

**RELATIONSHIP OF NON-COGNITIVE SKILLS AND ACADEMIC ACHIEVEMENTS OF UNDERGRADUATE UNIVERSITY STUDENTS**Amir Faraz<sup>1</sup>, Nasir Ahmad<sup>1</sup>, Sajjad Hussain<sup>1</sup>**ABSTRACT**

**Introduction:** Universities prepare students to play their role in the society and equip students with cognitive and non-cognitive skills. Having the significance of non-cognitive skills in mind, the study was designed to investigate the non-cognitive skills of undergraduate students at university level. Therefore, the objectives of the study were to measure non-cognitive skills of university students and to measure the relationship of non-cognitive skills and academic performance among them.

**Material & Methods:** The population of the study was 7189 undergraduate students and a sample of 368 students was selected through simple random sampling for data collection. A questionnaire was developed and validated for gathering the data. The collected data were analysed through mean scores, standard deviation, chi-square test and Pearson correlation.

**Results:** The mean score of the students on self-control was 4.71 having significance indicating that the participants had self-control over themselves. The mean score of the students on academic self-efficacy was 3.96 which again indicates that majority of them were academically self-effective. The mean score on goal setting scale 3.63 which was significant.

**Conclusion:** The study found that the non-cognitive skills, i.e., self-control, self-efficacy, goal-setting and self-regulated learning has positive relationship with academic achievement of students.

**Key Words:** academic achievements, goal setting, non-cognitive skills, self-control, self-efficacy, self-regulated learning

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**INTRODUCTION**

Skill is defined as the capability to perform a task with desired outcomes over a period of time and energy individually or collectively.<sup>1</sup> Skills usually require external conditions and circumstances to determine the level of abilities displayed and used. Society considers it valuable and important for learning process. Time-management, teamwork, self-motivation and leadership skills are some of the important skills required for learners. Students requires three types of skills to properly contribute to their academic successes which includes; conceptual (thinking skills), technical (motor skills) and human (interactional/social skills). The conceptual and human skills are considered as soft skills whereas technical skills are considered as hard skills. These skills are important, and they work in collaborations. Both soft and hard skills provide support to each another and the expertise in both types of skills is indispensable. Experts have also attributed these skills as cognitive and non-cognitive skills reflecting the academic and occupational nature in performing different functions.<sup>2</sup>

Cognitive skills encompass learning, reasoning and engaging to attain proficiency in reading, writing and numeracy. While non-cognitive skills are comprised of personal traits, attitudes and motivations.<sup>3</sup> Experts believed that cognitive skills are inborn which are

associated with learners' cognition. According to Davidson, non-cognitive factors are as important to a successful life as the general intelligence of humans.<sup>4</sup> However, non-cognitive skills are learnt, practiced and developed. These non-cognitive skills include communication skills, interpersonal skills, self-management skills, presentation skills, leadership and managerial skills, adaptability, creativity, teamwork, problem solving skills, emotional maturity, empathy, and negotiation skills.<sup>5</sup> Cognitive skills are important for academic performances are measured with achievement tests, but non-cognitive skills are more helpful in jobs, and their measurement is not very easy but can be predicted from the performance of an individual at workplaces, e.g. coming to office on time, completing work within the stipulated time, leading a working team, interpersonal skills and attitude and relations with boss and sub-ordinates.<sup>6</sup>

Cognitive skills are important for academic performance and non-cognitive skills play an important for achieving, acquiring and maintaining the high position in the labour market, as employers look for candidates who have the ability to manage the organizations very effectively.<sup>7</sup> Another important point here to mention is that, individuals who have strong non-cognitive skills are better at developing the

cognitive skills but the reverse is not necessary as many times we see a person with more cognitive intelligence even cannot talk to a stranger. It often happens in the job interviews, where the interviewee come under pressure and although having a lot of knowledge remains silent and fails. This is because he/she lacks non-cognitive skills. So, a person's success in life cannot be judged only by the knowledge he has but by the non-cognitive abilities as well.<sup>8</sup>

Employers are often in search of the employees who are enriched with social skills, the success of the organizations are mostly dependent on the skills of the employees and hence gains the success, as the 21<sup>st</sup> century is the era of competition and the most successful person will be who along with cognitive abilities is enriched with non-cognitive skills. Seeking of job is now subject to the demand by employers, for which non-cognitive skills play a very important role, as candidate with non-cognitive skills excels the one who lack it.<sup>9</sup> When it comes to developing non-cognitive skills, the role of parents cannot be ignored, as non-cognitive skills are not inborn, rather these are learned and developed, and home is the first place of learning certain things, before admission in formal schools, so parents can do their best to develop non-cognitive skills in children at home. These skills learnt at home are more helpful in practical life.<sup>10</sup>

As university is the highest seat of learning where one can materialize ones hidden potentials, by inculcating in them the above mentioned non-cognitive skills through various strategies. It is noteworthy that non-cognitive skills have the same importance as much as that of cognitive constructs is, rather to say that both are dependable upon each other. It is therefore essential that students, along with teaching learning activities, must be equipped with certain skills that are very much necessary for his/her success in future life. Therefore, the study aimed to investigate the non-cognitive skills and academic achievement of students at university level. The objective of the study was to measure the relationship of non-cognitive skills and academic performance of university students.

#### **MATERIAL AND METHODS**

This study was co-relational in design. This study was carried out in University of Swat and University of Malakand, Pakistan. The population of the study was 7189 undergraduate students at the University of Swat, and the University of Malakand. The researcher randomly selected a sample of 368 students for the purpose of data collection through simple random sampling technique. The inclusion criterion for this study was the undergraduate students of 8<sup>th</sup> semester in the selected universities. The undergraduate students who were not willing to participate in the study were excluded from the study. A self-developed scale was used to collect data from the sample. Thirty-eight (38) items were included in the questionnaire. These items were further divided into four sub sections Self-control (10 items), Academic self-efficacy (10 items), Goal setting (09 items) and Self-regulation (09 items).

The scale was validated by expert in the field and pilot tested for reliability. The scale was administered to a group of 60 students from the population. Cronbach's alpha,  $\alpha$  (or coefficient alpha) of the scale was 0.91 which shows excellent internal consistency. The final scale was then administered to the selected sample for data collection. The study was

approved by research ethics committee. After the Approval by the research ethics committee, the study was carried out from January 2020 to January 2021. First, the study was completely described to the subjects and then written informed consent was obtained. The collected data were placed into SPSS version-22. The data were analysed through mean scores, Standard Deviation, Pearson Correlation and Chi-square test of significance.

#### **RESULTS**

A total of 368 participants participated in the study. The mean score of the students on self-control was 4.71 with p-value 0.000 which shows that most of the participants have self-control over themselves. The mean score of the students on academic self-efficacy was 3.96 with p-value 0.000 which shows that majority of them were academically self-effective. The mean score on goal setting scale was 3.63 with p-value 0.000 which shows that majority of the students have developed goal-setting skills (table-1). Table-1 also reflects the mean score of students on self-regulation scale was 3.91 with p-value 0.000 which means that majority of students have developed self-regulated skills.

The table 2 shows the relationship between student's non-cognitive skills and academic achievement of undergraduate university students. The non-cognitive skills (self-control, academic self-efficacy, goal-setting and self-regulation) have positive relationship with academic achievements of the students (table 2).

#### **DISCUSSION**

The results of the present study revealed that most of the students were self-disciplined having good self-control over themselves. It further identified that they had a good academic self-efficacy, had proper goal-setting strategies and appropriate self-regulated study habits. The findings are in conformity with those of Heckman & Rubenstein, who found that non-cognitive skills contribute to success in school, although they have added success in workplace too.<sup>11</sup> They have mentioned self-control of the students while counting other non-cognitive skills towards better academic achievement. The findings of the study is also in conformity with other research studies.<sup>12,13</sup>

This study found a significant positive relationship between academic achievement and non-cognitive skills, i.e. self-control, academic self-efficacy, goal-setting and self-regulated learning. The findings support the results found by Kai Zhou who found that Three non-cognitive skills-grit, self-control and social skills have positive relationship with academic achievements of the students.<sup>14</sup> This study was also supported by Hsin and Alamdar.<sup>15, 16</sup> However, West found the negative effects of non-cognitive skills.<sup>17</sup> The findings of the study were also in conformity with Gutman who also concluded that self-control has positively relationship with academic achievement.<sup>18</sup>

There is a close association between non-cognitive factors and educational achievement, and hence non-cognitive skills can be predictors of future results, like, academic performance, employment performance, financial stability, and hence are predictive of long-term achievements rather than tests. Psychologists have classified non-cognitive skills into five categories, commonly known as big five, which can be explained by the acronym *OCEAN*, where *O* stands for Openness to experiences, *C* is for Conscientiousness, *E* is from extraversion, *A* is from Agreeableness and *N* is from

the word neuroticism which is also called emotional stability.<sup>19</sup>

Khine have explained non-cognitive skills in relation to educational attainments.<sup>20</sup> They referred these skills as attitudes, strategies and behaviours of students towards their educational/curricular activities at school and home. Further, these skills included academic engagement, motivation, self-control and perseverance. They concluded that all these skills of students have close relation and are dependent on each other. The improvement in one area signifies improvement in the second skills and goes on. Likewise, Gray, Mcguinness, and Owende studied these skills and concluded that these are related to motivation, personality, learning approaches and self-regulation which have significant association with students' academic attainments.<sup>21</sup>

These skills are developed slowly and gradually as the child grows up. The teacher first finds out the type of non-cognitive skills in a child and then develop the same through practicing from time to time. So, after completion of one phase of schooling the students must have developed some sort of non-cognitive skills. Cognitive and non-cognitive skills interact and support each other, and human development would not be possible without the consistent interaction between these two skills, it is to noteworthy that non-cognitive skills are as important as cognitive skills for interpreting learning and employment outcomes.

Our study recommends that education institution should focus on the development of non-cognitive skills of students for better academic achievement and success in later life. The study also recommends that education institution should provide opportunities like seminars, debates, field trips, internships and other social and academic activities that may help students to improve their non-cognitive skills and be successful in practical life.

## CONCLUSION

The study concluded that the non-cognitive skills, i.e. self-control, self-efficacy, goal-setting and self-regulated learning had positive relationship with academic achievement of students

## REFERENCES

- Oishi, Nana. Skilled or Unskilled? The Reconfiguration of Migration Policies in Japan." *Journal of Ethnic and Migration Studies*. 2021; 47 (10): 2252–2269. doi:[10.1080/1369183X.2020.1731984](https://doi.org/10.1080/1369183X.2020.1731984).
- Fredricks JA, Simpkins SD. Promoting positive youth development through organized after-school activities: Taking a closer look at participation of ethnic minority youth. *Child Development Perspectives*. 2012 Sep;6(3):280-287.
- Brunello, Giorgio; Schlotter, Martin: Non cognitive skills and personality traits: Labour market relevance and their development in education & trainingsystems, IZA Discussion Papers, No. 5743, Institute for the Study of Labor (IZA), Bonn. 2011. <http://nbn-resolving.de/urn:nbn:de:101:1-201106013933>
- Davidson B. Examining the relationship between non-cognitive skills and leadership: The influence of hope and grit on transformational leadership behavior (Doctoral dissertation, University of Kansas). 2014.
- Garcia E. The need to address non-cognitive skills in the education policy agenda. In *Non-cognitive skills and factors in educational attainment*. Brill Sense. 2016.
- Glewwe P, Huang Q, Park A. Cognitive skills, non-cognitive skills, and the employment and wages of young adults in rural China. 2011.
- Brunello G, Schlotter M. Non-cognitive skills and personality traits: Labour market relevance and their development in education & training systems. 2011. Available from <https://ssrn.com/abstract=1858066>
- Smithers LG, Sawyer AC, Chittleborough CR, Davies NM, Smith GD, Lynch JW. A systematic review and meta-analysis of effects of early life non-cognitive skills on academic, psychosocial, cognitive and health outcomes. *Nature human behaviour*. 2018 Nov;2(11):867-80.
- Zhou K. Non-cognitive skills: Potential candidates for global measurement. *European Journal of Education*. 2017 Dec;52(4):487-97.
- Elkins R, Schurer S. Exploring the role of fathers in non-cognitive skill development over the lifecourse. *Institute of Labor Economics (IZA)*, Bonn. 2018.
- Heckman JJ, Rubinstein Y. The importance of noncognitive skills: Lessons from the GED testing program. *American Economic Review*. 2001 May;91(2):145-149.
- Hsin A, Xie Y. Life-course changes in the mediation of cognitive and non-cognitive skills for parental effects on children's academic achievement. *Social Science Research*. 2017 Mar 1;63:150-165.
- Smithers LG, Sawyer AC, Chittleborough CR, Davies NM, Smith GD, Lynch JW. A systematic review and meta-analysis of effects of early life non-cognitive skills on academic, psychosocial, cognitive and health outcomes. *Nature human behaviour*. 2018 Nov;2(11):867-880.
- Zhou K. Non-cognitive skills: Potential candidates for global measurement. *European Journal of Education*. 2017 Dec;52(4):487-497.
- Hsin A, Xie Y. Life-course changes in the mediation of cognitive and non-cognitive skills for parental effects on children's academic achievement. *Social Science Research*. 2017 Mar 1;63:150-165.
- Alemdar M, Moore RA, Lingle JA, Rosen J, Gale J, Usselman MC. The impact of a middle school engineering course on students' academic achievement and non-cognitive skills. *International Journal of Education in Mathematics, Science and Technology*. 2018 Oct 8;6(4):363-380.
- West MR, Kraft MA, Finn AS, Martin RE, Duckworth AL, Gabrieli CF, Gabrieli JD. Promise and paradox: Measuring students' non-cognitive skills and the impact of schooling. *Educational Evaluation and Policy Analysis*. 2016 Mar;38(1):148-170.
- Gutman LM, Schoon I. The impact of non-cognitive skills on outcomes for young people.

Education Endowment Foundation.  
2013;59(22.2):1-53.

19. Akos P, Kretchmar J. Investigating grit at a non-cognitive predictor of college success. *The Review of Higher Education*. 2017;40(2):163-186.
20. Khine MS. Non-cognitive skills and factors in educational success and academic achievement. *In Non-cognitive skills and factors in educational attainment*. Brill Sense. 2016. 1-9.
21. Gray G, Mcguinness C, Owende P. Non-cognitive factors of learning as early indicators of students at-risk of failing in tertiary education. *In Non-cognitive Skills and Factors in Educational Attainment*. Brill Sense. 2016. 199-23

Table1: Non-Cognitive skills of Students

Non-Cognitive skills	Mean	S.D	Chi-Value	P-Value
Self-Control	3.86	4.71	370.54	0.000
Academic Self-Efficacy	3.96	6.42	287.97	0.000
Goal- Setting	3.63	5.26	271.22	0.000
Self-Regulation	3.91	5.21	254.78	0.000

Table 2: Relationship of Non- cognitive skills and Academic Achievement of students

	Academic Achievement	Pearson Correlation
Self-control	1	0.174**
Academic Self Efficacy	1	0.154**
Goal Setting	1	0.161**
Self-Regulation	1	0.165*

\*\* Correlation significant at 0.01 levels