

## ACADEMIC ENGAGEMENT LEADING TO LEARNING OUTCOMES: INTERCEDING EFFECTS OF INDIVIDUAL, PARENTS, AND SCHOOL-LEVEL FACTORS

Sarwat Sultan\*, Rizwana Amin\*\* Maria Anwar Khan\*

Prof. Dr. Sarwat Sultan

Chairperson

Department of Applied Psychology

Bahauddin Zakariya University Multan

03009635970, [sarwatsultan@hotmail.com](mailto:sarwatsultan@hotmail.com), [drsarwat@bzu.edu.pk](mailto:drsarwat@bzu.edu.pk)

**Rizwana Amin**

Associate Professor of Psychology

Bahria University Islamabad Campus

[Rizwana.buic@bahria.edu.pk](mailto:Rizwana.buic@bahria.edu.pk)

**Maria Anwar Khan**

Bahauddin Zakariya University, Multan

[maria.anwar.khan@gmail.com](mailto:maria.anwar.khan@gmail.com)

### Abstract

*Believing specifically in terms of learning and its outcomes, this study extended the literature on student engagement as a factor of academic success. Taken together, the study also explored the cluster of factors mediating the relationship of student engagement to learning outcomes. A sample of 454 students aged 13-15 years from public elementary schools provided data on self reported measures of school engagement, individual, parent, and school-level factors. Students' final-term scores were used as learning outcomes. This study contributed several findings; (1) significant positive impact of student engagement was found on learning outcomes, (2) from individual-level factors; academic motivation, academic scholastic competence, and social self-esteem, (3) from parent factors; parent involvement (4) and from school-level factors; academic climate, social climate, teacher likeability, peer victimization, and school satisfaction were found significant mediating factors for the impact of student engagement on learning outcomes. Findings are useful for parents, teachers, and school policy makers to make students more engaged with the school activities for the positive learning outcomes.*

**Key words:** Learning outcomes, Parent involvement, peer relations, scholastic competence, student engagement, teacher support,

### Introduction

School is a primal element to the everyday life of youngsters. Adolescents consider schooling as central to their long-run contended health, and this belief is contemplated in their involvement in educational and non-educational pursuits. Most of the students feel that they *belong* at school but some of them do not experience this feeling of belonging, and do not think that learning attainments could affect their future success in life. These beliefs and feelings may lead to a sense of disaffection from school (Jenkins, 1995).

In spite of the fact that youth expend most of their time in school, there is very little focus on the significance of school satisfaction. School administration and educational policies usually concentrate on academic achievement and don't devote give attention to evaluative and emotive outcomes. It is relatively confirmed that student engagement is centrally crucial for increasing achievements (Fredricks et al., 2014; Johnson, 2008; Patrick et al., 2007; Shernoff

& Schmidt, 2018; Shin et al., 2017) and in holding students within the school system (Shin et al., 2017).

The concept of student engagement is basically a multidimensional and interlinked. Student engagement has been conceptualized in terms of three distinct components; behavioral, cognitive, and emotional that describes students' behavioral engagement, their complicated interconnection between emotional states, and their ways of learning in class (Fredricks et al., 2014; Yonezawa et al., 2009). It is important to understand the components of behavioural, emotional and cognitive engagement. Behavioral engagement is observable and is conceived as attending class regularly, following rules, contributing in discussion, and completing homework. Emotional engagement tends to emphasis on attitudes towards school and relationship with teachers and other students, and student view of school climate including association, justice, respect, and courage from the teacher”(Patrick et al., 2007). Cognitive Engagement is defined as effort, construct meaning, self-regulation, and strategy use in learning. These mentioned characteristics for all three components can be considered as particular actions that bestow towards engagement.

The literature available on the descriptions of the factors affecting engagement provides a long list of antecedents of engagement that in turn also indicate the ways of controlling the problem of disengagement. These findings express that engagement is affected by “contextual features, and is amenable to environmental change” (Fredricks et al., 2014). Hence the literature provides a comprehensive understanding into the potential factors of school engagement, the current study has been designed to explore the factors that mediate the effect of student engagement on learning attainment. This study included all together the factors from individual, parents, and school contexts that influence student engagement. Each of the factors has been selected for inclusion because literature has demonstrated their significant effects on engagement and learning achievement of students.

Academic motivation is a significant key factor for students learning and effective outcomes. Students motivation to learn equip them to long-run learners. Motivation is fostered when a student value the learning and perceive it to be useful for them, Findings from a meta analysis by Hattie (2009) of 327 studies reported that motivation has a medium high effect size (0.48) on student learning. Tsai et al. (2008) examined how one student's interest varies within different lessons. They noted that it could have greater influence on learning outcomes and is affected by several individual and environmental factors. Findings demonstrated two types of interest: situational and personal (Harlen, 2016). Situational interest relates to the existence of certain aspects of learning environment such as the attraction in the subject to be studied, lecture methods, and available sources like computers (Mitchell, 1993). Compared to situational interest, personal interest is more lasting and consistent because it keeps students engaged in that they experience success and pleasure in learning (Harlen, 2016).

Considering the work of Deci and Ryan (1994) on self-determination and its impact on motivation, Yonezawa et al., (2009) also affirmed that people have the primary motivation of being connected with others within a social context. Emotional engagement that includes connectedness between students (Martin & Dowson, 2009) is a crucial factor for students engagement in learning. By connecting with others, students learn about their attitudes, competency, and preferences of learning in class climate, and also receive emotional support while learning collaboratively (Martin & Dowson, 2009).

Importantly, this literature emphasizes the role of healthy relationships between teachers and students in developing wellbeing (Akey, 2006; Fredricks et al., 2014; Reschly et al., 2008) and the effective learning outcomes for students (Cornelius-White, 2007; Hattie, 2009;

Martin & Dowson, 2009). Connectedness of students is a fundamental element in their engagement and motivation at school (Martin & Dowson, 2009). The social climate of school including relationships with teachers, connectedness to peers, and belonging to schools is highly related to academic motivation, engagement and attendance that results in greater academic success.

Considering the factor of teacher likeability, researches have indicated that relationship of elementary school students with their teacher influence their learning attainments, school engagement, and school satisfaction (Baker, 1999). In addition to, the studies conducted on parental involvement in adolescent education evidence the obvious assumption that parents' involvement benefits students' learning (e.g., Chavkin, 1993; Eccles & Harold, 1993; Epstein, 1994). High achievements from learning foster a satisfaction in them-selves that in turn contribute towards school satisfaction. For instance, Cock and Halvari (1999) reported a positive association between performance and school satisfaction. Students doing best in school incline to have more satisfaction with school. Moreover, the perception and self efficacy that one is scholastically competent or able, has been found to be associated with school satisfaction (Huebner & McCullough, 2020).

Another factor that needs to be discussed here is that the students when are accepted by their peers are more likely to enjoy school and their classes (Osterman, 2000). Central to this, peer relation compared to friendship affect more school perception and self-evaluation. For example, students report a greater dissatisfaction with the quality of life when are not accepted by their peers (Green et al., 1980).

To summarize, in the present study the mediating roles of individual, parent, and school level factors are examined in linking academic engagement to learning outcomes. Based on the aforementioned literature on factors accounting for the learning outcomes at school level, this study expected that academic engagement will have mediated effect on learning outcomes through individual, parents, and school-related factors.

## Method

### Research Design

To test the hypothesized model, an ex-post facto research design was employed in the current study. In ex-post facto design, independent variable is studied prospectively because independent variable is inferred not manipulated. In the present case, students' school engagement was measured during their semester and the students' learning outcomes (final exam marks) were obtained at the end of the semester.

### Participants

Data were collected from 454 students aged 13-15 years in 10 public elementary schools across the Multan city. The sample consisted of 244 male and 210 female students. All the participants were more or less similar to socioeconomic class, religion, and residential area. A booklet comprising self-report questionnaires for school engagement, learning outcomes, and potential factors related to individual, parents, and school was administered during school hours after obtaining consents from school principals, teachers, and students. Questionnaires were explained to the students in detail so that they could provide as more original information as they can do. The students completed the questionnaires under supervision of teachers and researchers simultaneously within their classrooms. Students' participation was found fully and no one question was found unresponded.

### Measures

Academic engagement was measured using the scale (Fredricks et al., 2014) consisted of 42 items covering the three domains of academic engagement i.e. emotional engagement (16 items), cognitive engagement (19 items), and behavioral engagement (7 items). Students responded on five options; 1= not at all, 2= rarely, 3= sometimes, 4= often and 5= always. The internal consistency of the measure was found with Cronbach's alpha of .83.

Individual-level factors: Data on individual-level factors were gathered by obtaining information on academic motivation, perceived scholastic competence, and social self-esteem. To measure students' motivation, 28-items Academic Motivation Scale (Vallerand et al., 1992) was used. Responses were obtained on a 5-point likert scale. Perceived scholastic competence and social self-esteem were assessed using two subscales of Harter's (1985) Self-Perception Profile for Children. Students responded on five items for each subscales with five-point response options from never to very often? Reliability analysis yielded an alpha of 0.76 for perceived scholastic competence, and alpha of 0.85 for social self-esteem.

For parent-related factor, Parental Involvement Scale (Voydanoff & Donnelly, 1999) was used to assess the parents' involvement in the lives of their adolescents. The 9-items scale measures whether parents remained involved during the last six months in the events for their adolescent for example they attended functions at school or did meetings with teachers. Students responded on each item that their parent has done for them. Reliability analysis yielded an alpha of .77 with a higher score indicating higher involvement of parents.

From the level of classroom variables, academic and social climate were evaluated using six items and three items respectively responded on five-point scale. One sample item from academic climate was: 'Imagine that the teacher leaves the classroom for a moment. Do the students continue with their work?', Cronbach's alpha for this scale was 0.71. The one questions from social climate was: 'Suppose that someone from your form is regularly bullied'. It is followed as 'Would your teacher say something about this?', 'Would the other children in your form say something?', and 'Would you tell your teacher?' Reliability analysis yielded an alpha of 0.69 with a higher score indicating a more positive social climate. Teacher likeability was noted by asking from students whether they perceived that their teacher was nice and friendly using a five-point scale ranging from 'never' to 'always'.

Peer victimization was evaluated using four items with five-point scale wherein students responded from 'never' to 'always'. The questions centered on number of experiences with name calling and social exclusion. Several studies have reported the name calling and exclusion from social group are the most common types of peer victimization among elementary school children (e.g. Smith & Shu, 2000; Whitney & Smith, 1993). Reliability analysis reported an alpha of 0.67 for the four questions.

On the level of school factors, a five-item subscale Satisfaction with School from Quality of School Life (Epstein & McPartland, 1976) was completed by students indicating on 7-point scale whether they like to go to their school. Reliability analysis yielded an alpha of 0.73.

Students' marks in percentages obtained in their exam were taken on request from the school teachers to assess the learning outcomes at school.

## Procedure

A random sample of 454 elementary school students was recruited from a total population of 1378 students of 7th and 8th grade from 10 schools at Multan city using online [www.surveysystem.com](http://www.surveysystem.com). Data on all measures were obtained from students during their class times with the help of their class teachers and permission of school principals. All questionnaires were used with due permission granted from original authors. Teachers and students were assured about the confidentiality of students' responses on all questionnaires. Results were analyzed using correlation and Structural Equation Modeling (SEM) through Analysis of Momentum Structure (AMOS-21).

### Results

For preliminary analyses of the data, zero-order correlations were computed among independent, dependent, and mediating variables (Table1). For the main analyses, *Structural Equation Modeling (SEM)* approach was employed to test the adequacy of the hypothesized model and examine the interrelationships between the study variables (i.e., school engagement, individual, parent, and school level factors). All the analyses for *SEM* were performed using the *AMOS (Analysis of Momentum Structure)* software version 21.0.

The principal independent (exogenous) variable of this study was academic engagement. Other independent (exogenous) variables were: individual-level factors (perceived scholastic competency, academic motivation, and social self-esteem), parent involvement, class-level factors (academic climate, social climate, and teacher likeability), and school-level factors (peer victimization and school satisfaction) which became the dependent (endogenous) variables in the subsequent interdependence relationships. The principal dependent (endogenous) variable of the study was students' learning outcomes (obtained marks).

**Table 1**

*Descriptive Statistics and Correlations among Study Variables*

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
<b>1 School Engagement</b>	156.2	18.6	1											
<b>Individual factors</b>														
2 Gender	--	--	-.37*	1										
3 Academic motivation	96.7	16.4	.48**	.28*	1									
4 Perceived scholastic competence	18.3	7.6	.32**	.21*	.51**	1								
5 Social self-esteem	15.4	8.34	.37**	.32**	.27*	.33**	1							
<b>Parent factor</b>														
6 Parent involvement	6.6	2.2	.45**	.22*	.35	.38**	.31**	1						
<b>School factors</b>														
7 Academic Climate	21.4	7.41	.44**	.13*	.42**	.26*	.17*	.19*	1					
8 Social Climate	10.1	4.20	.32**	.21*	.45**	.40**	.38**	.18*	.47**	1				
9 Teacher likeability	2.13	2.04	.54**	.17*	.24*	.24*	.33**	.19*	.37**	.24*	1			
10 Peer victimization	15.6	4.31	-.26*	.24*	-.38**	-.37**	-.47**	-.26*	-.44**	-.35**	-.27*	1		
11 School satisfaction	26.8	7.38	.62**	.14*	.44**	.29*	.36**	.22*	.34**	.31**	.21*	-.31**	1	
<b>12 Learning Outcomes</b>	69.5	13.7	.39**	.16*	.36**	.27*	.41**	.39**	.51**	.33**	.34**	-.53**	.41**	1

\*p>.05, \*\*p>.001

### Testing the Hypothesized Model

For analyzing the hypothesized model, all assumptions of sample size, missing data, normality, linearity, outliers, multi-collinearity and singularity were first tested. The univariate and multivariate normality of the data were also assessed using Mardia's (1970) coefficient of multivariate kurtosis. Except the learning outcome variable, all the other observed variables were found with problems of univariate normality. With respect to multivariate normality, a value of 5.99 with a critical ratio of 12.28 was obtained that showed the problem of multivariate normality.

Although a set of fit indices statistics was developed to evaluate the fit between the proposed model and the data, as suggested by some authors (Quintana & Maxwell, 1999), only three fit indices: (1) The Comparative Fit Index (CFI), (2) The Standardized Root-Mean-Square Residual (SRMR), and (3) The Root-Mean-Square Error of Approximation (RMSEA) together with overall chi-square ( $\chi^2$ ), relative/normed chisquare ( $\chi^2/df$ ), and Bollen-Stine chi-square ( $\chi^2$ ) statistics were used in this study. The Bollen-Stine chi-square ( $\chi^2$ ) was employed because it compares bootstrapped parameter estimates to estimates from a maximum likelihood procedure and the non-normal distribution of the empirical data.

The nonsignificant overall chi-square ( $\chi^2$ ) statistic whose  $p > .05$  indicates the goodness of fit for the proposed model and the data but it is highly sensitive to sample size (see Byrne, 2001). With large samples it becomes often significant. Under this condition, normed chi-square ( $\chi^2/df$ ) is used that minimizes the impact of sample size. The normed  $\chi^2$  if is between 2.00 and 3.00 indicates reasonable fit. The Comparative Fit Index (CFI) ranges from 0 to 1 for which values of greater or equal to .90 are considered adequate (Byrne, 2001). The Standardized Root Mean Square Residual (SRMR) ranges from 0 to 1, a value of 0 indicates perfect fit, a value less than .05 is widely considered good fit and below .08 is adequate fit. The Root Mean Square Error of Approximation (RMSEA) provides the good model fit if RMSEA is less than or equal to .05. or .08 (Byrne, 2001).

### Testing the Measurement Model

A confirmatory factor analysis was performed to check the connection between each of the study measures and each of its underlying observed variables to develop a measurement model with an acceptable fit to the empirical data.

**Table 2**

The Summary of Fit Indices Statistics for the Measurement Model of All Study Variables

Measures	Overall $\chi^2$	ML p	Normed $\chi^2$	BSB p	CFI	SRMR	RMSEA
Academic Motivation	56.23	.001	5.62	.001	.967	.042	.034
Perceived Scholastic Competence	28.74	.006	2.87	.000	.957	.031	.027

Social Self-esteem	26.51	.009	2.65	.001	.981	.026	.047
Parents Involvement	23.77	.003	2.38	.007	.973	.033	.052
Academic Climate	30.96	.014	3.10	.000	.984	.047	.041
Social Climate	49.88	.026	4.98	.004	.993	.036	.063
Teacher Likeability	23.37	.000	2.33	.000	.946	.023	.039
Peer Victimization	44.32	.014	4.43	.010	.968	.026	.057
School Satisfaction	23.94	.000	2.40	.001	.972	.022	.018

In Table 2, the confirmatory factor analyses showed that the measurement model of all study measures have good fits to the empirical data in all criteria for goodness of fit, and is therefore acceptable. The preliminary confirmatory factor analyses indicated that all measured variables loaded adequately (i.e., standardized factor loading greater than .50) on their underlying factor. In addition, all of the loadings of the measured variables on the latent variable were statistically significant ( $p < .001$  or  $p < .01$ ).

### Testing the Structural Model

After obtaining an acceptable measurement model which fits to the empirical data, the next step in *Structural Equation Modeling (SEM)* analysis was to proceed to test the goodness of fit of the full structural equation model. Full structural model was obtained acceptable and then the hypothesized relationships of the studied variables were examined in the structural equation model. To this end, a series of goodness of fit analyses for the overall sample was conducted.

**Table 3**

The Summary of Fit Indices Statistics for the Full Structural Equation Model (SEM) Analyses

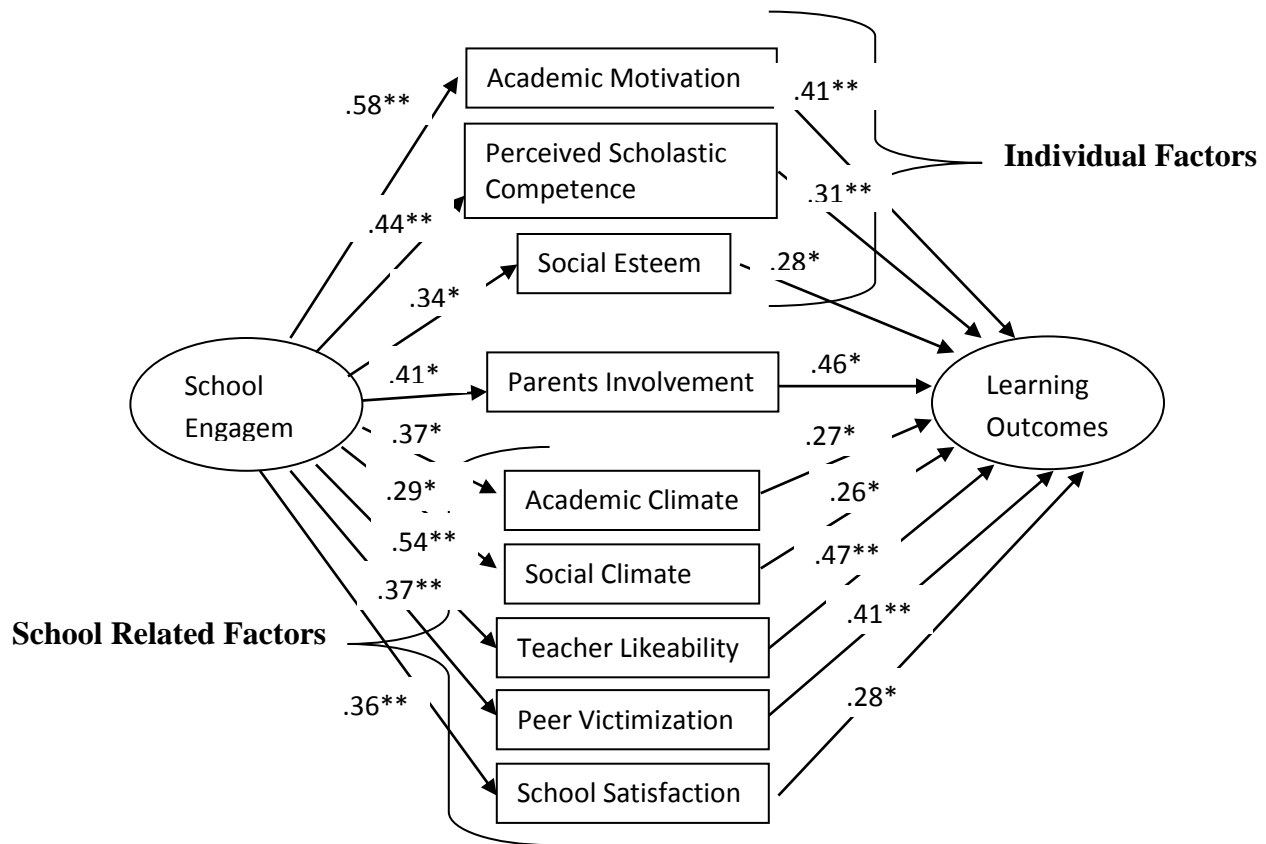
Overall $\chi^2$	ML p	Normed $\chi^2$	BSB p	CFI	SRMR	RMSEA with 95% CI and P Close
67.34	.001	6.73	.001	.971	.017	.024

Table 3 revealed that both maximum likelihood and Bollen-Stine bootstrap chi-squares were significant. In addition, the normed chi-square tests were not in the range of acceptable criteria for normed chi-square statistics. These problems might have been related to the large sample size, the nonnormality of the data, and the presence of outliers in the data. Despite these problems, all other measures of the goodness of fit provided support for the hypothesized model. Therefore, the hypothesized model fits the data adequately.

The path diagrams for the hypothesized model of school engagement are depicted in Figure 1 below.

Figure 1. The Path Diagram of the Hypothesized Model of School Engagement.





## Discussion

The current study is an attempt to extend the understanding of relationship of school engagement and study outcomes by identifying the mediated effects of school engagement on learning outcomes via many factors including from individual, parents, and school contexts. This study included many factors as mediators from three categories of individual-level, parental involvement, and school-level factors. It was expected that individual factors (academic motivation, perceived scholastic competence, and social self-esteem), parental involvement, and school factors mediate the effect of school engagement on learning outcomes.

The path analyses from SEM explained that generally the findings of this study identified the significant paths between independent and criterion variable. It implied that school engagement has the mediated effect on learning outcomes through individual, parents, and school related factors. The acknowledgment of the literature about the effects of individual-level factors; academic motivation, perceived scholastic competence, and social self-esteem on academic achievement led us to expect that these factors may mediate the connection between school engagement and learning outcomes. Findings indicated that direct effect of school engagement on learning outcomes was significant ( $\beta = .61, p > .001$ ), and indirect effects through academic motivation, perceived scholastic competence, and social esteem were also found significant ( $\beta = .24, \beta = .13, \beta = .10, p > .001$  respectively). The finding suggested that academic motivation,

perceived competency, and social self-esteem significantly mediated the effect of school engagement on learning outcomes.

These findings are in consistent with the work of Harlen (2016) who explored that several individual and environmental factors affect the academic motivation of a student that in turn influence the learning achievement. In same way, the feeling of competence was found as playing the mediating role in linking educational performance to school satisfaction (Tsige, 2006). Researcher explained that when a student perceive himself as smart in English and Maths, he perform good in class and receive high grades in exams.

In present study parent involvement has also been found related to students academic achievement ( $\beta = .46$   $p > .001$ ). It was assumed that parenting involvement would have significant mediating effect between school engagement and academic achievement. School engagement was found with a significant indirect effect on student performance through parenting involvement ( $\beta = .46$   $p > .001$ ). Turner et al. (2019) provided the support to the present findings related to parental influences on their children academic success. They demonstrated in their study conducted on college sample that parenting practices, achievement motivation, self-efficacy, and academic achievement are interconnected, and parenting involvement affected the academic performance of students. Abesha (1997) also reported that parenting practices have vital impact on scholastic performance of school students.

Path analyses for the group of school-level factors presented the valuable findings. Academic climate, social climate, teacher likability, peer victimization, and school satisfaction were found fostering the mediated effect between school engagement and study outcomes ( $\beta = .09$ ,  $\beta = .07$ ,  $\beta = .25$ ,  $\beta = .15$ ,  $\beta = .10$ ,  $p > .05$ ,  $p > .001$  respectively). Hence the school related factors have mediated the effects on learning outcomes. Two of the factors; teacher likability and peer victimization were found most significant elements that have direct effects on learning outcomes ( $\beta = .47$ ,  $\beta = .41$ ,  $p > .001$  respectively). School engagement has mediated effect on learning outcomes through students' teacher likeability mediated the effect of ( $\beta = .25$ ,  $p > .001$ ).

The findings are in line with the results reported by Patrick, Ryan and Kaplan (2007) in their study. They found significant positive effects between teachers' emotional support provided to students during class and the attainment of tasks. Similarly the peer victimization was another strong factor that mediates the effect of school engagement on learning outcomes. Findings affirmed the Harter's work (1999) that rejection, disapproval, and victimization from class fellows and peer group made students disengaged in school activities that negatively predicted their performance. Hence, in present study learning outcomes were also explained by mediated effect from school satisfaction ( $\beta = .10$ ,  $p > .05$ ). Baker (1998) clearly defined the school satisfaction in the social context and reported that students when become satisfied with their school environment perform well in attaining their tasks during class

## Conclusion

By summarizing the present findings' contribution in the field of educational psychology, it is worthwhile to consider the mediating roles of factors related to students, parents, and school. Though the school engagement has mediated effects on learning outcomes through all factors

included in the study, but academic motivation from individual-level factors; parent involvement, and teacher likeability and peer victimization from school-level factors have been found most significant mediating factors that affected the learning outcomes.

### Limitations & Suggestions

In spite of significant contribution of this study towards the literature on relationship between school engagement and learning outcomes via interceding factors, we acknowledge the limitations of current study. Nonetheless we have confidently included the factors in the three categories of mediators based on literature review, still many are there that may mediate the effect of school engagement on learning outcomes such as students' academic self efficacy, achievement goals, learning strategies, bullying, home environment, course contents, teachers' competency, and perception of fairness etc. Further this study should be replicated with some other sample in terms of its size, nature, and sampling procedure for deriving more generalizable findings.

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