientiousness, openness, and emotional stability have been linked to academic achievement Poropat (2009), Robbins et al. (2004).

2.2 Learning Styles

Learning styles refer to the different ways that individuals process and retain information. Many models of learning styles have been proposed in the literature, including the visual-auditory-kinesthetic (VAK) model, the Kolb model, and the Honey and Mumford model. While some research has suggested that teaching students' learning styles can improve learning outcomes, the evidence for this is mixed, with some studies indicating no effect or even negative effects. Additionally, some critics have argued that learning styles are a myth and that students do not have consistent or fixed styles of learning. Nevertheless, learning styles continue to be a popular concept in education and are often used by teachers to tailor instruction to their students' needs. Pashler et al. (2008), Coffield et al. (2004) and Willingham et al. (2015).

2.3 Self-Esteem

Self-esteem is an important construct in psychology that refers to an individual's overall subjective evaluation of their self-worth or self-concept. Several studies have explored the relationship between self-esteem and various aspects of psychological well-being, including depression, anxiety, Baumeister et al. (2003) and overall life satisfaction Kernis et al. (2008). A number of studies have shown that individuals with higher self-esteem tend to perform better academically than those with lower self-esteem Baumeister et al. (2003) and Schraw et al. (1995).

2.4 Academic Achievement

Academic success has many theoretical and practical ramifications, which makes it a very interesting topic for investigation. High levels of student success in terms of a variety of socially desirable outcomes, such as job attainment and job performance, are associated with academic achievement Lamb and McKenzie (2001), (Kanfer et al. (2010), Roth et al. (1996). According to growing research, student motivation is key to success Richardson et al. (2012). However, not all self-motivation methods are successful, and one's confidence level may also influence them in their capacity for academic success. The present study focuses on how self-esteem, personality and learning styles impact the academic achievement of university students.

2.5 Learning Styles and Academic Achievement

A considerable body of literature investigates the relationship between learning styles and academic achievement. For instance, the study by Kharb and Samanta (2015) found a significant correlation between visual learning style and academic performance among medical students. Similarly, Zhang and colleagues (2019) reported that students with a

kinesthetic learning style tend to outperform those with an auditory or visual learning style. However, conflicting findings have also been reported, such as the study by Coffield and colleagues (2004), which concluded that learning styles have no scientific basis and that matching instruction to students' learning styles does not improve academic achievement. Thus, the relationship between learning styles and academic achievement remains a topic of debate among educators and researchers.

2.6 Personality and Academic Achievement

Numerous studies have investigated the relationship between personality traits and academic achievement. For example, Credé and Kuncel (2016) conducted a meta-analysis of 92 studies and found that conscientiousness was the personality trait most consistently associated with academic achievement. Similarly, Poropat (2009) conducted a meta-analysis of 52 studies and found that conscientiousness and openness to experience were the most important personality predictors of academic success. In addition, recent research has suggested that grit, a combination of perseverance and passion for long-term goals, may also be an important predictor of academic achievement Duckworth et al. (2019) Eskreis-Winkler et al. (2019). Overall, the literature suggests that personality traits such as conscientiousness, openness to experience, and grit are important predictors of academic achievement.

2.7 Self-Esteem and Academic Achievement

Self-esteem has been identified as a significant factor in academic achievement Rosenberg and Schooler (1978). Studies have consistently found that higher levels of self-esteem are associated with better academic performance and achievement Baumeister et al. (2003) and Robbins et al. (2004). Moreover, research has shown that low self-esteem can negatively impact academic achievement, leading to poor grades, absenteeism, and dropping out of school Baumeister et al. (2003) Steinberg et al. (1996). It is suggested that higher self-esteem may promote a positive academic self-concept, which may lead to more positive academic behaviours and outcomes Marsh and Craven (2006).

3. Present Research

1. To understand predictors of Academic Achievement of students.
2. To understand gender differences in Learning Styles.

3.1 Hypotheses

- H₁**. Learning styles have a positive relationship with academic achievement.
- H₂**. Self-esteem will have a positive relationship with academic achievement.
- H₃**. Neuroticism will have a positive relationship with academic achievement.
- H₄**. Conscientiousness will have a positive relationship with academic achievement.
- H₅**. Openness will have a positive relationship with academic achievement.
- H₆**. Extraversion will have a negative relationship with academic achievement.
- H₇**. Agreeableness will have a positive relationship with academic achievement.

3.2 Sample: Convenience sampling was done. 120 university students participated in the study. The sample of students was divided equally into two categories: N=60 males and N=60 females.

3.3 Tools Used

Academic achievement- The official final grade measured academic achievement for a subject was used in SGPA format.

Rosenberg self-esteem questionnaire (Morris Rosenberg, 1965)- An item response theory analysis of the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin*, 23, 443-451. It is a 10 items Likert scale. The scale shows high internal consistency, with a coefficient alpha ranging from 0.77 to 0.88, indicating good reliability. The scale has demonstrated good construct validity, meaning that it measures the construct of self-esteem as it is understood in psychology. It has also shown good convergent validity, as it is highly correlated with other measures of self-esteem.

Big Five Personality Inventory (Goldberg, 1993)- This scale consists of 44 questions Likert scale and assesses an individual on five different dimensions i.e. Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness. The scale has high internal consistency, with a coefficient alpha ranging from 0.78 to 0.93, indicating good reliability. The Big Five Personality Questionnaire has predictive validity, meaning that scores on the questionnaire are associated with various life outcomes, such as academic and job performance, relationship satisfaction, and mental health. It has also shown good convergent validity, as it is highly correlated with other measures of personality traits.

Learning Styles Questionnaire (O'Brien, 1985): This scale consists of 30 questions and assesses an individual on three different learning styles i.e. Auditory Learning Style, Visual Learning Style and Kinesthetic Learning Style. The scale has good internal consistency, with coefficient alpha values ranging from 0.70 to 0.90 for the different subscales, indicating good reliability. It also has good construct validity, meaning that the questionnaire measures the intended construct of learning styles.

3.4 Procedure

The study investigated two groups of students, males and females. The study compromised three questionnaires to assess the students on three different aspects i.e. personality, learning styles and self-esteem. The participants were informed in detail about the study protocols, and their written consent was obtained. The three questionnaires were administered to 120 participants. They were assured that information collected from them would be kept confidential. Scoring was done, and the data was analysed.

3.5 Analyses: The Statistical Package for social sciences 22.0 was used to compute descriptive statistics, correlation, multiple regression and t-test.

4. Results: Results are described under separate headings as a matter of convenience. The mean and standard deviation were computed for learning styles, personality and self-esteem with academic achievement. The values are given below in Table 1.

Table 1: Descriptive statistics of learning styles, personality and self-esteem

	M	SD	N
Gender	1.5	0.5	120
Age (y ears)	20.65	2.38	120
SGPA	8.26	1.02	120
Visual	21.83	2.82	120
Auditory	19.1	3.25	120
Kinesthetic	20.56	4.42	120
SE	20.19	4.87	120
Extraversion	24.12	6.25	120
Agreeableness	32.78	5.84	120
Conscientiousness	30.39	6	120
Neuroticism	22.8	8.11	120
Openness	34.24	6.07	120

The sample, on the whole, was relatively young. It is clearly seen from Table 1 that the values of standard deviation are lower than the values of mean, which indicates low variation between the values of the mean and standard deviation of visual learning were 21.83 and 2.82, respectively. The mean and standard deviation of auditory learning style were 19.1 and 3.25, respectively. On the other hand, the mean and standard deviation of the kinaesthetic learning style were 20.56 and 4.42, respectively. The mean and standard deviation of extraversion were 24.12 and 6.25, respectively. The mean and standard deviation of agreeableness were 32.78 and 5.84, respectively. On the other hand, the mean and standard deviation of conscientiousness were 30.39 and 6, respectively. The mean and standard deviation of neuroticism were 22.8 and 8.11, respectively. The mean and standard deviation of openness were 34.24 and 6.07, respectively.

Table 2: Correlations between learning styles, personality and self-esteem with academic achievement

	G	Age	SGPA	V	AG	K	SE	E	A	C	N	O
G	1											
Age	-.1**	1										
SGPA	-0.2	.2*	1									
V	-0.2	.2*	-0.2	1								
A	0.2	0.2	-0.2	0.2	1							
K	0.2	0.2	-0.2	0.2	0.2	1						
SE	-.7**	-0.1	.5**	0.1	-0.2	0.2	1					

E	-0.1	0.2	-0.1	-0.1	0.1	-0.1	-0.2	1				
AG	-0.1	-.2*	-0.2	0.1	0.1	-0.1	-0.2	0.1	1			
C	-0.1	.2*	.5**	-0.1	-0.2	-0.1	.2*	0.2	0.1	1		
N	-.7**	-0.1	-0.1	.2*	-0.2	0.2	.4**	0.1	-0.1	-.3**	1	
O	-.4**	0.1	.4**	0.1	-0.1	0.1	.4**	0.1	0.1	.4**	-0.1	1

** Correlation is significant at 0.01 level

*Correlation is significant at 0.05 level

(G-Gender, V- Visual, A- Auditory, K- Kinesthetic, SE- Self-Esteem, E- Extraversion, AG- Agreeableness, C- Conscientiousness, N- Neuroticism, O-Openness)

Table 2 illustrates that self-esteem positively correlated with academic achievement ($r = .5$, $p < .01$). Hence our hypothesis that self-esteem will have a positive relationship with academic achievement is accepted. Further results of correlation reveal that conscientiousness is positively correlated with academic achievement ($r = .5$, $p < .01$). Hence our hypothesis that there would be a positive relationship between conscientiousness and academic achievement stands accepted. Results also indicated that there is a significant positive relationship between openness and academic achievement ($r = .4$, $p < .01$). Hence our hypothesis that there would be a positive relationship between openness and academic achievement stands accepted.

Table 3: Gender differences in mean and standard deviation on visual learning style

	Gender	N	M	SD	SEM	t	df	p
Visual	1	60	22.08	2.91	0.38	0.972	118	0.333
	2	60	21.58	2.72	0.35			

The output indicates that the mean for group 1 is 22.08 and for group 2 it is 21.58. Looking in the Standard Deviation column, we can see that they are not exactly equal, but close enough to assume equal variances. Because the p-value (0.333) for our independent samples t test which is more than the standard significance level of 0.05, which means it is not statistically significant.

Table 4: Gender differences in mean and standard deviation on auditory learning style

	Gender	N	M	SD	SEM	T	df	p
Auditory	1	60	18.53	3.17	0.41	-1.932	118	0.056
	2	60	19.67	3.26	0.42			

The output indicates that the mean for Group 1 is 18.53, and for Group 2, it is 19.67. Looking in the Standard Deviation column, we can see that they are not exactly equal, but

close enough to assume equal variances. Because the p-value (0.056) for our independent samples t-test is less than the standard significance level of 0.05, which means it is statistically significant. The mean values indicate that group 2, which consists of females, is better in auditory learning style than group 1, which consists of males. There is a significant effect for gender, $t(60) = -1.932, p < .005$, with women receiving higher scores than men.

Table 5: Gender differences in mean and standard deviation on kinesthetic learning style

	Gender	N	M	SD	SEM	t	df	p
Kinesthetic	1	60	21.57	5.58	0.72	2.555	118	0.012
	2	60	19.55	2.51	0.32			

The output indicates that the mean for group 1 is 21.56 and for group 2 it is 19.55. Looking in the Standard Deviation column, we can see that they are not exactly equal, and also not close enough to assume equal variances. Because the p-value (0.012) for our independent samples t test is less than the standard significance level of 0.05, which means it is statistically significant. The mean values indicate that group 1 which consists of males is better in kinesthetic learning style than group 2 which consists of females. There is a significant effect for gender, $t(60) = 2.55, p < .001$, with men receiving higher scores than women.

Table 6: Summary of regression analysis of learning styles, personality and self-esteem with academic achievement

Model	B	SE	Beta	T	sig	Adj R sq.	F
Constant	5.902	.434	.454	13.597		0.199	30.628
C	.078	.014		5.534	0.000		
					0.000		
Constant	5.619	.554	.470	10.138	0.000	0.197	15.611
C	.080	.014	.069	5.568	0.000		
N	.009	.011		.823	0.412		

Constant	4.752	.630		7.543	0.000	0.237	13.366
C	.066	.015	.387	4.403	0.000		
N	.008	.010	.060	0.733	0.465		
O	.039	.014	.229	2.673	0.009		
<hr/>							
Constant	4.684	.589		7.948	0.000	0.333	15.855
C	.056	.014	.326	3.911	0.000		
N	-.013	.011	-.105	1.212	0.228		
O	.016	.015	.096	1.112	0.269		
SE	.081	.019	.383	4.203	0.000		

(C- Conscientiousness, N- Neuroticism, O- Openness and SE- Self-Esteem)

In the final step of the regression, it is seen that every one-unit increase in SE leads to a 4.203-unit increase in academic performance. 33.3% variance in academic performance was explained by model 4, $p < 0.000$.

5. Summary and Conclusion

The present work focused on the relationship between the “Impact of Learning Styles, Personality and Self-Esteem on Academic Achievement”.

5.1 Learning Styles

Regarding the effect of learning styles on academic achievement, it was hypothesised that learning styles have a positive relationship with academic achievement. However, the present study found no relationship between learning styles and academic achievement. Therefore, our study aligns with prior research by Coffield and colleagues (2004), which concluded that learning styles have no scientific basis and that matching instruction to students' learning styles does not improve academic achievement. Thus, the relationship between learning styles and academic achievement remains a topic of debate among educators and researchers.

5.2 Self-Esteem

To study the impact of self-esteem on academic achievement, it was hypothesized that self-esteem has a positive relationship with academic achievement. Thus, the hypothesis postulated to study the relationship between self-esteem and academic achievement was confirmed. Studies by Marsh and Craven, 2006 also state that higher self-esteem may promote a positive academic self-concept, leading to more positive academic behaviours and outcomes.

5.3 Personality

The first hypothesis was formulated that neuroticism will have a positive relationship with academic achievement, which was accepted. Our findings are parallel with the findings of Duckworth et al. (2019).

The second hypothesis was formulated that conscientiousness will have a positive relationship with academic achievement. Credé and Kuncel (2016) conducted a meta-

analysis of 92 studies and found that conscientiousness was the personality trait most consistently associated with academic achievement, the results of which are in line with our study.

The third hypothesis was that openness will have a positive relationship with academic achievement which was accepted. In line with our findings, Poropat (2009) conducted a meta-analysis of 52 studies and found that conscientiousness and openness to experience were the most important personality predictors of academic success.

The fourth hypothesis stated that extraversion has a negative relationship with academic achievement, which was not accepted. Hence, our study could not confirm the findings of Eskreis-Winkler et al., 2019.

The fifth hypothesis stated that agreeableness will have a positive relationship with academic achievement. The results show a significant level in the condition. Thus, the hypothesis postulated was accepted. Thus, our study aligns with the findings of Robbins et al., 2004.

5.4 Conclusion

The study's findings show a significant relationship between self-esteem, personality and Academic achievement. Similarly, a significant relationship exists between gender, learning styles and academic achievement. However, there is no evidence of a relationship between learning styles and academic achievement. Self-esteem and personality had a positive impact on university students. Thus, self-esteem interventions will be useful in future.

The present study is limited in its scope due to several reasons. The sample size of the study is small. However, without broadening the study to populations beyond the selected state, there is no assurance that the results would generalise to the populations of other states, countries or cultures as a whole. Since the data was collected from only one state of a selected area, the research gathered data from different cultures of different areas to know the impact of learning styles, personality and self-esteem on academic achievement. Moreover, the impact of learning styles, personality and self-esteem on academic achievement together is a less explored area, so the researcher can investigate such a relationship.

This study has a great scope for future research. Increasing the sample size and including children from different cultures, may yield better results. Adding interventions for self-esteem could be proven to be useful in future.

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