

## Academic self-concept as the predictor of secondary school adolescent students' school engagement

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### ABSTRACT

The objective of this study was to examine the role of academic self-concept (ASC) in predicting adolescent students' school engagement by using a cross-sectional research design. Data was collected from 278 (149 males and 129 females) Ethiopian adolescents aged 15 to 20 years old. The result of regression analysis indicated that socioeconomic status (SES) and ASC significantly contributed to the overall school engagement score and the four components of school engagement (behavioral, emotional, cognitive, and agentic engagement). Additionally, the results from hierarchical regression revealed that SES significantly moderated the relationship between ASC and school engagement ( $\beta_3=1.323$ ;  $\Delta R^2=.033$ ,  $p<.01$ ). However, gender and grade level did not significantly relate to school engagement. As conclusion, ASC is a significant personal trait that has been linked to school engagement in which students from high SES are more advantageous regardless of their gender and grade levels.

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## 1. INTRODUCTION

In the literatures, the importance of school engagement to adolescents in particular and society as a whole has received a lot of attention. School engagement is an important educational and psychological dimension that is linked to student behavior and educational outcomes. Several researchers have defined school engagement as a multidimensional construct that includes students' involvement and commitment to learning [1], [2] as well as a dynamic concept that incorporates social and psychological concepts in a synergistic process [1]–[3].

School engagement has recently been conceptualized as a key educational and psychological construct with four dimensions: behavioral engagement, which refers to students' involvement and participation; emotional engagement, which refers to positive and negative reactions to school activities, teachers, and peers, as well as a sense of belonging and value; cognitive engagement, which refers to students' willingness to invest the effort to understand complex ideas and to master them; and cognitive engagement, which refers to students' readiness to invest the effort to understand complex ideas. The concept of school participation is viewed as a multifaceted construct [4]. Thus, school engagement is viewed as a multidimensional construct involving students' participation in academic and extracurricular activities (behavioral engagement), emotional reactions to classmates, teachers, academics, and school (emotional engagement), intellectual engagement (cognitive engagement), and the construction of their own learning (constructive engagement) (agentic engagement).

Several researchers have investigated school engagement as a predictor of long-term academic and non-academic outcomes [5]. According to Pagán [6], school engagement is a critical component for improving academic attainment. According to studies, students who are actively engaged in school are less likely to be absent, bored, drop out, or have behavioral problems. Poor school engagement, on the other hand, can lead to emotional problems, suicidal ideation, substance abuse, violence, and adolescent pregnancy [7], [8] as well as depression and delinquency during adolescence [7], [9]. Furthermore, previous studies [7] found that secondary school students who are less inclined to participate in school are more likely to drop out and feel bored at school. Adolescents who are actively involved in school activities, on the other hand, are more likely to have strong academic achievement and few behavior problems.

Various factors that influence school engagement have been discussed in the literature. In several studies, the influence of individual factors on school engagement has been discussed [3], [10]. Personal qualities, notably self-concept, have been found to influence student school engagement [11], [12]. Within the school context, self-concept is defined as the perception one has of him/herself as a person, which may include relationships with others [13]. A study by Veiga [13] also indicated that self-concept and academic accomplishment are both predictive of one another. In fact, students with a high academic self-concept (ASC) are more likely to be self-assured, freely communicate their thoughts, participate more actively in school activities, and be receptive to feedback from their teachers. Thus, self-concept is an important construct in psychology that is related to school engagement. An ASC is a notion that describes a student's perceptions of their own cognitive capacities in their learning [14]. According to Bronfenbrenner's bioecological model [15], [16], ASC is one of the major constructs in which personal level materializes.

Furthermore, self-concept and school engagement are positively associated, according to a study conducted by Singh, Chang, and Dika [17] on secondary school students in three western areas of Virginia, the United States. They came to the conclusion that students with a strong self-concept are more likely to feel like they belong at school, be happy while learning, and be engaged in school. Evidence also suggests that self-concept is related to school belonging, learning pleasure, and school involvement [11], [18]. Their findings elaborated on the fact that the greater students' ability to evaluate and be aware of themselves, the more likely they are to become acquainted with learning materials and exert their efforts to do things that can develop their ability and make them engage in learning. Thus, it has been agreed that adolescents with high self-concept are more likely to report high school engagement. On the other hand, students with low self-concept have low levels of cognitive and emotional engagement [19].

The literature also discussed the influence of self-concept together with family characteristics. For instance, studies assert that higher parental education and a larger individual self-concept are positively associated with student school engagement [19], [20]. Fullarton [20] also found that school engagement is influenced by gender, with female students reporting higher levels of school engagement than male students.

Although school engagement is regarded as a critical educational construct, the factors that influence it have not been adequately investigated in Ethiopia, where many students appear to have poor interests, boredom, and absenteeism from school. According to the annual report of the Ambo Town education office of Ethiopia and researchers' observations of secondary schools in Ambo Town, adolescents in Ambo Town are not interested in attending school regularly; students are bored with doing homework, and test cheating is common. Thus, it is vital to understand the level of school engagement and examine personal factors, particularly the influence of ASC. This research looked into the role of ASC in promoting adolescent students' school engagement, with particular reference to Ambo Secondary School in Ethiopia. Although some studies have looked into the function of ASC in promoting school engagement in three dimensions (behavioral, emotional, and cognitive), no studies have looked into the role of ASC in promoting school engagement in four dimensions, including agentic engagement. As a result, this study will add to the existing body of knowledge in the field. The major goal of this study was to see how well ASC and several demographic characteristics influence adolescent students' school engagement. More precisely, it aimed to examine: i) How socio-demographic factors (gender, age, grade level, family socioeconomic status/SES) are related to secondary school adolescent students' school engagement; ii) How self-concept predicts secondary school adolescent students' school engagement; and iii) How gender, grade levels and socioeconomic status (SES) moderate the relationship between ASC and school engagement of secondary school adolescent students.

## 2. RESEARCH METHOD

### 2.1. Research design

Data was collected, analyzed, and interpreted using a cross-sectional quantitative research design. Using this strategy allows us to collect data from a specific population at a certain period using survey instruments. It captured numerical responses with the goal of generalizing findings to the whole population.

## 2.2. Participants

The research was carried out at Ambo secondary school in Ethiopia's Oromia regional state. Based on information collected from the school administration, the study's population consisted of 2,413 (male=1,277, female=1,136) secondary school pupils. The sample size determination assumption of Krejcie and Morgan [21] was used to choose individual samples from this number. As a result, 284 people (men=150, women=134) were chosen using a stratified sampling approach to include both males and females in grades 9 to 12. As a result, a simple random selection procedure based on students' grade levels and gender was utilized to choose participants from all grade levels. Unfortunately, six people were left out of the final analysis since they did not fill out the questionnaire appropriately. As a result, data from 278 students (149 males and 129 females) was analyzed.

## 2.3. Instruments

A questionnaire with three sets of categories was utilized to gather data for this study. The primary is the socio-demographic questionnaire designed to obtain data on participants' gender, grade level, and family socioeconomic status. The second is a pre-established scale for measuring student engagement in school. The third contains scales for assessing a student's academic self-concept.

### 2.3.1. Scale of student engagement in school

The four-dimensional school engagement scale [22] was adapted and used. According to Reeve and Tseng [22], the four dimensions of school engagement have satisfactory internal consistency, with the cognitive, emotional, behavioral and agentic engagement producing alpha values of  $.88$ ,  $.78$ ,  $.94$ , and  $.82$ , respectively. The scale's psychometric properties were found to be good, and it was acknowledged as a legitimate instrument for measuring school engagement. It is a brief and cost-effective scale for evaluating the four widely acknowledged components of school engagement (cognitive, emotional, behavioral, and agentic). As a result, the school engagement scale has been regarded as a valid and trustworthy tool that may assist researchers in collecting data for studies or treatments on student school engagement.

### 2.3.2. ASC scale

In order to assess academic ASC, Liu and Wang created the academic self-concept questionnaire (ASCQ), which was adapted and deployed. The academic self-esteem subscale and the school subjects self-concept scale were used to develop the ASCQ [24]. ASC is a sub-domain of general self-concept that describes children's judgments of their academic aptitude, confidence, and dedication established in collaboration with their parents, teachers, and classmates [25]. It has 20 items, 10 of which assess academic effort and 10 of which assess academic confidence. Students' opinions and sentiments regarding their academic ability were tested on the academic confidence (AC) subscale. Students' interests, dedication, and participation in homework were assessed on the academic effort (AE) subscale. The ASCQ and its two subscales (academic confidence and academic effort) had high internal consistency ( $=.82$ ,  $.71$ , and  $.76$ , respectively) [23]. ASC has concurrent validity with Marsh, Relich, and Smith [24] school subjects self-concept scale ( $r=.71$ ).

### 2.3.3. Measure of socioeconomic status

SES is a multidimensional construct, encompassing individual characteristics (e.g., education, income and occupation). SES was assessed using subjective indices of SES based on rank-related ladders with 10 social ladders. By using these ladders, adolescent students rate their families in relation to others based on their wealth, educational attainment, and employment.

## 2.4. Validation of instruments

The validation process began with a meticulous translation of ASC and the school engagement scales from their original English language into the Oromo language of Ethiopia by following the essential phases and criteria. As a result, professionals with backgrounds in language and psychology performed forward translation, backward translation, and synthesis of the translated instruments. The new version was refined during the translation process by a team of specialists on the clarity and meaning of the translated elements. Finally, the final Afan Oromo version was created with a common agreement between backward and forward translators on the contextual meaning of each item's terms. Participants were asked to score all items on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The translated measures' validity and reliability were assessed. The scales' reliability is shown in Table 1. The table shows that the Cronbach's alpha result of all items had above  $.80$  which implies the instruments has acceptable internal reliability.

Table 1. Cronbach's alpha coefficients of the scales

Scale and subscale	Number of items	Cronbach's alpha ( $\alpha$ )
Confidence	10	.91
Effort	10	.92
Total ASC	20	.92
Behavioral engagement	5	.81
Emotional engagement	4	.73
Cognitive engagement	8	.89
Agentic engagement	5	.83
Total school engagement	22	.92

## 2.5. Procedures

The first step was a formal letter, received on January 20, 2021, from Addis Ababa University, School of Psychology, and contacting the town administrators, school principals, and students. At the moment, discussions are taking place about the study's objective and how to obtain target subjects for it. By forming good cooperation with concerned bodies and participants, easy access to the information was ensured for the study. Thus, quantitative data was collected using the necessary procedures. Data was collected with the help of school principals, teachers, and data collectors from the students. Prior to data collection, informed consent should be assured with participation [26]. Hence, participants received assurance of confidentiality and informed consent was obtained before data collection.

## 2.6. Data analysis

Data was analyzed by using descriptive statistics (mean and standard deviation). Pearson correlation, and multiple regressions were used to analyze the acquired data. The data's normality, homoscedasticity, multicollinearity, and linearity were all checked before using quantitative analysis.

## 3. RESULTS AND DISCUSSION

### 3.1. Results

Data was obtained from 284 secondary school students (150 males and 134 females). However, six students failed to complete the questionnaire correctly. Finally, data from 278 secondary school students (male=149, female=129) was analyzed.

#### 3.1.1. ASC and school engagement statistics in a Nutshell

Summary statistics of adolescent students' ASC and school engagement were calculated using descriptive statistics (mean, standard deviation/SD) and compared to the expected mean. The mean of ASC and school engagement and their subscales scores were close to the expected mean. As a result, it is reasonable to state that the ASC and school engagement scores of the students are almost moderate as presented in Table 2.

Table 2. Summary statistics of the ASC and overall scores of school engagement (N=278)

Measures	No. of items	Minimum	Maximum	Mean	Expected mean	SD
ASC	20	34.00	87.00	61.14	60	12.83
Behavioral engagement	5	7.00	25.00	16.06	15	3.96
Emotional engagement	4	4.00	20.00	12.59	12	3.03
Cognitive engagement	8	9.00	40.00	25.25	24	6.66
Agentic engagement	5	5.00	25.00	15.92	15	4.09
School engagement	22	37.00	95.00	69.73	66	14.16

#### 3.1.2. Inter-correlations among variables

A bivariate correlation was computed for demographic variables, ASC and school engagement. Table 3 presents the relationship between predictors and outcome variables. Accordingly, SES was significantly correlated to behavioral engagement ( $r=.600$ ,  $p<.01$ ), emotional engagement ( $r=.445$ ,  $p<.01$ ), cognitive engagement ( $r=.525$ ,  $p<.01$ ), agentic engagement ( $r=.468$ ,  $p<.01$ ) and total school engagement ( $r=.670$ ,  $p<.01$ ). This implies that adolescents from higher SES backgrounds are more likely to engage in their education. A significant positive relationship was also found between the overall school engagement ASC and its subscales. Accordingly, confidence was significantly correlated with behavioral ( $r=.509$ ,  $p<.01$ ), emotional ( $r=.407$ ,  $p<.01$ ), cognitive ( $r=.381$ ,  $p<.01$ ), agentic ( $r=.459$ ,  $p<.01$ ) and overall school engagement ( $r=.556$ ,  $p<.01$ ). Likewise, effort was also positively related to behavioral, emotional, cognitive, agentic, and total school engagement. Similarly, overall ASC was significantly and positively correlated to behavioral

( $r=.596, p<.01$ ), emotional ( $r=.519, p<.01$ ), cognitive ( $r=.491, p<.01$ ), agentic ( $r=.546, p<.01$ ) and total school engagement ( $r=.685, p<.01$ ). This result indicated that adolescent students who had higher ASC were more likely to engage in their learning.

Table 3. Correlations among predictor and outcome variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1 Age	1										
2 Grade level	.92**	1									
3 SES	-.030	-.004	1								
4 Confidence	.107	.118*	.609**	1							
5 Effort	.091	.115	.532**	.389**	1						
6 ASC total	.118*	.140*	.685**	.834**	.832**	1					
7 Behavioral	.144*	.136*	.600**	.509**	.485**	.596**	1				
8 Emotional	-.035	-.042	.445**	.407**	.459**	.519**	.443**	1			
9 Cognitive	-.069	-.058	.525**	.381**	.438**	.491**	.457**	.497**	1		
10 Agentic	.090	.105	.468**	.459**	.451**	.546**	.459**	.440**	.546**	1	
11 Total school engagement	.043	.054	.670**	.556**	.586**	.685**	.722**	.711**	.827**	.773**	1

N=278; \* $p<.05$ , \*\* $p<.01$

**3.1.3. Regression analysis indicating the contributions of predictors to school engagement**

Multiple regressions were used to see how the predictor factors contributed to the variation in the outcome variables in a meaningful way. Gender (after dummy coding, i.e., female=1, male=2), age, grade level, SES, and ASC were all included as predictor factors. Table 4 shows that ASC, along with demographic variables, exhibited a significant variance ( $F=65,377, p<.01, R^2=.537$ ), accounting for approximately 53.7% of the variance in overall school engagement. Overall school engagement was significantly predicted by SES ( $\beta=.380, p<.01$ ) and ASC ( $\beta=.426, p<.01$ ) in the regression table. ASC, along with demographic variables, also demonstrated a significant variance, explaining 42.9%, 28.4%, 30.5%, and 30.7% of the observed variations in behavioral, emotional, cognitive, and agentic engagement, respectively. SES, in particular, significantly predicted behavioral ( $\beta=.387, p<.01$ ), emotional ( $\beta=.158, p<.05$ ), cognitive ( $\beta=.333, p<.01$ ), and agentic ( $\beta=.196, p<.01$ ) engagement. ASC also predicts behavioral ( $\beta=.319, p<.01$ ), emotional ( $\beta=.422, p<.05$ ), cognitive ( $\beta=.279, p<.01$ ), and agentic engagement ( $\beta=.400, p<.01$ ). Sex, age, and grade level, on the other hand, had no effect on school engagement and its subscales. According to the findings, adolescents with a high ASC and a high SES are more likely to engage in their education.

Table 4. Regression analysis examining the contributions of students’ demographic variables and ASC to their school engagement

	Overall school engagement		Behavioral engagement		Emotional engagement		Cognitive engagement		Agentic engagement	
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE
Sex	-.003	1,174	-.013	.365	-.036	.313	.020	.677	-.050	.415
Age	.046	1,198	.204	.373	.076	.319	-.027	.691	.022	.423
Grade level	.046	1,297	.094	.403	.171	.345	.071	.747	.029	.458
SES	.380**	.680	.387**	.211	.158*	.181	.333**	.392	.196**	.240
ASC	.426**	.064	.319**	.020	.422**	.017	.279**	.037	.400**	.023
R2 and F	$R^2=.537$ $F=65,377**$		$R^2=.429$ $F=42,641**$		$R^2=.284$ $F=22,981**$		$R^2=.305$ $F=25,336**$		$R^2=.307$ $F=25,555**$	

N=278; \* $p<.05$ , \*\* $p<.01$ , \*\*\* $p<.001$

**3.1.4. The interaction effect of predictor variables to overall school engagement**

In order to examine the moderating role of gender, grade level, and SES in the relationship between ASC and school engagement, hierarchical regression was computed. The interaction results from Table 5 revealed that SES and ASC contributed independently to the school engagement, whereas gender did not significantly contribute to school engagement and also moderates the relationship between ASC and school engagement ( $\beta=.058; \Delta R^2=.000, p>.05$ ). SES, On the other hand, moderated the relationship between ASC and school engagement significantly ( $\beta=1.231; \Delta R^2=.030, p<.01$ ). This implied that the effect of ASC was positive and statistically significant for those who had higher SES. In the same table, the result of hierarchical regression also indicated that grade level does not significantly moderate the relationship between ASC and school engagement ( $\beta=-.256; \Delta R^2=.002, p>.05$ ).

Tables 5. Hierarchical regression analysis examining the contributions of the interactions between gender, grade level and SES on school engagement

Variables and interaction	$\beta$	Overall school engagement		
		R <sup>2</sup> (R <sup>2</sup> adjusted)	$\Delta R^2$	F
ASC	.706***			
Gender	.058	.470 (.467)	.000	81,131
ASC*gender	-.031	.470 (.465)		
ASC	.854***			
SES	1,264***	.545 (.542)	.030	123,814***
ASC*SES	1,231***	.575 (.571)		
ASC	.791***			
Grade level	.175	.471 (.467)	.002	82,077
ASC*grade level	-.256	.473 (.468)		

N=278; \*p<.05, \*\*p<.01, \*\*\*p<.001

### 3.2. Discussion

The study's major goal was to look at the role of ASC in secondary school students' school engagement. According to the data, adolescent students scored moderately on school engagement and its four components (behavioral, emotional, cognitive, and agentic engagement). The students also had a moderate level on the ASC score. A local study done in East Hararghe, Eastern Ethiopia, supports this conclusion, revealing that adolescent students are more absent from school as a result of low SES, which allows them to look for jobs [27]. According to the Ethiopian education development roadmap report [28] secondary school adolescent students were not well engaged, motivated, and interested in academic activities.

This finding revealed that ASC is positively related to adolescent students' school engagement. ASC is an important construct in psychology, and its influence on educational engagement has been examined. Student self-concept has a significant impact on students' motivation to complete academic tasks and engage in education on a regular basis. The present finding supports previous researches conducted on the area. For instance, according to a study conducted by Singh, Chang, and Dika [17] on secondary school students in three western areas of Virginia in the United States, self-concept and school engagement are positively associated. According to the research, self-concept is strongly related to school belonging, enjoyment of learning, and school engagement [11], [18]. They went on to say that the more students can analyze and be aware of themselves, the more likely they are to be familiar with learning materials and put in an effort to learn.

Students with high ASC are more likely to show high confidence, express their opinions, actively engage more in school activities and be more open to feedback [23]. Furthermore, Veiga *et al.* [18] discovered that adolescents with a positive self-image are more likely to report high levels of school engagement. The current study claims that, in addition to ASC, SES had a substantial influence on school engagement. SES is determined by the income, education, and occupation of a household. Findings assert that higher parental education and a larger individual self-concept are positively associated with adolescent students' school engagement [19], [20]. According to Jones *et al.* [27], research on developing nation inclusion in Ethiopia, poverty is the primary cause of low educational participation and attainment. The report found that as a result of their poor SES, adolescent pupils are increasingly absent from school, forcing them to look for jobs. Poor families, according to this survey, are unable to give their children the required assistance. As a result, their students are less likely to succeed in school [27].

In this study, gender was not shown to be a major factor in school engagement. Furthermore, the research found that gender had not moderated the relationship between ASC and school participation. This conclusion contradicted local results by [27] which claimed that adolescent females in Ethiopia are more likely than boys to fail examinations due to low attendance and an overabundance of household tasks. Their research also found that families generally give less financial support for their daughters' education and place household responsibilities on them, which prevents them from actively attending school. In contrast to this finding, a study on students from 12 countries found that females have significantly higher levels of engagement than males [29]. On the other hand, Fernández-Lasarte *et al.* [30] conducted an international study that found substantial gender differences in school involvement, with girls reporting stronger emotional and behavioral engagement than boys. This study also found that age and grade level had no significant relationship with school engagement.

### 4. CONCLUSION

Adolescent students' personal development is a significant factor in optimal school engagement. Self-concept is a significant personal trait that has been linked to school engagement. The study's goal was to examine how ASC, as well as some demographic factors, influenced secondary school adolescent students'

school engagement. The results showed that adolescents' ASC scores and school engagement are modest, not substantially higher. The study's findings demonstrated that ASC is strongly related to school engagement. In the study, SES was also shown to play a major role in school engagement and to moderate the relationship between ASC and school engagement. However, gender and grade level did not substantially influence the association between ASC and school engagement. In general, this study found that the higher the ASC and the higher the SES of the family, the more engaged the adolescents are. As a result, important life skills training focused on improving adolescent students' self-concept (confidence and efforts) in their learning must be organized in order to improve their school engagement. Improving the friendly relationship between the adolescent and the school environment can boost adolescent students' confidence and efforts, allowing them to enjoy their learning activities.




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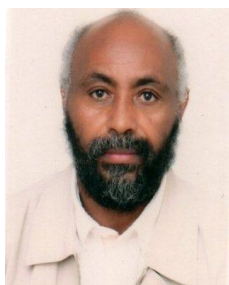
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