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The Effect of Students' Cognitive and Emotional Engagement on Students' Academic Success and Academic Productivity

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Abstract: This paper investigates the effect of students' cognitive and emotional engagement on learning achievement in government primary male schools. Academic achievement was assessed through academic success and academic productivity. Data were gathered and utilized a survey questionnaire with 120 male primary school teachers as the sample. Descriptive Statistics and Pearson correlation were used to assess the data that had been obtained. Analysis of the data revealed a strong positive correlation between student cognitive engagement with and academic success and academic productivity. Based on the findings, the study concluded that educational stakeholders should concentrate on student engagement as a key factor that influences a distal outcome, such as increased academic production and accomplishment. The study recommended that educators, decision-makers, and the research community pay closer attention to and identify ways to improve student involvement. Additionally, educators should create and implement a variety of classroom activities that appeal to students' cognitive functions. The implications of the findings for academic programs, institutions, teachers, and students are far larger. They support primary educational institutions by providing important data for student involvement and academic success. Additionally, the findings open up fresh avenues and perspectives for further study.

Introduction

Engagement is regarded as a crucial element in motivating pupils to graduate from high school with the essential social and academic skills to take part in university enrollment opportunities and future work alternatives (Carter, Reschly, Lovelace, Appleton, & Thompson, 2012; Gul et al., 2020). Students' engagement is referred to students' interest, involvement and connectedness with their courses, one another and the instructions of the institution (Ayub et al., 2021; Gul et al., 2020; Gul, Jan, Faridullah, Sherani, & Jahan, 2017). Interest in the phenomena of student engagement and its

impact on academic success has grown in recent years.

Students' engagement is closely related to increased students learning achievements. When teachers use different strategies for capturing student attention, the achievement level goes up. However, when students are not engaged, their level of achievement goes down behavioral problems arise. The importance of engaging students in the learning process cannot be underestimated (Gul et al., 2017; Zeng et al., 2020). According to studies from the National Institute on Deaf Education, students who exhibit high levels of engagement at school are more

likely to achieve academic success, have a greater sense of connection with their school, and have a more favourable sense of social-emotional well-being (Sirunyan et al., 2020). Student engagement in learning is an area of interest to policymakers due to the lack of student interest in classroom activities (Gul et al., 2021; Kashif, ur Rehman, Mustafa, & Basharat, 2014). According to the principle of student involvement, learning and personal growth for students increase as a function of their level of engagement in the learning environment (Gul, et al., 2020; Gul, et al., 2017; Reeve, 2012). Less likely to be disruptive, truant, or drop out, students who demonstrate enthusiasm for their studies earn better marks and perform better on tests., compared to those who are not invested in their learning (Veríssimo et al., 2021). Therefore, engagement predicts students' achievement and attitude towards learning irrespective of socio-economic status.

There is very little literature available on students' cognitive and emotional engagement, particularly in the context of its association with the academic achievement of students in Pakistan. Therefore, the present study is intended to ascertain how primary school students' different engagement dimensions (cognitive and emotional) relate to their academic achievement. Students' emotional engagement means showing attachments to school, earnestness in the classroom and acquiring positive and negative feelings towards academic and social factors in school (Zeng et al., 2020). Emotional involvement is a crucial approach for students to form feelings about their peers, teachers, and institutions that provide them with a sense of closeness, affiliation, and belonging while also offering them abundant chances for learning and development (Ali, et al., 2021; Batool et al., 2021; Gul, et al., 2022).

The study's findings are important for managing academic programs, students, and

institutions more broadly. Institutions can decide based on the knowledge gained from the study's findings rather than making decisions based on conjecture or skewed anecdotal accounts about student activity. Information on student activities would give institutions useful data for marketing and recruitment and aid in making them more receptive to the educational demands of students. Information on student activities would give institutions useful data for marketing and recruitment and aid in making them more receptive to the educational demands of students. Institutions cannot advance beyond assuming that student activities are usual without precise and reliable data on what students are actually doing in the schools (Xu et al., 2020). The results of this study further contribute towards primary educational institutions with valuable information for student engagement and learning achievements. The results also provide new direction and vistas of further research for researchers.

Research Questions

1. Is there a significant relationship between students' cognitive engagement and academic success?
2. Is there a significant relationship between students' cognitive engagement and academic productivity?
3. Is there a relationship between students' emotional engagement with academic success?
4. Is there a relationship between students' emotional engagement with academic productivity?

Literature Review

The majority of the definitions of cognitive engagement are drawn from two types of literature. One is their mental dedication to education, their desire to go above and beyond what is expected of them in school, and their demonstration that they embrace challenges; it is

generally recognized as an important factor in determining the success of learning experiences (Batool et al., 2022; Gul, et al., 2020; Salameh et al., 2022; Tufail et al., 2022; Naz et al., 2022). This idea of cognitive involvement includes adaptability in problem-solving, a preference for diligence, and useful coping mechanisms in case of failure. Cognitive engagement is also referred to as "head-on" mental involvement, participation, absorption, attention, concentration, focus, and a resolve to go above and beyond what is necessary (Gul, et al., 2021; Gul, et al., 2020; Saleem et al., 2021; Skinner & Pitzer, 2012). On the other hand, the learning literature emphasizes the strategic or self-regulating aspect of cognitive engagement and the use of metacognitive strategies to plan, monitor, and assess cognition while completing tasks (Ayub et al., 2021). The descriptions of psychological investments in learning are also strikingly like concepts found in the literature on motivation, such as instrumental goals, intrinsic motivation, and learning opportunities (Zhou, Gul, & Tufail, 2022). According to the motivation construct, motivated students make an effort to learn and become proficient in academic settings. Students who set good objectives as opposed to performance goals are just as intent on learning, comprehending, and mastering the task as they are on making an upward effort. In educational psychology, cognitive engagement is often defined as the degree to which a student is actively involved in the learning process. This can include factors such as their motivation to learn, their willingness to tackle challenging tasks, and their ability to stay focused and attentive during class. Students who are highly cognitively engaged tend to be more successful in their academic pursuits, as they are more likely to internalize the material and apply it in real-world contexts (Gul, et al., 2022).

Students that are naturally motivated choose challenges and persevere despite adversity (Gul, et al., 2021; Gregory & Kaufeldt, 2015). Each of these ideas emphasizes how much student's

value learning and put a premium on it, and they all presumptively tie investment to learning tactics while keeping them distinct (Batool, et al., 2022; Gul, et al., 2021; Mushtaq, et al., 2018; Salameh, Akhtar, Gul, Omar, & Hanif, 2022). There is also evidence of overlap between the criteria of cognitive engagement and other domains. Problematic since it appears in both definitions of cognitive behavioural engagement, some of the definitions include the word "effort." As pointed out by Syed and colleagues, it is critical to distinguish between the effort that is primarily behavioural, or only focused on completing a task and the effort that is focused on learning and topic mastery. The motivation construct indicates that a motivated student attempts. It is important to remember that no definition fully captures engagement's qualitative measurements (Syed et al., 2022). Students may be highly strategic and dedicated to their education, or they may only be strategic when it is essential to achieve good grades and not out of a desire to study, or they may be driven to learn but lack the skills or knowledge to know how or when to utilize strategies or they may be both highly motivated and strategically incompetent. If researchers integrated the descriptions of psychological investment given in the motivational literature with the intricacies of cognitive process offered by the literature on self-regulated learning (Ahmad, et al., 2022; Minhas et al., 2021; Gul, et al., 2021), the definition would be more thorough and precise. Another option is to divide the cognitive engagement domain into two subscales, one representing the psychological investment and the other the self-regulated learning component, to cover both components of cognitive engagement. De Vito discovered that highly engaged students performed better academically, were more likely to voluntarily participate in learning activities, and described their studies as "boring" and "useless." These students were frequently quite engaged in a variety of in-class activities and eager to respond to teachers'

inquiries. They also strongly believed that their learning would be important for their future performance (Ayub, et al., 2021; Batool, et al., 2021; Gul, et al., 2021; Ali, et al., 2021) .

The ability of a student to make informed educational judgments and their dedication to their studies is both referred to as cognitive engagement. When faced with a decision, students who are cognitively engaged can put their own efficacy ahead of their academic performance (Zhou et al., 2022). Students that are cognitively engaged complete the criteria and exhibit high levels of academic achievement (Ahmad et al., 2022; Bukhari, et al., 2021; Gul, et al., 2022; Zhou, et al., 2022; Miller, Crowson Duke, & Akey, 2004).

Students' emotional engagement means showing attachments to school, earnestness in the classroom and acquiring positive and negative feelings towards academic and social factors in school (Zeng et al., 2020; Zhang et al., 2020). Emotional involvement is a crucial approach for students to form feelings about their peers, teachers, and institutions that provide them with a sense of closeness, affiliation, and belonging while also offering them abundant chances for learning and development (Bensimon, 2009). Students' cognitive engagement must show that they are enthusiastic about learning and are aware of their goals and accomplishments. Studies have explained engagement as students' interest, involvement and connectedness with their courses, one another and the instructions of the institution (Axelson & Flick, 2010).

According to (Pachauri et al., 2014) research, learners who were emotionally engaged more often scored much higher on reading tests than those who were less emotionally engaged. The emotional engagement had a 0.037 percent direct impact on reading, a 0.019 percent indirect impact, and a 0.056 percent total impact—the sum of the direct and indirect impacts. In the United States, Lee was the target demographic

for PISA 2000 (OECD, 2000). Ahmad, et al., 2021; Bukhari, et al., 2022; Gul, et al., 2022; Sohail, et al., 2018); the Emotional Intelligence Questionnaire for Adolescents (IKEM-R/MEQI) and a subset of PISA 2012 questions were used in a study by Nor, Ismail, and Yusof to assess secondary students' emotional intelligence and mathematical aptitude despite the idea that performance and happiness have a favourable correlation (Nor et al., 2016). The current study focuses on the relationship between participation and academic success and examines whether there is a causal relationship; previous research demonstrated that student involvement has a variety of good benefits; studies have also indicated that involvement in academic activities can operate as a safeguard against risky behavior, like substances misuse, unsafe sexual behavior and criminally (Ahmad, I., Gul, R., (2022; Gul, R., & Khilji, G., 2022; Anas, A et al., 2022; Morrison, Cosden, O'Farrell, & Campos, 2003). Therefore adolescents who are actively involved in schools are more likely to succeed academically and steer clear of some of the perils of puberty (Champion, Skinner, health education: Theory, & practice, 2008).

Methods and Materials

A correlation research strategy was used in the study. Correlation research looks at how different variables are related.

Sample and Sampling Procedure

The overall population of the study consists of government primary school male teachers in Tehsil Munda, Lower Dir. The District Lower Dir has five Tehsils such as tehsil Balamabat, Tehsil Munda, tehsil Adenzia, Tehsil Lal Qilla and Tehsil Samar Bagh. The study is conducted in Tehsil Munda Dir Lower. There are 64 primary schools in Tehsil Munda. There are 364 teachers in primary schools in Tehsil Munda. Out of the total population, the researcher will collect data personally from 119 (20%) of the total population based on a purposive sampling technique. The

researcher used Morgan online calculator with a confidence level of 90% and a margin error was 5%. The sample will consist of those teachers who have taken classes continuously for the last three years.

Instrument

The researcher used two already validated questionnaires for measuring the variables in the study. For measuring Student Engagement Scale (SES), the scale developed by Ugur Dogan, (2015) will be used. The scale consists of 31 items. The student learning achievements were measured by the Academic Performance Rating Scale (APRS). The scale consisted of 19 items and was developed by George DuPaul (2009).

The study employed validated questionnaires that were adopted by the researcher. The expert reviewed the questionnaires and made some revisions, which were all integrated before being utilized to collect data. In order to determine reliability, the obtained data were imported into SPSS version 20, and the Cronbach alpha technique was used. The Cronbach alpha was calculated to be 0.837 for the overall reliability of the student performance academic rating scale and 0.75 for the reliability of the student engagement rating scale. When the questionnaire's reliability is 0.7 or higher, the results are regarded as reliable. Therefore, the researcher verifies the reliability of the data before collecting it.

Data collection

For data collection, the researcher employed a modified questionnaire made up of two validated scales. Before using the questionnaire, consent from the authors was sought. There were two sections to the questionnaire. The respondents' demographic data were presented in Part 1,

whereas remarks about learning success and student engagement were presented in Part 2. The Student Performance Rating scale was divided into two sections; the first sections consisted of question about academic success, and the second part consist of questions about the academic products. The Student Engagement Scale questionnaire consists of student cognitive engagement questions.

Ethical Considerations

After obtaining the primary teachers' permission to participate in the study, the researcher personally gave the questionnaires to the sampled instructors. Before distributing the questionnaires to the respondents, authorization was requested from the Sub-Divisional Education officer of the local schools in accordance with the study's ethical requirements. The teachers were told that the collected information would be treated as confidential and shall not be divulged without their prior permission. After ensuring their willingness, the questionnaires were distributed and collected on the spot.

Results

Both descriptive and inferential statistics were applied during the data analysis. Utilizing the Statistical Package for Social Sciences, descriptive statistics were employed to compile and condense the gathered data (SPSS version 20). Pearson correlation was utilized to establish the link between the variables.

Demographic Information of the Participant

On the form, the teachers were required to list their greatest degree of academic qualification. Their responses were examined using frequency distribution. Table 4.2 displays the findings.

Table 1

Frequency distribution of academic qualification levels of the participants

	Frequency	percent
F.A/ F.Sc	2	2%

Valid	B.A/ B.SC	16	13%
	M.A/M.SC	92	77%
	M.Phil.	10	8%
	Total	120	100%

The majority of the respondents F:92 (77%) had an M.A./M.Sc. Degree, according to the test results shown in table 1. With F:10 (8%) respondents who completed M.Phil. degree

programmes, 16 (13%) respondents were B.A./B.Sc. Graduates. While 2 (2%) percent of respondents met the requirements for F.A./F.Sc.

Table 2

The relationship between cognitive engagement and academic success

Pearson Correlation		Cognitive engagement	Academic success
Cognitive engagement	Pearson Correlation	1	.322**
	Sig. (2-tailed)		.000
	N	120	120
Academic success	Pearson Correlation	.322**	1
	Sig. (2-tailed)	.000	
	N	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

Table-2 shows relationships between cognitive engagement and academic success that are moderately positive and substantial. The research's main premise, "is there a significant relationship between cognitive engagement and

academic success," is supported and confirmed by the results. According to the table, there was a +.431 Pearson correlation between academic productivity and cognitive engagement ($r(120) = +.431, p .01$, two-tailed).

Table 3

Relationship between Cognitive Engagement and Academic Productivity

		Student cognitive engagement	Academic Productivity
cognitive engagement	Pearson Correlation	1	.431**
	Sig. (2-tailed)		.000
	N	120	120
Academic productivity	Pearson Correlation	.431**	1
	Sig. (2-tailed)	.000	
	N	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

Table-3 Display that there is a strong positive significant relationship between student cognitive engagement and academic

productivity. The finding answers the research's second question of the study "is there a relationship between cognitive engagement and

academic productivity". The table shows that the Pearson correlation coefficient of academic productivity with cognitive engagement was

observed as $+.431$, ($r(120) = .431$, $p < .01$, two-tailed).

Table 4

Relationship between emotional engagement and academic success

		Academic productivity	Emotional Engagement
Academic success	Pearson Correlation	1	.340**
	Sig. (2-tailed)		.000
	N	120	120
Emotional Engagement	Pearson Correlation	.340**	1
	Sig. (2-tailed)	.000	
	N	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

Table-4 illustrates that there is a positive relationship between emotional engagement and academic success. Hence, the finding supports and confirms the hypothesis of the study "there is a positive relationship between student

emotional engagement and learning". The table shows that the Pearson correlation coefficient of academic productivity with emotional engagement was observed as $+.340$, ($r(120) = +.340$, $p < .01$, two-tailed).

Table 5

Relationship between emotional engagement and academic productivity

		Academic productivity	Emotional Engagement
Academic productivity	Pearson Correlation	1	.371**
	Sig. (2-tailed)		.000
	N	120	120
Emotional Engagement	Pearson Correlation	.371**	1
	Sig. (2-tailed)	.000	
	N	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

The correlation between student emotional engagement and academic productivity is good, as seen in Table-5. The research's main premise, "Academic productivity and student emotional engagement are positively and significantly correlated", is supported and confirmed by the findings. The table shows that the Pearson correlation coefficient of academic productivity with emotional engagement was observed as $+.371$, ($r(120) = +.371$, $p < .01$, two-tailed).

Discussion

This study found a connection between students' cognitive engagement and their academic achievement. This study's conclusion is consistent with that of earlier research. The study discovered a link between cognitive engagement and academics. The findings and successes of this study support those of earlier research studies that demonstrated a positive correlation between students' cognitive engagement and their

academic success (Delfino, 2019). Academic achievement and cognitive engagement among students were positively and significantly correlated, according to Jordan and Al-Alwan (Al-Alwan & Mahasneh, 2014). According to Kamla-Raj and Ugur, academic achievement and student cognitive engagement are positively and significantly correlated (Adelugba et al., 2015). According to the study, there is a link between cognitive engagement and academic output. This outcome was consistent with what the researchers discovered in earlier studies. According to a study by Pietarinen, Soino, and Pyhalto, there is a link between students' cognitive involvement and academic success (Ahmad, I., Gul, R., 2022; Anas, A et al., 2022; Gul, R., & Khilji, G., 2022; Zhou, et al., 2022). According to the research by Axelson and Flick, there is a strong association between students' learning success and their cognitive engagement (Axelson & Flick, 2010).

This study found a connection between students' emotional involvement and their academic achievement. This study's conclusion is consistent with that of earlier research. Sagaydevan and Jeyaraj, for instance, revealed a substantial positive association between students' emotional engagement and academic success (Nawaz et al., 2022). Lei conducted research and discovered a strong correlation between academic success and emotional engagement (Lei, Cui & Zhou). There is a strong correlation between students' emotions and excellent performance, according to a study by (Ahmad et al., 2022; Bukhari, et al., 2022; Gul, et al., 2021). The study found a strong correlation between students' emotional involvement in learning and academic production. This study confirms earlier research by Daher, whose findings demonstrated the value of technology- and group-based instruction in improving students' emotional health and communication skills while learning geometry (Varatharaj et al., 2020). According to Wara and Aloka's research, academic success and emotional engagement are

significantly positively correlated (Wara, Aloka, & Odongo, 2018). Additionally, the study discovered a link between cognitive engagement and academic achievement. The findings of this study support those of earlier research studies that demonstrated a positive correlation between students' behavioral, emotional, and cognitive engagements and their academic success (Deflino, 2019).

Conclusions

It was discovered that cognitive engagement positively correlates with academic success in the primary school context of Lower Dir. Based on the analysis, it is concluded that cognitive engagement correlates with academic productivity. Although student involvement is a significant outcome in and of itself, its significance is amplified when compared to other outcomes, such as academic achievement and academic product. This study also concludes that in the context of government primary schools, there was a positive relationship between emotional engagement and academic success. The study concludes a significant positive relationship between student emotional engagement and academic productivity. The results of the current study demonstrated that student engagement is a process variable with implications for academic performance and academic output. According to the findings, educational stakeholders can focus on student involvement as a proximal outcome that leads to a distal result, such as improved academic achievement and academic output. Teachers and other professionals who plan and carry out various activities in the classroom should pay more attention to the engagement of the students.

In the light of the current study, the, primary school's teacher required to engage their students cognitively and emotionally, while cognitive engagement was positively correlated with student academic success and academic

product. The findings from the current research suggested that educators, policymakers and the research community need to pay more attention to the student's engagement and ways to enhance it.

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