

PREDICTING ACHIEVEMENT IN COLLEGES: THE INTERRELATIONSHIP OF STUDENTS' ACADEMIC SELF-CONCEPT, ACHIEVEMENT MOTIVATION, AND GRIT

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ABSTRACT

There are various non-cognitive factors affects motivation for learning and achievement for instance ambition, self-concept, enthusiasm, vigor, grit, and attitudes etc. This research examined the effect of academic self-concept, achievement motivation, and grit on achievement and the effect of academic self-concept and achievement motivation on students' grit. The population comprises all students of the intermediate level in district Sargodha. From this population, a sample of 300 students was selected from six colleges (3 boys and 3 girls) of three tehsils of District Sargodha. The response was received from 283 students, which was used for data analysis. The data was collected using three questionnaires, the Achievement Motivation Scale, Grit Scale, and Academic Self-concept Scale. The former two were adopted and later designed by the researchers. The data analysis was done through SPSS, applying descriptive and inferential statistics. Findings demonstrated that academic self-concept, achievement motivation, and grit positively affected learners' achievement. Furthermore, academic self-concept and achievement motivation affected the grit of students. It was concluded that improving and maintaining motivation is necessary for increasing students' achievement and making them successful.

Keywords: Academic self-concept, Achievement motivation, student's grit, Achievement

INTRODUCTION

People who share similarities may think and act very differently from one another, depending on their self-perception and their expectations of their abilities, even if they are very similar (Bong and Skaalvik 2003). In the past few years, people have become more interested in the psychology of studying academic self-concept. Self-concept, in its broadest definition, is simply how one thinks of oneself. Self-concept refers to an individual's perception of themselves, encompassing their strengths, weaknesses, abilities, and limitations. Self-concept stands as a vital cornerstone of academic achievement. It is a person's reservoir of self-confidence, a foundational determinant in prognosticating success or failure in academic responsibilities (Wang & Lin, 2008). An individual's self-concept encapsulates their entire belief system about themselves, encompassing their strengths and weaknesses, abilities and limitations, priorities and commitments, as well as the people and elements of significance in their lives (Marsh et al., 2014). McInerney et al. (2012) further delve into how individuals perceive their strengths and shortcomings, talents, attitudes, and values.

In the realm of education, students' perceptions of their academic abilities and aptitude are of paramount importance, as they are substantially shaped by prior experiences and interpretations of their current learning environments. This self-concept can be bifurcated into two distinct facets: academic self-concept and social self-concept, as outlined by Shavelson et al. (1976). This framework facilitates the exploration of connections between academic self-concept and specific academic disciplines, spanning subjects like English, history, mathematics, and science. Simultaneously, it categorizes non-academic self-concept into three dimensions, encompassing the social, emotional, and physical realms.

Academic self-concept, in particular, homes in on an individual's perception of their competencies within academic contexts. It is far from uniform across different academic subjects and is profoundly influenced by an individual's history of academic accomplishments. This underlines the pivotal role of self-concept in academic success and the multifaceted nature of its influence on students' educational journeys. Academic self-concept stands out as the most prevalent form of self-concept among both students and educators. Furthermore, it is intrinsically linked to an individual's academic knowledge and self-perception within the academic sphere (Ferla et al., 2009). In essence, an individual's academic self-concept represents the mental construct of their abilities within educational institutions and other academic contexts (Brunner et al., 2010), ultimately reflecting their perceived capacity for learning. Importantly, this self-concept can exhibit variation across academic subjects and is significantly shaped by past academic achievements. Notably, students with a high degree of intellectual self-concept tend to possess a belief in their ability to excel in college (Rodriguez, 2021).

On the other hand, achievement motivation is also a necessary element for success. Perfection is a learned trait that leads to satisfaction. Achievement motivation is the inner drive to succeed and attain goals, characterized by a commitment to excellence and a willingness to tackle challenging tasks. According to (Naik & Kiran 2018) Motivation for achievement is the desire to succeed and encounter defeat. Furthermore, Murray (mentioned in Acharya, & Joshi, 2009) introduced the concept of Achievement Motivation in 1938. He described Achievement Motivation as the desire to accomplish well relative to some criterion of excellence. Those considered to have a high need for achievement pursue excellence in an area to succeed rather than for some reward. This requirement has been named n-accomplishment for ease. Hence, n-Ach is the urge to achieve difficult tasks quickly. According to Murray to overcome obstacles, achieve a high level, outperform others, and increase one's self-esteem by successfully applying abilities, one must do tasks as fast and independently as is practical. According to (Sarangi, 2015), Personality and environment influence aspiration, efforts, and persistence when evaluating performance. Purposeful action indicates achievement motivation in the minds of those who take on challenging tasks. In education, achievement motivation refers to the expectation of gratification from accomplishing something tough or challenging (Ergul, 2004).

Another key determinant of success lies in the concept of grit, characterized by unwavering determination and a profound commitment to long-term objectives. Grit encompasses the capacity to persevere in the face of adversity, setbacks, and failures. Duckworth et al. (2007) offer a comprehensive definition, describing grit as the combination of perseverance and an enduring passion for achieving long-term goals. They emphasize that grit involves a wholehearted dedication to surmounting challenges, and maintaining unwavering effort and enthusiasm over time, even when confronted with failures, obstacles, or periods of slow progress.

Grit's importance in understanding success and resilience is evident in the literature, as indicated by Bowman et al. (2015) and Strayhorn (2014). It is particularly crucial for comprehending students' academic advancement, especially when supporting high-risk students facing educational challenges. This perspective implies that grit's significance in explaining academic learning difficulties may surpass that of individual personality traits and intellectual factors. In recent years, academics and professionals have paid more attention to grit. According to Suzuki et al. (2015), grit is a noncognitive indicator of success and performance. Grit is the ability to persevere and succeed (Duckworth & Quinn, 2009), make people determined, and view success as a marathon in which endurance is an asset. Individuals with much grit are the ones who keep going even when they hit roadblocks (Duckworth et al., 2007). Two components make up grit: (a) hard work ethic and (b) dedication to one's passions (Duckworth et al., 2007; Duckworth & Quinn, 2009). The first component of grit measures resilience and perseverance in the face of adversity, and the second component of grit encapsulates a relentless focus on a single objective.

According to Zheng and Mustapha (2022), the academic achievement of intermediate-level students is crucial to achieving further education goals. Academic achievement is a direct representation of learning effectiveness and a valid indicator for assessing the efficacy of teaching and education in

higher education and students' general growth. Many factors influence intermediate-level students' academic achievement, and much study has been conducted on the topic (Zheng & Mustapha, 2022). Nevertheless, there is limited research on finding out the impact of both the above-mentioned constructs on students' grit and academic achievement; that's why this study is distinct from others as it intends to examine not only the academic achievement of students but also their grit. However, this study was limited to the students of higher secondary/intermediate level. T

The above discussion reveals the significance of academic self-concept and motivation in improving students' grit and academic performance. Students' academic self-concept and achievement motivation are two key factors in raising their grit and grades (Dulay, 2017). Students' academic self-concept and achievement motivation can influence their level of grit, which, in turn, can impact their academic achievements. These psychological factors play pivotal roles in understanding and enhancing students' academic performance. Limited research examines the effect of academic self-concept and achievement motivation on students' grit and achievement. Research is usually limited to identifying the simple relationship between these constructs (Awan et al., 2011; Muenks et al., 2018; Arefi and Naghebzadeh, 2014) but this study is unique as its main purpose is to check the cause-and-effect relationship among these psychological constructs and academic outcomes, going beyond simple correlations. This research encompassed four distinct variables: academic self-concept, achievement motivation, and grit served as the independent variables, while grit and academic achievement were designated as the dependent variables. Consequently, the research was designed to explore the causal relationships among academic self-concept, achievement motivation, grit, and academic achievement within the higher secondary student population. Its primary aim was to unveil the intricate interplay and mutual influence of these variables on one another. The objectives of current study were designed to:

- Explore college students' academic self-concept, achievement motivation, grit, and academic achievement.
- Assess the relationship among academic self-concept, achievement motivation, grit, and students' academic achievement.
- Measure the effect of academic self-concept, achievement motivation, and grit on students' academic achievement, and the effect of self-concept and achievement motivation on students' grit.

METHODOLOGY

All intermediate students of district Sargodha were the population of the study. The researchers selected two hundred and eighty-three (283) students for data collection by followed the multistage sampling stages. In the first stage, the researcher selected colleges from districted Sargodha using a random sampling technique. Six colleges from district Sargodha were selected from three tehsils, i.e., Sargodha, Silawali, and Kot Momin. Two colleges (one girl's college and one boy's college) were selected from each tehsil. Secondly, students were selected from each college by using simple random sampling. The researchers selected 50 students from each of the above chosen colleges. Thus, a total of 300 students were selected from each college. The response received from all colleges was 283, which were used for data analysis.

Standardized questionnaires for Achievement Motivation by Elliot and Murayama (2008) and the Students Grit questionnaire by Duckworth et al. (2007) were adopted and used for research purposes. The questionnaire on academic self-concept was developed by researchers after a review of the literature. The questionnaire on achievement motivation is based on five indicators, i.e., motivation goals, expectations of success, achievement goals, effort, and willingness to work. The grit questionnaire is based on two indicators, i.e., perseverance of efforts and consistency of interest. All questionnaires were 5-point Likert scale.

A peer consultation was sought, and different changes were made to improve all instruments. For both research tools' face and content validity, opinions were sought from four experts in the Education department. A pilot testing was carried out before collecting the data to estimate the reliability. The questionnaire was administered to 30 students for pilot testing. Based on their

opinion and responses, many items were modified and revised. For internal consistency, Cronbach Alpha values were calculated (reported in Table 1).

RESULTS

Data analysis was done through SPSS software. Data collected through the questionnaire were analyzed using descriptive and inferential statistics, including mean score, standard deviation, Pearson r , and regression analysis.

Table 1 Mean, Std deviation, Cronbach Alpha, and Pearson Correlation of Variables.


S N	Factors	α	Mean	Std	1	2	3	4
1.	Academic Self-Concept	.824	4.043	.492	-	.684**	.910**	.334*
2.	Students' Achievement Motivation	.886	4.054	.485	.684**	-	.664**	.277*
i.	Motivation Goals	.685	4.078	.534	.606**	.866**	.519**	.196
ii.	Expectation of Success	.691	3.893	.686	.450**	.680**	.314**	.192
iii.	Achievement goal	.671	4.078	.535	.606**	.866**	.621**	.196
iv.	Effort	.703	4.079	.728	.525**	.783**	.595**	.239*
v.	Willingness to Work	.688	4.166	.589	.546**	.716**	.489**	.203*
3.	Grit	.746	4.059	.511	.897**	.700**	-	.285*
i.	Perseverance of Effort	.701	4.085	.605	.835**	.662**	.928**	.218*
ii.	Consistency of Interest	.670	4.027	.542	.736**	.560**	.860**	.299*
4.	Achievement	-	358.6	76.27	.334**	.277**	.285**	-

The table-1, shows the factor-wise reliability statistics of the students' academic self-concept, achievement motivation, and Grit questionnaire developed for data collection from students. Reliability coefficients ranged from .670 to .886, which falls in the acceptable range. The table also shows the factor-wise mean and standard deviation of the students' academic self-concept, achievement motivation, grit, and achievement. Student students' academic self-concept ($M=4.03$, $Std=.492$), achievement motivation ($M=4.054$, $Std=.485$), and grit ($M=4.059$, $Std=.511$) had high means explaining that students rated themselves high on all variables. The mean score for achievement was 358.7 ($Std=72.27$).

Table 1 displayed exceptionally strong Pearson correlations between students' academic self-concept and achievement motivation ($r = .910$) as well as self-concept and Grit ($r = .928$). Additionally, the findings demonstrated a moderately positive correlation between academic self-concept and achievement ($r = .334$), achievement motivation and achievement ($r = .277$), and Grit and achievement ($r = .285^{**}$).

Table 2 Effect of Academic Self-concept, Achievement Motivation, and Grit on Achievement

Variable	B	SE	Beta	T	P	R ²
Constant	149.099	35.420		4.209	.000	.112
Academic Self-Concept	51.835	8.698	.334	5.960	.000	
F=(1,282) 35.518, Sig=.000						
Constant	182.515	36.709		4.972	.000	.076
Achievement Motivation	43.445	8.990	.277	4.832	.000	
F=(1, 282) 23.351, Sig=.000						
Constant	186.372	34.842		5.349	.000	.081



Grit	42.439	8.516	.285	4.984	.000
F=(1, 282) 24.836, Sig= .000					

The table 2 reflects the linear regression analysis computed to determine the effect of Academic self-concept on students' Achievements. The results show $R^2 = .112$, which signaled that academic self-concept explained 11.2% variance in the outcome variable. The outcome in the table portrayed the regression equation utilized in research with $F(1, 282) = 35.518$, $p > .005$. Findings show that academic self-concept significantly affects students' Achievement ($\beta = .334$, $p > .005$).

The table depicts that the Achievement Motivation has a positive effect on student achievement. The coefficient of determination R^2 was .076, which signaled that achievement motivation explained 7% variation in achievement. The outcome in the table described that the regression equation used in the research was significant, $F(1, 282) = 23.351$, $p = .000$; the findings revealed that Achievement motivation has a significant effect on student achievement ($\beta = .277$, $p < .005$).

The table also shows the effect of students' Grit on the Achievements of students. The coefficient of determination R^2 was .081, which signaled that achievement motivation explained .8% variations in outcome. The table's outcome portrayed that the regression equation used in research $F(1, 282) = 24.836$, $p = .000$, was significant. The findings revealed that Grit significantly affects students' achievement ($\beta = .285$, $p > .005$).

Table 3 *Effect of Academic Self-Concept and Achievement Motivation on Students' Grit*

Variable	B	SE	Beta	t	P	R ²
Constant	.293	.112		2.629	.009	.804
Academic Self-concept	.932	.027	.897	34.008	.000	
F= (1, 282)1156.6, Sig.000						
Constant	1.073	.183		5.861	.000	.489
Achievement Motivation	.737	.045	.700	16.438	.000	
F=(1, 282)270.2, Sig.000						

The table 3 shows the effect of Academic Self-Concept on students' Grit. The coefficient of determination R^2 was .804, meaning that academic self-concept explained 8% variations in outcome. The table's outcome described that the regression equation applied in research was significant $F(1, 282) = 1156.6$, $p = .000$. The findings revealed that Academic self-concept positively predicts the student's Grit ($\beta = .897$, $p < .001$).

The table portrays the impact of students' achievement motivation on grit. The coefficient of determination R^2 was .489, which signaled that academic self-concept explained 48% variations in outcome. The table's outcome depicted that the regression equation utilized in the research was significant, $F(1, 282) = 270.2$, $p < .005$. The findings revealed that the Academic self-concept positively predicts students' Grit ($\beta = .700$, $p = .000$). The result enlightened that achievement motivation has a statistically significant effect on students' grit.

Table 4 *Effect of Academic Self-Concept, Achievement Motivation, and Students' Grit on Achievement*

Variable	B	SE	Beta	t	P	R ²
Constant	131.631	38.88		3.385	.001	.119
Academic Self-concept	57.798	19.95	.373	2.896	.004	
Achievement Motivation	17.356	12.53	.110	1.385	.167	
Grit	-18.969	19.61	-.127	-.967	.334	
F= (3, 280)12.619, Sig=.000						

The output shown in the table 4 that the coefficient of determination was $R^2 = .119$ which explained the variation in achievement motivation. This signaled that academic self-concept, Achievement Motivation, and Grit show 11% variance in students' achievement. The outcome in the table represented that the regression equation in this research, $F(3, 280) = 12.619$, $p = .000$, is significant.

The result reveals that academic self-concept ($\beta = .373$ $p = .004$) is significantly contributing to the Achievement of students, whereas achievement Motivation, ($\beta = .110$) and grit ($\beta = -.127$) were insignificant. The findings show that academic self-concept significantly affects students' achievement, while Achievement Motivation and Grit have no significant effect on students' Achievement.

DISCUSSION

The outcomes of this study demonstrated that most students possessed a good self-concept, which in turn contributed to increased motivation and subsequently, enhanced academic performance (Chen et al., 2013). Furthermore, the findings indicated that most students had a robust academic self-concept, exhibited high levels of achievement motivation, and displayed grit. Moreover, their academic performance surpassed the norm, particularly as a significant portion of the participants were science students. It's worth noting that, within the Pakistani academic context, only top-performing students from matriculation examinations were eligible to choose science subjects.

The results of the current study suggest a strong and positive connection between achievement motivation and its constituent elements (such as motivation goals, achievement goals, effort, and willingness to work) with students' academic achievements. Furthermore, the research highlights a substantial impact of achievement motivation on students' academic performance. This aligns with prior studies conducted by researchers like Bowman et al. (2015), Crede et al. (2017), Emmanuel et al. (2014), Rimfeld et al. (2016), and Sarangi (2015), all of whom have substantiated this phenomenon. Their collective findings consistently support the idea that achievement motivation directly and significantly influences students' academic success. In essence, it can be deduced that achievement motivation plays a pivotal role in academic performance, emphasizing the need to consider motivational factors when striving for high achievement.

The study's findings underscore the critical role of grit in students' academic success. It revealed a positive correlation between students' grit and their academic achievements, aligning with prior research such as Luthans et al. (2019) and Weisskirch (2018), which have consistently reported the beneficial link between grit and academic performance. Luthans et al. (2019) conducted an extensive investigation, delving into the interplay of academic performance, grit, academic self-efficacy, and psychological capital, ultimately unveiling a significant connection between grit, academic performance, and psychological capital. In a similar vein, Lee (2017) identified a substantial association between grit, academic performance, perceived academic setbacks, and stress in a related study. Notably, grit has been employed as a variable to explain diverse outcomes, encompassing not only positive facets like academic achievement and self-efficacy but also negative aspects such as psychological symptoms, as demonstrated in studies by Özhan & Boyacı (2018) and Brooks & Seipel (2018).

Consistently, the study reinforced the positive relationship between achievement motivation and students' grit, corroborating prior research findings, including studies by Özhan and Boyacı (2018) and Asikainen et al. (2020). Additionally, the research indicated that overall grit significantly influences academic achievement. Moreover, it highlighted that academic self-concept and achievement motivation play pivotal roles in shaping students' levels of grit. Grit is a widely recognized noncognitive factor that substantially contributes to academic learning. A systematic review by Lam and Zhou (2019) concluded that there exists a significant and moderate positive association between grit and academic achievement, with a slight emphasis on the role of perseverance in effort in influencing higher education students' academic performance. These findings underscore the importance of grit in enhancing students' academic performance, a sentiment shared in studies by Akos & Kretchmar (2017) and Duckworth et al. (2007).


CONCLUSION

In conclusion, the study provided evidence for the positive association between students' overall grit levels, specifically the components of consistency of interest and perseverance of effort, and their academic achievements. This indicates that fostering both a continuous interest and unwavering effort is pivotal for students to excel academically, with grit serving as a key driver of their success.

Furthermore, the research established that students' academic self-concept and achievement motivation significantly impact their levels of grit. These findings underline the importance of noncognitive factors, such as grit, in academic achievement. Consequently, educational institutions should consider implementing initiatives, such as workshops and seminars, aimed at nurturing students' self-concept, motivation, achievement, and grit. Additionally, organizing teacher training workshops and seminars can be instrumental in equipping educators with the skills to effectively foster these non-cognitive factors in their students. These proactive measures have the potential to significantly contribute to the overall academic growth and success of students. In light of this research, it is clear that noncognitive factors, particularly grit, are crucial components of academic success and should be actively addressed in educational settings.

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