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Full Length Research Paper

Effects of Contextual Factors, and Cognitive and Metacognitive Learning Strategies on Academic Engagement of Secondary School Students

Tesfaye Girma (PhD)

Assistant Professor, Department of Psychology, College of Education and Behavioral Studies, Madda Walabu University

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Abstract

The prime aim of this study was to examine the effects of contextual factors and cognitive and metacognitive learning strategies on secondary school students' academic engagement by employing an ex-post facto prospective research design. The data were gathered through self-report questionnaires from a sample of 700 (348 females and 352 males) students selected via a multi-stage random sampling technique from nine secondary schools. To examine the direct and indirect effects of contextual factors and cognitive and metacognitive learning strategies on academic engagement, Structural Equation Modeling/SEM with Analysis of Moment Structures/AMOS test was used. The findings of Structural equation Modeling analysis revealed that contextual factors had a significant direct effect on academic engagement (β=.475, p=.000<.001), on cognitive strategies (β=.454, p=.000<.001), and on metacognitive strategies (β=.313, p=.000<.001). Moreover, it also revealed that metacognitive strategies had a significant effect on academic engagement (β= .889, p=.000<.001). However, the result reveals that cognitive strategies didn't have a significant effect on academic engagement (β= .208, p=.213 >.001). Additionally, the results showed that contextual factors had a significant indirect effect on academic engagement through the mediation of metacognitive strategies (β = .356, p = .002). In contrast, the indirect effect of contextual factors on academic engagement through cognitive strategies was not statistically significant (β = .094, p = .505).

* *Corresponding email: yerotesfayeg@gmail.com*

1. Introduction

School is an ideal centre for the daily life of children, where they view schooling as essential to their long-term wellbeing (Willms, 2003). Many children tend to have good relations with school contextual factors such as teachers, learning materials, and peers, and they feel that they belong to the school. However, some students do not share this sense of belongingness and do not believe that academic success would have a strong bearing on their future life. These feelings and attitudes may result in their becoming disengaged from school (Jenkins, 1995). Meeting the needs of children who have become disengaged from school is perhaps the biggest challenge facing teachers, school administrators, and parents (Willms, 2003).

According to Appleton, Christenson & Reschly (2006), engagement has emerged as a primary theoretical model for understanding the process of school dropout and as the most promising approach for interventions to prevent this phenomenon. In this view, Finn & Rock (1997) argued that the construct engagement captures the gradual process by which students disconnect from school, as dropping out of school is not an instantaneous event, but rather a process that occurs gradually over time. As

suggested by Suaraz-Orozco, Pimentel & Martin (2009); Fredricks, Blumenfeld & Paris (2004); Morrison, Robertson, Laurie & Kelly (2002) academic engagement is essentially concerned with the way students connect themselves with a learning task and it is the main theoretical model for intervening with early signs of students' disconnection with academic tasks and droupout from school. Academic engagement is also important as it is a key predictor of students' academic achievement (Reeve, 2012), students' persistence (Appleton et al, 2006), and students' timely completion of the final graduate dissertation (Dupont, Meert, Galand & Nils, 2013).

Several research findings indicate that many factors, for instance, social contextual (interpersonal) factors such as teachers, peers, parents, instructional practices, and psychological (intrapersonal) factors, such as cognitive and metacognitive learning strategies, come to have a great effect on students' academic engagement. About contextual factors, in their motivational dynamic model, Skinner and Pitzer (2012) explained that social contexts that provide children with opportunities to fulfill their fundamental psychological needs (through the provision of warmth/ involvement and autonomy support) can be the most important factors that affect the academic engagement of students. From students' academic engagement point of veiw, motivational model emphasizes on the importance of supportive interactions with teachers, peers, and parents, and intrinsically interesting academic work (Furrer & Skinner, 2003). Thus, in this study, teachers, peers, parents, and learning materials were considered as the contextual factors that had been proposed to predict academic engagement of students. Regarding the effect of teachers as one of the contextual factors, Guthrie & Davis (2003) suggested that the quality of student-teacher relationships, in the form of caring and supportive interactions were significant predictor of academic engagement. Similarly, from their respective study findings, Wooley & Bowen (2007), Brewster & Bowen (2004) concluded that teachers' supportive instruction (giving choices, making learning relevant) and provision of warmth (Close and caring relationships) are the most important predictors of student engagement across race, ethnicity, and class. With respect to the effect of peers on students' academic engagement, researchers such as Altermatt & Pomeran (2003), Wentzel, McNamara-Barry & Caldwell (2004), Gest, Rulison, Davidson & Welsh (2008); Kindermann & Skinner (2009) documented that peer interaction could influence students' academic engagement in the school. Regarding the effect of parents, researchers such as Carpio, Linares & Mariscal (2012); Migues, Uzquiano & Lozano (2010) argued that the parents, as the first socializing agent of their children, have a major influence on the academic engagement of students at all stages of education. In line with this, Conwell & Ye (2021) stated that cooperative, collaborative, and supportive relations of parents with their children facilitate and enhance optimum development of students' academic engagement. Similarly, the study by Benner, Boyle & Sadler (2016) shows that the involvement and participation of parents in the school could increase the levels of perceived self-efficacy and academic engagement of students. In addition, researchers such as Jeynes (2007), Pomerantz, Grolnick, & Pricem (2005) argued that one of the basic pathways through which parents would have an impact on children's academic performance is by shaping children's academic engagement.

On top of contextual factors, students' academic engagement could also be affected by psychological factors, including cognitive and metacognitive learning strategies. Regarding the effect of cognitive strategies on academic engagement, Lyke & Kelaher Young (2006) suggested that cognitive strategies have positive and significant effects on students' academic engagement. From their respective study results, Banna, Lin, Stewart, and Fialkowski (2015); Abdolhossini (2012) concluded that cognitive strategies are strongly related to the academic engagement of students. However, other researchers such as Ruffings, Wach, Spinath, Brünken & Karbach (2015) found that cognitive learning strategies had no statistically significant effect on the academic engagement of students.

With respect to the relationship between metacognitive and academic engagement, Siddiqui and Dubey (2018) and Smith, Rook, and Smith (2007) explained that metacognition is a level of thinking that involves active control over the process of thinking that is used in a learning situation, and could be positively associated with academic engagement. Similarly, Kaur (2010) stated that metacognition, as one of the psychological processes that involves the way a person controls, modifies,

and appraises his/her own thoughts, could have a great impact on students' school engagement. On the other hand, Sanabria, Ibáñez & Valencia (2015); Muawiyah, Yamtinah & Indriyanti (2019) revealed metagognitive learning strategies had a positive effect on academic engagement, but the effect was not statistically significant.

Generally, there were some studies that have investigated the effects of contextual factors and cognitive and metacognitive learning on the academic engagement of students in the Western world and Asia. However, such studies were not conducted much in Africa in general and in Ethiopia in particular. On top of this fact, in some cases, there were inconsistencies among the results of the previous studies. Therefore, investigating the effects of contextual factors and cognitive and metacognitive learning strategies on students' academic engagement is not yet conclusive; it needs further investigation. It was because of these facts that the current researcher was interested in examining the effects of contextual factors and cognitive and metacognitive learning strategies on secondary school students' academic engagement in the case of Bale, East Bale and West Arisi Zones, Oromia, Ethiopia.

Accordingly, for the present study, the following major hypotheses were stated:

1. Contextual factors would have a significant direct effect on the academic engagement of students.
2. Contextual factors would have a significant direct effect on students' cognitive strategies.
3. Contextual factors would have a significant direct effect on students' metacognitive strategies
4. Cognitive strategies would have a significant direct effect on the academic engagement of students
5. Metacognitive strategies would have a significant direct effect on the academic engagement of students.
6. Contextual factors would have a significant indirect effect on students' academic engagement via cognitive strategies
7. Contextual factors would have a significant indirect effect on students' academic engagement via metacognitive strategies

2. Review of Related Literature

2.1. Theoretical Models of Academic Engagement

The Self-System Model of Motivational Development is rooted in organismic assumptions that people are innately curious, interested creatures who possess a natural love of learning and who desire to internalize the knowledge, customs, and values surrounding them (Kindermann & Skinner, 2009). The main idea here is that human beings come with basic needs, and when these needs are met by social contexts, they will be engaged constructively with them. When these needs are thwarted, people become disengaged, that is, they withdraw, escape, or act out (Skinner and Pitzer, 2012). According to Skinner and Pitzer (2012), within social contexts, students construct self-system processes that are organized around their basic needs, such as relatedness, competence, and autonomy, that in turn provide them a motivational basis for their patterns of engagement versus disengagement with learning activities. The motivational model emphasizes the importance of supportive interactions with teachers, peers, and parents, and intrinsically interesting academic work (Furrer & Skinner, 2003). Thus, in this case Parents, teachers, peers, and intrinsically interesting academic work are the social contextual factors that play a major role in predicting and maintaining students' academic engagement.

According to Fredericks et al. (2004), academic engagement is defined as a meta-construct that contains three dimensions: behavioural, emotional, and cognitive engagements. As stated by Fredricks & McColskey (2012); Appleton *et al.* (2008); Skinner *et al.* (2008b) the definition of bevarioural engagement is drived from both engagement and disengagement, where behavioral engagement include students' high participation in classroom learning, positive conduct, active listening, and academic effort. On the other hand, behavioral disengagement includes behaviors such as disruptive classroom behaviors, withdrawal from learning activities, and lack of academic effort. Similarly, as argued by Skinner & Pitzer (2012); Fredericks, et al (2004); Furrer, et al (2015) the definition of emotional engagement emerges from both engagement and disegagement, where emotional engagement refers to students' attitudes, which include liking the school, the teacher, the work; feeling happy in school and satisfaction with learning activities. On the other hand, emotional disengagement includes students' emotional states of boredom, not being happy, frustration, self-blame, anxiety, and depression. In the

same manner, the definition of cognitive engagement is also derived from both engagement and disengagement. Cognitive engagement encompasses attention, concentration, self-regulation, goal-directed behavior, and preference for challenges during academic activities. In contrast, cognitive disengagement mostly includes aimlessness, apathy, resignation, or avoidance from academic activities (Hayam-Jonas, 2016).

As indicated above, in this study, the conceptualization of academic engagement was derived from the combination of two theoretical frameworks**.** First, is based on Fredricks et al. (2004) conceptualization of engagement, where engagement is defined as a meta-construct that includes three domains, such as behavioral, emotional, and cognitive components. The second one is derived from the motivational conceptualization of engagement versus disengagement, as framed by Skinner and Pitzer (2012). According to these authors motivational dynamic self-system model hypothesizes students' academic engagement or disengagement as a display of motivation, in which external contextual factors and internal psychological factors can influence the display of engagement.

2.2. Effects of Contextual Factors on Academic Engagement

In their motivational dynamic self-system model, Skinner and Pitzer (2012) explained that social contexts such as supportive interactions with teachers, peers, parents, and intrinsically interesting academic work are the most important factors that can affect students' academic engagement. About the association between parents and academic engagement, Bempechat & Shernof (2012) examined parental influences on student engagement in secondary school and reported that the more students perceive their parents as supportive, the higher they are in school tasks. However, the more they perceive their parents are controlling and neglectful, the less they are engaged in school activities. Smalls (2008) investigated the role of democratic-involved parents on African American adolescents' classroom engagement, where ninety-four youths participated in the study. The findings revealed that adolescents who perceived their parents as democratic-involved and supportive reported higher engagement in classroom activities than adolescents who perceived their parents as non-democratic. Researchers such as Smalls, et al (2007); Wang & Eccles (2012); Jeynes (2007); Pomerantz, et al. (2005); Wigfield, Eccles, Schiefele, Roeser *et al.* (2006) suggested that one pathway through which parents can affect their children's school performance is by shaping children's academic engagement, intrinsic motivation, preference for challenge, valuing and commitment to school works.

Respecting the effects of teachers on students' academic engagement, in their motivational dynamic self-system model, Skinner and Pitzer (2012) stated that three important qualities of student-teacher interactions, such as pedagogical caring (which supports experiences of relatedness), optimal structure (which facilitates competence), and autonomy support (which promotes self-determined motivation), are related to high academic engagement. From their study results, researchers such as Coe *et al.* (2014) concluded that the quality of student-teacher relationships, in the form of supportive alliances and autonomy supportive instruction (giving choices, making learning relevant) were high predictor of motivation, academic engagement, and achievement.

Concerning the association between peers and academic engagement, Berndt (2004) documented that children's friendships in school can exert positive effects on academic development, including academic engagement and achievement. With respect to the relationship between the nature of academic work and academic engagement, many research findings indicate that intrinsically interesting academic activities could be positively associated with academic engagement. For instance, Wigfield et al (2006) argued that the important determinants of motivation and engagement are the academic tasks students undertake in the classroom. Similarly, Newmann *et al.* (2007) examined authentic instruction and assessment in relation to common standards for rigor and relevance in teaching academic subjects and found that connecting to the subject matter with the real world, which offers students a sense of purpose and ownership, could be extremely related to the academic engagement of the students.

2.3. Effects of Contextual Factors on Cognitive and Metacognitive Strategies

Several previous research findings indicated that

school contextual factors are highly related to students' cognitive and metacognitive learning strategies. For instance, in their study entitled with the development of strategic readers, Paris, Wasik & Turner (1983), found that the social contexts, including parents, peers, and teachers, assist students in acquiring both the motivation and the knowledge to use cognitive and metacognitive strategies by helping them to understand the strategies they are using in learning are useful and necessary. Researchers such as Pintrich & Garcia (1991) documented that the types of strategies that learners use are largely dependent on contextual factors such as parents, teachers, peers, the quality of instructional tasks, and embedded learning goals.

Amreveer Singh et al. (2015) conducted research on the participation of parents as a curricular strategy on cognitive and non-cognitive behaviours of primary school students. The authors argued that teachers were responsible for imparting education to the children at schools who were sent to school by their parents. Finally, Amreveer Singh & Pal Singh (2015) concluded that supportive and collaborative interactions with teachers, peers, and parents, and interesting academic work would highly enhance students' cognitive and metacognitive strategies, and in turn, this increase learning performances of students. Similarly, Jaiswal (2017) revealed that parents' and teachers' emotional support and motivational support facilitate students' use of cognitive and metacognitive strategies in learning.

Phillipson and Phillipson (2012) investigated the relation between children's cognitive ability and their academic achievement with the mediation effects of parental expectations among Hong Cong primary school students. From their research findings, these authors suggested that cognitive ability and cognitive learning strategies positively and significantly predict academic achievement. Furthermore, they found that positive parental and teachers' interaction encourages the students' use of cognitive learning strategies. Yan & Paul (2021) researched metacognition and English reading-related outcomes for deaf and hard-of-hearing students. From their study results, these authors stated that much of the reading difficulty of the students is due to issues with metacognitive functioning. Yan & Paul (2021) further suggested that teachers' and peers' supportive interaction significantly helps students to cultivate and use their metacognitive strategies. Similarly, Albalhareth *et al.* (2022) studied teachers' perceptions of metacognitive strategies and assessments used with deaf and hard-of-hearing students and suggested that teachers' perceptions and expectations could affect students' metacognitive and cognitive learning strategies that, in turn, could have an influence on their reading performance.

2.4. Effects of Cognitive and Metacognitive Strategies and Academic Engagement

According to Sahar, Bayat, Rohani, Ahmad & Tarmizi (2010), cognitive strategy refers to learns' use of cognitive actions and behaviours which aim at achieving an important learning objective or doing an accessible task. It includes rehearsal (active repetition of subjects to memorize them), elaboration (adding meanings to new information), organization (imposing a certain framework on learning subjects to make them meaningful), and critical thinking strategies. On the other hand, as defined by Jaleel & Premachandran (2016), metacognition is a regulatory system that helps a person to understand, evaluate, and control his or her own cognitive performance.

Ample research results indicate that cognitive and metacognitive strategies arouse students' participation and engagement at any level of education. For instance, Smith et al. (2007) investigated the effects of cognitive, metacognitive, and affective questions on learning outcomes and engagement using an experimental research design. In the study, subjects were divided in to experimental group (who received cognitive, metacognitive, and affective questions) and a control group (who didn't receive any questions). The outcomes of the study revealed that compared to those of the control group, which had not received any questions, the experimental group who have gained cognitive, metacognitive, and affective questions, were more engaged in their learning behaviourally, cognitively, and emotionally. Supporting this idea, Bruning & Horn (2010) found that students who viewed themselves as good writers (cognitive strategies) and saw themselves as good monitor of their writing (metacognitive strategy) were more likely to engage in the writing process than students who viewed themselves as poor writers and poor in monitoring their writing. Similarly, Katz *et al.* (2006) revealed that students who

are high in using cognitive and metacognitive learning strategies were more engaged in interest-based activities and were more satisfied with their end performance.

Generally, from their respective research findings and Garcia-Reid & Peterson (2004); Pintrich (2002); Pintrich & De Monroe Groot (1990); Ainley (2006); Lyke & KelaherYoung (2006); Banna et al (2015); Kaur (2010); Kuhn & Dean (2004); Anthonysamy, Ah Choo & Soon Hin (2019); ALshammari (2015); Naihean & Yooncheong (2020); Gaylo & Dales (2017); Abdolhossini (2012), documented that there could be positive and significant association between academic engagement, and cognitive and metacognitive learnig strategies**.**

2.5. Conceptual Model

According to social cognitive theory, children's self-regulatory development and motivational engagement can be initiated by adult modeling and contextual support, and children are then able to practice the academic skills that they have acquired (Martinez-Pons, 2002). Accordingly, the theoretical model of the current study is indicated in Figure 1 below.

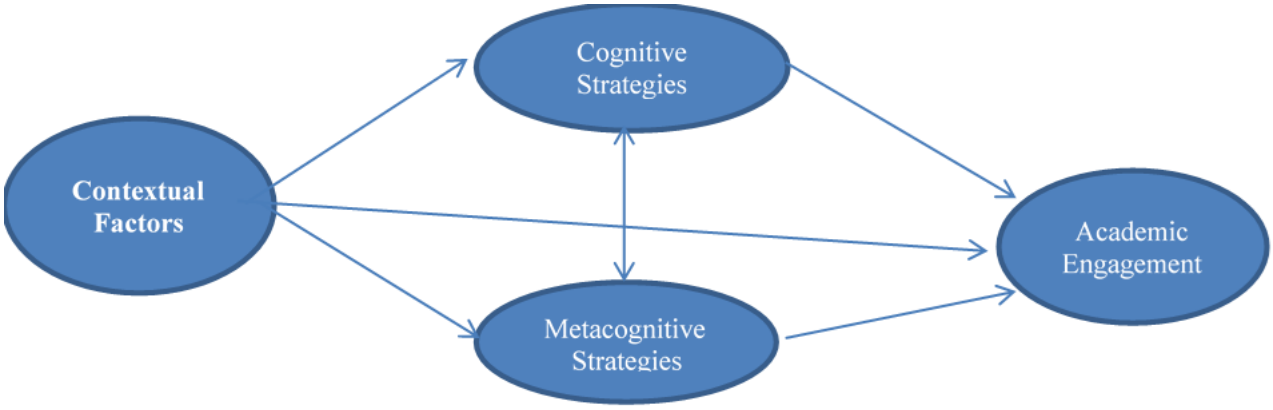

Figure 1:Shows Casual Relationship among Contextual Factors, Cognitive and metacognitive Strategies, and Academic Engagement

As can be seen from Figure 1, the model assumes that an identifiable change in the academic engagement of students was based on the nature of contextual factors. The model also assumes that a change in contextual factors results in a change in students' cognitive andstrategies. In addition, the model assumes that contextual factors would cause a change in academic engagement directly and indirectly (via cognitive and metacognitive strategies). The hypothesis, then, states that secondary school adolescent students follow a certain path in their academic engagement based on the nature of interpersonal (contextual) factors and intrapersonal factors (their cognitive and metacognitive strategies). The model as such suggests that students' academic engagement could be directly and indirectly estimated by the nature of contextual factors (i.e., supportive interaction with teachers, peers, and parents, and intrinsically interesting academic work).

3. Methodology

3.1. Design of the Study

An ex-post facto or causal-comparative research design was employed to explore the effects of contextual factors and cognitive and metacognitive learning strategies on secondary school students' academic engagement. This causal-comparative research design is chosen because it is appropriate to determine cause-and-effect relationships among events that have already occurred. In this case, causation is inferred without manipulation/controlling of independent variables, but instead their effects are studied prospectively (Gall, Borg & Gall, 1996).

3.2. Target Population, Sample Size, and Sampling Techniques

The target population of the current study was secondary school students of East Bale, Bale, and West Arisi Zones, a total of which were. 132,368 (male=71,523, female=60,845). To determine the sample size, Yamane's formula was applied with assumptions of 5% type I error and 95% confidence intervals. Accordingly, 700 secondary school students, including 5% contingency, were determined as the sample size.

After the sample size was determined, multiple stage random sampling technique was employed to select participants. Accordingly, the first three woredas from East Bale Zone (Gindhir, Jarra, and Rayitu), three woredas from Bale Zone (Goro, Dalo Mana, and Dinsho), and three Woredas from West Arisi Zone (Dodola, kofale and Arisi Negele) were selected using a simple random sampling technique. Second, simple random sampling was also employed to select secondary schools from already identified woredas, where one secondary school was selected from each woreda**.** Third, after schools were identified, a systematic random sampling technique was employed to select each participant from the selected secondary schools.

3.3. Measures

The major measures of the study were students' self-report questionnaire containing five major sets of items such as demographic characteristics, measures of contextual factors, cognitive and metacognitive strategies scales (MSLQ), and academic engagement scale (AES).

Measures of Contextual Factors: To measure contextual factors, Furrer & Skinner (2003) and Skinner & Pitzer (2012) employed a contextual questionnaire, which has four dimensions (supportive interactions with teachers, peers, parents, and intrinsically interesting academic work).

Measures of Cognitive and Metacognitive Strategies: To measure students' use of cognitive and metacognitive learning strategies, the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich, Smith & Garcia (1993) was used. The MSLQ consists of five scales, such as self-efficacy, intrinsic value, test of anxiety, cognitive, and metacognitive strategies. Of the five scales, only the two scales, cognitive and metacognitive strategies, were used. The cognitive strategies scale consists of four dimensions (i.e., rehearsal, elaboration, organization, and critical thinking strategies) that contain a total of 19 items. On the other hand, the metacognitive strategies scale includes three components, such as planning, monitoring, and regulation strategies that contain a total of 12 items. All the items of both cognitive and metacognitive strategies have five alternatives which could be scored 1, 2, 3, 4, or 5, where 1 means "never true of me", 2 means "seldom true of me", 3 means "sometimes true of me" 4 means "generally true of me" and 5 means "always true of me"

Measures of Academic Engagement: For the current study, the Auckland student engagement scale (ASE scale), developed by Hayam-Jonas (2016), was employed to measure students' academic engagement. The scale contains 33 items grouped under three domains of academic engagement: behavioural engagement and disengagement, emotional engagement, and disengagement and cognitive engagement. All items are administered using a 6-point frequency scale (where 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very often, 6 = Always).

3.4. Method of Data Analysis

To test the primary hypotheses of the study, specifically, the direct and indirect effects of contextual factors, and cognitive and metacognitive learning strategies, on academic engagement, Structural Equation Modeling (SEM) was employed using the Analysis of Moment Structures (AMOS) software. SEM allows for the examination of causal relationships among multiple variables and enables the estimation of both direct and indirect effects of independent variables on dependent variables through mediators. Accordingly, in the present study, in addition to assessing the direct effect of contextual factors on students' academic engagement, the mediating roles of cognitive and metacognitive learning strategies in the relationship between contextual factors and academic engagement were also examined through SEM.

4. Results and Discussion

4.1. Model Assumptions

Before testing the hypothesized model, assumptions such as the sample size, missing data, normality and linearity of the observed variables, outliers, multi-collinearity and singularity, and normality of the residuals pertinent to the use of Structural Equation Modeling (SEM) for data analyses were examined by employing the appropriate methods (Tabachnick & Fidell, 2007).

Regarding the sample size, according to Ghazarian, Supple, & Plunkett (2008), even if there is no as such definitive standard for minimum sample size to use Structural Equation Modeling, many researchers recommend that at least 200 sample size is requered. In the present study, as it was mentioned under section 3, the total sample (n = 700) was adequate to use Structural equation modeling. In addition, as identified in the preliminary data screening, there were no problems with multivariate normality, multi-collinearity and singularity. Regarding outliers, a box plot approach developed by Tukey (1977) was used in this study to detect univariate and multivariate outliers because it is less sensitive to extreme values of the data than the other methods. For the overall sample, the box plot test showed that 4 cases in contextual factors, 3 cases in cognitive strategy, 5 cases in metacognitive strategy, and 6 cases in academic engagement were found to be univariate outliers. In the test of multivariate outliers, 4 cases for the overall sample were identified as multivariate outliers. Outliers (i.e., both univariate and multivariate outliers) were retained in the data set because, as suggested by Bollen and Stine (1990), the removal of cases that are outliers in any distribution would reduce the sample size, these outliers may accurately reflect the kind of discrepancies that will be found in analyzing similar data in other samples, and removal of the outlier cases does not solve the problems that may have produced the deviant observations.

4.2 Testing Model Fitness for the Structural Model of Contextual Factors, Cognitive and Metacognitive Strategies, and Academic Engagement

Similar to model assumptions, before examining the hypothesized relationships of the investigated variables in the structural equation modeling, testing the goodness of fit of the model was a precondition. If an acceptable goodness of fit of the model is obtained, the next step is to examine the hypothesized relationships of the studied variables in the structure. Accordingly, for the current study, the full structural model for the study variable (contextual factors, cognitive and metacognitive strategies, and academic engagement) was indicated as follows in Figure 2 below.

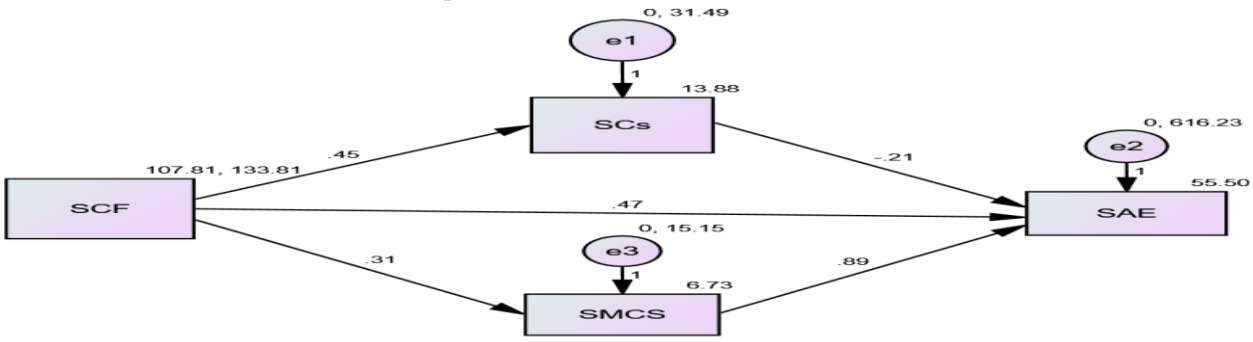

Figure 2:The Path Diagram of the Hypothesized Relationship of Study Variables (Contextual Factors, Cognitive Strategies, Metacognitive Strategies, Academic Engagement) (n=700). Notice: SCF= Contextual Fcators; SCS= Cogni-tive Strategies; SMCS= Metacognitive Strategies and SAE= Academic Engagement

Concerning testing the goodness of fit of the model, Table 1 below shows that the Overall χ^2 (CMIN) value for the total sample was not statistically significant (p = .362 > .05). A non-significant χ^2 at the 0.05 level indicates a good model fit, so this result meets the acceptable criteria. The other fit indices, such as NFI, IFI, CFI, and RMSEA, also fall within acceptable ranges.

These results support the hypothesized model for overall sample. Therefore, the model fits the actual data well.

Table 1:The Summary of Fit Indices Statistics (Model Fit) for the Full Structural Model Analyses for the Overall Sample

Sample	Fit Indices Statistics				
	Overall χ2 (CMIN)	Normed χ 2 (NFI)	BSB p (IFI)	CFI	RMSEA
Overall	2.42* (p=.362)	1.00	1.00	1.00	.42

Notice **=p>.05; Overall χ^2= Chi-Square (CMIN) NFI= Normed-fit Index. IFI= Incremental Fit Index, RMSEA= Root mean square error of approximation*

4.3. Hypothesis Testing

4.3.1. Direct Effect of Contextual Factors on Academic Engagement, Cognitive and Metcognitive strategies

Examining the direct effects of contextual factors on academic engagement, cognitive and metacognitive learning strategies, and the direct effects of cognitive and metacognitive learning strategies on academic engagement were the major objectives of the current study. Accordingly, Table 2 below presents a summary of the structural equation modeling results for the direct effects of contextual factors on academic engagement, cognitive strategies, and metacognitive strategies, and the effects of cognitive and metacognitive learning strategies on academic engagement.

As shown in the table, contextual factors had a statistically significant direct effect on academic engagement (β = .475, p= 0.002 < 0.05). This indicates that a one-unit increase in contextual factors is associated with a 0.475-unit increase in academic engagement. Based on the findings in Table 2, the first hypothesis—stating that contextual factors would have a positive and statistically significant direct effect on the academic engagement of secondary school students—was supported. The result of the present study was consistent with ample previous empirical research results. For instance, Furrer et al. (2015) argued that parents, teachers, peers, and intrinsically interesting academic work are the school contextual factors that play a major role in predicting and maintaining academic engagement of students. Bempechat & Shernof (2012); Wang & Eccles (2012); Furrer & Skinner (2003); Smalls (2008) examined parental influences on achievement motivation and student engagement in secondary school and reported that the more students perceive their parents are supportive and responsive, the higher they are engaged in school tasks and the more they are achievement oriented. However, the more students perceived their parents are control, neglectful, and permissive, the less they were engaged and the less they were achievement-oriented. In their motivational self-system model, Skinner and Pitzer (2012) stated that three important qualities of student-teacher interactions, such as pedagogical caring (which supports experiences of relatedness), optimal structure (which facilitates competence), and autonomy support (which promotes self-determined motivation), are highly related to engagement. Similarly, the study findings of researchers such as Wentzel, et al (2009); Wigfield, et al (2006); Deci & Ryan (2002a); Guthrie & Davis (2003); Altermatt & Pomeranz (2003; Wentzel et al (2004); Berndt (2004) supported the notion that all these three qualities of student-teacher interactions, intrinsically interesting teaching materials and supportive peer interactions are important in shaping motivation and academic engagement of the student in the school.

Table 2 below also indicates that contextual factors would had significant direct effect on cognitive learning strategies (β=.454, p=0.003<0.05), explaining that if contextual factors were to increase by one unit, cognitive strategies would be expected to increase by .454 units. This result indicates that the second hypothesis, which proposed that contextual factors would have a statistically significant direct effect on students' cog-

nitive strategies, was also confirmed. The findings of the present study were consistent with many of the previous empirical research results. For instance, Amreveer Singh & Pal Singh (2015); Jaiswal (2017); Phillipson and Phillipson (2012) argued that supportive and collaborative interactions of students with teachers, peers, parents, and intrinsically interesting academic work would highly enhance students' cognitive learning strategies and, in turn, this increases the learning performances of students.

Furthermore, from **Table 2 below,** one can easily see that contextual factors had a significant direct effect on metacognitive learning strategies (β=.313, p=0.004<0.05), showing that when contextual factors increased by one unit, metacognitive learning strategies would be estimated to increase by .313 units. From this result, it can be said that the third hypothesis of the presentstudy—pretending contextual factors would have a statistically significant direct effect on students' metacognitive learning strategies—was statistically validated. This finding of the current study is in line with the empirical findings of the previous studies. For example, from their respective study findings, Yan & Paul (2021), Albalhareth et al (2022), and Jaiswal (2017) concluded that positive and supportive interaction of students with teachers, intrinsically interesting learning materials, peers, and parents can cultivate students' metacognitive learning strategies that, in turn, could influence their academic performance.

Similarly, **Table 2** below reveals that metacognitive learning strategies would have a significant direct effect on academic engagement (β= .889, p=0.033<0.05), indicating that when metacognitive strategies increase by one-unit, academic engagement would be estimated to increase by .889 units. This finding indicates that the fifth hypothesis—stating that metacognitive learning strategies would have a statistically significant direct effect on the academic engagement of secondary school students—was accepted. This finding was supported by ample previous research results. For example, Smith et al (2007) investigated the effects of metacognition on academic engagement using an experimental design. The outcome of the study revealed that compared to those of the control group, which did not receive any questions, the experimental group, who had gained cognitive, metacognitive, and affective questions, were more engaged in their learning behaviorally, cognitively, and emotionally. Supporting this view, Bruning & Horn (2010) and Katz et al (2006) revealed that students who are high in using cognitive and metacognitive learning strategies were more engaged in interest-based activities and were more satisfied with their end performance. On the other hand, few researchers, such as Sanabria, Ibáñez & Valencia (2015); Muawiyah, Yamtinah & Indriyanti (2019), revealed metagognitive learning strategies had a positive effect on academic engagement, but the effect was not statistically significant.

On the other hand, Table 2 below shows that cognitive learning strategies had no statistically significant direct effect on academic engagement of the students (β= .208, p=0.509 >0.05). This finding indicates that fourth hypothesis of the current study pertaining: cognitive strategies would have a significant direct effect on academic engagement of secondary school students was statistically rejected. This result was supported by a few previous findings. For instance, Ruffings et al (2015) and Muawiyah *et al* (2019) found that cognitive learning strategies had a positive direct effect on students' academic engagement, but the effect was not statistically significant. However, this finding of the current study was inconsistent with other previous study findings. For instance, Gaylo & Dales (2017) and Abdolhossini (2012) revealed that cognitive learning strategies have positive and significant effects on academic engagement.

Table 2:Summary of Path Coefficients for the Direct Effects of Independent Variables on Dependent variables after Mediator (n=700)

Dependent variable	Independent Variable	Unstandardized Beta (β)	Standard Error (SE)	Critical Ratio (CR)	Sig
AE	<---CF	.475	.134	3.535	.002***
CS	<--- CF	.454	.018	24.722	.003***
MCS	<--- CF	.313	.013	24.574	.004***

AE	<---CS	-.208	.167	-1.245	.509
AE	<--- MCS	.889	.241	3.687	.033***

*Notice: *** Significant at α=.05 (2-tailed); CF= Contextual Fcators, CS= Cognitive Strategies; MCS= Metacognitive Strategies AE= Academic Engagement*

4.3.2. Indirect Effect of Contextual Factors on Academic Engagement via Cognitive and Mecognitive Strategies

Examining the indirect effect of contextual factors on academic engagement via the mediation of cognitive and metacognitive stratagies was also another major objective of the current study**.** Accordingly, Table 3 below presents a summary of the mediating role of cognitive and metacognitive learning strategies in the relationship between contextual factors and academic engagement.

Table 3 below indicates that the indirect effect of contextual factors on academic engagement through cognitive learning strategies was not statistically significant (β = .094, p = .505 > 0.05). As a result, the sixth hypothesis—stating that contextual factors have a significant indirect effect on students' academic engagement via cognitive learning strategies—was not supported. Since there has been no previous study that investigated the indirect effect of contextual factors on adolescent students' academic engagement via cognitive learning strategies, it was not possible to compare the findings of this study with previous study findings. However, the researcher believes that the current study findings might help future researchers in the area as a baseline or points of comparison.

On the other hand, as indicated in Table 3 below, the indirect effect of contextual factors on academic engagement through the mediating role of metacognitive learning strategies was statistically significant (β = 0.356, p = 0.002 < 0.05). Therefore, the seventh hypothesis, which proposed that contextual factors had a positive and statistically significant indirect effect on secondary school students' academic engagement via metacognitive learning strategies, was supported. Similar to the above, as there has been no previous study that investigated the indirect effects of contextual factors on adolescent students' academic engagement via metacognitive learning strategies, it was not possible to compare the findings of this study with previous study findings. However, the researcher believes that the current study's findings might help future researchers in the area as a baseline.

Table 3:Summary of Path Coefficients for the Indirect Effects of Independent Variables on Dependent variables via Mediators (n=700)

Parameter	Estimate	Lower	Upper	P
CF through CS to AE	-.094	-.328	.179	.505
CF through MCS to AE	.356	.154	.928	.002**

Notice: *** Significant at α=.05 (2-tailed); CF= Contextual Fcators; CS= Cognitive Strategies; MCS= Metacognitive Strategies; AE= Academic Engagement*

5. Conclusion and Recommendations

5.1 Conclusion

The main objective of the present study was to test the effects of contextual factors and cognitive and metacognitive learning strategies on students' academic engagement. Thus, based on the results of the study, the following conclusions would have drawn. Regarding the fitness of the proposed integrated contextual factors and cognitive model of academic engagement, the model fits adequately the empirical data for the overall sample of students. As all measures of the goodness of fit were within the acceptance range, it could be concluded that the hypothesized model fits the data set adequately.

With respect to the direct effects of contextual factors on academic engagement, cognitive and metacognitive learning strategies, contextual factors would have a significant direct effect on secondary school students' academic engagement, cognitive and metacognitive learning strategies. In addition, metacognitive learning strategies would also have a positive and significant direct effect on secondary

school students' academic engagement. However, the effect of cognitive learning strategies on students' academic engagement was not statistically significant. About the mediating roles of cognitive and metacognitive learning strategies between contextual factors and academic engagement, metacognitive learning strategies would have played a mediating role between contextual factors and academic engagement. But cognitive learning strategies couldn't mediate the relationship between contextual factors and academic engagement.

5.2 Implications

The researcher believes that the findings of the present study would have the following practical and theoretical contributions.

Practical Implications: The results of the current study would offer practical insights for policymakers, educational authorities, school administrators, parents, and students. The findings highlight several factors that affect the academic engagement of secondary school students, which include contextual factors (such as supportive interactions with parents, teachers, peers, and intrinsically engaging learning materials), along with cognitive and metacognitive learning strategies, being the most significant. This understanding could inform the design of strategies and interventions aimed at improving adolescent students' academic engagement, thereby boosting their academic success and reducing school dropout rates. For instance, policymakers, educators, and school administrators can implement strategies to foster positive interactions between teachers and students, encourage healthy relationships among students, and increase parental involvement in schooling. Additionally, the study emphasizes to teachers the importance of positive, supportive interactions with students, which can enhance their academic engagement and, in turn, improve their academic performance.

Theoretical Contributions: The researcher believes that the results of the current study would have several theoretical contributions. First, the findings of the present study help us to have better understanding of the concepts of contextual factors, academic engagement, and cognitive and metacognitive learning strategies. This could contribute in expanding knowledge and understanding of the theories in these fields. In addition, the findings of the current study enable us to understand the theories of contextual factors, academic engagement, and cognitive and metacognitive learning strategies that could apply to Ethiopian socio-cultural contexts.

6. Suggestions for Future Research

In spite of the aforementioned practical and theoretical contributions of the findings of the present study, the following suggestions for future researchers were forwarded. First, the effects of contextual factors, cognitive and metacognitive learning strategies on academic engagement of adolescent students may be moderated by some demographic characteristics such as socio-economic status, parental educational levels, types of family, and parental residence, and the like. Thus, future research should address these by taking a proportional and adequate sample size of students from different demographic backgrounds of parents and other related factors. Second, to investigate the potential effects of contextual factors, cognitive and metacognitive learning strategies on academic engagement of students, future researchers should design an experimental or longitudinal study, so that they can make clear statements concerning causality among these variables.

References

Abdolhossini, A (2012). The Effects of Cognitive and Meta-cognitive Methods of Teaching in Mathematics. *Procedia - Social and Be havioral Sciences,* 46 (9), 5894 – 5899.

Ainley, M. (2006). Connecting with learning: Mo tivation, affect, and cognition in interest processes. Educational Psychology Re view, 18 (9). 391-403.

Albalhareth1, A., Paul, P. V & Alasmari, A (2022) . Teachers' Perceptions of Metacognitive Strategies and Assessments used with Deaf and Hard of Hearing Students. *Human Research in Rehabilitation,* 12 (1), 5–21.

Altermatt, E. R., & Pomerantz, E. M. (2003). The Development of Competence-related and Motivational Beliefs: An Investigation of Similarity and Influence among Friends. *Journal of Educational Psychology,* 95*(10),* 111–123

ALshammari, M. K (2015). The Effect of Using Metacognitive Strategies for Achievement and the Trend Towards Social Studies for Intermediate School Students

in Saudi Arabia. *International Journal of Education, Learning and Development, 3 (7), 47-54.*

Amarveer Singh, A & Pal Singh, J (2013). A Study of Parental Involvement, a Curricular Strategy on the Cognitive and Non-Cogni tive Characteristics of Primary School Stu dents. *International Journal of Science and Research (IJSR), 6(14), 268-274.*

Anthonysamy, L., Ah Choo, k & Soon Hin, H (2019). Impact of cognitive and metacog nitive strategies on learning performance in digital learning: What's working and what's not in the age of brilliant tech nology. *Journal of Physics: Conference Se ries,15(15),1-8* doi:10.1088/1742-6596/1529/5/052019 1

Appleton, J., Christenson, S., & Furlong, M. (2008). Student Engagement with School: Critical Conceptual and Methodological Issues of the Construct. *Psychology in the Schools, 45 (5),* 369- 386. https://doi.org/ 10.1002/ pits. 20303

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring Cognitive and Psychological Engagement: Vali dation of the Student Engagement Instru ment. Journal of School Psychology, 44 *(9),* 427 – 445. doi:10.1016/j.jsp.2006.04.002

Banna, J., Lin, M.-F. G., Stewart, M., & Fialkowski, M. K. (2015). Interaction Matters: Strategies to Promote engaged Learning in an Online Introductory Nutrition Course. *Journal of Online Learning and Teaching, 11(2),* 249–261.

Bempechat, J., & Shernof, D. J. (2012). Parental In fluences on Achievement Motivation and Student Engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Hand book of research on student engagement* (Pp. 315–342). New York: Springer.

Benner, A.D., Boyle, A.E. & Sadler, S (2016). Pa rental involvement and adolescents' educa tional success: The roles of prior achievement and socioeconomic status. *Journal of Youth and Adolescence, 45(12), 1053–1064.*

Berndt, T. J. (2004). Children's friendships: Shifts over a Half-century in Perspectives on their Development and Effects. Merill-Palmer Quarterly, 50*(5),* 206–223.

Bruning, R., & Horn, C. (2010). Developing moti vation to write. Educational Psychologist, Pp. 35, 25-37.

Bollen, K. A. & Stine, R. (1990). Direct and Indi rect Effects: Classical and bootstrap Esti mates of Variability. Sociological Method ology, 20*(8),* 115-140.

Carpio, M.V.; Linares, M.C.; Mariscal, P (2012). The Role of the Family in the Development of Reading Comprehension during the Transition from Primary to Secondary Ed ucation. Electron. *Journal of Educational Psychology, 10(11),. 129–150.*

Coe, R., Aloisi, C., Higgins, S. & Major, L.E. (2014). What Makes Great Teaching? Re view of Underpinning research. London: The Sutton Trust, Centre for Evaluation and Monitoring &Durham University. Obtenido de: http://www.sutton trust.com/wp-content/uploads

Conwell, J.A. ; Ye, L.Z. (2021). All Wealth Is Not Created Equal: Race, Parental Net Worth, and Children's Achievement. RSF. 7*(2),* 101–121.

Deci, E. L., & Ryan, R. M. (2002a). The paradox of achievement: The harder you push, the worse it gets. In J. Aronson (Ed.) 61–87). San Diego, CA: Academic

Dupont, S., Meert, G., Galand, B. & Nils, F. (2013). Postponement in the completion of the fi nal dissertation: An Underexplored Di mension of Achievement in Higher Educa tion. European *Journal of Educational Psychology*, 28*(3),* 619-639. doi:10.1007/s10212-012- 0132-7

Finn, J. and Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, 82*(2),*. 221–34.

Fredricks, J.A., Blumenfeld, P. C., & Paris, A. H. (2004). *Review of Educational Research, 74(1),* 59-109

Furrer, C., & Skinner, E. (2003). Sense of related ness as a factor in children's academic en gagement and performance. *Journal of Ed ucational Psychology, 95 (9), 148-162*.,doi:10.1037/0022-0663.95.1.148

Furrer, c., Skinner, e., & Pitzer, J. (2015) The influence of teacher and peer relationships

on students' classroom engagement and everyday motivational resilience. National Society for the Study of Education, *113(1),* 101-123.

Gall, M., Borg, W., & Gall, J. (1996). Educational research: An introduction (6th ed.). New York: Longman.

Garcia-Reid, P., Reid, R., & Peterson, N. (2004). School engagement among Latino youth in an urban middle school context: Valuing the role of social support. Education and Urban Society,37*(9),* 257–275.

Gaylo, D. N. & Dales, Z. I (2017). Metacognitive Strategies: Their effects on Students' Achievement and Engagement in Mathematics. *World Review of Business Research, Vol. 7, No. 2, Pp.35-55.*

Gest, S. D., Rulison, K. L., Davidson, A. J., & Welsh, J. A. (2008). A reputation for success (or failure): The association of peer academic reputations with academic self-concept, effort, and performance across the upper elementary grades. *Developmental Psychology, 44(3), 625–636.*

Ghazarian, S. R., Supple, A. J., & Plunkett, S. W. (2008). Familism as a predictor of parent-adolescent relationships and developmental outcomes for adolescents in Armenian American immigrant families. *Journal of Child and Family Studies*, 17*(9),* 599-613.

Guthrie, J. T., & Davis, M. H. (2003). Motivating struggling readers in middle school through an engagement model of class room practice. Reading & Writing Quarterly, 19*(10),* 59–85.

Hayam-Jonas, A. (2016).The Relationship between Student Engagement and Academic Achievement. Libraries and Learning Services University of Auckland Research Repository, Research Space: PhD Thesis.

Katz, I., Assor, A., Kanat-Maymon, Y., & Bereby-Meyer, Y. (2006). Interest as a motivational resource: Feedback and gender matter, but interest makes the difference. *Social Psychology of Education, 9(13),.27-42.*

Kindermann, T. A., & Skinner, E. A (2009). How do naturally existing peer groups shape children's academic development during sixth grade? *European Journal of Psychological Science, 3(9), 31–43.*

Kuhn, D., & Dean, D. (2004). Metacognition: A bridge between cognitive psychology and educational practice. *Theory In to Practice, .43 (9), 269-273.*

Kaur, P. (2010). A Study of Learning Outcomes of Adolescents in Relation to their Emotional Intelligence, Metacognition and Personal ityTraits.http://hdl.hadle.net/10603/83878

Jaiswal, K.S (2017). Role of Parental Involvement and Some Strategies that Promote Parental Involvement. *Journal of International Academic Research for Multidisciplinary, Vol. 5, No.2, Pp. 94-104*

Jaleel,S. & Premachandran, P (2016) A Study on the Metacognitive Awareness of Secondary School Students. *Journal of Educational Research 4(1)165-172*.

Jenkins, P. H. (1995). School delinquency and school commitment. Sociology of Education Pp. 221–39.

Jeynes, W. H. (2007). The relationship between parental involvement and urban secondary school student academic achievement: A meta-analysis. Urban Education, 42*(9),* 82–110.

Lyke, A., J. & Kelaher Young J. A. (2006). Cognition in Context: Students' Perceptions of Classroom Goal Structures and Reported Cognitive Strategy Use in the College Classroom. *Research in Higher Education, 47(4),* 70-79

Martinez-Pons, M (2002)A Social Cognitive View of Parental Influences on Student Academic Self-Regulation. *Journal of Theory into Practice, 41 (2), 126-31*

Migues, A.R., Uzquiano, M.P., Lozano, A.B (2010) Changes in predictors of school performance in secondary school. *Jour-nal of Psicothema, (12), 22(9), 790–796.*

Morrison, G. M., Robertson, L., Laurie, B., & Kelly, J. (2002). Protective factors related to antisocial behavior trajectories. Journal of Clinical Psychology, 58*(9),* 277–290.

Muawiyah, D., Yamtinah, S., & Indriyanti, N. Y. (2019). Modelling testlet instrument in blended learning design to assess students' metacognition in the environmental chemistry course. Paper presented at the Journal

of Physics: Conference Series, 1157*(4),*67-78 https://doi.org/10.1088/1742-

Naihean, HUO & Yooncheong, CHO (2020).J In vestigating Effects of Metacognitive Strat egies on Reading Engagement: Manag ing Globalized Education. *Journal of In dustrial Distribution & Business, 11 (5), 17-26.* doi.org/10.13106/jidb.

Newmann, F. M., King, M. B., & Carmichael, D. L. (2007). Authentic instruction and assess ment: Common standards for rigor and rel evance in teaching academic subjects . Des Moines, IA: Iowa Department of Educa tion. Phillipson, S & Phillipson, N. S (2012). Children's Cognitive Ability and their Academic Achievement: the Me diation Effects of Parental Expectations. *Journal of Asia Pacific nEduc*. 1*(3)*, 495–508 DOI 10.1007/s12564-011-9198-1

Pintrich, P.R. (2002). The role of metacognitive knowledge in learning, teaching, and as sessing. *Theory Into Practice, 41(9), 219-225*.

Pintrich, P.R., & Garcia, T. (1991). Student goal orientation and self-regulation in the coll ege classroom. (pp. 371-402).

Pintrich, P.R., & De Groot, E.V. (1990). Motiva tional and self-regulated learning compo nents of classroom academic performance. *82(1),.33-40.*

Pintrich, P.R., Smith, D.A.F., Garcia, T., & McKeachie, W.J. (1993). Reliability and predictive validity of the Motivated Strate gies for Learning Questionnaire (MSLQ). *Educational and Psychological Measure ment, 53(9), 801-813.*

Pomerantz, E. M., Grolnick, W. S., & Price, C. E. (2005). The role of parents in how children approach achievement: A dynamic process perspective. In A. J. Elliot & C. S. Dweck (Eds.), Handbook of competence and mo tivation (Pp. 259–278). New York: Guilford.

Reeve, J. (2012). A Self-determination theory perspective on student engagement**,** Anam-Dong,Seongbuk-GuSeoul, (pp.136-701). Seongbuk: Department of Educa tion, Korea University Press.

Ruffings, S., Wach, F., Spinath,M. F., Brünken, R., & Karbach, J (2015). Learning Strategies and General Cognitive Ability as Pre dictors of Gender: Specific Academic Achievement. *Front Psychology, 6(7),12-38*.

Sahar, Bayat, Rohani, Ahmad,Tarmizi(2010),As sessing Cognitive and Meta-cognitive Strategies during Algebra problem solving among university students, procedia social behavioral sciences,8,403-410.

Sanabria, L., Ibáñez, J., & Valencia, N. (2015). Revista Papeles, 7*(14),* 42-54.

Skinner, E. A., Kindermann, T. & Furrer, C. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioural and emotional participation in academic active ities in the classroom. *Educational and Psychological Measurement,69(3),*493–525, doi.org/10.1177/0013164408323233

Skinner, E. A., Marchand, G., Furrer, C., & Kinder mann, T. (2008b). Engagement and disaf fection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology, 100(5), 765-*781. https://doi.org/ 10.1037/ a0012840

Skinner, E. A., & Pitzer, J. R. (2012). Developmen tal dynamics of student engagement, cop ing and everyday resilience. In S. L.Chris tenson, A. L. Reschly& C. Wylie (Eds.), *Handbook of research on student en gagement,* (Pp. 21-44). New York: Springer Science & Business Media.

Siddiqui, S and Dubey, R (2018). Metacognition in the context of Education: An Overview. *International Journal of Research in Economics and Social Sciences (IJRESS), 8(8), 76-89*

Smalls, C. (2008). African American adolescent engagement in the classroom and beyond: The roles of mother's racial socializa tion and democratic-involved parenting. *Journal of Adolescence, 3(9),* 219–240. doi.org/10.1007/s10964-008-9316-5.

Smith, K.S., Rook, J. E., & Smith, T.W. (2007). In creasing student engagement using effect tive and metacognitive writing strategies in content areas. Preventing School Failure, 51 *(14),1-15*

Suaraz-Orozco, Pimentel , k., & Martin, M. (2009). The Significance of relationships: Aca demic engagement among newcomers

immigrant youth. 111*(3)*, 712- 749.

Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics (5th ed.). Boston, MA: Allyn and Bacon.

Tukey, JW (1977). Exploratory Data Analysis. *Journal of Choice Modeling, 30 (6), 323-347.*

Virtanen, P., and Nevgi, A. (2010). Disciplinary and gender differences among higher educa tion students in self-regulated learning strategies. *Educ. Psychol. 30(9), 323–347.* doi: 10.1080/01443411003606391

Wang, M. T., & Eccles, J. (2012). Social support matters: Longitudinal effects of social sup port on three dimensions of school en gagement from middle to high school. *Child Development, 83*(3),877-895.

Wentzel, K. R., McNamara-Barry, C., & Caldwell, K. A. (2004). Friendships in middle school: Influences on motivation and school adjustment. *Journal of Educational Psychology, 96(6), 195–203.*

Wigfi eld, A., Eccles, J. S., Schiefele, U., Roeser, R., & Davis-Kean, P. (2006). Development of achieve ment motivation. Handbook of child psychology, 6th Ed. Vol. 3. Pp, 933–1002). New York: John Wiley.

Willms, J., D (2003). Student Engagement at School: A Sense of Belonging and Participation. *Journal of Educational and Behavioural Statistics, 20(4), 307–35.*

Yan, P. & Paul, P. V. (2021). Metacognition and Eng lish readingrelated outcomes for d/Deaf and hard of hearing students: A narrative re view. Human Research in Rehabilitation, 11*(2),* 88-106.