



## Examining Relationship between Secondary School Students' Academic Engagement and their Academic Achievement: A Case of Punjab

Dr. Nisar Abid\*, Dr. Amna Saeed\*\*, Dr. Mumtaz Akhter\*\*\*

\*Assistant Professor, Department of Education, School of Social Sciences and Humanities, University of Management and Technology, Lahore, Pakistan [nisar.abid@umt.edu.pk](mailto:nisar.abid@umt.edu.pk)

\*\* Assistant Professor, Institute of Education and Research, University of the Punjab, Pakistan [amna.ier@pu.edu.pk](mailto:amna.ier@pu.edu.pk)

\*\*\*Dean, School of Social Sciences and Humanities, University of Management and Technology, Lahore, Pakistan [mumtaz.akhter@umt.edu.pk](mailto:mumtaz.akhter@umt.edu.pk)

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### ABSTRACT

*This study was designed to explore secondary school students' academic engagement and its relationship with their achievement. The (n=3200) students participated in this correlational study that were randomly selected from 80 schools of Punjab. Data were collected through the Academic Engagement Scale (AES) that consisted of 26 Likert-type statements. Validity was made sure by three educational experts while the reliability was confirmed through Cronbach's alpha = 0.821. Descriptive and Inferential statistics were applied to analyze and interpret the results. Descriptive statistics' results revealed that students have a competent level in academic engagement while results of inferential statistics (Pearson r test) indicated a positive moderate relationship between students' engagement and achievement. Moreover, a significant gender-wise and administrative division-wise difference was found in students' academic engagement. It is recommended that teachers could foster students' academic engagement by considering the role of gender and locale. Furthermore, school administration may focus on improving students' involvement in the classroom activities by providing flexible learning environment.*



### Introduction

Study-related beliefs, feelings, thoughts, and behaviors influence students' learning (Fredricks et al., 2004) while academic engagement plays a vital role to develop interest, behaviors, and skills among learners (Eccles & Roeser, 2011) that influence on students' academic success (Balfanz & Byrnes, 2006). Academically engaged students try their best to succeed in school, whereas those who are less engaged are more likely to experience depression, involve in criminal activity, and in delinquency (Henry et al., 2012; Li & Lerner, 2011). Appleton et al. (2008) believed that engagement is a person-centered approach that changes his/her practices of doing tasks. While Lekwa et al (2019) stated that it is a non-cognitive (meta-construct) aspect or ability of a learner that helps him/her to achieve academic goals. Fredricks (2011), (2014) discovered that when students' have autonomy in classroom than academic engagement is higher. However, Landis and Reschly (2013) found that academic disengagement creates problem for learners such as separation, boredom, dropout from studies, and unsuccessful in life that confirmed by (McFarland et al., 2018). Researchers found numerous factors (i.e., the school's size, ethos, rules & regulations, and availability of extra - curricular activities) at the school level influence the students' academic engagement (Abid et al., 2021; Lawson & Lawson, 2013). Research on engagement has been place in a variety of settings, including

schools, pro-social institutions, and classrooms while investigators found that engagement influences students' cognitive characteristics and academic success (Li & Lerner, 2013; Skinner & Pitzer, 2012).

Furthermore, few researchers' revealed that academic engagement and motivation are related but distinguishing variables that influence students' academic success directly and indirectly (Filsecker & Kerres, 2014; Wang & Degol, 2014). Subsequently, Wang et al. (2015) believed that engagement related variables are the best predictor of academic outcomes. On the other hand, Ganotice and King (2014) identified that school engagement did not predict the academic achievement of individual learner. In order to better understand the correlation between engagement and achievement, the researchers looked at how students' academic engagement relates with their grades/test scores/achievement and to confirm the prediction regarding academic achievement through academic engagement (Patrick et al., 2007; Wang & Holcombe, 2010; Wang & Fredricks, 2014; Bond et al. 2007).

Thus, in previous two decades, various researchers focused on the level of students' academic engagement and its statistical connection with their academic outcomes (Akpan et al., 2013; Ganotice & King, 2014; Greenwood et al., 2002; Kim et al., 2019; Lerner et al., 2005; Li, 2010). To confirm the level of students' academic engagement and its relationship with academic success in local context (Pakistan), the researchers aimed to explore the link between secondary school students' academic engagement and their achievement in Punjab province of Pakistan.

### **Literature Review**

Student participation and obligation to the school are known as engagement (Abid & Akhtar, 2020; Landis & Reschly, 2013). Students' active involvement in curricular and extracurricular activities is considered as their participation, whereas commitment to learning and educational goals is known as an obligation (Christenson et al., 2012; Fredricks et al., 2016). Researchers found that academic engagement is an intricate construct consisting of three interrelated dimensions: cognitive, behavioral, and emotional/affective (Christenson et al., 2012; Fredricks, 2015). Moreover, Ma and Wang (2022) identified the dimensions of academic engagement that is affective, behavioral, cognitive, and social engagement and concluded that it is a meta-construct. Affective engagement means to learn from experience/practice, behavioural engagement means active participation in activities, cognitive engagement means learning strategies to attain the objective, and social engagement means a student interpersonal skills. Chase et al. (2014) determined a connection between engagement and academic accomplishment of 710 randomly selected secondary school students. They found that school engagement is a predictor of achievement that differs from grade to grade. Nonetheless, Dotterer & Lowe (2011) assessed the relationship among classroom situations, school engagement, and accomplishment of early adolescence. The authors concluded that engagement mediated the relation between academic achievement and classroom environment.

Moreover, Balfanz and Byrnes (2006) explored connection between learners' engagement and achievement and stated that school engagement is critical in predicting academic achievement. Afterward, Lee (2014) conducted a research to examine the relationship between academic performance and engagement and concluded that academic engagement significantly predicted performance. Wang and Holcombe (2010) conducted longitudinal research to examine the relationship among students' school engagement, classroom environment, and their achievement. The sample comprised 1046 students of grade 9. They established that the views of learners about the school setting directly and indirectly affected their success through classroom engagement. Patrick et al. (2007) explored connection among classroom engagement, school environment, and achievement of secondary school students. The authors found that school environment was positively connected to engagement and engagement was positively related to academic success. Further Fall and Roberts (2012) identified the positive relationship between engagement and achievement that confirm in meta-analysis conducted by (Roorda et al., 2017).

### **Objectives of the Study**

- To examine the relationship between students' academic engagement and their achievement.
- To investigate the gender-wise and locale-wise (administrative division) difference in secondary school students level of academic engagement in Punjab.

### **Methodology**

For this research, a quantitative approach was used while a correlational research design was used to examine the relationship between students' academic engagement and achievement. Three-stage probability sampling method was used to select 3200 students from 80 high schools of Punjab province (i.e., stage 1: select four administrative division through simple random sampling, stage 2: select 20 high school from each selected administrative division (locale) through cluster stratified random sampling method, and stage 3: selected 40 students from each selected school by using simple random sampling technique). Researchers adapted a student self-report Academic Engagement Sale (AES) that originally developed by (DiPerna &

Elliott, 2002) to measure the academic engagement while the academic achievement was the student scores obtained in BISE examination. Originally, the academic engagement scale consisted of 10 statements while the adapted version comprised 26 Likert-type statements that divided into four sub-scales (i.e., affective, behavioral, cognitive, and social engagement). Each statement was constructed, from 1 (Never) to 5 (Almost Always), on a 5-point likelihood scale. The validity of the instrument was confirmed by three education and assessment experts. Furthermore, reliability was ensure through a pilot study that was conducted on 300 participants ( $\alpha = 0.821$ ). The researchers personally visited schools to collect data by applying cross-sectional survey method. To evaluate the information gathered, descriptive and inferential statistical techniques were used. Mean and standard deviation tests were used to investigate the level of academic engagement. Furthermore, an independent sample t-test and ANOVA test were used to determine differences in students' academic engagement based on democratic characteristics (gender and locale-wise), and the Pearson coefficient of correlation was calculated to examine relationship between engagement and achievement.

## Results

**H<sub>01</sub>:** There is no significant relationship between students' academic engagement and their academic achievement.

The Pearson Product-Moment Correlation (Pearson r) test was applied to test the null hypothesis.

**Table 1:** Intercorrelations Matrix and Correlation between Students' Academic Engagement and Academic Achievement

	M	SD	AE	BE	CE	SE	OAE	AA
AE	3.89	.887	-					
BE	4.17	.806	.619**	-				
CE	3.71	.856	.725**	.593**	-			
SE	4.02	1.373	.693**	.636**	.649**	-		
OAE	4.04	.975	.713**	.728**	.762**	.747**	-	
AA			.432**	.593**	.519**	.621**	.538**	-

Note:  $N= 3200$ ; AE: Affective Engagement; BE: Behavioral Engagement; CE: Cognitive Engagement; SE: Social Engagement; OAE: Overall Academic Engagement; and \*\*: Relationship significant level at 0.01 (2-tailed).

Table 1 explain the results of intercorrelation among sub-scales of academic engagement, relationship between academic engagement and achievement, and relationship between each sub-scale of overall engagement with achievement. The engagement falls in three level developing, competent, and advanced (DiPerna & Elliott, 2000). The mean values show that students have competent level in all the sub-scales of academic engagement and overall academic engagement as (Mean=3.17 to 4.17; SD= 0.806 to 1.373).

The results of correlation matrix indicated that all the sub-scales of academic engagement (affective, behavioral, cognitive, and social engagement) are significantly correlated with each other. Moreover, relationship among academic engagement sub-scales and students' academic achievement, there were moderate positive correlation between affective engagement and achievement, behavioral engagement and achievement, and cognitive engagement and achievement as  $r = .432$  to  $.593$ . While there was a strong positive correlation between social engagement and academic achievement as as  $r = .621$ . Results also indicated a moderate positive correlation between engagement and achievement as  $r = .538$ . Since, the null hypothesis "There is no significant relationship between students' academic engagement and their academic achievement" was rejected.

**H<sub>02</sub>:** There is no significant difference between secondary school male and female students' academic engagement.

**Table 2:** Gender-Wise Difference in Students' Academic Engagement

	Male (1600)		Female (1600)		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>S</i>	<i>M</i>	<i>SD</i>				
AE	3.67	.934	4.12	.841	3.853	3187.02	0.001*	0.506
BE	3.93	.641	4.41	.971	4.632	3183.74	0.000*	0.581
CE	3.41	.854	4.01	.857	3.884	3193.41	0.001*	0.701
SE	4.07	.893	3.96	1.852	1.964	3198	0.061	0.076
OAE	3.81	.814	4.26	1.135	5.217	3167.56	0.000*	0.456

Note:  $N= 3200$ ; AE: Affective Engagement; BE: Behavioral Engagement; CE: Cognitive Engagement; SE: Social Engagement; OAE: Overall Academic Engagement; *d*= Cohen's *d*; and \* =  $p <$

0.05.

To find out the difference between male and female secondary school students' academic engagement and its sub-scales i.e., affective, behavioral, cognitive, and social engagement, independent sample t-test was applied. The results shows that male students are less academically engaged as compared to female students ( $M=4.26$ ,  $SD=1.135$  >  $M=3.81$ ;  $SD=0.814$ ). While there was a significant difference between male and female students overall academic engagement as p-value is less than 0.05  $t(3167.56) = 5.217$ ,  $p < 0.001$  and three sub-scales of academic engagement i.e., affective, behavioral, and cognitive engagement as p-value is less than 0.05  $t(3187.02) = 3.853$ ,  $p < 0.001$ ;  $t(3183.74) = 4.632$ ,  $p < 0.001$ ;  $t(3193.41) = 3.884$ ,  $p < 0.001$  respectively. However, there was no significant difference between male and female students' social engagement as p-value is greater than 0.05  $t(3198) = 1.964$ ,  $p > 0.001$ . Moreover, the Cohen's d values indicated the variable gender moderately influence the students' academic engagement as  $d= 0.454$ . Thus, the null hypothesis "There is no significant difference between secondary school male and female students' academic engagement" was rejected.

**H<sub>03</sub>:** There is no locale-wise (administrative division) significant difference between secondary school students' academic engagement.

**Table 3:** *Locale-Wise Difference in Students' Academic Engagement*

	Faisalabad		Gujranwala		Sahiwal		Sargodha		F(3, 3196)	P	$\eta^2$
	M	SD	M	SD	M	SD	M	SD			
AE	3.69	.601	3.71	.618	3.87	.504	3.82	.519	6.053	.001*	0.039
BE	3.85	.542	4.02	.573	3.92	.458	4.04	.443	5.128	.001*	0.041
CE	4.11	.538	4.32	.549	4.21	.473	4.16	.446	4.743	.003*	0.053
SE	3.89	.599	4.22	.602	4.06	.484	4.09	.473	7.664	.000*	0.048
OAE	3.91	.485	4.06	.514	4.01	.382	4.03	.371	5.599	.001*	0.041

Note:  $N= 3200$ ; AE: Affective Engagement; BE: Behavioral Engagement; CE: Cognitive Engagement; SE: Social Engagement; OAE: Overall Academic Engagement;  $\eta^2=$  eta-squared; and  $* = p < 0.05$ .

one-way ANOVA test was applied to find out locale-wise (administrative division) difference in students' academic engagement and its sub-scales (i.e., affective, behavioral engagement, engagement, and social engagement) at secondary level. The results showed that there was a significant difference in students' academic engagement and its all the sub-scales based on administrative division-wise groups (i.e., Faisalabad, Gujranwala, Sahiwal, and Sargodha) as  $F(3, 3196) = 6.053$ ,  $p = 0.039$ ;  $F = 5.128$ ,  $p = 0.041$ ;  $F = 4.743$ ,  $p = 0.053$ ;  $F = 7.664$ ,  $p = 0.048$ ;  $F = 5.599$ ,  $p = 0.041$ , respectively. The eta squared value falls among  $\eta^2=0.03$  to  $0.05$  that reflect the moderate influence of administrative division (locale) on students' academic engagement and its sub-scales (i.e., affective, behavioral, cognitive, and social engagement). Moreover, to find out the group-wise difference in students' perception about overall academic engagement Fisher's LSD Post hoc test was applied. The results are given below:

**Table 3(a):** *Locale-wise Difference in Students' Overall Academic Engagement*

Dependent Variable	(I) Location	(J) Location	Mean Difference (I-J)	P
Overall Academic Engagement	Faisalabad	Gujranwala	.183*	.001
		Sahiwal	-.091	.082
		Sargodha	-.152*	.003
		Faisalabad	-.183*	.00
	Gujranwala	Sahiwal	-.171*	.001
		Sargodha	-.156*	.002
		Faisalabad	.091	.082
	Sahiwal	Gujranwala	.171*	.001
		Sargodha	.031	.281
	Sargodha	Faisalabad	.152*	.003
		Gujranwala	.156*	.002
		Sahiwal	-.031	.281

Note:  $* = p < 0.05$ .

The results of Fisher's LSD post hoc test showed a significant difference among students' overall academic engagement based on four locale-wise groups such as group 1 & group 2 (Faisalabad vs Gujranwala), group 1 & group 4 (Faisalabad vs Sargodha), group 2 & group 3 (Gujranwala vs Sahiwal), group 2 & group 4 (Gujranwala vs Sargodha) as  $p = 0.001$ ,  $0.003$ ,  $0.001$  and  $0.002 < 0.05$ .

## Conclusion

Academic engagement refers to the emotions, ideas, and actions that affect academic performance and are highly predictive of academic competency. Researchers investigated the correlation between students' academic engagement and their achievement and found a statistically significant positive moderate correlation between engagement and achievement. Moreover, researchers concluded that the demographical variable gender influence on students' academic engagement as the results showed significant difference in male and female students' academic engagement and its three subscales i.e., affective, behavioral, and cognitive engagement. The female students are more academically engaged as compared to male students. The results also concluded that a significant difference in students' academic engagement and its all the sub-scales based on administrative division-wise groups (i.e., Faisalabad, Gujranwala, Sahiwal, and Sargodha). While the results also concluded that the demographic characteristics locale moderately influence the students' academic engagement.

## Discussion & Recommendation

Former studies exposed a positive correlation between academic engagement and achievement (Ganotice & King, 2014; Klem & Connell, 2004; Lekwa et al., 2019; Voelkl, 1997). However, the findings of this study showed a positive moderate correlation between students' overall academic engagement, its sub-scales (i.e., affective, behavioral, engagement, and social engagement) and academic achievement. These results are support the previous studies findings. Shernoff and Schmidt (2008) revealed a positive connection between academic engagement and achievement. In addition, Roeser et al. (2000), Shernoff et al. (2003) found that students who are less engaged they secured less grade in academic achievement while they are less successor as compared to those who are academically more engaged.

A non-cognitive (meta-construct) aspect or ability of a learner that helps him/her to achieve academic goals known as academic engagement that may be distinct in male and female students and may differ on the basis of participants' demographical characteristics (e.g., locale). Researchers found that female students had higher academic engagement as compared to male students at secondary level. These results are similar to the findings of previously conducted studies of Abid and Akhtar (2020), Chase et al. (2014), Goodenow (1992). Moreover, researchers also found a significant difference in students' school engagement based on locale-wise (administrative division) groups (i.e., Faisalabad, Gujranwala, Sahiwal, and Sargodha).

Following results based recommendations were made:

- Student academic engagement affects their academic success, thus policymakers need to take this into account when formulating education objectives.
- Researchers should recognize other variables that can affect academic achievement, such as aptitude, motivation, and stress.
- School administration may focus on improving students' involvement in the classroom activities by providing flexible learning environment.

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