THE UNIVERSITY OF CHICAGO

Parental Academic Socialization: Exploring Its Association with Adolescent Learning Engagement

By

Ruoying He

July 2024

A paper submitted in partial fulfillment of the requirements for the Master of Arts degree in the Master of Arts Program in the Social Sciences

Faculty Advisor: Ming-Te Wang

Preceptor: Marshall Ryan Jean

Abstract

Learning disengagement among middle and high school students is a significant concern, with far-reaching implications for individual development. Grounded in the Development-in-Sociocultural-Context (DISC) Model, this study investigates the complex nature of school engagement as a multidimensional construct, encompassing behavioral, cognitive, and emotional engagement. It focuses on the influence of parental academic socialization on each engagement dimension, employing a multi-informant methodology. This study further examines the role of parental emotion socialization in moderating the relationships between academic socialization and student engagement. The sample included 172 adolescents and their parents, predominantly Black/African Americans (94%), with females representing 55% of the young participants. The findings highlighted that while student perceptions of academic socialization significantly predicted all three dimensions of engagement, parental reports were significant in predicting behavioral and cognitive engagement but not emotional engagement. In addition, adolescents' perceptions contributing more substantially to variations in school engagement. However, while parental emotion socialization was a notable predictor across all engagement dimensions, its moderating effect on the academic socialization-engagement relationship was not confirmed in this study. These results underscore the critical role of appropriate parental socialization in children's education to promote learning engagement and mitigate potential negative consequences.

Learning disengagement has emerged as a significant challenge confronting students for a long time. This issue is particularly salient in adolescence, as research has shown declines in student engagement from early to mid-adolescence (Martin et al., 2024). Wang and Eccles (2012) also pointed out that the average levels of students' behavioral, cognitive, and emotional engagement decreased from grade 7 to grade 11. The COVID-19 pandemic has caused additional challenges for student engagement due to the sudden disruption of traditional teaching methods and the change in educational contexts (Lyu & Wehby, 2023; McKellar & Wang, 2023). A recent report from the Center on Reinventing Public Education (CREP) pointed out that there was a decline in student attendance as well as both self-reported and teacher-reported engagement during the pandemic (2023). They also found that this reduction was particularly pronounced among historically marginalized students. In addition, the level of student engagement has yet to return to the levels observed before the pandemic, even after shifting back to in-person learning (CREP, 2023). Notably, reduced attendance and effort in schoolwork are not the only consequences of disengagement; students who are disengaged also have an increased likelihood of experiencing both internalized and externalized maladaptive behaviors (Adelman & Taylor, 2012) and dropping out of school (National Research Council and Institute of Medicine, 2004). School disengagement also exposes students to potential long-term adverse consequences, such as higher risks of criminal activities and substance use in adulthood (Klassen et al., 2021). Hence, exploring the relationship between factors such as parental socialization and student engagement becomes pivotal for fostering levels of adolescent learning engagement at this critical period.

Prior studies have revealed both individual and contextual factors that influence learning engagement. At the individual and demographic level, students' self-esteem and academic self-

efficacy (Zhao et al., 2021), socioeconomic status (Jensen, 2013), and academic emotions (Kahu et al., 2015) have been demonstrated to have correlations with engagement. Researchers also linked contextual factors such as peer relationships (Juvonen et al., 2012), peers' and teachers' support (Kiefer et al., 2015), and classroom emotional climate (Reyes et al., 2012) to learning engagement. Additionally, evidence shows that parents play an important role in influencing student learning engagement in different ways. For example, Savitri et al. (2018) found that parental involvement—such as attending school events or parent meetings (school involvement), conversing about school activities (personal involvement), and discussing current events or visiting bookstores (cognitive involvement)—positively influenced school engagement.

Parents can also influence student learning behaviors in subtle ways (Jeynes, 2010). Christenson and colleagues (2012) emphasized that education-related values and beliefs held by parents significantly shaped their children's educational attitudes. These messages can be communicated to students through implicit manners. This process of transmission of parental educational beliefs and expectations to help their children navigate their academic journey is conceptualized as parental academic socialization (Hill & Tyson, 2009). Another type of parental socialization is emotion socialization, which refers to practices that can influence their children's emotional development, such as how parents respond to their children's emotions and the guidance they provide regarding emotions (Bosler, 2006). Children who received a higher level of parental emotion socialization were more likely to have enhanced emotional and social competencies (Frogley et al., 2023; Tan et al., 2020), which in turn led to better academic outcomes (MacCann et al., 2020).

Despite the numerous studies investigating the positive effects of parental socialization on individual development, limited attention has been given to how parental academic

socialization can influence student learning engagement (Yang et al., 2023), and the role that parental emotion socialization plays in the process is also unclear. In addition, the definition of parental academic socialization lacks consistency among existing studies. Instead of viewing parental academic socialization as a distinct category of parental involvement, some scholars integrate home- and school-based practices within the construct of parental academic socialization (e.g., Metzger et al., 2020; Suizzo et al., 2016). Moreover, while many researchers recognize student engagement as a multifaceted concept, typically divided into affective (emotional), behavioral, and cognitive dimensions, studies focusing on cognitive engagement concerning parental influence are less common (Yang et al., 2023). Therefore, this study explores the relationships between parental academic socialization and three subtypes of student engagement (i.e., behavioral, cognitive, and emotional/affective) to have a more comprehensive understanding of how parents can effectively foster learning engagement in their children, thereby enhancing their overall academic success and development. In addition, we hope to contribute to the relatively limited body of research on the impact of parental emotion socialization on adolescent learning engagement.

Theoretical Framework

To consider the complex and dynamic context adolescents experience and to better illustrate the multidimensional nature of engagement, Wang and colleagues (2019) constructed the Development-in-Sociocultural-Context (DISC) Model, which explains how different sociocultural factors influence learning engagement in distinct ways. This model addresses student engagement from an integrative perspective, displaying the reciprocal processes of the development of student engagement that involve multiple factors and consequences across different levels and time scales (Wang et al., in press). According to the model, student

engagement is influenced by both external (e.g., school, neighborhood, cultural, peer, and family contexts) and internal (e.g., developmental competencies and self-appraisal) factors (Wang et al., 2019). Previous research has also suggested that children's experiences within and across different contexts, such as interpersonal relationships with peers and teachers (Fredricks, 2011), community violence (Burdisk-Will, 2018), and perceived racial fairness (Griffin et al., 2020), play important roles in shaping student academic engagement and outcomes.

At the family level, some research had highlighted correlations between parental involvement (Marshall & Jackman, 2015; Savitri et al., 2018), family socioeconomic status (Tomaszewski et al., 2020), home environment (Organisation for Economic Co-operation and Development, 2013), and student engagement, which may be linked to favorable academic outcomes, including increased academic performance (Delfino, 2019; Otani, 2019) and sustained student commitment (Kuh et al., 2008). In the DISC model, parents provide key academic and emotiona socialization that informs their child's school engagement (Wang et al., in press). The model also implies that the extent and nature of student engagement in various learning contexts hinge on multiple factors, including developmental competencies, social supports, and other contextual influences (encompassing structural factors, social positions, and sociocultural processes).

Parental socialization may influence learning engagement not only directly but also indirectly through an increased sense of developmental competencies. For example, Taylor et al. (2004) suggested that the ways parent interact and communicate with their children significantly related to students' future social competencies. In addition, parental academic support is theorized to enhance students' beliefs in their competence, foster a positive academic self-concept, and cultivate a favorable attitude toward learning (Zhou et al., 2020). Emotion

socialization has also been proposed to establish a foundation for children's social behavior and competence, shaping various behavioral and emotional outcomes such as arousal, expression and understanding of emotion, and self-regulation (Sprinrad et al., 2020). Moreover, there is a reciprocal influence between developmental competencies and learning engagement, suggesting that while sociocultural context factors may undermine or facilitate adolescents' competencies, student engagement may also influence developmental competencies across various contexts where learning happens (Wang et al., in press).

Defining Terminology: Student Engagement and Parental Socialization

What is Student Engagement?

The concept of student engagement is both multilevel and multidimensional (Wang & Degol, 2014), and its definition varies by context (Wang & Hofkens, 2020). In this study, we focus on engagement within an academic context, which refers to the level of students' participation in academic curriculum, educational programs, and learning activities that enhance academic success (Wang & Hofkens, 2020). Similarly, Parsons (2011) pointed out that educators and practitioners primarily focus on student engagement to enhance academic performance, promote positive behaviors, and foster a sense of belonging, aiming to encourage students to remain in school. The complexity of student engagement has also been acknowledged, with Kahu (2013) asserting that it is unfeasible for any single research effort to thoroughly investigate every facet of this intricate construct.

Thus, instead of extensively examining how this concept has been defined and evaluated across various studies and fields, we measure it from three dimensions, considering student engagement from behavioral, emotional, and cognitive perspectives (Fredricks et al. 2004).

According to Fredricks et al. (2004), behavioral engagement encompasses students' active participation in academic-related activities, potentially leading to positive academic outcomes, including academic, social, and extra- and co-curricular activities. Emotional engagement centers on students' attitudes and responses to various elements associated with academics, including teachers, staff, school, classmates, etc. Lastly, cognitive engagement pertains to the depth of investment, willingness, and effort that students dedicate to studying and addressing complex tasks. By examining these three critical dimensions, we aim to have a more nuanced understanding of how different factors relate to student engagement.

What is Parental Socialization?

The recognition of the family's pivotal role in shaping the developmental outcomes of children and adolescents underscores the profound impact of parental engagement in their education (Schmid & Garrels, 2021). Parental socialization is the process through which parents influence their children to adopt the habits, values, and skills demanded by their culture (Climent-Galarza et al., 2022). This influence aims to encourage behaviors such as consideration for others, self-reliance, and accepting responsibility, while also inhibiting actions that may be annoying or harmful (Martinez-Escudero et al., 2020). Ultimately, this process helps children become competent adults who function effectively within their culture.

Parental Academic Socialization

While numerous studies have posited that parental engagement in academics confers educational advantages, the presence of inconsistent findings may be attributed to the multidimensional nature of parental involvement (Fan & Chen, 2001; Gonzalez-Dehass et al., 2005; Lara & Saracostti, 2019). The concept of academic socialization has gained prominence and has progressively become integral to related studies on academic achievement and positive

youth development in recent years. It encompasses a broad spectrum of parental values and behaviors that are conveyed to the child and significantly influence one's educational development, such as conveying parental expectations for education and emphasizing its value or practicality, connecting schoolwork to current events, nurturing educational and occupational aspirations, engaging in discussions with children about learning strategies, and collaboratively making preparations and plans for the future (Hill & Tyson, 2009; Taylor et al., 2004).

Academic Socialization and Education Outcomes

Compared to other forms of parental involvement (e.g., home-based involvement and school-based involvement), academic socialization shares a robust positive correlation with the academic achievements of adolescents (Hill & Tyson, 2009). It is plausible that the nature of indirect involvement and the use of communication-focused strategies (Bhargava and Witherspoon, 2015) in academic socialization align with adolescents' growing need for autonomy (Daddis, 2011), resulting in more positive outcomes than more direct forms of involvement. Scholars have suggested that autonomy-supported parenting practices have been suggested to lead to fewer externalizing and internalizing behaviors, more prosocial behaviors (Teuber et al., 2022), and higher academic achievement (Aguirre-Dávila et al., 2023) among adolescents. In addition, it is believed that academic socialization (a) supports the development of adolescents' emerging decision-making and problem-solving skills and (b) enables parents to stay engaged in their children's education while not infringing on their autonomy and independence (Hill and Tyson, 2009).

Studies have indicated that the values and attitudes parents hold regarding learning, along with their expectations for their children's education, play a pivotal role in fostering youth motivation and perseverance, particularly in the face of challenging educational tasks (El Nokali

et al., 2010). For example, adolescents who perceived heightened parental expectations regarding their education also indicated elevated levels of academic self-efficacy (Cross et al., 2019). This implies that parents play a significant role as primary academic socializers for their children. The messages and behaviors they convey regarding their children's schooling can profoundly impact their academic performance (Cross et al., 2019). Furthermore, when examining specific types of involvement, a meta-analysis study revealed a discernable pattern where parental expectations exerted a more substantial influence on children's educational outcomes compared to other forms of parental involvement, such as establishing household rules or attending school-based activities (Jeynes, 2007).

Although plenty of studies have shown positive associations between academic socialization and adolescents' academic achievement, it has been largely overlooked in predicting student engagement in recent research (Yang et al., 2023). In one of the few exceptions, Wang and Sheikh-Khalil (2014) assessed the degree to which parents convey education objectives, values, and aspirations to adolescents and discuss future goals and plans with them through parental reports and explored the relations between these behaviors and student engagement. They found that academic socialization was positively associated with both behavioral and emotional engagement in students. In turn, engagement contributed to higher academic achievement, indicating that academic socialization inspired adolescents to actively participate in their academic tasks both behaviorally and emotionally, resulting in improved academic performance. However, this study depended largely on parental reports of academic socialization and did not consider how adolescents themselves may perceive parental practices differently. In addition, Wang and Sheikh-Khalil (2014) did not measure students' cognitive

engagement; therefore, we did not know whether the level of academic socialization received was correlated with the amount of effort put into accomplishing challenging academic tasks.

Similar conclusions could be drawn from a Latino sample, where Rivas-Drake and Marchand (2016) conducted a study involving 150 Latino adolescents and their parents. Even after accounting for potential influencing factors like the parent's education level and student gender, findings demonstrated a positive correlation between students' perceptions of parental academic expectations and both emotional and cognitive engagement. Furthermore, perceived parental expectations were independently linked to students' beliefs in the utility of education. Although parental expectation of education is a key indicator of academic socialization, the authors failed to measure academic socialization from a multifaceted perspective, missing the other critical components such as emphasizing the value of education, collaboratively preparing and planning for the future, etc. In addition, they also adopted a single-informant method, collecting only the student's perception of parental academic socialization. Moreover, this study only measured students' emotional and cognitive engagement while having nothing to indicate their levels of participation in academic-related activities.

In a study conducted in China, perceived parental academic socialization was measured by five questions, including how often parents have conversations about schoolwork and how often parents discuss plans with students and provide guidance (Wei & Liu, 2022). This study revealed that academic socialization predicted greater perseverance in pursuing long-term goals for elementary and middle school students but not for high school students. When examining the interplay of academic socialization and parental control, the interaction effect predicted less perseverance but was only significant among high school students. These findings might be partially attributed to the increasing need for independence during adolescence, suggesting that

excessive parental involvement could be intrusive for high school adolescents and lead to undesirable outcomes. Wei and Liu's (2022) study did not indicate all the items they used to measure academic socialization; therefore, we cannot determine whether all the indicators were under the umbrella of academic socialization. However, it did imply the importance of providing autonomy to older adolescents during parental socialization, which aligned with the characteristics of academic socialization. Similar to Rivas-Drake and Marchand (2016), they also did not collect how parents rated their involvement in education, and perseverance in their effort was only one aspect of student engagement.

These studies, conducted in various cultural settings, have yielded relatively similar findings regarding parental academic socialization and learning engagement. However, a gap exists in the literature regarding the exploration of potential disparities in how parents and adolescents perceive parental academic socialization. Existing research has suggested that there may be inconsistencies between parental reports and children's perceptions of parenting practices (Barwegan et al., 2004; Niermann et al., 2020; Thomas et al., 2020), and such discrepancies also appeared in whether youth perceived a higher or lower level of engagement compared to parental perceptions (DePlanty et al., 2007; Liu et al., 2021). Barwegan et al. (2004) found that, in their study, 13 out of 31 survey questions regarding parental involvement demonstrated significant differences between students' and parents' perceptions, with parents consistently reporting higher involvement across all 13 items. This pattern is mirrored in the findings of Thomas et al. (2020) and DePlanty et al. (2007).

Liu et al. (2021) revealed an opposing pattern, indicating that, on average, parents' perceptions of their involvement in their children's education were lower than what their adolescents reported. While parental reports in these studies may vary in being higher or lower

than students' reports, a common observation is that children's perceptions of parental involvement tend to exert a more pronounced influence on predicting student outcomes in general (e.g., Thomas et al., 2020; Liu et al., 2021). Furthermore, many researchers have not fully considered the multidimensional nature of both academic socialization and student engagement, hindering a comprehensive understanding of the correlations.

Parental Emotion Socialization

The concept of 'emotion socialization' encapsulates the process of children acquiring the ability to comprehend, express, and regulate emotions within social contexts (Kitzmann, 2012). This process, beginning at a young age and lasting throughout the teenage years (Miller-Slogh & Dunsmore, 2016), happens within interpersonal interactions with teachers, peers, and parents, each of whom exerts significant influence directly and indirectly on students' outcomes related to both emotional and academic outcomes, such as self-regulation and school engagement (Valiente et al., 2020).

Parents are recognized as the primary socializers who exert influence on children's emotional development. They employ various socialization strategies such as responding to youth's emotions, engaging in discussions about emotions with youth, and modeling the expression of emotions (Eisenberg et al., 1998; Miller-Slough & Dunsmore, 2016). Parental emotion socialization behaviors, which children observe and learn from across various situations (Hajal & Paley, 2020), play a critical role in shaping youth's emotional development. This pathway of modeling and interaction is essential, as it directly influences how children manage and express their emotions. Moreover, research has also underscored the significance of parental beliefs regarding their parenting behaviors concerning children's emotions and emotional competence (Kitzmann, 2012). For instance, parents who recognized the significance of

acknowledging and accepting emotional experiences and those who valued emotion regulation were more likely to devote more to emotion socialization (Meyer et al., 2014). Thus, parents have the potential to enhance their children's emotional competencies, which builds a foundation for children's overall development.

Parents' emotion socialization practices have demonstrated significant impacts on adolescents' social and emotional development, as abilities related to emotions are widely believed to be pivotal in the cultivation of social competence and influence various psychological issues (Eisenberg et al., 1998). When looking at emotion socialization parenting interventions, meta-analytic results revealed that interventions aimed at enhancing positive emotion socialization parenting practices were likely to improve children's emotional competence and adjustment (England-Mason et al., 2023). Similar research has identified a negative association between parental emotion socialization and both concurrent and prospective conduct problems (Johnson et al., 2017). Additionally, parental emotion socialization has been found to influence adolescent psychological adjustment (Miller-Slogh & Dunsmore, 2016) and psychopathological symptoms (Jin et al., 2017). Evidence also suggested that parental supportive responses to both positive and negative emotions in adolescents were associated with higher life satisfaction and reduced distress (Ramakrishnan et al., 2019). Therefore, it is evident that the influence of parental emotion socialization practices goes beyond shaping adolescents' emotional and social competencies and may also impact children's academic performance.

Adolescents' emotional regulation and expression influence their learning engagement in multiple ways. Difficulties in emotion regulation, such as nonacceptance of emotional responses, were negatively linked to teacher support and peer relationships (De Neve et al., 2023). In turn, lower social support has been shown to influence adolescents' behavioral and emotional

engagement (Yang et al., 2018). Positive regulation strategies (e.g., positive refocusing, positive reappraisal, refocus on planning), on the other hand, showed correlations with student engagement, although specific effects may vary within different age groups (Santos et al., 2021). Furthermore, the ability to recognize one's own emotions and to respond appropriately to various circumstances has also been found to affect student's academic engagement through enhanced self-efficacy and psychological safety (Lei, 2022). To that extent, it is crucial to foster children's emotional regulation and expression, as it can contribute to improving learning engagement and academic outcomes. However, we are uncertain about whether parental emotion socialization influences student engagement by moderating the relationship between parental academic socialization and student engagement.

The Current Study

Despite the growing attention to parental academic socialization, the result of how it predicts adolescent learning engagement is not comprehensive due to the lack of consideration of the multidimensional nature of academic socialization and student engagement. In addition, there have been inconsistent results as to whether parents or students report a higher level of parental academic involvement, and existing literature regarding academic socialization did not fully consider the potential gaps between parents' and students' perceptions. The role of parental emotion socialization in influencing the relationship between academic socialization and student learning engagement is also not well understood.

This current study takes a multi-informant (i.e., parent and student reports) and multidimensional (i.e., behavioral, cognitive, and emotional engagement) approach to explore the associations between parental academic socialization and student learning engagement. We aim to answer three research questions:

1. What are the relations between academic socialization and student engagement (emotional, behavioral, and cognitive)?
2. Is there any difference between parental and student reports of academic socialization?
3. Does emotion socialization play a moderating role in the relationship between academic socialization and student engagement?

To address these questions, this study used data collected from both parents and adolescents to examine the role parental academic socialization played in predicting different dimensions of learning engagement using multiple linear regressions. In addition, we compared whether there were significant differences between parental and student reports of academic socialization using likelihood ratio tests. Lastly, a moderation analysis was carried out to reveal the effect of parental emotion socialization on moderating the association between academic socialization and learning engagement.

Methods

Participants

Participants were involved in a multi-phase longitudinal study aimed at understanding the effect of parental socialization practices on adolescent learning engagement. This study utilized the data collected in the spring of 2019, before the COVID-19 pandemic. Data from before the outbreak was preferred due to the significant disturbances in daily routines and educational environments caused by the school closures. These disruptions threaten the reliability of data on academic socialization and student engagement, as the data would not accurately represent typical conditions.

The study initially included 699 students and 304 parents, with a predominant representation of African Americans. Of these students, 546 were enrolled through the Pittsburgh Public School District, and the remaining 153 through nationwide community organizations or an online recruitment platform. To conduct analyses involving multiple informants, the sample was narrowed down to only include adolescent-parent pairs where both parties completed the survey, resulting in 180 matched dyads. This sample exhibited a missing data rate of 2.87% (n = 269) among all targeted variables, and given that this rate falls below the 5% threshold (Schafer, 1999), listwise deletion was employed to handle these missing cases. Considering the relatively minimal data loss, the impact on further analyses was likely acceptable.

The final sample consisted of 172 adolescents from grades 5 to 12 and their parents, with more female participants (n = 94, approximately 55%) included than males (n = 78, approximately 45%). Among the student sample, 162 (approximately 94%) identified as Black or African American, while the remaining 10 (approximately 6%) belonged to various other racial demographics. These students were from households with a diverse range of socioeconomic backgrounds, with 62.21% residing in households with family annual incomes between $25,000 and $100,000. Additionally, 73.26% of the students had at least one parent employed in a full-time position.

Measures

Academic Socialization

The multi-informant approach had been employed to assess parental academic socialization. Both parental reports (PAS) and student self-reports (SAS) were collected simultaneously using the same set of four questions, where the only distinction lay in the subject used in these questions. The scale consisted of four questions, asking parents and students to

respond based on how often they or their parent(s) or guardian(s) do the behaviors listed on the survey. The questions were chosen to reflect the extent to which parents conveyed their educational-related expectations and values towards their children (e.g., *Show me/my children how the things I/he/she learned in school are skills I/he/she will need to know later on in life*; see appendix A for a full list of items) Responses were recorded using five-point Likert scales, ranging from 1 (*Never*) to 5 (*A few times a week or more*). This measure demonstrated strong reliability, with parental reports showing a reliability coefficient (α) of 0.85 and student self-reports a coefficient of 0.83.

Student Engagement

Student engagement was assessed through three latent constructs from self-reports: behavioral, cognitive, and emotional (Wang et al., 2019). Behavioral engagement, reflecting students' active participation in academic activities, was measured by five items (e.g., *I contribute to class activities*). The cognitive engagement was evaluated through four items assessing students' effort and commitment (e.g., *I ensure my schoolwork is well done*). Emotional engagement gauged students' feelings towards their academic environment with four items (e.g., *Doing well in school is important to my future*). All responses used a five-point scale ranging from 1 *(Not at all like me*) to 5 (*Very much like me*). Behavioral and cognitive constructs each had one item being reverse-coded. Internal consistency for these constructs ranged from $\alpha = 0.69$ to 0.82. Appendix B includes the full list of the items for the three dimensions of learning engagement.

Emotion Socialization

Parental emotion socialization (EMSO) was evaluated in four dimensions to reveal how parents or caregivers helped their adolescents understand and regulate their emotions under six

scenarios: problem-focused reactions, minimizing reactions, expressive encouragement, and emotion-focused reactions (See Appendix C for the full list of scenarios and reactions). Students were asked to rate the frequency of specific actions their parent(s) or guardian(s) took in response to different scenarios using a seven-point Likert scale ranging from 1 (*Very unlikely*) to 7 (*Very likely*). The six items used for minimizing reactions were reverse-coded so that higher ratings suggested better socialization. Although four dimensions were measured, we created only one construct to represent emotional socialization. This scale also showed good reliability in this current study ($\alpha = 0.83$).

Covariates

Covariates included students' gender (coded as 0 for female, 1 for male), race (0 for Black/African American, 1 for other races), academic performance in the current school year (i.e., GPA), grade level, and family socioeconomic status (SES). SES was measured using two factors: the parental report of the annual household income from all sources and the employment statuses of the primary caregiver and one's spouse. Previous research has established connections between these variables and student engagement, with studies indicating that both academic achievement and SES are positively related to school engagement (Casuso-Holgado et al., 2013; Szabó et al., 2024; Tomaszewski et al., 2020). Moreover, gender differences in engagement have been observed, with female adolescents generally showing higher levels of engagement compared to males (Bang et al., 2020; Wang & Fredricks, 2013). Younger adolescents were also significantly more engaged than older adolescents (Santos et al., 2021).

Analytic Strategy

Data analyses were carried out in R 4.3.2 (R Core Team, 2023), using the *dplyr* (Wickham et al., 2023), *haven* (Wickham et al., 2023), *lavaan* (Yves, 2012), naniar (Tierney &

Cook, 2023), *nonnest2* (Merkle & You, 2024), *effectsize* (Ben-Schachar et al., 2020), *effsize* (Torchiano,2020), and the *psych* (William, 2024) packages. Confirmatory factor analyses were used to verify the factor structure of the four latent variables (i.e., parental reports of academic socialization, student reports of academic socialization, student engagement, and emotion socialization). Items were removed if the factor loading was below 0.4. In addition, if the construct had relatively poor model fits (i.e., if SRMR > 0.08, CFI < 0.9, TLI < 0.9, and RMSEA > 0.08), items with low factor loadings were also removed even if the loadings were above 0.4 to achieve a better fit. After the models were determined, the constructs were created using the average scores of the indicators within each scale.

To address the first research question, a correlation matrix was constructed to examine the strength and direction of the relationships between all variables of interest: student perception of academic socialization (SAS), parental report on academic socialization (PAS), student report of parental emotion socialization, and the different dimensions of student engagement. Then, multiple linear regressions were carried out to examine the relationships between predictor variables—comprising SAS and PAS—and outcome variables, specifically each type of student engagement, and also to control for possible individual and household level covariates.

To further investigate whether there was any difference between parental and students' reports of academic socialization, a two-step regression analysis and likelihood ratio tests between the original and restricted models were employed for each dimension of student engagement. While this method has been widely used in comparing nested models, some researchers have demonstrated its applicability in non-nested model comparisons (Lewis et al., 2011; Vuong, 1989). In the last step, a moderation analysis was performed to examine whether parental emotion socialization moderated the associations between academic socialization and

student engagement. One source of academic socialization was used (either SAS or PAS) depending on which one could better predict adolescents' learning engagement in precious steps of analyses. Before the moderation analyses, student reports of academic socialization and parental emotion socialization had been centered and multiplied to form an interaction term.

Results

Confirmatory Factor Analyses

The goodness-of-fit indices verified that the PAS construct is well-represented by the four observed variables used in the mode (χ_2 = 1.336, CFI = 1.000, TLI = 1.007, RMSEA = 0.000, SRMR = 0.012) with factor loadings ranging from 0.676 to 0.861. The confirmatory factor analysis results for the SAS construct also demonstrated a relatively good fit to the data, although the RMSEA was above the 0.06 cut-off point, suggesting that the model fit is not perfect (χ_2 = 6.315, CFI = 0.983, TLI = 0.949, RMSEA = 0.112, SRMR = 0.029). The factor loadings ranged from 0.638 to 0.837. All items have been retained, considering good model fit in alternative indices and decent factor loadings.

Both the latent constructs for cognitive and behavioral engagement each had an item with a factor loading below 0.4; therefore, the two items were removed. The new construct for cognitive engagement had only three items and the fit indices could not be calculated. The model's fit indices for behavioral engagement showed that the hypothesized measurement model is consistent with the data (χ_2 = 0.660, CFI = 1.000, TLI = 1.020, RMSEA = 0.000, SRMR = 0.010). The factor loadings ranged from 0.421 to 0.820. The emotional engagement construct also had indices outside the optimal range (χ_2 = 10.577, CFI = 0.971, TLI = 0.912, RMSEA = 0.158, SRMR = 0.033). The RMSEA was greater than 0.06 and the TLI was also slightly above

0.90 and therefore acceptable. In addition, the high CFI and low SRMR are promising indicators of model fit.

The construct for emotion socialization had poor model fits using all available items, where both CFI and TLI were below 0.7 while both RMSEA and SRMR were larger than 0.1. Therefore, 10 items with the lowest factor loadings were removed. The new construct was still not optimal, with $\chi^2 = 312.268$, CFI = 0.849, TLI = 0.822, RMSEA = 0.133, and SRMR = 0.063. The factor loadings were adequate, ranging from 0.628 to 0.808. It is noteworthy that the results might not be statistically robust as the items do not perfectly measure the latent construct. However, the remaining items were kept because they are considered valid as they are closely related to emotional socialization in terms of content.

Descriptive Analyses

Table 1 includes the demographics of our study population. Preliminary results revealed that while girls exhibited higher emotional engagement than boys ($p < .05$), no significant gender differences were observed in behavioral ($p = .28$) or cognitive engagement ($p = .11$). Additionally, academic socialization levels did not significantly differ between girls and boys, according to both student ($p = .72$) and parental reports ($p = .78$). Racial identity was not a significant predictor for any of the three engagement dimensions (behavioral: $p = .52$, cognitive: $p = .78$, emotional: $p = .32$). There was also no significant correlation between the grade level of adolescents and their engagement levels (behavioral: $p = .39$, cognitive: $p = .14$, emotional: $p = .29$) or their academic socialization (student report: $p = .15$, parental report: $p = .53$). This finding indicated a lack of substantial variance in engagement and academic socialization across different grade levels in this sample.

Students from lower-income families tended to report a lower level of parental academic socialization (p <.05), though there was no significant difference in parental reports (p =.20). In general, GPA level was also significantly associated with engagement outcomes, where higher GPAs were related to higher levels of engagement in behavioral (p < .001), cognitive (p <.001), and emotional (p<.01) engagement. However, the analysis did not identify significant differences between children who had both parents working full-time (behavioral: p = .91, cognitive: p = .30, emotional: p = .58) and at least one working full-time (behavioral: p = .27, cognitive: p = .31, emotional: p = .11) compared to other employment statuses.

Table 1. Demographics of the Study Population

Variables	Levels	*N* = 172	%
Gender	Male	78	45.35
	Female	94	54.65
Race	Black	162	94.19
	Non-Black	10	5.81
Grade Level	5-6	30	17.44
	7-9	91	52.91
	10-12	51	29.65
Annual Family Income	0 – 15,000	33	19.19
	15,001 – 35,000	46	26.74
(In U.S. Dollars)	35,001 - 75000	80	46.51
	75,001 and above	13	7.56
GPA (Grade Point Average)	3.0 – 4.0	108	62.79
	2.0 – 3.0	46	26.74
	Below 2.0	18	10.47
Parent Employment Status	At Least One is Full-Time	80	46.51
	Both are Full-Time	46	26.74
	Others	46	26.74

Direct Effects of Academic Socialization on Student Engagement

The correlation matrix presented in Table 2 reveals interrelationships among student perception and parental reports of academic socialization, parental emotion socialization, and various forms of student engagement (behavioral, cognitive, and emotional). The engagement measures were interrelated, with behavioral, cognitive, and emotional engagements exhibiting

moderate positive correlations among themselves from .091 to .700. However, since no Pearson correlation coefficients were close to or greater than .80 (Shrestha, 2020), there was little concern about multicollinearity. Students' perceptions of parental academic socialization had significant positive correlations with behavioral (r = .258, p < .001), cognitive (r = .256, p < .001), and emotional (r = .370, p < .001) engagement. Compared to student reports, parental reports had lower correlation values with all three forms of student engagement, but none of them were significant, suggesting that the associations with student engagement may be less substantial for parental reports. Emotion socialization, on the other hand, was also significantly correlated with student reports of academic socialization (r = .454, p < .001) and learning engagement (behavioral: r = .293, p < .001, cognitive: r = .304, p < .001), and emotional: r = .463, p < .001). However, its positive relationship with parental reports was statistically insignificant (r = .143, p = .060).

Table 2. Correlations Between Student Engagement Variables, Academic Socialization, and Emotion Socialization

	1	2	3	4	5
1. Student Reports of Academic Socialization					
2. Parental Reports of Academic Socialization	.365***				
3. Behavioral Engagement	.258***	.118			
4. Cognitive Engagement	.256***	.096	.700***		
5. Emotional Engagement	.370***	.091	.656***	.645***	
6. Emotion Socialization	.454***	.143	.293***	.304***	.463***

Note. * p < .05, ** p < .01, *** p < .001

The direct relations between parental academic socialization and adolescent school engagement are shown in Tables 3.1 through 3.3. Results revealed that when all the other variables were held constant, student perception of parental academic socialization was a consistently significant predictor of student engagement, regardless of the dimension (behavioral: β = 0.32, t(163) = 5.14, p < .001; cognitive: β = 0.39, t(163) = 5.45, p < .001; emotional: β = 0.42, t(163) = 6.25, p < .001). The semi-partial correlations squared (sr^2) for

academic socialization in each dimension of learning engagement was .12 (behavioral), .12 (cognitive), and .17 (emotional). These models also explained a significant proportion of variance in student engagement (behavioral: R^2 = .270, cognitive: R^2 = .316, emotional: R^2 =.301).

Parental reports of academic socialization appeared to be a significant factor in predicting students' behavioral engagement (β = 0.18, $t(163) = 2.87$, $p < .01$) and cognitive engagement (β = 0.20, $t(163) = 2.73$, $p < .01$), but not in emotional engagement (β = 0.12, $t(163) = 1.66$, p = .100). The proportion of variance explained by these new models decreased in all three dimensions (behavioral: R^2 = .193, cognitive: R^2 = .227, emotional: R^2 =.148). In addition, sr^2 for parental reports were also smaller (behavioral: .004, cognitive: .004, emotional: .004), suggesting a relatively small unique influence of parental reports on student engagement compared to student reports.

Table 3.1 Regression Results for Predicting Behavioral Engagement

	Behavioral Engagement									
	Student Reports (n = 172)					Parent Reports (n = 172)				
	B (SE)	t	p	95% CI	sr^2	B (SE)	t	p	95% CI	sr^2
Intercept	1.405 (0.553)	2.542	.012	[0.313, 2.497]		2.338 (0.546)	4.284	< .001	[1.260, 3.416]	
Academic Socialization	0.315 (0.061)	5.141	< .001	[0.194, 0.436]	.12	0.177 (0.617)	2.873	<.01	[0.055, 0.299]	.04
Non-Black (vs. Black)	-0.287 (0.233)	-1.233	.219	[-0.747, 0.173]	.007	-0.227 (0.245)	-0.926	.356	[-0.710, 0.257]	.004
Male (vs. Female)	-0.135 (0.108)	-1.244	.215	[-0.350, 0.079]	.007	0.125 (0.114)	-1.096	.275	[-0.351, 0.100]	.006
Grade Level	-0.012 (0.031)	-0.372	.710	[-0.073, 0.050]	.000	-0.026 (0.033)	-0.813	.418	[-0.091, 0.038]	.003
Family Income	-0.009 (0.025)	-0.364	.716	[-0.058, 0.040]	.000	-0.026 (0.026)	-1.022	.308	[-0.077, 0.024]	.005
Both are full-time (vs. At least one is full-time)	-0.061 (0.140)	-0.438	.662	[-0.338, 0.215]	.004	0.021 (0.147)	0.146	.884	[-0.269, 0.311]	.005
Others (vs. At least one is full-time)	-0.121 (0.145)	-0.833	.406	[-0.408, 0.166]		-0.139 (0.153)	-0.904	.367	[-0.441, 0.164]	
GPA	0.251 (0.040)	6.316	< .001	[0.173, 0.330]	.18	0.234 (0.042)	5.571	< .001	[0.151, 0.317]	.15
R^2	.270					.193				

Table 3.2 Regression Results for Predicting Cognitive Engagement

	Cognitive Engagement									
	Student Reports (n = 172)					Parent Reports (n = 172)				
	B (SE)	t	p	95% CI	sr^2	B (SE)	t	p	95% CI	sr^2
Intercept	0.083 (0.637)	0.131	.896	[-1.175, 1.342]		1.329 (0.636)	2.089	< .05	[0.073, 2.586]	
Academic Socialization	0.385 (0.071)	5.448	< .001	[0.246, 0.525]	.12	0.197 (0.072)	2.734	< .01	[0.055, 0.339]	.04
Non-Black (vs. Black)	-0.187 (0.269)	-0.695	.488	[-0.717, 0.344]	.002	-0.105 (0.285)	-0.367	.714	[-0.668, 0.459]	.000
Male (vs. Female)	-0.236 (0.125)	-1.888	.061	[-0.484, 0.011]	.01	-0.226 (0.133)	-1.694	.092	[-0.489, 0.037]	.01
Grade Level	0.083 (0.036)	2.317	< .05	[0.012, 0.154]	.02	0.065 (0.038)	1.702	.091	[-0.010, 0.140]	.01
Family Income	-0.027 (0.028)	-0.966	.336	[-0.084, 0.029]	.004	-0.049 (0.030)	-1.649	.101	[-0.108, 0.010]	.01
Both are full-time (vs. At least one is full-time)	0.158 (0.161)	0.977	.330	[-0.161, 0.477]	.01	0.257 (0.171)	1.500	.136	[-0.081, 0.595]	.02
Others (vs. At least one is full-time)	-0.210 (0.168)	-1.253	.212	[-0.541, 0.121]		-0.237 (0.179)	-1.325	.187	[-0.589, 0.116]	
GPA	0.305 (0.046)	6.661	< .001	[0.215, 0.396]	.19	0.281 (0.049)	5.745	< .001	[0.184, 0.378]	.16
R^2	.316					.227				

Table 3.3 Regression Results for Predicting Emotional Engagement

	Emotional Engagement									
	Student Reports (n = 172)					Parent Reports (n = 172)				
	B (SE)	t	p	95% CI	sr^2	B (SE)	t	p	95% CI	sr^2
Intercept	1.343 (0.606)	2.217	< .05	[0.147, 2.539]		3.210 (0.628)	5.112	< .001	[1.970, 4.450]	
Academic Socialization	0.420 (0.067)	6.247	< .001	[0.287, 0.553]	.17	0.118 (0.071)	1.662	.098	[-0.022, 0.258]	.01
Non-Black (vs. Black)	0.081 (0.255)	0.319	.750	[-0.423, 0.585]	.000	0.210 (0.282)	0.745	.457	[-0.346, 0.766]	.003
Male (vs. Female)	-0.341 (0.119)	-2.866	< .01	[-0.576, -0.106]	.04	-0.336 (0.131)	-2.552	< .05	[-0.595, -0.076]	.03
Grade Level	-0.018 (0.034)	-0.533	.595	[-0.086, 0.049]	.001	-0.041 (0.037)	-1.089	.278	[-0.115, 0.033]	.006
Family Income	-0.029 (0.027)	-1.081	.281	[-0.083, 0.024]	.005	-0.056 (0.029)	-1.917	.057	[-0.114, 0.002]	.02
Both are full-time (vs. At least one is full-time)	-0.041 (0.153)	-0.266	.791	[-0.344, 0.262]	.001	0.057 (0.169)	0.336	.738	[-0.277, 0.390]	.02
Others (vs. At least one is full-time)	-0.274 (0.159)	-1.719	.087	[-0.589, 0.041]		-0.329 (0.176)	-1.865	.064	[-0.677, 0.019]	
GPA	0.216 (0.044)	4.949	< .001	[0.130, 0.302]	.11	0.173 (0.048)	3.593	< .001	[0.078, 0.269]	.07
R^2	.301					.193				

Comparison of Coefficient Estimates: Students' Perceptions vs. Parental Reports

We employed a two-sample t-test to analyze differences between parents' and adolescents' perceptions of parental academic socialization. The results indicated that students perceived a significantly higher level of academic socialization compared to their parents (Mean Gap = 0.257, $p < .05$, Cohen's $d = .27$).

As indicated in Tables 4.1 through 4.3, when both students' perceptions and parental reports of academic socialization are included as separate predictors in unrestricted models, the significance of parental reports diminishes across all three dimensions of student engagement. Specifically, parental reports did not significantly predict behavioral engagement ($\beta = 0.09$, $t(162) = 1.52$, $p = .132$), cognitive engagement ($\beta = 0.09$, $t(162) = 1.29$, $p = .198$), or emotional engagement ($\beta = -0.01$, $t(162) = -0.10$, $p = .923$). In contrast, students' perceptions significantly influenced all dimensions, with strong effects observed in behavioral engagement ($\beta = 0.29$, $t(162) = 4.44$, $p < .001$), cognitive engagement ($\beta = 0.36$, $t(162) = 4.79$, $p < .001$), and emotional engagement ($\beta = 0.42$, $t(162) = 5.95$, $p < .001$). When combining them into one variable, constraining that the effects of the two sources of academic socialization are the same, the combined variable was also statistically significant in all three models (behavioral: $\beta = 0.19$, $t(163) = 5.00$, $p <.001$; cognitive: $\beta = 0.22$, $t(163) = 5.08$, $p < .001$; emotional: $\beta = 0.20$, $t(163) = 4.73$, $p < .001$).

Likelihood ratio tests showed that there was no significant difference between parental reports and students' perceptions when predicting behavioral engagement, $\omega^2 = 0.026$, $p = .061$. However, unrestricted and restricted models were significantly different for both cognitive ($\omega^2 = 0.039$, $p < .05$) and emotional ($\omega^2 = 0.085$, $p < .001$) engagement. Therefore, the association

between students' perceptions and parental reports on cognitive and emotional engagement is found to be significantly different.

Table 4.1 Likelihood Ratio Test Results for Behavioral Engagement

	Behavioral Engagement							
	Unrestricted Model (n = 172)				Restricted Model (n = 172)			
	B (SE)	*t*	*p*	95% CI	B (SE)	*t*	*p*	95% CI
Intercept	1.091 (0.588)	1.854	.066	[-0.071, 2.253]	1.189 (0.591)	2.014	.046	[0.023, 2.356]
Academic Socialization (Parents)	0.093(0.061)	1.516	.132	[-0.028, 0.214]	-	-	-	-
Academic Socialization (Students)	0.285 (0.064)	4.443	< .001	[0.158, 0.412]	-	-	-	-
Students & Parents	-	-	-	-	0.186 (0.037)	4.997	< .001	[0.112, 0.259]
Non-Black (vs. Black)	-0.312 (0.233)	-1.343	.181	[-0.772, 0.147]	-0.308 (0.234)	-1.316	.190	[-0.771, 0.154]
Male (vs. Female)	-0.129 (0.108)	-1.194	.234	[-0.343, 0.084]	-0.124 (0.109)	-1.135	.258	[-0.339, 0.092]
Grade Level	-0.011 (0.031)	-0.361	.719	[-0.072, 0.050]	-0.015 (0.031)	-0.481	.631	[-0.077, 0.047]
Family Income	-0.008 (0.025)	-0.318	.751	[-0.056, 0.041]	-0.012 (0.025)	-0.480	.632	[-0.061, 0.037]
Both are full-time (vs. At least one is full-time)	-0.045 (0.140)	-0.323	.747	[-0.321, 0.231]	-0.015 (0.140)	-0.108	.914	[-0.292, 0.261]
Others (vs. At least one is full-time)	-0.102(0.145)	-0.704	.482	[-0.389, 0.185]	-0.098 (0.146)	-0.668	.505	[-0.387, 0.191]
GPA	0.262 (0.040)	6.508	< .001	[0.182, 0.341]	0.262 (0.041)	6.468	< .001	[0.182, 0.342]
R^2	.280				.265			

Note: Likelihood ratio test results comparing full and restricted models: ω^2= 0.026, p = .069

Table 4.2 Likelihood Ratio Test Results for Cognitive Engagement

	Cognitive Engagement							
	Unrestricted Model (n = 172)				Restricted Model (n = 172)			
	B (SE)	t	p	95% CI	B (SE)	t	p	95% CI
Intercept	-0.226 (0.680)	-0.333	.740	[-1.568, 1.116]	-0.091 (0.685)	-0.132	.895	[-1.444, 1.263]
Academic Socialization (Parents)	0.092(0.071)	1.292	.198	[-0.048, 0.232]	-	-	-	-
Academic Socialization (Students)	0.357 (0.074)	4.794	< .001	[0.209, 0.502]	-	-	-	-
Students & Parents	-	-	-	-	0.219 (0.043)	5.077	< .001	[0.134, 0.304]
Non-Black (vs. Black)	-0.212 (0.269)	-0.269	.432	[-0.742, 0.319]	-0.206 (0.272)	-0.758	.450	[-0.743, 0.331]
Male (vs. Female)	-0.231 (0.125)	-1.845	.067	[-0.478, 0.016]	-0.223 (0.127)	-1.76	.080	[-0.473, 0.027]
Grade Level	0.084 (0.036)	2.333	< .05	[-0.013, 0.154]	0.078 (0.036)	2.165	< .05	[0.001, 0.150]
Family Income	-0.026 (0.028)	-0.926	.356	[-0.082, 0.030]	-0.032 (0.029)	-1.112	.268	[-0.088, 0.025]
Both are full-time (vs. At least one is full-time)	0.174 (0.162)	1.074	.284	[-0.146, 0.493]	0.215 (0.163)	1.322	.188	[-0.106, 0.536]
Others (vs. At least one is full-time)	-0.192(0.168)	-1.141	.256	[-0.523, 0.140]	-0.185 (0.170)	-1.091	.277	[-0.521, 0.150]
GPA	0.316 (0.047)	6.798	< .001	[0.224, 0.408]	0.317 (0.047)	6.728	< .001	[0.224, 0.410]
R^2	.323				.302			

Note: Likelihood ratio test results comparing full and restricted models: ω^2= 0.039, p = .031

Table 4.3 Likelihood Ratio Test Results for Emotional Engagement

	Emotional Engagement							
	Unrestricted Model (n = 172)				Restricted Model (n = 172)			
	B (SE)	t	p	95% CI	B (SE)	t	p	95% CI
Intercept	1.365 (0.649)	2.102	< .05	[0.083, 2.647]	1.585 (0.673)	2.354	< .05	[0.255, 2.914]
Academic Socialization (Parents)	-0.001(0.068)	-0.096	.923	[-0.140, 0.127]	-	-	-	-
Academic Socialization (Students)	0.422 (0.071)	5.954	< .001	[0.281, 0.562]	-	-	-	-
Students & Parents	-	-	-	-	0.219 (0.043)	5.077	< .001	[0.117, 0.284]
Non-Black (vs. Black)	0.083 (0.257)	0.324	.747	[-0.424, 0.590]	0.092 (0.267)	0.345	.731	[-0.436, 0.620]
Male (vs. Female)	-0.342 (0.119)	-2.859	< .01	[-0.577, -0.106]	-0.329 (0.124)	-2.649	< .01	[-0.575, -0.084]
Grade Level	-0.018 (0.034)	-0.532	.595	[-0.086, 0.049]	-0.027 (0.036)	-0.751	.454	[-0.097, 0.044]
Family Income	-0.029 (0.027)	-1.080	.282	[-0.083, 0.024]	-0.038 (0.028)	-1.362	.175	[-0.094, 0.017]
Both are full-time (vs. At least one is full-time)	-0.042 (0.154)	-0.272	.786	[-0.346, 0.263]	0.025 (0.159)	0.157	.875	[-0.290, 0.340]
Others (vs. At least one is full-time)	-0.275 (0.160)	-1.716	.088	[-0.592, 0.041]	-0.265 (0.167)	-1.590	.114	[-0.595, 0.064]
GPA	0.215 (0.044)	4.842	< .001	[0.127, 0.303]	0.216 (0.046)	4.673	< .001	[0.125, 0.307]
R^2	.301				.238			

Note: Likelihood ratio test results comparing full and restricted models: ω^2 = 0.085, p < .001

Moderation Effect of Parental Emotion Socialization on Student Engagement

Table 5 includes a summary of the results of the moderation effect of parental emotion socialization on the relationship between student reports of academic socialization and student engagement. Parental emotion socialization was positively related to students' behavioral engagement (β = 0.11, t(161) = 2.40, p <.05), cognitive engagement (β = 0.15, t(161) = 2.80, p < .01), and emotional engagement (β = 0.24, t(161) = 5.00, p < .001). However, there was no evidence suggesting that parental emotion socialization moderated the relationship between the student reports of academic socialization any dimension of student engagement according to the non-significant interaction effects (behavioral: β = 0.01, t(161) = 0.17, p = .866; cognitive: β = -0.03, t(161) = -0.70, p = .483; emotional: β = 0.00, t(161) = 0.03, p = .974).

Although emotional socialization had not been identified as a significant moderator in the relationship between parental academic socialization and student engagement, the inclusion of emotional socialization and the interaction of emotional socialization and academic socialization added 2.5%, 3.4%, and 9.4% to the explained variance in student behavioral, cognitive, and emotional engagement, respectively.

Table 5. Moderation Effect of Emotion Socialization

	Behavioral Engagement (n = 172)				Cognitive Engagement (n = 172)				Emotional Engagement (n = 172)			
	B (SE)	*t*	*p*	95% CI	B (SE)	*t*	*p*	95% CI	B (SE)	*t*	*p*	95% CI
Intercept	2.800 (0.435)	6.445	< .001	[1.942, 3.659]	1.802 (0.497)	3.624	< .001	[0.820, 2.784]	3.334 (0.451)	7.393	< .001	[2.443, 4.225]
Academic Socialization (Students)	0.238 (0.072)	3.278	< .01	[0.095, 0.382]	0.260 (0.083)	3.123	< .01	[0.096, 0.424]	0.246 (0.075)	3.264	< .01	[0.097, 0.395]
Emotion Socialization (Students)	0.109 (0.045)	2.403	< .05	[0.019, 0.198]	0.145 (0.052)	2.798	< .01	[0.043, 0.248]	0.235 (0.047)	5.001	< .001	[0.142, 0.328]
Academic Socialization * Emotion Socialization	0.006 (0.038)	0.169	.866	[-0.069, 0.082]	-0.031 (0.044)	-0.704	.483	[-0.117, 0.056]	0.001 (0.040)	0.032	.974	[-0.077, 0.798]
Non-Black (vs. Black)	-0.318 (0.231)	-1.382	.169	[-0.774, 0.137]	-0.227 (0.264)	-0.858	.392	[-0.748, 0.295]	0.014 (0.239)	0.058	.954	[-0.458, 0.487]
Male (vs. Female)	-0.121 (0.108)	-1.125	.244	[-0.335, 0.092]	-0.208 (0.124)	-1.683	.094	[-0.452, 0.036]	-0.308 (0.112)	-2.751	< .01	[-0.530, -0.087]
Grade Level	-0.011 (0.031)	-0.379	.705	[-0.073, 0.049]	0.087 (0.035)	2.444	< .05	[0.017, 0.157]	-0.017 (0.032)	-0.539	.591	[-0.081, 0.462]
Family Income	-0.018 (0.025)	-0.726	.469	[-0.067, 0.031]	-0.043 (0.029)	-1.504	.135	[-0.099, 0.013]	-0.050 (0.256)	-1.932	.055	[-0.101, -.001]
Both are full-time (vs. At least one is full-time)	-0.047 (0.139)	-0.334	.739	[-0.321, 0.228]	0.190 (0.160)	1.191	.235	[-0.125, 0.504]	-0.005 (0.144)	-0.033	.974	[-0.290, 0.280]
Others (vs. At least one is full-time)	-0.186 (0.147)	-1.270	.206	[-0.476, 0.103]	-0.307 (0.168)	-1.827	.070	[-0.638, 0.025]	-0.418 (0.152)	-2.745	< .01	[-0.719, -0.117]
GPA	0.238 (0.040)	4.842	< .001	[0.160, 0.317]	0.291 (0.046)	6.402	< .001	[0.201, 0.381]	0.189 (0.041)	4.581	< .001	[0.108, 0.271]
R^2	.296				.350				.395			

Discussion

Research evidence has shown the importance of parents and caregivers in their child's development and well-being. Yet, there are still some aspects of their influence that remain underexplored. The current study investigated the association between parental academic socialization and adolescents' multi-dimensional learning engagement by using a multi-informant approach. We had three primary objectives: 1) to examine the association between parental academic socialization and student learning engagement; 2) to discover whether there is a significant difference between student and parental perceptions of academic socialization in predicting student engagement; 3) to investigate whether parental emotion socialization has a moderating effect on the relationship between parental academic socialization and student engagement.

We found that students' perceptions of parental academic socialization predicted their engagement across all three dimensions. We also explored the differences between parental and student reports of academic socialization and revealed significant differences in their predictions of cognitive and emotional engagement. Furthermore, we found no moderating effect of emotional socialization on the relationship between academic socialization and learning engagement.

Parental Academic Socialization and Adolescent Learning Engagement

The current study found that the engagement types showed moderate positive correlations with each other but showed no significant concern for multicollinearity. Students' perceptions of parental academic socialization were positively correlated with behavioral, cognitive, and emotional engagement. In contrast, parental reports showed lower, non-significant correlations with all three forms of student engagement, implying that parental perceptions might have a

lesser impact on student engagement than what students themselves report. Controlling for other factors (i.e., gender, race, grade level, GPA, family income, and parental employment status), the way students' perceptions of their parents' academic socialization in their education consistently and significantly predicted their engagement, whether it be behavioral, cognitive, or emotional. However, parent perceptions of their academic socialization practices were significantly associated with students' behavioral and cognitive engagement but were less connected to emotional engagement. This could suggest that the way students perceive and internalize education-related messages might be different from their parents' true intentions.

These findings align with Rivas-Drake and Marchand (2016), where the authors revealed positive relationships between student-perceived parental educational expectations and cognitive and emotional engagement. However, Wang and Sheikh-Khalil (2014) indicated that parents who stress the importance of education and discuss future aspirations can inspire their children to become behaviorally and emotionally engaged in academic activities. Our findings did not reveal a significant positive relationship between parental reports of academic socialization and student emotional engagement.

Parental academic socialization is a way for parents to convey expectations and the importance of education, nurture educational and occupational goals, engage in discussions about learning strategies, and plan for the future with their children. Therefore, this approach is particularly suitable for adolescents considering that adolescence is a period when the acceleration of autonomy development typically occurs (Murphy et al., 2008), and academic socialization supports the growing autonomy and independence and equips young adolescents with the tools necessary to navigate their educational paths (Hill & Tyson, 2009). Our findings further validated the importance of understanding how students themselves interpret and respond

to their parents' academic socialization practices. This study also suggests that educational strategies should focus on how to empower parents to communicate more effectively with their children about educational values and expectations to maximize the positive impact of parental academic socialization.

Discrepancies Between Student and Parental Reports in Academic Socialization

In this current study, we revealed that there was a significant difference between student and parental reports of academic socialization and parents tended to rate a lower level of involvement than their adolescents did, which opposed what has been identified in many studies. One possible explanation is that previous studies have primarily focused on direct home-based and school-based parental practices. In contrast, academic socialization often occurs more subtly and indirectly, which may go unnoticed by parents yet still be substantially perceived and internalized by the children.

The results suggested that while both student and parent reports provide valuable insights, it is the students' interpretations and internalizations of their parents' socialization practices that significantly influence their academic behaviors and attitudes. In addition, we found that students and parents' perceptions predicted emotional and cognitive engagement differently. These findings indicate a possible distinction between parents' perceptions of their involvement and how their children perceive it. It may also imply a difference in expectations or understandings of what practices of academic socialization are more valuable and effective. Adolescents' reports were also found to be more predictive than parental reports. This finding shows the importance of how students internalize their parents' academic support and expectations, since it may, in turn, shape their academic behaviors and attitudes.

Plenty of studies have examined the discrepancies between children's perceptions and parental reports of different parenting behaviors, such as monitoring behaviors (Abar et al., 2015), discipline (Guion et al., 2009), and parental involvement (Barwegan et al., 2009; DePlanty et al., 2007; Liu et al., 2021; Liu et al., 2022; Thomas et al., 2020). However, results have been inconsistent regarding who is more likely to report higher levels of different parenting practices. In some cases, parents themselves reported a higher level of involvement (DePlanty et al., 2007; Liu et al., 2022; Thomas et al., 2020), while in other instances, it was the children who perceived greater parental engagement (Liu et al., 2021). Given our findings, future research should prioritize assessments from the student's perspective when investigating the effects of parental practices. This approach could provide more accurate insights into how adolescents perceive and are influenced by parental socialization, highlighting the significant role of students' own perceptions in shaping their behaviors and educational outcomes.

The Role of Parental Emotion Socialization

We found no evidence to suggest that parental emotion socialization significantly altered how academic socialization impacted student engagement in behavioral, cognitive, or emotional dimensions, although it was positively associated with increases in students' behavioral, cognitive, and emotional engagement. It is possible that adolescents did not feel the obligation to comply with their parents' expectations while internalizing the messages conveyed subconsciously. Therefore, the increased cooperative attitude led by a higher level of emotion socialization was less necessary to elicit the impact of parental academic socialization.

Previous research has shown that the ability of parents to regulate their own emotions (Katz et al., 2020) and their expressions of support and positive validation of a child's emotions (Waslin et al., 2023) were both positively correlated with the quality of the parent-child

relationship. In such positive relationships, multiple mechanisms effectively foster the internalization of parental values and standards (Kochanska & Kim, 2014). Children are more likely to adopt a cooperative attitude, becoming receptive and responsive to gentle guidance, which further strengthens this dynamic (Kochanska & Aksan, 1995; Thompson et al., 2006).

Our findings may indicate that academic and emotion socialization impact different aspects of student behaviors and attitudes related to educational tasks. Considering that a number of studies have observed a positive correlation between emotion competencies and student learning engagement (Santos et al., 2023), the influence of parental emotion socialization may act more on students' general emotional competencies, which in turn enhances engagement. However, this current study cannot conclusively determine the relationship. In addition, considering the growing importance of peer emotion socialization during adolescence (Lim et al., 2023), future research can take into account peer socialization and explore whether it moderates the association between parental academic socialization and learning engagement.

Strengths and Limitations

Our research allows a better understanding of the positive relationships between parental academic socialization and adolescent learning engagement, which received limited attention in previous studies. We considered the multidimensionality of academic socialization, emotion socialization, and student engagement and also adopted a multi-informant approach that included perspectives from both students and parents. This method not only provides a more nuanced view of the relationships but also helps bridge the existing gap in the literature. However, we have to carefully interpret the results due to several limitations of this study.

First, the study used a moderate sample size predominantly composed of African American students within the US context. Therefore, we have limited generalizability. Future

studies could replicate this study using a more diverse and larger sample that includes a wider range of racial and cultural groups. Second, the research did not account for factors at different levels (e.g., school level) that could significantly impact student engagement. Hence, the study may miss key aspects that influence student engagement and future studies should include variables from other levels to have a more comprehensive understanding. Last but not least, this study was not able to generate a causal relationship between parental academic socialization and student engagement. Future studies may need to adopt more complex methodologies to reveal the causal relationship.

Conclusion

This study makes some contributions to the current understanding of the effectiveness of parental academic socialization. The findings coincide with a number of studies showing that a higher level of academic socialization is associated with greater learning engagement. We also point out the significance of addressing the potential difference between parents' intentions and students' perspectives on parental academic involvement, encouraging more active communication between parents and their children so that parents can better understand how their children prefer to be supported. Parental emotion socialization also showed relationships with student engagement; therefore, the development of emotional competencies is equally important to facilitate the child's learning behaviors and beliefs. Future studies should address the limitations of this study and provide a more generalizable and comprehensive understanding of the dynamics of parental socializations.

References

Abar, C. C., Jackson, K. M., Colby, S. M., & Barnett, N. P. (2015). Parent-Child Discrepancies in Reports of Parental Monitoring and Their Relationship to Adolescent Alcohol-Related Behaviors. *Journal of youth and adolescence*, *44*(9), 1688–1701. https://doi.org/10.1007/s10964-014-0143-6

Adelman, H. S., & Taylor, L. (2012). Student engagement and disengagement: an intrinsic motivation perspective and a mental health concern. *Mental Health Promotion in Schools. Benthem Science, Sharjah, UAE*.

Aguirre-Dávila, E., Morales-Castillo, M., & Moreno-Vásquez, M. (2023). Parenting, autonomy and academic achievement in the adolescence. *Journal of Family Studies*, *29*(1), 63-76.

Barwegen, L. M., Falciani, N. K., Putnam, S. J., Reamer, M. B., & Stair, E. E. (2004). Academic Achievement of Homeschool and Public School Students and Student Perception of Parent Involvement. *School Community Journal*, *14*(1), 39-58.

Bang, H., Won, D., & Park, S. (2020). School engagement, self-esteem, and depression of adolescents: The role of sport participation and volunteering activity and gender differences. *Children and youth services review*, *113*, 105012.

Ben-Shachar M, Lüdecke D, Makowski D (2020). effectsize: Estimation of Effect Size Indices and Standardized Parameters. Journal of Open Source Software, 5(56), 2815. doi: 10.21105/joss.02815

Bhargava, S., & Witherspoon, D. P. (2015). Parental involvement across middle and high school: Exploring contributions of individual and neighborhood characteristics. *Journal of youth and adolescence*, *44*, 1702-1719.

Bosler, C. D. (2013). *Parental emotion socialization of adolescents: Creation and validation of a multi-method measure*. Oklahoma State University.

Burdick-Will, J. (2018). Neighborhood violence, peer effects, and academic achievement in Chicago. *Sociology of education*, *91*(3), 205-223.

Casuso-Holgado, M. J., Cuesta-Vargas, A. I., Moreno-Morales, N., Labajos-Manzanares, M. T., Barón-López, F. J., & Vega-Cuesta, M. (2013). The association between academic engagement and achievement in health sciences students. *BMC medical education*, *13*, 33. https://doi.org/10.1186/1472-6920-13-33

Christenson, S. L., Reschly, A. L., & Wylie, C. (Eds.). (2012). *Handbook of research on student engagement.* Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-2018-7

Climent-Galarza, S., Alcaide, M., Garcia, O. F., Chen, F., & Garcia, F. (2022). Parental Socialization, Delinquency during Adolescence and Adjustment in Adolescents and Adult Children. *Behavioral sciences (Basel, Switzerland)*, *12*(11), 448. https://doi.org/10.3390/bs12110448

Cross, F. L., Marchand, A. D., Medina, M., Villafuerte, A., & Rivas-Drake, D. (2019). Academic socialization, parental educational expectations, and academic self-efficacy among Latino adolescents. *Psychology in the Schools*, *56*(4), 483-496.

Daddis, C. (2011). Desire for Increased Autonomy and Adolescents' Perceptions of Peer Autonomy: "Everyone Else Can; Why Can't I?" *Child Development*, *82*(4), 1310–1326. http://www.jstor.org/stable/41289844

Delfino, A. P. (2019). Student engagement and academic performance of students of Partido State University. *Asian Journal of University Education*, *15*(1), n1.

De Neve, D., Bronstein, M. V., Leroy, A., Truyts, A., & Everaert, J. (2023). Emotion Regulation in the Classroom: A Network Approach to Model Relations among Emotion Regulation Difficulties, Engagement to Learn, and Relationships with Peers and Teachers. *Journal of youth and adolescence*, *52*(2), 273–286. https://doi.org/10.1007/s10964-022-01678-2

DePlanty, J., Coulter-Kern, R., & Duchane, K. A. (2007). Perceptions of parent involvement in academic achievement. *The Journal of Educational Research*, *100*(6), 361-368.

El Nokali, N. E., Bachman, H. J., & Votruba-Drzal, E. (2010). Parent involvement and children's academic and social development in elementary school. *Child development*, *81*(3), 988–1005. https://doi.org/10.1111/j.1467-8624.2010.01447.x

Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental Socialization of Emotion. *Psychological inquiry*, *9*(4), 241–273. https://doi.org/10.1207/s15327965pli0904_1

England-Mason, G., Andrews, K., Atkinson, L., & Gonzalez, A. (2023). Emotion socialization parenting interventions targeting emotional competence in young children: A systematic review and meta-analysis of randomized controlled trials. *Clinical psychology review*, *100*, 102252. https://doi.org/10.1016/j.cpr.2023.102252

Fan, X., & Chen, M. (2001). Parental Involvement and Students' Academic Achievement: A Meta-Analysis. *Educational Psychology Review*, *13*(1), 1–22. http://www.jstor.org/stable/23358867

Fredricks, J. A. (2011). Engagement in School and Out-of-School Contexts: A Multidimensional View of Engagement. *Theory into Practice*, *50*(4), 327–335. http://www.jstor.org/stable/41331061

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of educational research*, *74*(1), 59-109.

Frogley, W. J., King, G. L., & Westrupp, E. M. (2023). Profiles of parent emotion socialization: Longitudinal associations with child emotional outcomes. *Mental Health and Prevention, 30*, 1–11. https://doi.org/10.1016/j.mhp.2023.200274

Gonzalez-DeHass, A. R., Willems, P. P., & Holbein, M. F. D. (2005). Examining the Relationship Between Parental Involvement and Student Motivation. *Educational Psychology Review*, *17*(2), 99–123. http://www.jstor.org/stable/23363897

Griffin, C. B., Metzger, I. W., Halliday-Boykins, C. A., & Salazar, C. A. (2020). Racial fairness, school engagement, and discipline outcomes in African American high school students: The important role of gender. *School psychology review*, *49*(3), 222-238.

Guion, K., Mrug, S., & Windle, M. (2009). Predictive value of informant discrepancies in reports of parenting: relations to early adolescents' adjustment. *Journal of abnormal child psychology*, *37*(1), 17–30. https://doi.org/10.1007/s10802-008-9253-5

Hajal, N. J., & Paley, B. (2020). Parental emotion and emotion regulation: A critical target of study for research and intervention to promote child emotion socialization. Developmental Psychology, 56(3), 403–417. https://doi.org/10.1037/dev0000864

Hill, N. E., & Tyson, D. F. (2009). Parental involvement in middle school: a meta-analytic assessment of the strategies that promote achievement. *Developmental psychology*, *45*(3), 740–763. https://doi.org/10.1037/a0015362

Jensen, E. (2013). How poverty affects classroom engagement. *Educational leadership*, *70*(8), 24-30.

Jensen, E. (2013). How poverty affects classroom engagement. *Educational leadership*, *70*(8), 24-30.

Jeynes, W. H. (2010). The salience of the subtle aspects of parental involvement and encouraging that involvement: Implications for school-based programs. *Teachers College Record*, *112*(3), 747-774.

Jin, Z., Zhang, X., & Han, Z. R. (2017). Parental emotion socialization and child psychological adjustment among Chinese urban families: Mediation through child emotion regulation and moderation through dyadic collaboration. *Frontiers in Psychology*, *8*, 2198.

Johnson, A. M., Hawes, D. J., Eisenberg, N., Kohlhoff, J., & Dudeney, J. (2017). Emotion socialization and child conduct problems: A comprehensive review and meta-analysis. *Clinical psychology review*, *54*, 65-80.

Juvonen, J., Espinoza, G., & Knifsend, C. (2012). The role of peer relationships in student academic and extracurricular engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 387–401). Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-2018-7_18

Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in higher education*, *38*(5), 758-773.

Kahu, E., Stephens, C., Leach, L., & Zepke, N. (2015). Linking academic emotions and student engagement: Mature-aged distance students' transition to university. *Journal of Further and Higher Education*, *39*(4), 481-497.

Katz, L. F., Gurtovenko, K., Maliken, A., Stettler, N., Kawamura, J., & Fladeboe, K. (2020). An emotion coaching parenting intervention for families exposed to intimate partner violence. *Developmental psychology*, *56*(3), 638–651. https://doi.org/10.1037/dev0000800

Kiefer, S. M., Alley, K. M., & Ellerbrock, C. R. (2015). Teacher and peer support for young adolescents' motivation, engagement, and school belonging. *Rmle Online*, *38*(8), 1-18.

Kitzmann, K. M. (2012). Learning about emotion: cultural and family contexts of emotion socialization. *Global Studies of Childhood*, *2*(2), 82-84.

Klassen, J. A., Stewart, S. L., & Lapshina, N. (2021). School Disengagement and Mental Health Service Intensity Need Among Clinically Referred Students Utilizing the interRAI Child and Youth Mental Health Assessment Instrument. *Frontiers in psychiatry*, *12*, 690917. https://doi.org/10.3389/fpsyt.2021.690917

Kochanska, G., & Aksan, N. (1995). Mother-Child Mutually Positive Affect, the Quality of Child Compliance to Requests and Prohibitions, and Maternal Control as Correlates of Early Internalization. *Child Development*, *66*(1), 236–254. https://doi.org/10.2307/1131203

Kochanska, G., & Kim, S. (2014). A complex interplay among the parent-child relationship, effortful control, and internalized, rule-compatible conduct in young children: evidence from two studies. *Developmental psychology*, *50*(1), 8–21. https://doi.org/10.1037/a0032330Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the Effects of Student Engagement on First-Year College Grades and Persistence. *The Journal of Higher Education*, *79*(5), 540–563. http://www.jstor.org/stable/25144692

Lara, L., & Saracostti, M. (2019). Effect of Parental Involvement on Children's Academic Achievement in Chile. *Frontiers in psychology*, *10*, 1464. https://doi.org/10.3389/fpsyg.2019.01464

Lei X. (2022). The impact of emotion management ability on learning engagement of college students during COVID-19. *Frontiers in psychology*, *13*, 967666. https://doi.org/10.3389/fpsyg.2022.967666

Lewis, F., Butler, A., & Gilbert, L. (2011). A unified approach to model selection using the likelihood ratio test. *Methods in ecology and evolution*, *2*(2), 155-162.

Lim, C. J., Pizarro-Campagna, E., Havighurst, S. S., Zhang, X., Radovini, A., & Kehoe, C. E. (2023). The role of parent and peer emotion socialization and emotion regulation in the development of internalizing problems in adolescents. *Mental Health and Prevention*, *30*, 1–7. https://doi.org/10.1016/j.mhp.2023.200278

Liu, K., Yang, Y., Li, M., Li, S., Sun, K., & Zhao, Y. (2021). Parents' and adolescents' perceptions of parental involvement and their relationships with depression among Chinese middle school students during the COVID-19 pandemic. *Children and youth services review*, *129*, 106190. https://doi.org/10.1016/j.childyouth.2021.106190

Liu, K., Zhao, Y., Li, M., Li, W., & Yang, Y. (2022). Parents' perception or children's perception? Parental involvement and student engagement in Chinese middle schools. *Frontiers in psychology*, *13*, 977678. https://doi.org/10.3389/fpsyg.2022.977678

Lyu, W., & Wehby, G. L. (2023). Child Flourishing, School Engagement, Physical Activity, and Screen Time During the Coronavirus Disease 2019 Pandemic in 2020. *Academic pediatrics*, *23*(3), 659–666. https://doi.org/10.1016/j.acap.2022.12.016

MacCann, C., Jiang, Y., Brown, L. E. R., Double, K. S., Bucich, M., & Minbashian, A. (2020). Emotional intelligence predicts academic performance: A meta-analysis. *Psychological bulletin*, *146*(2), 150–186. https://doi.org/10.1037/bul0000219

Martin, A. J., Collie, R. J., Stephan, M., Flesken, A., Halcrow, F., & McCourt, B. (2024). What is the role of teaching support in students' motivation and engagement trajectories during adolescence? A four-year latent growth modeling study. *Learning and Instruction*, *92*, 101910.

Martinez-Escudero, J. A., Villarejo, S., Garcia, O. F., & Garcia, F. (2020). Parental Socialization and Its Impact across the Lifespan. *Behavioral sciences (Basel, Switzerland)*, *10*(6), 101. https://doi.org/10.3390/bs10060101

Marshall, I. A., & Jackman, G. A. (2015). Parental Involvement, Student Active Engagement and the" Secondary Slump" Phenomenon--Evidence from a Three-Year Study in a Barbadian Secondary School. *International Education Studies*, *8*(7), 84-96.

McKellar, S. E., & Wang, M. T. (2023). Adolescents' daily sense of school connectedness and academic engagement: Intensive longitudinal mediation study of student differences by remote, hybrid, and in-person learning modality. *Learning and Instruction*, *83*, 101659.

Merkle E, You D (2024). _nonnest2: Tests of Non-Nested Models_. R package version 0.5-7, <https://CRAN.R-project.org/package=nonnest2>.

Metzger, I. W., Cooper, S. M., Griffin, C. B., Golden, A. R., Opara, I., & Ritchwood, T. D. (2020). Parenting profiles of academic and racial socialization: Associations with academic engagement and academic self-beliefs of African American adolescents. *Journal of school psychology*, *82*, 36–48. https://doi.org/10.1016/j.jsp.2020.07.001

Meyer, S.; Raikes, H. A.; Virmani, E. A.; Waters, S.; Thompson, R. A. (2014). *Parent emotion representations and the socialization of emotion regulation in the family. International Journal of Behavioral Development, 38(2), 164–173.* doi:10.1177/0165025413519014

Miller-Slough, R. L., & Dunsmore, J. C. (2016). Parent and friend emotion socialization in adolescence: Associations with psychological adjustment. *Adolescent Research Review*, *1*, 287-305.

Murphy, D. A., Greenwell, L., Resell, J., Brecht, M. L., & Schuster, M. A. (2008). Early and middle adolescents' autonomy development: impact of maternal HIV/AIDS. *Clinical child psychology and psychiatry*, *13*(2), 253–276. https://doi.org/10.1177/1359104507088346

National Research Council & Institute of Medicine. (2004). *Engaging Schools: Fostering High School Students Motivation to Learn*. The National Academies Press.

Niermann, C. Y., Wagner, P., Ziegeldorf, A., & Wulff, H. (2022). Parents' and children's perception of self-efficacy and parental support are related to children's physical activity: a cross-sectional study of parent–child dyads. *Journal of Family Studies*, *28*(3), 986-1004.

Organisation for Economic Co-operation and Development (OECD). (2013). *PISA 2012 results: Ready to learn: students' engagement, drive and self-beliefs (Volume III): Preliminary version*.

Otani, M. (2019). Relationships between parental involvement and adolescents' academic achievement and aspiration. *International Journal of Educational Research*, *94*, 168-182.

Parsons, J., & Taylor, L. (2011). Improving student engagement. *Current issues in education*, *14*(1).

Polikoff, M., Clay, I., & Silver, D. (2023). *Beyond test scores: Broader academic consequences of the Covid-19 pandemic on American Students*. Center on Reinventing Public Education. https://crpe.org/wp-content/uploads/CPReport_0923.pdf

Ramakrishnan, J. L., Garside, R. B., Labella, M. H., & Klimes-Dougan, B. (2019). Parent socialization of positive and negative emotions: Implications for emotional functioning, life satisfaction, and distress. *Journal of Child and Family Studies*, *28*, 3455-3466.

R Core Team (2023). _R: A Language and Environment for Statistical Computing_. R Foundation for Statistical Computing, Vienna, Austria. <https://www.R-project.org/>.

Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. *Journal of Educational Psychology*, *104*(3), 700–712. https://doi.org/10.1037/a0027268

Rivas-Drake, D., & Marchand, A. (2016). Academic Socialization Among Latino Families: Exploring the Compensatory Role of Cultural Processes. *Research in Human Development*, *13*(3), 225–240. doi:10.1080/15427609.2016.1194708

Santos, A. C., Simões, C., Cefai, C., Freitas, E., & Arriaga, P. (2021). *Emotion regulation and student engagement: Age and gender differences during adolescence. International Journal of Educational Research, 109, 101830.* doi:10.1016/j.ijer.2021.101830

Santos, A. C., Simoes, C., Melo, M. H., Santos, M., Freitas, I., Branquinho, C., ... & Arriaga, P. (2023). A systematic review of the relationship between social and emotional competencies and student engagement in youth.

Savitri, J., Setyono, I. L., Cahyadi, S., & Srisayekti, W. (2018). The role of parental involvement in student's academic achievement through basic needs satisfaction and school engagement: Construct development. In A. A. Ariyanto, H. Muluk, P. Newcombe, F. P. Piercy, E. K. Poerwandari, & S. H. R. Suradijono (Eds.), *Diversity in unity: Perspectives from psychology and behavioral sciences* (pp. 255–263). Routledge/Taylor & Francis Group. https://doi.org/10.1201/9781315225302-32

Schafer J. L. (1999). Multiple imputation: a primer. *Statistical methods in medical research*, *8*(1), 3–15. https://doi.org/10.1177/096228029900800102

Schmid, E., & Garrels, V. (2021). Parental involvement and educational success among vulnerable students in vocational education and training. *Educational Research*, *63*(4), 456-473.

Shrestha, N. (2020). Detecting multicollinearity in regression analysis. *American Journal of Applied Mathematics and Statistics*, *8*(2), 39-42.

Spinrad, T. L., Morris, A. S., & Luthar, S. S. (2020). Introduction to the special issue. Socialization of emotion and self-regulation: Understanding processes and application. Developmental Psychology, 56(3), 385–389. https://doi.org/10.1037/dev0000904

Suizzo, M.-A., Jackson, K. M., Pahlke, E., McClain, S., Marroquin, Y., Blondeau, L. A., & Hong, K. (2016). Parents' school satisfaction and academic socialization predict adolescents' autonomous motivation: A mixed-method study of low-income ethnic minority families. *Journal of Adolescent Research, 31*(3), 343–374. https://doi.org/10.1177/0743558415605617

Szabó, L., Zsolnai, A., & Fehérvári, A. (2024). The relationship between student engagement and dropout risk in early adolescence. *International Journal of Educational Research Open*, *6*, 100328.

Tan, P. Z., Oppenheimer, C. W., Ladouceur, C. D., Butterfield, R. D., & Silk, J. S. (2020). A review of associations between parental emotion socialization behaviors and the neural substrates of emotional reactivity and regulation in youth. *Developmental psychology*, *56*(3), 516–527. https://doi.org/10.1037/dev0000893

Taylor, L. C., Clayton, J. D., & Rowley, S. J. (2004). Academic Socialization: Understanding Parental Influences on Children's School-Related Development in the Early Years. *Review of General Psychology, 8*(3), 163–178. https://doi.org/10.1037/1089-2680.8.3.163

Teuber, Z., Tang, X., Sielemann, L., Otterpohl, N., & Wild, E. (2022). Autonomy-related Parenting Profiles and their Effects on Adolescents' Academic and Psychological

Development: A Longitudinal Person-oriented Analysis. *Journal of youth and adolescence*, *51*(7), 1333–1353. https://doi.org/10.1007/s10964-021-01538-5

Thomas, V., Muls, J., De Backer, F., & Lombaerts, K. (2020). Middle school student and parent perceptions of parental involvement: Unravelling the associations with school achievement and wellbeing. *Educational Studies*, *46*(4), 404-421.

Thompson, R. A., Meyer, S., & McGinley, M. (2006). Understanding values in relationships: The development of conscience. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 267–297). Lawrence Erlbaum Associates Publishers.

Tierney N, & Cook D (2023). "Expanding Tidy Data Principles to Facilitate Missing Data Exploration, Visualization and Assessment of Imputations." *_Journal of Statistical Software_*, **105**(7), 1-31. doi:10.18637/jss.v105.i07 <https://doi.org/10.18637/jss.v105.i07>.

Tomaszewski, W., Xiang, N., & Western, M. (2020). Student engagement as a mediator of the effects of socio-economic status on academic performance among secondary school students in Australia. *British Educational Research Journal*, *46*(3), 610-630.

Torchiano M (2020). _effsize: Efficient Effect Size Computation_. doi:10.5281/zenodo.1480624 <https://doi.org/10.5281/zenodo.1480624>, R package version 0.8.1, <https://CRAN.R-project.org/package=effsize>.

Valiente, C., Swanson, J., DeLay, D., Fraser, A. M., & Parker, J. H. (2020). Emotion-related socialization in the classroom: Considering the roles of teachers, peers, and the classroom context. *Developmental psychology*, *56*(3), 578–594. https://doi.org/10.1037/dev0000863

Vuong, Q. H. (1989). Likelihood Ratio Tests for Model Selection and Non-Nested Hypotheses. *Econometrica*, *57*(2), 307–333. https://doi.org/10.2307/1912557

Wang, M. T., & Degol, J. (2014). Staying Engaged: Knowledge and Research Needs in Student Engagement. *Child development perspectives*, *8*(3), 137–143. https://doi.org/10.1111/cdep.12073

Wang, M. T., Degol, J. L., & Henry, D. A. (2019). An integrative development-in-sociocultural-context model for children's engagement in learning. *The American psychologist*, *74*(9), 1086–1102. https://doi.org/10.1037/amp0000522

Wang, M. T., & Eccles, J. S. (2012). Adolescent behavioral, emotional, and cognitive engagement trajectories in school and their differential relations to educational success. *Journal of research on adolescence*, *22*(1), 31-39.

Wang, M. T., & Fredricks, J. A. (2014). The reciprocal links between school engagement, youth problem behaviors, and school dropout during adolescence. *Child development*, *85*(2), 722-737.

Wang, M.-T., Fredricks, J., Ye, F., Hofkens, T., & Linn, J. S. (2019). Conceptualization and assessment of adolescents' engagement and disengagement in school: A Multidimensional School Engagement Scale. *European Journal of Psychological Assessment*, *35*(4), 592–606. https://doi.org/10.1027/1015-5759/a000431

Wang, M. T., & Hofkens, T. (2020). Beyond Classroom Academics: A School-Wide and Multi-Contextual Perspective on Student Engagement in School. Adolescent research review, 5(4), 419–433. https://doi.org/10.1007/s40894-019-00115-z

Wang, M.-T., Scanlon, C. L., & Henry, D. A. (in press). Learning motivation and engagement. *Encyclopedia of Adolescence*.

Wang, M.-T., & Sheikh-Khalil, S. (2014). Does Parental Involvement Matter for Student Achievement and Mental Health in High School? *Child Development*, *85*(2), 610–625 http://www.jstor.org/stable/24031612

Waslin, S. M., Kochendorfer, L. B., Blier, B., Brumariu, L. E., & Kerns, K. A. (2023). Parental emotion socialization: Relations with adjustment, security, and maternal depression in early adolescence. *Emotion, 23*(2), 450–459. https://doi.org/10.1037/emo0001099

Wei, J., & Liu, R. D. (2022). The interplay between perceived parents' academic socialization and psychological control in predicting youth's grit: An investigation across elementary, middle, and high schools in China. *Learning and Individual Differences*, *95*, 102142.

Wickham H, François R, Henry L, Müller K, Vaughan D (2023). _dplyr: A Grammar of Data Manipulation_. R package version 1.1.4, <https://CRAN.R-project.org/package=dplyr>.

Wickham H, Miller E, Smith D (2023). _haven: Import and Export 'SPSS', 'Stata' and 'SAS' Files_. R package version 2.5.4, <https://CRAN.R-project.org/package=haven>.

William Revelle (2024). _psych: Procedures for Psychological, Psychometric, and Personality Research_. Northwestern University, Evanston, Illinois. R package version 2.4.1, <https://CRAN.R-project.org/package=psych>.

Yang, C., Bear, G. G., & May, H. (2018). Multilevel associations between school-wide social–emotional learning approach and student engagement across elementary, middle, and high schools. *School Psychology Review*, *47*(1), 45-61.

Yang, D., Chen, P., Wang, K., Li, Z., Zhang, C., & Huang, R. (2023). Parental Involvement and Student Engagement: A Review of the Literature. *Sustainability, 15*(7), 5859.

Yves Rosseel (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software, 48*(2), 1-36. https://doi.org/10.18637/jss.v048.i02

Zhao, Y., Zheng, Z., Pan, C., & Zhou, L. (2021). Self-Esteem and Academic Engagement Among Adolescents: A Moderated Mediation Model. *Frontiers in psychology*, *12*, 690828. https://doi.org/10.3389/fpsyg.2021.690828

Zhou, S., Zhou, W., & Traynor, A. (2020). Parent and teacher homework involvement and their associations with students' homework disaffection and mathematics achievement. *Learning and Individual Differences*, *77*, 101780.

Appendix

Appendix A. Academic Socialization Scale

Student Report	Response Scale
1. Show me how the things I learn in school are skills I will need to know later on in life.	1: Never, 2: Less than once a month, 3: 1-3 times a month, 4: About once a week, 5: A few times a week or more
2. Tell me that it is normal to find schoolwork difficult.	
3. Talk to me about having a good outlook about schoolwork.	
4. Talk to me about how to talk with the teacher when I have questions.	
Parental Report	
1. Show my child how the things he/she learns in school are skills he/she needs to know later on in life.	
2. Tell my child that it is normal to find schoolwork difficult.	
3. Talk to my child about having a good outlook about schoolwork.	
4. Talk to my child about how to talk with the teacher when he/she has questions.	

Appendix B. Student Engagement Scale

Behavioral Engagement	Response Scale
1. I look over my schoolwork and make sure it's done well.	1: Not at all like me, 2: Not much like me, 3: Somewhat like me, 4: Mostly like me, 5: Very much like me
2. I keep trying when I get stuck on my schoolwork.	
3. I figure out what I did wrong when I make mistakes on my schoolwork.	
4. I give up right away when I don't understand.	
Cognitive Engagement	
1. I always try my best in school.	
2. I contribute to what we are doing in class.	
3. I ask questions when I don't understand.	
4. I get involved in school activities (e.g. clubs, sports, school events).	
5. I goof off during work time in class.	
Emotional Engagement	
1. Doing well in school is important to my future.	
2. I am happy at school.	
3. I am proud of my school.	

4. I am interested in what we are learning at school.	

Appendix C. Emotion Socialization Scale

Reaction Type	Scenario 1: If I ever became angry because I was sick and couldn't go to an event with friends, my parent(s)/guardian(s) would have:	Response Scale
Problem-focused Reactions	Helped me think about times that I can still connect with friends	1: Very Unlikely, 2, 3, 4: Medium, 5, 6, 7: Very Likely
Minimizing Reactions	Told me not to make a big deal out of missing the event	
Expressive Encouragement	Encouraged me to express my feelings of anger and frustration	
Emotion-focused Reactions	Done something fun with me to make me feel better about missing the event	
	Scenario 2: If I lost some prized possession (jewelry, cell phone, momento, etc.) and was very upset about it, my parent(s)/guardian(s) would have:	
Problem-focused Reactions	Help me think of places I haven't looked yet	
Minimizing Reactions	Tell me that losing the item is not a big deal	
Expressive Encouragement	Tell me it's OK to be upset when I feel unhappy	
Emotion-focused Reactions	Distract me by talking about happy things	
	Scenario 3: If I worked hard on a test or assignment in school, and still received a bad grade and was disappointed and upset about it, my parent(s)/guardian(s) would have:	
Problem-focused Reactions	Told me that they'd help me with studying so that I can do better next time	
Minimizing Reactions	Told me not to make a big deal out of the grade	
Expressive Encouragement	Encouraged me to talk about my feelings of disappointment	
Emotion-focused Reactions	Comforted me and tried to make me feel better	
	Scenario 4: If I was about to have a performance or sports activity and became visibly nervous about people watching me, my parent(s)/guardian(s) would have:	
Problem-focused Reactions	Helped me think of things that I could do to get ready for my turn (e.g., to do some warm-ups and not to look at the audience)	
Minimizing Reactions	Told me not to make such a big deal of the performance	
Expressive Encouragement	Encouraged me to talk about my nervous feelings	
Emotion-focused Reactions	Suggested that I think about something relaxing so that my nervousness would go away	
	Scenario 5: If I had received a birthday gift I didn’t like from a friend and looked disappointed about it in the presence of that friend, my parent(s)/guardian(s) would have:	
Problem-focused Reactions	Told me that the present can be exchanged for something I want	

Minimizing Reactions	Told me that I was making too big a deal of it	
Expressive Encouragement	Encouraged me to express my disappointed feelings	
Emotion-focused Reactions	Tried to get me to feel better by thinking of something fun to do	
	Scenario 6: If I had ever become upset because I was made fun of by peers, my parent(s)/guardian(s) would have:	
Problem-focused Reactions	Helped me think of ways to respond when other youth make fun of me	
Minimizing Reactions	Told me not to make a big deal out of it	
Expressive Encouragement	Encouraged me to talk about how it hurts to be made fun of	
Emotion-focused Reactions	Comforted me and tried to get my mind off of it	