

## Ranking Socio-Psychological Factors Affecting Academic Engagement in Adolescents

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### ABSTRACT

**Objective:** This study aimed to identify and rank the socio-psychological factors influencing academic engagement among adolescents, integrating qualitative thematic analysis and quantitative ranking to determine the most influential predictors of engagement.

**Methods and Materials:** The research adopted a sequential exploratory mixed-method design consisting of two phases. The first phase involved a qualitative literature-based content analysis conducted through NVivo 14, using thematic coding to identify socio-psychological factors influencing engagement until theoretical saturation was achieved. Eight main themes emerged: academic motivation, self-efficacy and competence beliefs, teacher–student relationship, peer relationships, family environment, emotional and behavioral regulation, school climate and belonging, and cultural-contextual influences. The second phase utilized a quantitative ranking survey with 180 adolescent participants from secondary schools in Brazil. Data were analyzed using SPSS version 26, applying descriptive statistics and the Friedman test to establish the priority order and significance of differences among the identified factors.

**Findings:** Statistical analysis revealed significant variation in the perceived importance of socio-psychological factors ( $\chi^2 = 124.27$ ,  $p < 0.01$ ). Academic motivation ranked highest (Mean = 4.61), followed by teacher–student relationship (Mean = 4.52) and self-efficacy and competence beliefs (Mean = 4.47). Lower mean scores were observed for peer relationships (Mean = 4.18) and cultural and contextual influences (Mean = 4.05). The hierarchical structure demonstrated that internal psychological drivers and relational supports play the most critical roles in sustaining adolescent engagement, while contextual variables exert indirect influence.

**Conclusion:** The study concludes that academic engagement among adolescents is predominantly shaped by motivational, relational, and competence-based dimensions. Strengthening these socio-psychological factors through teacher support, family involvement, and self-efficacy enhancement programs can effectively foster sustained engagement and academic resilience in youth.

**Keywords:** Academic engagement; socio-psychological factors; adolescents; motivation; self-efficacy; teacher–student relationship

## 1. Introduction

Academic engagement has emerged as one of the most critical constructs in understanding adolescents' educational success, well-being, and long-term academic trajectories. It encompasses behavioral, emotional, and cognitive dimensions of students' active participation in school life, reflecting their persistence, enthusiasm, and sense of belonging within academic settings. Scholars increasingly view engagement as a multidimensional process influenced by both socio-psychological and contextual factors, such as motivation, interpersonal relationships, and self-efficacy (Carvalho et al., 2025). During adolescence, a developmental stage marked by identity formation and increased social sensitivity, engagement becomes particularly fragile yet profoundly consequential (Košir & Pikić-Jugović, 2025; Lee & Chung, 2025). Understanding the interplay between these factors can provide educators, policymakers, and psychologists with actionable insights to promote sustainable engagement in schools.

Adolescence is a period of rapid psychological, emotional, and social transformation. As academic demands intensify, students' engagement often fluctuates in response to their experiences with teachers, peers, and family systems. Research has consistently emphasized that social relationships and emotional experiences shape adolescents' motivation and attitudes toward learning (Cui, 2023; Deng, 2024). Peer interactions, teacher support, and family involvement can either strengthen or undermine adolescents' commitment to academic tasks. The balance between external support and internal psychological resources, such as self-efficacy and resilience, thus becomes essential for maintaining high engagement levels (Azpiazu et al., 2024; Ha et al., 2025).

The teacher–student relationship plays a foundational role in fostering engagement. Positive emotional connections with teachers promote academic persistence, self-esteem, and classroom participation (Košir & Pikić-Jugović, 2025; Lee & Chung, 2025). When teachers offer autonomy support, constructive feedback, and fair treatment, students report higher levels of motivation and emotional connection to school (Carvalho et al., 2025). Conversely, perceived teacher indifference or hostility can trigger disengagement, absenteeism, and behavioral withdrawal (Deng, 2024). Teachers not only shape cognitive learning environments but also function as emotional anchors that regulate students' sense of safety and belonging. Therefore,

fostering supportive teacher–student relationships is central to cultivating sustainable engagement.

Peer influence constitutes another critical determinant of adolescent engagement. Adolescents often derive motivation, academic identity, and behavioral norms from their peers (Fitri & Astuti, 2024; Zafar et al., 2025). Supportive friendships and collaborative learning environments enhance persistence, cooperation, and enthusiasm for learning (Elsayed et al., 2023; Gao et al., 2025). However, peer dynamics can also lead to maladaptive outcomes, such as pressure to conform or avoidance of academic challenges (Lou, 2023; Lu & Brown, 2023). For example, exposure to peers with low achievement motivation or substance use behaviors may contribute to decreased engagement or risky behaviors (Zhou et al., 2023). The dual role of peers—as both motivators and potential distractions—underscores the complexity of adolescent social environments. Healthy peer attachment has been shown to mitigate feelings of isolation and foster cooperative learning experiences (Jacobson, 2024; Moradi & Mardani, 2023), whereas negative peer interactions may increase academic helplessness (Ha et al., 2025).

Family environment also exerts a significant impact on adolescents' school engagement. Parental involvement, expectations, and communication patterns provide the foundation for developing students' academic resilience and motivation (Aprilia & Alfiasari, 2025). Adolescents who perceive their parents as emotionally supportive and academically encouraging tend to show stronger learning orientation and persistence. Conversely, authoritarian or disengaged parenting styles often correlate with reduced engagement and emotional detachment from school. Studies conducted in different cultural contexts suggest that the quality of parental academic socialization moderates how adolescents respond to academic stress and peer influences (Knox, 2024; Rachman et al., 2025). Thus, understanding the synergistic role of family, peers, and teachers is crucial for mapping the ecosystem of adolescent engagement.

Psychological factors such as self-efficacy, grit, and self-esteem also emerge as powerful internal drivers of engagement (Košir & Pikić-Jugović, 2025; Lee & Chung, 2025). Students with high academic self-efficacy are more likely to persist through challenging tasks and maintain focus despite obstacles. Academic self-efficacy mediates the relationship between social relationships and learning outcomes (Lombres, 2024). It is often strengthened through supportive interactions that validate competence and effort. Similarly, grit—the sustained effort toward long-term

academic goals—has been identified as a mediating factor linking social support with engagement (Lee & Chung, 2025). Collectively, these findings highlight that engagement is both an individual and relational construct, shaped by the continuous interaction between internal motivation and external support systems.

The emotional and behavioral regulation of adolescents further influences engagement trajectories. Students who manage stress, frustration, and distractions more effectively tend to participate more actively and maintain higher academic achievement (Ha et al., 2025; Wang, 2022). Emotional regulation allows adolescents to channel anxiety and social pressure into constructive forms of effort. Peer attachment and emotional stability are found to reduce feelings of helplessness and disengagement (Lou, 2023). Emotional self-regulation also facilitates positive classroom interactions, thereby enhancing the learning environment collectively (Elsayed et al., 2023). In contrast, unregulated emotions and impulsivity contribute to academic disinterest and disciplinary issues (Choudhury, 2025).

School belonging and climate represent the institutional context within which socio-psychological factors operate. When students feel included, respected, and supported by school authorities, they are more likely to demonstrate sustained engagement and lower dropout rates (Azpiazu et al., 2024; Carvalho et al., 2025). Inclusive and equitable school environments reinforce adolescents' sense of security, allowing them to take academic risks and explore learning opportunities (Hernández et al., 2023). The sense of belonging is particularly vital during adolescence, when identity formation and peer acceptance take precedence (Rachman et al., 2025). A fair and safe school climate helps counterbalance external stressors and inequalities, offering a buffer against emotional withdrawal and disengagement (Košir & Pikić-Jugović, 2025).

In multicultural and globalized contexts, cultural and contextual factors also shape adolescents' engagement patterns. Cultural values such as collectivism, respect for authority, and emphasis on education influence how students interpret academic success and failure (Hernández et al., 2023; Zhou et al., 2023). For example, collectivist societies tend to view engagement as a social responsibility rather than an individual pursuit. Socioeconomic background further determines access to educational resources and psychological support systems (Carvalho et al., 2025; Jayte et al., 2025). Adolescents from lower-income families may experience academic disengagement due to financial stress, family responsibilities, or lack of institutional support.

Moreover, public health and policy environments—such as educational reforms and mental health initiatives—can enhance or hinder engagement outcomes (Lu & Brown, 2023; Rachman et al., 2025).

While engagement is often conceptualized as a motivational outcome, it also serves as a predictor of broader developmental indicators such as psychological well-being, identity formation, and future career readiness (Knox, 2024). Adolescents with high engagement are more likely to demonstrate resilience, positive emotional adjustment, and social competence (Azpiazu et al., 2024). Conversely, disengaged students often exhibit increased dropout risk, academic underperformance, and social maladjustment (Choudhury, 2025). Engagement thus acts as both an indicator and determinant of adolescent well-being, integrating emotional, social, and cognitive dimensions of development.

Cross-cultural studies indicate that engagement patterns differ across regions due to variations in pedagogical traditions, socioeconomic inequalities, and family dynamics (Carvalho et al., 2025; Wang, 2022). For instance, adolescents in collectivist societies may rely more heavily on teacher and peer relationships for motivation, while those in individualist cultures emphasize autonomy and personal achievement (Ha et al., 2025; Lou, 2023). The increasing integration of digital media and social networks further complicates these dynamics, providing new avenues for both connection and distraction (Rachman et al., 2025). Social media engagement has been found to influence self-esteem, peer interaction, and academic motivation simultaneously, illustrating the blurred boundary between personal and academic life in contemporary adolescence.

Empirical evidence suggests that multi-dimensional approaches are necessary to understand how these socio-psychological factors interconnect. For example, Gao et al. (Gao et al., 2025) demonstrated that peer support and classroom justice interact to influence engagement and disaffection through mediation by emotional climate. Similarly, Moradi and Mardani (Moradi & Mardani, 2023) found that peer attachment contributes to academic motivation, particularly when reinforced by teacher guidance and emotional stability. Such models underscore the importance of viewing engagement as an ecological construct, situated at the intersection of personal, relational, and contextual dimensions. Integrative research designs combining qualitative and quantitative methodologies are thus increasingly essential for uncovering the nuanced

pathways linking socio-psychological variables with engagement outcomes.

Given this background, the present study aims to identify and rank the socio-psychological factors influencing academic engagement among adolescents, integrating insights from literature-based qualitative analysis and empirical ranking using quantitative methods.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This study employed a mixed-method sequential exploratory design combining qualitative and quantitative approaches to comprehensively identify and prioritize the socio-psychological factors influencing academic engagement among adolescents. The first phase was qualitative, aiming to extract and conceptualize the factors from existing literature, while the second phase involved a quantitative ranking of these factors based on participants' responses.

In the quantitative phase, the study population consisted of adolescent students from various secondary schools in Brazil. Using purposive sampling, 180 adolescents aged between 14 and 18 years participated in the survey. Inclusion criteria required participants to be actively enrolled in school, willing to participate voluntarily, and capable of understanding the survey content. The sample size was determined to ensure adequate representation for statistical ranking analyses.

### 2.2. Measures

In the first (qualitative) phase, data were collected exclusively through a comprehensive literature review. Academic databases such as Scopus, Web of Science, PsycINFO, and ScienceDirect were searched using relevant keywords including “academic engagement,” “adolescents,” “socio-psychological factors,” “motivation,” “school belonging,” and “self-efficacy.” The search covered peer-reviewed articles published between 2010 and 2025. The inclusion criteria for selecting sources were: (1) focus on adolescent populations, (2) relevance to socio-psychological determinants of academic engagement, and (3) empirical or theoretical contributions to understanding engagement processes. The review continued until theoretical saturation was reached, meaning that no new concepts or themes emerged from the literature.

The identified texts were imported into NVivo 14 software for systematic qualitative content analysis. Through open and axial coding, the literature was examined to identify recurring psychological, social, and contextual factors contributing to adolescent academic engagement. Redundant codes were merged, and overarching categories were developed to represent distinct socio-psychological domains.

In the second (quantitative) phase, a structured questionnaire was developed based on the qualitative findings. The questionnaire items reflected the core socio-psychological factors identified in the NVivo coding process. The instrument was reviewed by educational psychologists and social science experts to ensure content validity. The finalized questionnaire was administered to the 180 participants in classroom settings under supervision. All participants provided informed consent prior to data collection.

### 2.3. Data Analysis

The qualitative data analysis was carried out using NVivo version 14. A thematic coding approach was employed to cluster codes into broader categories and subcategories. This process enabled the identification of key socio-psychological themes such as academic motivation, peer relationships, teacher support, family environment, emotional regulation, and self-efficacy. Frequency and co-occurrence analyses within NVivo helped determine the most prominent factors and their interrelationships.

For the quantitative phase, the collected questionnaire data were analyzed using SPSS version 26. Descriptive statistics were computed to summarize participant demographics and the mean importance scores of each identified factor. The ranking analysis was then conducted to prioritize the socio-psychological factors according to their perceived influence on academic engagement. Non-parametric ranking tests (such as Friedman's test) were used to compare the relative importance of factors and ensure statistical reliability in the prioritization results.

Finally, the integrated findings from both phases provided a comprehensive understanding of the hierarchical structure of socio-psychological factors affecting adolescents' academic engagement in the Brazilian educational context.

## 3. Findings and Results

In the qualitative phase of the study, a systematic literature-based content analysis was conducted to identify the socio-psychological factors influencing academic engagement among adolescents. Using NVivo 14 software, relevant literature was coded until theoretical saturation was achieved. Through iterative open, axial, and selective coding, eight overarching themes (categories) emerged,

representing multidimensional influences on adolescents' engagement in school contexts. Each theme was divided into several subthemes (subcategories) capturing distinct but interrelated aspects of socio-psychological experience, and further refined into concepts (open codes) that reflected specific recurring ideas or observations extracted from the reviewed studies.

**Table 1**

*Qualitative Themes, Subthemes, and Conceptual Codes Identified through NVivo Analysis*

Main Categories (Themes)	Subcategories	Concepts (Open Codes)
1. Academic Motivation	Intrinsic Motivation	Enjoyment of learning; curiosity; personal growth goals; internal satisfaction
	Extrinsic Motivation	Recognition from teachers; parental approval; future career goals; grades as rewards; social status
	Goal Orientation	Mastery orientation; performance orientation; avoidance goals
2. Self-Efficacy and Competence Beliefs	Perceived Academic Competence	Belief in academic ability; confidence in task completion; expectation of success
	Emotional Self-Efficacy	Managing frustration; coping with academic stress; persistence under difficulty
3. Teacher–Student Relationship	Emotional Support from Teachers	Feeling valued by teachers; emotional safety in class; empathy and care
	Instructional Support	Constructive feedback; clarity of instruction; fairness of evaluation; autonomy support
	Teacher Expectations	High standards; encouragement to improve; feedback on progress
4. Peer Relationships	Peer Acceptance	Inclusion in peer groups; social recognition; cooperative learning
	Peer Pressure and Comparison	Conformity to peers; fear of rejection; performance comparison
	Collaborative Learning	Group problem-solving; shared academic goals; peer mentoring; exchange of ideas
5. Family Environment	Parental Involvement	Homework supervision; emotional support; school communication
	Family Cohesion	Warmth and understanding; shared values; stable emotional environment
	Parental Expectations	Academic standards; educational aspirations; discipline and structure
6. Emotional and Behavioral Regulation	Emotional Awareness	Recognizing emotions; labeling feelings; emotional clarity
	Behavioral Control	Impulse regulation; managing distractions; classroom discipline
	Coping Strategies	Problem-focused coping; emotion-focused coping; seeking help; avoidance behaviors
7. School Climate and Belonging	Sense of Belonging	Feeling connected to school; positive identity as student; inclusion and respect
	Perceived Safety and Fairness	Anti-bullying climate; equality in rules; respectful interactions
	Institutional Support	Availability of counseling; extracurricular engagement; accessible teachers
8. Cultural and Contextual Influences	Socioeconomic Context	Access to educational resources; family income; community support
	Cultural Values	Collectivism; respect for authority; value of education; social conformity
	Educational Policy	School reform; curriculum alignment; national education standards
	Environment	



### 1. Academic Motivation

The theme of *Academic Motivation* emerged as a central psychological determinant of adolescent engagement. Motivation was found to operate through both intrinsic and extrinsic channels. Intrinsically motivated students engaged in learning for the inherent pleasure and curiosity it provided, valuing knowledge as a personal goal rather than a requirement. Extrinsic motivation, however, was often influenced by parental approval, teacher recognition, academic grades, and the pursuit of future career opportunities. The literature also highlighted the importance of goal orientation, distinguishing between mastery-oriented students—who strive for personal improvement—and performance-oriented ones—who focus primarily on outperforming peers. Collectively, these motivational processes play a crucial role in sustaining effort, attention, and persistence in academic contexts.

### 2. Self-Efficacy and Competence Beliefs

*Self-Efficacy and Competence Beliefs* represented adolescents' perceptions of their academic capabilities and emotional regulation during learning. Studies consistently revealed that a strong sense of academic self-efficacy enhances engagement by fostering confidence in overcoming challenges and achieving academic tasks. Students with higher perceived competence tend to adopt proactive learning behaviors and show resilience in the face of setbacks. Additionally, emotional self-efficacy—specifically the ability to manage frustration, anxiety, and stress—supports persistence and positive coping when confronted with demanding academic situations. These findings underscore the interplay between cognitive and emotional components in shaping adolescents' academic engagement.

### 3. Teacher–Student Relationship

The *Teacher–Student Relationship* theme highlighted the essential interpersonal dimension of school engagement. Positive relationships characterized by emotional warmth, empathy, fairness, and encouragement were shown to strengthen students' sense of belonging and motivation. Teachers who provided constructive feedback and autonomy support helped students develop both competence and intrinsic interest in learning. Conversely, inconsistent or negative interactions often led to disengagement, avoidance behaviors, and reduced participation. The literature suggested that teachers' expectations also play a decisive role—when adolescents perceive high yet attainable standards accompanied by emotional support, they are more

likely to invest in learning and exhibit sustained engagement.

### 4. Peer Relationships

The *Peer Relationships* theme emphasized the powerful influence of social networks and friendships in adolescents' academic lives. Acceptance by peers, opportunities for collaboration, and experiences of inclusion all fostered emotional safety and motivation. Conversely, peer rejection or negative comparison reduced self-esteem and increased school avoidance tendencies. Cooperative learning environments—where students share ideas, solve problems jointly, and mentor one another—were consistently associated with deeper engagement and better academic performance. However, peer pressure sometimes had dual effects: while it could motivate students to excel, it could also promote conformity or anxiety about failure, depending on the group's academic norms.

### 5. Family Environment

The *Family Environment* theme revealed the foundational role of home dynamics in shaping engagement behaviors. Parental involvement in school activities, emotional availability, and communication with teachers were positively related to academic persistence. Family cohesion—manifested through warmth, trust, and mutual respect—provided emotional security that supports learning motivation. Conversely, authoritarian or neglectful parenting styles were linked to reduced engagement and increased academic stress. Parental expectations also served as both motivators and pressures; realistic, supportive expectations encouraged achievement, while excessively high or punitive standards sometimes led to anxiety and disengagement. The findings affirmed the importance of a balanced family climate for adolescents' academic development.

### 6. Emotional and Behavioral Regulation

The *Emotional and Behavioral Regulation* theme focused on adolescents' capacity to manage emotions, impulses, and attention within academic contexts. Emotional awareness and clarity were found to enable better self-control and adaptive coping strategies. Students who effectively regulate their emotions demonstrate higher persistence and are less likely to engage in avoidance or disruptive behaviors. Behavioral regulation, such as managing distractions and maintaining focus, was identified as a strong predictor of sustained academic engagement. The literature also underscored the significance of problem-focused coping—seeking help or applying effortful control—as a more

effective strategy than emotional avoidance or disengagement.

### 7. School Climate and Belonging

The theme of *School Climate and Belonging* represented the institutional and relational conditions that shape adolescents' sense of attachment to their school. A positive climate characterized by fairness, respect, and inclusivity encouraged students to feel valued and connected to their learning environment. Perceived safety, anti-bullying initiatives, and equitable treatment further reinforced engagement by creating trust and emotional comfort. Access to supportive structures such as counseling services, extracurricular programs, and approachable teachers also enhanced students' sense of belonging. This theme indicated that school engagement is not solely an individual trait but a product of the social and cultural context within the school environment.

### 8. Cultural and Contextual Influences

Finally, *Cultural and Contextual Influences* encompassed the broader societal and environmental conditions shaping adolescents' engagement. Socioeconomic factors—such as family income, access to resources, and community

support—were found to affect educational participation and motivation. Cultural norms emphasizing collectivism, respect for authority, and the social value of education also influenced engagement patterns, particularly in communal societies. Additionally, educational policies and reforms impacted institutional priorities, shaping opportunities for inclusive and engaging learning experiences. This theme suggested that academic engagement is deeply embedded in the cultural and policy frameworks surrounding adolescents, reflecting how contextual realities mediate psychological and social dynamics in education.

In the second phase of the study, a quantitative analysis was performed to rank the socio-psychological factors identified from the qualitative phase according to their perceived impact on adolescents' academic engagement. Using SPSS version 26, responses from 180 Brazilian adolescent participants were analyzed. Each participant rated the importance of the eight main factors on a 5-point Likert scale (1 = least important, 5 = most important). Mean scores were computed for each factor, and the Friedman test confirmed significant differences in their importance levels ( $p < 0.01$ ), validating the ranking structure.

**Table 2**

*Ranking of Socio-Psychological Factors Affecting Academic Engagement*

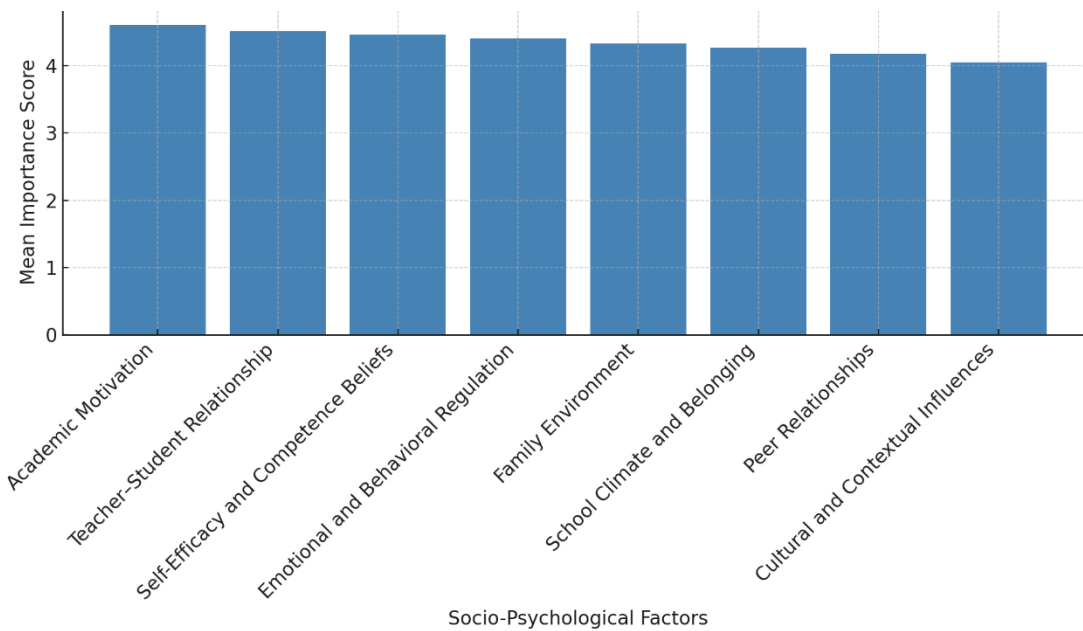
Rank	Socio-Psychological Factors	Mean Score
1	Academic Motivation	4.61
2	Teacher–Student Relationship	4.52
3	Self-Efficacy and Competence Beliefs	4.47
4	Emotional and Behavioral Regulation	4.41
5	Family Environment	4.33
6	School Climate and Belonging	4.27
7	Peer Relationships	4.18
8	Cultural and Contextual Influences	4.05

The ranking results demonstrated that academic motivation held the highest influence on adolescents' engagement, underscoring the role of intrinsic interest and goal orientation as primary drivers of learning behaviors. The teacher–student relationship ranked second, indicating that emotional and instructional support from teachers is crucial for sustaining engagement. Self-efficacy and competence beliefs followed closely, suggesting that confidence in academic abilities significantly enhances persistence and participation. Emotional and behavioral

regulation emerged as the fourth-ranked factor, reflecting the importance of managing emotions and maintaining focus during learning. Meanwhile, family environment and school climate occupied the middle ranks, highlighting the supportive but indirect role of home and institutional contexts. Finally, peer relationships and cultural-contextual influences ranked lower, suggesting that while social and cultural factors matter, they are secondary compared to individual and interpersonal determinants in shaping engagement among Brazilian adolescents.

Figure 1

Ranking of Socio-Psychological Factors Affecting Academic Engagement in Adolescents



#### 4. Discussion and Conclusion

The present study aimed to identify and rank the socio-psychological factors influencing academic engagement in adolescents through a sequential exploratory design integrating qualitative content analysis and quantitative prioritization. The findings from the ranking phase revealed that *academic motivation*, *teacher–student relationship*, and *self-efficacy and competence beliefs* were the top three factors contributing to adolescents’ engagement. In contrast, *peer relationships* and *cultural and contextual influences* received comparatively lower rankings. These results offer valuable insights into the multidimensional nature of academic engagement, highlighting the dominant role of internal motivational systems and relational dynamics within educational contexts.

The first and most influential factor—academic motivation—underscored the fundamental role of goal-directed energy, curiosity, and self-determination in sustaining adolescents’ participation in learning activities. Motivation operates as both a driver and an outcome of engagement, fostering effort, persistence, and enthusiasm for school tasks. The present findings align with the study by (Carvalho et al., 2025), which demonstrated that psychosocial development processes such as intrinsic

motivation and mastery orientation are pivotal for both cognitive and emotional engagement. Similarly, (Aprilia & Alfiasari, 2025) found that adolescents’ intrinsic motivation for school continuation was strongly shaped by parental academic socialization, suggesting that motivational energy originates not only from internal aspirations but also from supportive family contexts. The high ranking of motivation in this study supports previous findings that sustained engagement emerges when students perceive learning as personally meaningful and future-oriented (Choudhury, 2025). Therefore, motivation can be conceptualized as the central psychological mechanism that mediates between contextual support and academic persistence.

The teacher–student relationship, ranking second, confirmed the extensive empirical evidence indicating that positive, supportive teacher interactions enhance both behavioral and emotional engagement. As (Košir & Pikić-Jugović, 2025) reported, the interplay between teacher and peer relationships strongly predicts adolescents’ classroom engagement. Similarly, (Lee & Chung, 2025) emphasized that teachers who foster trust, fairness, and autonomy contribute to higher self-esteem and grit among students, which subsequently enhance engagement. The present findings are consistent with those of (Gao et al., 2025), who found that classroom justice and teacher support predicted engagement trajectories through emotional safety and



perceived fairness. These patterns suggest that relational warmth from teachers fosters psychological security, allowing students to engage deeply without fear of failure or rejection. Conversely, as (Deng, 2024) demonstrated, negative or indifferent teacher behaviors can significantly erode students' academic motivation and participation. Hence, cultivating emotionally responsive teacher–student relationships remains a cornerstone of adolescent engagement strategies.

The third-ranked factor, self-efficacy and competence beliefs, reinforces the view that adolescents' beliefs in their academic capabilities form the backbone of engagement and achievement. Students with strong self-efficacy are more likely to persist through challenges, manage stress, and maintain positive academic identities (Lombres, 2024). The present findings resonate with (Košir & Pikić-Jugović, 2025), who demonstrated that self-efficacy mediates the relationship between social support and engagement. Additionally, (Lee & Chung, 2025) found that grit and self-esteem, which are components of self-efficacy, function as mediators between social relationships and academic motivation. These findings collectively illustrate that self-efficacy serves as a psychological bridge linking interpersonal experiences and personal motivation to engagement outcomes. According to (Wang, 2022), adolescents' socioaffective beliefs—including confidence in academic and emotional competence—are among the strongest predictors of sustained classroom engagement in gifted and regular students alike.

The fourth-ranked factor, emotional and behavioral regulation, reflects adolescents' ability to manage affective responses, sustain attention, and control impulses during academic challenges. Emotional regulation is closely intertwined with engagement, as it allows students to remain focused despite stress or distractions. (Ha et al., 2025) found that developmental trajectories of academic helplessness were inversely associated with engagement levels and were mediated by emotional regulation skills. Similarly, (Elsayed et al., 2023) observed that students who received higher peer and emotional support exhibited greater capacity for regulating anxiety, which enhanced their academic participation. These studies collectively support the present finding that emotion regulation not only facilitates academic persistence but also protects against disaffection and disengagement.

The family environment, ranked fifth, plays a pivotal though secondary role in shaping adolescents' engagement. Supportive parenting, positive home communication, and

high but attainable expectations were frequently cited as sources of motivation and resilience. (Aprilia & Alfiasari, 2025) emphasized that parental academic socialization predicts school motivation through emotional support and guidance. (Rachman et al., 2025) similarly reported that self-esteem and social development are shaped by family dynamics and social media engagement, which in turn influence academic outcomes. The moderate ranking of family factors in this study may reflect that, by adolescence, external influences such as peers and teachers gradually gain more salience than parental input. Nevertheless, consistent with (Knox, 2024), family involvement remains a stabilizing foundation for engagement, especially in rural or low-resource environments where parental guidance compensates for institutional gaps.

The school climate and sense of belonging, which ranked sixth, represent the broader institutional and environmental conditions that facilitate engagement. When students perceive their schools as fair, inclusive, and emotionally safe, they are more likely to show perseverance and enthusiasm for learning. (Azpiazu et al., 2024) demonstrated that positive affect, resilience, and social support collectively enhance school adjustment and engagement among adolescents. Likewise, (Hernández et al., 2023) revealed that multicultural socialization within schools fosters inclusion and academic functioning across diverse backgrounds. The present results align with these findings, indicating that belongingness acts as both a mediator and an outcome of engagement. However, its lower ranking compared to individual-level factors such as motivation and self-efficacy suggests that while institutional conditions are necessary, they may be insufficient without internal psychological readiness.

Peer relationships, although ranking seventh, remain a significant but contextually variable predictor of engagement. The literature indicates that peers can serve both as motivators and distractors depending on the quality of interaction. Positive peer attachment enhances motivation and confidence (Moradi & Mardani, 2023), while negative peer pressure can promote maladaptive behaviors or disengagement (Lou, 2023). The current findings echo (Gao et al., 2025), who observed that peer support influences engagement indirectly through classroom justice and emotional regulation. (Fitri & Astuti, 2024) further suggested that peer encouragement can amplify learning motivation, particularly in cooperative educational settings. Nonetheless, the relatively lower ranking of peer factors in this study may reflect cultural distinctions—Brazilian

adolescents might value teacher and family relationships over peer influence in academic matters, consistent with observations by (Jacobson, 2024) and (Zhou et al., 2023).

Finally, cultural and contextual influences, ranking lowest, still play a meaningful background role. Cultural norms around education, socioeconomic disparities, and institutional support shape how adolescents engage with school life. Studies show that social inequality and local cultural values can indirectly determine engagement through opportunities and expectations (Carvalho et al., 2025; Jayte et al., 2025). (Hernández et al., 2023) and (Lu & Brown, 2023) both highlighted how socialization contexts—such as cultural norms and peer conformity—affect motivation and participation. The low ranking may be due to adolescents' limited direct control over macro-level cultural variables; however, the contextual environment remains crucial for understanding disparities in engagement across different communities (Zafar et al., 2025).

Taken together, these findings underscore that academic engagement in adolescents is shaped primarily by internal psychological and relational dimensions, with motivation, self-efficacy, and teacher relationships acting as the most immediate determinants. Broader contextual and peer influences, while still relevant, play supportive or mediating roles. This hierarchical structure parallels ecological models of engagement, which view individual, interpersonal, and institutional layers as interacting systems (Azpiazu et al., 2024; Košir & Pikić-Jugović, 2025). The results reinforce that adolescents' engagement emerges from the alignment between inner psychological readiness and external social supports, confirming the dynamic and multidimensional nature of this construct.

## 5. Limitations & Suggestions

Despite its contributions, the present study has several limitations that warrant consideration. First, the data were collected from adolescents in Brazil, which limits the generalizability of findings to other cultural and educational contexts. Engagement-related factors can vary considerably depending on societal norms, socioeconomic structures, and schooling systems. Second, while the qualitative phase relied on an extensive literature review, it did not include direct interviews or focus groups, which might have provided richer, context-specific insights. Third, the quantitative ranking was based on self-reported perceptions, which may be influenced by social desirability bias or limited self-awareness among adolescent respondents.

Finally, although the mixed-method approach provides integrative depth, causal relationships between the identified factors and engagement were not directly tested, suggesting that longitudinal or experimental designs may be needed to establish temporal dynamics.

Future studies should expand cross-cultural comparisons to identify universal versus culture-specific predictors of academic engagement among adolescents. Researchers could integrate qualitative interviews, observational data, or longitudinal tracking to capture developmental changes in engagement patterns. Additionally, future work should explore mediating mechanisms—such as emotional regulation, digital media use, and resilience—linking social and psychological factors to engagement outcomes. Applying advanced modeling techniques such as structural equation modeling or multilevel analysis could also clarify the hierarchical relationships among individual, interpersonal, and contextual factors. Lastly, incorporating teacher and parent perspectives would offer a more holistic understanding of how multi-stakeholder interactions foster or hinder adolescent engagement.

Practically, educators and policymakers should prioritize interventions that enhance academic motivation, self-efficacy, and teacher–student relationships. Schools can implement mentoring programs, socio-emotional learning curricula, and teacher training workshops focused on empathy and feedback quality. Creating emotionally safe classroom environments where students feel valued and capable can substantially boost engagement. Family-based programs that promote parental involvement and constructive communication may also reinforce adolescents' motivation and self-regulation skills. Ultimately, interventions that simultaneously strengthen personal competencies and social supports are likely to yield the most sustainable improvements in adolescent academic engagement.

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## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

### Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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### Authors' Contributions

All authors equally contributed to this article.

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