Relationship between Academic Engagement and Academic Achievement: An Empirical Evidence of Secondary School Students

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Abstract

The quantitative correlational study was designed to examine relationship of academic engagement and achievement of students. 800 students of 10th grade participated in this study that were randomly chosen from 20 high schools of district Lahore. Students' academic engagement was measured by administrating Academic Engagement Scale (AES) whereas academic achievement was their scores that they achieved in final exams of 9th grade. Multiple statistical data analysis techniques i.e. mean, standard deviation, independent sample t-test, ANOVA, and Pearson r were applied. Results exhibited that learners have competent level in engagement while difference in students' perception regarding academic engagement of girls and boys is significant. Students' father qualification has significant influence while mother qualification has no significant influence on their perceptions about academic engagement. Results also demonstrated that there is a weak as well as negative correlation in students' academic engagement and their achievement as r = -.088 (p>0.01). Thus, academic engagements have indirect influence on students' achievement. It is recommended that policy makers, teachers, and the researchers pay attention to individual learner's academic engagement because it influences on their achievement.

Keywords: Academic Engagement, Academic Involvement, Academic Commitment, Academic Achievement.

Introduction

One of the purposes of education is to elevate achievement of learners. Consequently, in past two decades psychologists are interested to examine students' variables that contribute to promote their achievement (Anthony, 2016; Manjunath, 2018). According to Scheidler (2012), students' school-related feelings, thoughts, and behaviors influence on learners' academic outcomes. These school-related feelings, thoughts, and behaviors are known as academic engagement (Landis & Reschly, 2013) that play an important role to encourage academic skills as well as interpersonal skills among learners (Eccles & Roeser, 2011). Students that are academically engaged in learning exhibit an effort to succeed in school (Li & Lerner, 2011). Hence, a significant

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number of high school learners are disengaged, not academically successful, and more likely to be depressed, unemployed, involved in criminal activities and delinquency (Henry, Knight, & Thornberry, 2012; Wang & Fredricks, 2014).

Appleton, Christenson, and Furlong (2008) considered students' engagement as person-centered approaches because it is a non-cognitive (meta-construct) factor that holds potential to get success in intended goals, especially at secondary school level. Fredricks (2011) stated that academic engagement is higher in classrooms where learners established interpersonal skills; where learners' autonomy is considered; where consistent and clear feedback is given to learners; where teachers hold high expectations; and where meaningful, interesting and challenging tasks are given to learners. In her later work, she also found that the biggest challenge in classrooms for teachers is learner disengagement (Fredricks, 2014). Disengagement leads to educational problems such as learner boredom, separation, high dropout rates, and low achievement (Fredricks, Filsecker, & Lawson, 2016; Fredricks, 2015; Landis & Reschly, 2013; McFarland, Cui, Rathbun, & Holmes, 2018). Lawson and Lawson (2013) found some factors at school level (i.e. size of school, culture, discipline and opportunities for extracurricular activities) that influence learner engagement. However, Eades (2014), van Rooij, Jansen, and van de Grift (2017), Wang and Eccles (2012), and Yazzie-Mintz (2007) found student variable (i.e. gender) influence on their engagement. Meanwhile, some believed that parent qualification also influences on student engagement (Gull, 2018; Sarwar & Ashrafi, 2014).

Li and Lerner (2013) analyzed the role of academic engagement and found that engagement affected student characteristics and their success. Engagement has been researched in various situations such as classrooms, pro-social institutions, and school context (Skinner & Pitzer, 2012). Filsecker and Kerres (2014), Wang and Degol (2014) considered that motivation and engagement are related, but distinctive variables that have direct and indirect relation with learners' achievement. However, others believed that only engagement variable is associated with outcomes (Wang, Chow, Hofkens, & Salmela-Aro, 2015). Therefore, the researchers tried to explore the relationship of learners' engagement and their achievement scores, grades, rates of school completion, and mental health (Bond et al. 2007; Patrick, Ryan, & Kaplan, 2007; Wang & Fredricks, 2014).

Many studies have been performed on student engagement in the last two decades. Researchers concluded that academic engagement relates with academic outcomes (Gull, 2018; Klem & Connell, 2004; Lerner et al., 2005; Li, 2010; Li & Lerner, 2013; Scheidler, 2012). However, Willms (2003) stated that academic engagement did not predict academic success of each and every learner. In order to understand the students' attribute such as academic engagement and its relation with academic success, researchers attempted to identify engagement of students studied at

secondary schools and its relationship with their achievement. This study may be significant for policy makers, parents, teachers, and students because it may guide to predict the decisions about learners' interests.

Objectives of the Study

- Examine the perceptions of students towards academic engagement studied at secondary schools.
- Determine difference in students' academic engagement based on gender and their parents' qualification.
- To investigate the extent to which secondary school students' academic engagement is linked with their achievement.

Research Question and Hypotheses

- What is the level of secondary school students' perceptions about academic engagement?
- $H_{o\ 1:}$ Gender has no significant influence on secondary school students' perceptions regarding academic engagement.
- $H_{o\ 2:}$ The students' father qualification has no significant influence on their perceptions about academic engagement.
- $H_{o\ 3:}$ The students' mother qualification has no significant influence on their perceptions about academic engagement.
- $H_{o\ 4:}$ There is no significant correlation in students' academic engagement and their achievement.

Literature Review

Educational productivity theory implies as the base of this study. The theory directed that academic engagement influence on achievement (Dotterer & Lowe, 2011; Wang & Fredricks, 2014). Academic engagement consists of how well a student participate in school (i.e. asking and answering questions, writing and reading on tasks, discussing about subject matter with peers and teachers) measured through rating scale (Lee, 2014; Li and Lerner, 2013) while curriculum based obtained scores are the academic achievement of learners. Christenson, Reschly, and Wylie (2012) explained that students' involvement and commitment to school considered as their academic engagement. While, Landis and Reschly (2013) further described active involvement of students in curricular along with co-curricular activities known as their involvement, whereas their obligation to learning and educational goals is recognized as commitment.

Balfanz and Byrnes (2006) examined associations between engagement and achievement and found that learners' engagement is critical to predict academic outcomes. Moreover, Patrick et al. (2007) explored associations among social environment, classroom engagement, and achievement of learners. Researchers concluded that social environment positively related to engagement while engagement

positively correlated to academic success. However, Wang and Holcombe (2010) conducted a longitudinal research on 1,046 participants to understand associations among students' engagement, school environment, and their achievement. Authors concluded that school environment directly and indirectly effect on students learning through classroom engagement. In addition, Dotterer & Lowe (2011) selected 1014 Participants (50% female and 50% male) to examine relationship among classroom situations, academic engagement, and achievement. Authors also investigated whether engagement predicted the relationship in classroom context and learners' achievement. Results indicated that engagement is the mediator between academic outcomes and classroom context.

Chase, Hilliard, Geldhof, Warren, and Lerner (2014) randomly selected 710 participants (69 % female and 31% male) to discover the extent to which engagement is linked with students' achievement among secondary level learners. Results exhibited that learners have competent level in engagement however positive moderate relationship was found in engagement and learners' achievement. Furthermore, Lee (2014) found that engagement is the significant predictor of learners' performance. van Rooij et al. (2017) made a study on 669 participants that were selected from 11 high schools to examine correlation among engagement, learners' academic adjustment and achievement. Investigators concluded that students having advance level of engagement performed well in school. Wara, Aloka, and Odongo (2018) selected 316 secondary school students to explore relationship in academic engagement and learners' academic outcomes. Researchers found significant moderate positive correlation in engagement and academic outcomes of learners. Additionally, Gull (2018) selected 1410 students from which 628 were boys whereas girls' students were 782 in number, enrolled in 25 high schools of district Narowal to investigate relationship in engagement and learners' academic achievement. The findings point out the existence of academic engagement at competent level while boys and girls' student have similar kind of academic engagement. Author also found strong relationship in learners' engagement and academic outcomes.

Research Methodology

The descriptive correlational research design was adopted to investigate the extent to which secondary school students' academic engagement is linked with their achievement. The population comprised of all the students enrolled in grade 10 at public sector high school of district Lahore for the academic year 2018-2019. There are 336 (179 girls and 157 boys) high schools in district Lahore whereas enrolled students in 10^{th} grade are 36847 (School Education Department, 2018). Two stage sampling method was used to choose 800 (400 boys and 400 girls) participants. At first stage, equal number of high school (i.e. 10 girls and 10 boys) were selected by using disproportionate stratified random sampling while subsequently 40 participants were

chosen randomly from each school. Researchers adapted Academic Engagement Scale (AES) from DiPerna and Elliott to collect data about academic engagement. The AES was validated by three educationalist and assessment experts to ensure the appropriateness as well as the usability of scale in local context. In the light of experts' opinion, more items were added in AES and translated into native language (i.e. Urdu). Revised AES contained 18 items which were again validated from three assessment experts and two bi-lingual experts. To improve reliability, two items were deleted from AES because λ value of these items was less than 0.5. Thus, final AES was consisted of 16 items. Improved version of AES demonstrated good internal consistency (coefficient alpha's value was 0.821 while composite reliability value was 0.897) when rated by 100 participants. Whereas, academic achievement was the gained scores of learners in previously conducted examination. Multiple analysis techniques were applied that comprised of descriptive and inferential statistics. Descriptive statistics was used to calculate central tendency and dispersion (Hinton & McMurray, 2017). So, mean and standard deviation were calculated to determine the level of students' engagement. The t-tests was applied to compare the difference in two groups while analysis of variance (ANOVA) was used to examine difference in three or more groups (Albers, 2017; Grami, 2019; Williams & Abdi, 2010). Hence, independent samples t-test, ANOVA test, and Pearson r test were applied by using SPSS – 23 software.

Results

Table 1

Students' Level of Academic Engagement

Statements	Mean	Std. Deviation
Ask questions about tests.	3.87	1.165
Ask questions about practical work.	3.92	1.045
Participate in classroom discussions.	3.37	1.342
Read aloud in class.	2.70	1.524
Ask questions when I confused.	3.68	1.172
Share ideas with teacher.	3.91	1.080
Use outlines to organize work.	3.58	1.260
Voluntarily answers to questions	3.82	1.061
Participate in co-curricular activities.	3.70	1.192
Spend extra time for academic work.	3.96	1.122
Participate in classroom activities.	3.84	1.118
Regularly appear in class.	4.27	.980
Note essential point during reading.	3.84	1.072
At the end of lesson, revise all topics.	3.85	1.145
Assess what I understand.	3.92	1.161
Come to class without completing assignment.	4.18	1.115
Overall Academic Engagement	3.91	.588

N= 800

The mean scores comparison demonstrate that mean of the statement 'Regularly appear in class' as *M*= 4.27; *SD*=0.980 was greater than all other statements' mean scores. Whereas, the results also depict that statement 'Read aloud in class' had the least mean score as *M*= 2.70; *SD*= 1.524. Overall results regarding academic engagement demonstrate that learners have competent level in engagement as Mean=3.91 with SD= 0.588.

Table 2

Boys' and Girls' Student Academic Engagement

Academic Engagement	*M*	*SD*	*t*	*df*	*p*
Male	3.68	.634	-4.271	798	.000
Female	3.86	.535			

N= 800

Results show that mean values of girl respondents (Mean=3.86; SD=0.535) was higher than the mean values of boy respondents (Mean=3.68; SD=0.634). So, girls had higher level of engagement than boys. Table also indicates significant difference in boys' and girls' participant academic engagement (α=0.05, t=-4.271, p=0.000). Hence, it was found that gender influence on secondary school students' perceptions about academic engagement.

Table 3

Comparison of Students' Academic Engagement Based on Father's Qualification

Academic Engagement	N	Minimum	Maximum	M	SD	F (6, 793)	*p*
Illiterate	93	1.50	4.81	3.67	.591	3.090	.005
Primary	59	2.75	4.75	3.98	.496		
Elementary	105	1.56	4.69	3.76	.630		
Matric	274	1.88	5.00	3.80	.572		
Intermediate	122	1.81	4.69	3.66	.643		
Graduation	84	2.56	5.00	3.71	.565		
Master	63	2.38	5.00	3.89	.576		
Total	800	1.50	5.00	3.77	.592		

Results demonstrate that there is a significant difference in participants' academic engagement on the basis of their father's qualification as F (6, 793) =3.090, *p* (0.005) < 0.05 level. Hence, it is found that students' father qualification significantly influence on their children academic engagement. Additionally, the mean score of respondents whose father's qualification was primary (Mean=3.98; SD=0.496) was greater as compare to mean values of respondents whose father's qualification was

elementary to master. Therefore, it means that those students are more likely to engage academically whose fathers have primary level qualification. For group-wise comparison in students' academic engagement based on their father's qualification, Tukey HSD Post hoc test was applied.

Table 3(a)

Comparison of Students' Academic Engagement Based on Father's qualification

AE	(I) Father_qualification	(J) Father_qualification	Mean Difference (I-J)	Sig.
	Illiterate	Primary	-.304*	.002
		Elementary	-.086	.305
		Matric	-.129	.068
		Intermediate	.013	.863
		Graduation	-.037	.676
		Master	-.216*	.024
	Primary	Illiterate	.304*	.002
		Elementary	.218*	.023
		Matric	.175*	.038
		Intermediate	.318*	.001
		Graduation	.267*	.008
		Master	.088	.408
	Elementary	Illiterate	.086	.305
		Primary	-.218*	.023
		Matric	-.043	.523
		Intermediate	.100	.202
		Graduation	.048	.570
		Master	-.130	.165
	Matric	Illiterate	.129	.068
		Primary	-.175*	.038
		Elementary	.043	.523
		Intermediate	.143*	.026
		Graduation	.092	.210
		Master	-.087	.289
	Intermediate	Illiterate	-.013	.863
		Primary	-.318*	.001
		Elementary	-.100	.202
		Matric	-.143*	.026
		Graduation	-.051	.541
		Master	-.230*	.012
	Graduation	Illiterate	.037	.676
		Primary	-.267*	.008
		Elementary	-.048	.570
		Matric	-.092	.210
		Intermediate	.051	.541
		Master	-.179	.068

Master	Illiterate	.216*	.024
	Primary	-.088	.408
	Elementary	.130	.165
	Matric	.087	.289
	Intermediate	.230*	.012
	Graduation	.179	.068

Results of post hoc test exhibit that there is a significant impact of father's qualifications on students' academic engagement (p (0.002, 0.024, 0.023, 0.038, 0.01, 0.08, 0.026) < 0.05 between pairs of father qualifications of illiterate vs. primary, illiterate vs. master, primary vs. elementary, primary vs. matric, primary vs. intermediate, primary vs. graduation, matric vs. intermediate and intermediate vs. master respectively).

Table 4

Comparison of Students' Academic Engagement Based on Mother's Qualification

Academic Engagement	N	Minimum	Maximum	Mean	SD	F (6, 793)	P
Illiterate	141	1.50	4.69	3.69	.608	1.828	.091
Primary	97	2.63	5.00	3.90	.533		
Elementary	113	2.38	4.81	3.80	.560		
Matric	219	1.56	5.00	3.75	.619		
Intermediate	107	1.88	5.00	3.70	.649		
Graduation	66	2.63	4.88	3.78	.541		
Master	57	2.25	4.69	3.88	.523		
Total	800	1.50	5.00	3.77	.592		

Results of One-way ANOVA show that there was an insignificant distinction in the academic engagement of learners on the basis of their mother's qualification as F (6, 793) =1.828, *p* (0.091) >0.05 level. Hence, it is found that students' mother qualification has no significant influence on their perceptions about academic engagement. Moreover, the mean score of respondents whose mother's qualification was primary (Mean=3.90; SD=0.533) was higher than mean values of respondents whose mother's qualification was among elementary to master. These results suggest that those students are more academically engaged whose mothers have primary level qualification.

Table 5
Correlation in Academic Engagement and Achievement

	AE	AA
AE	1	-.088 .013
AA	-.088 .013	1

N= 800; AE= Academic Engagement; and AA= Academic Achievement.

Results depict weak negative relationship in learners' academic engagement and achievement as r (798) = -0.088, $p > 0.01$. Thus, it is found that learners' engagement towards academic has indirect influence on their achievement.

Conclusion

Academic engagement is the feelings, thoughts and behaviors of learners that influence on achievement and play a significant role in promoting academic as well as interpersonal skills. Researchers investigate the associations between academic engagement and achievement of learners that was statistically weak as well as negative. In addition, researchers also identify that both boys' and girls' student have competent level in engagement while the difference found in academic engagement of girls' and boys' students is significant. Moreover, it is also found that students' father qualification has significant influence while mother qualification has no significant influence on their perceptions about academic engagement.

Discussion and Recommendation

Academic engagement is considered as a meta-construct phenomenon that may be distinct in male and female respondents and may vary on the basis of their characteristics. Researchers found that gender significantly influence on students' engagement while girl participants had higher academic engagement as compared to boy participants. These results support the findings of pervious researches conducted by Chase et al. (2014), Eades (2014), Schlechty (2002), Wang and Eccles (2012), and Yazzie-Mintz (2007). However, findings presented by Gull (2018) and Wang, Willett, and Eccles (2011) reflect no difference in students' engagement by considering their gender. This difference in findings may occur due to use of various instruments to measure engagement. Gull (2018) found similar results that students' father qualification has significant influence while mother qualification has no significant influence on their perceptions about academic engagement.

Earlier studies discovered a positive relationship in engagement and learners' achievement (Alvarez & Frey, 2012; Chase et al., 2014; Gull, 2018; Klem & Connell, 2004; Lee, 2014; Patrick et al., 2007; Scheidler, 2012). However, the findings of this

study show weak negative relationship in achievement related to academics of students and engagement. These results are in contrast with pervious researches. The reason behind this may be teachers' behavior or instructional strategies. While the results are consistent with the finding of Dotterer and Lowe (2011), and Shernoff and Schmidt (2008), who concluded negative association between engagement and academic achievement.

The researchers make the following recommendations in the light of the findings:

- The gender appears as a factor that influence on engagement. Boys student are at risk to demonstrate less adaptive engagement than girls, as gender has clear influence on the students' engagement. Thus, keeping it in mind teachers should monitor boys in order to help them in learning as well as to enhance their engagement in classroom.
- Policy makers need to consider academic engagement of students while developing education policies because it influences academic achievement.
- Teachers should pay attention to students' classroom engagement and ways to enhance it as it directly and indirectly affects their learning.

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