

CONTEXTUAL ANALYSIS OF

Motivation, Engagement, & Persistence

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About

EduDream is a Latina-founded, woman-owned research consulting firm inspiring transformation within education by bringing community voice and rigorous research together. We partner with nonprofits and foundations to provide culturally responsive evaluations, community-centered research, and data strategy.

INTRODUCTION

Researchers have long viewed motivation as a key contributor to academic success and achievement (Linnenbrink & Pintrich, 2002; Vu et al., 2022). While researchers do not fully understand the association between motivation and achievement, the literature suggests student motivation is associated with academic behaviors, such as effective learning strategies, which in turn lead to academic achievement (Vu et al., 2022). Therefore, the drivers of motivation are of great interest to researchers, educators, and policymakers who seek to increase the rates of student achievement for all students.

Recently, the COVID-19 pandemic has ushered in new far-reaching implications for student motivation, engagement, and persistence (MEP). Social distancing measures, the shift to remote learning, and the tumultuous sociopolitical climate have all negatively affected student motivation across various populations (Fong, 2021; Müller et al., 2021). Among the most impacted are Black, Latinx, and students from low-income backgrounds who face compounded obstacles in accessing quality education. Despite their heightened risk of decreased MEP, there remains a lack of research focusing on the MEP of these populations, as well as the systemic factors that profoundly influence their educational experiences.

Fostering an environment that supports the academic success of students of color is, now more than ever, both an ethical and economic imperative as the effects of COVID-19 and a continuously more diverse student population compound. In fact, nearly half of all undergraduate students are now students of color (Espinosa et al., 2019). This can in part be explained by the rapid increase of Latinx students in the U.S., with Latinxs accounting for more than half of the population growth from 2010 to 2020, and rates of Latinx student enrollment at four-year postsecondary institutions increasing from 620,000 in 2000 to 2.4 million in 2020 (Pew Research Center, 2022). Therefore, educators, researchers, and policymakers require evidence-based recommendations to effectively foster conducive environments and mitigate systemic barriers that impact students who are socially marginalized and historically underserved by the education system. This literature review explores how MEP is defined in the literature, the impact of systemic and contextual factors on student MEP, and recommendations for educators, researchers, and policymakers.



Glossary

The following are terms used throughout our review that may be unfamiliar to readers.

Latinx. A gender-inclusive term referring to the Latin American heritage of individuals and communities present in the United States.¹ Latinx is used as opposed to the term “Hispanic”, which only includes those from Spanish-speaking countries, to be inclusive of all individuals from countries formerly colonized by Spain. Throughout our review, references to Latinx individuals and communities include those who identify as Hispanic. Therefore, studies that reference Hispanic populations and samples are included in our use of the term.

Black. A racial classification of individuals in the Western world based on culture, heritage, and melanated skin, as opposed to the term “African American,” which predominantly refers to those with distinct experiences and histories (e.g., descendants of enslaved people), “Black” encompasses a wide range of cultural, historical, and locational backgrounds.”²

Low-Income. Frequently refers to households making under 125% of the federal poverty level, however, different studies may use varying income classifications to define the term, such as incomes under \$40,000 or under 225% of the federal poverty level. Studies may also use distal indicators to identify low-income status students, such as participation in school lunch programs.

Context. Refers to the unique combination of conditions and circumstances (e.g., aspects of the individual, family, school, and broader systemic environment) in which student learning takes place.³

Bias. Refers to preconceived attitudes or views held by individuals, groups, and larger systems, which favor certain identities, behaviors, and beliefs over others.⁴

Self-Efficacy. Refers to one’s internal belief in their ability to perform behaviors and successfully accomplish tasks; the higher one’s self-efficacy, the more they believe in their ability to do these things.⁵

Sense of Belonging. Refers to one’s internal perception of their fit and acceptance within a group, environment, or field (such as STEM).⁶

Stereotypes. Refer to commonly held, often harmful, generalizations and beliefs about individuals based on their membership to certain groups.⁷

Intersectionality. Refers to the interconnectedness of social classifications such as race, gender, and class. Viewing identity as intersectional, therefore, includes acknowledging the multiple classifications that apply to an individual.⁸

¹ Encyclopedia Britannica (n.d.). What’s the difference between Hispanic and Latino? <https://www.britannica.com/story/whats-the-difference-between-hispanic-and-latino>

² American Psychological Association. (n.d.a). African American. <https://dictionary.apa.org/african-american>

³ American Psychological Association. (n.d.b). Context. <https://dictionary.apa.org/context>

⁴ American Psychological Association. (n.d.c). Prejudice. <https://dictionary.apa.org/prejudice>

⁵ American Psychological Association. (n.d.d). Self-efficacy. <https://dictionary.apa.org/self-efficacy>

⁶ American Psychological Association. (n.d.e). Belonging. <https://dictionary.apa.org/belonging>

⁷ American Psychological Association. (n.d.f). Stereotypes. <https://dictionary.apa.org/stereotypes>

⁸ Crenshaw, K. (2018). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory, and antiracist politics [1989]. *Feminist Legal Theory*, 57–80. <https://doi.org/10.4324/9780429500480-5>

Glossary, cont.

Socioemotional Support. Refers to the social and emotional assistance provided by others, such as family members, friends, neighbors, and institutions.⁹

Socioeconomic Status. Refers to an individual, or groups, social position within society based on a number of intersecting factors such as income level, education level, occupation, location of residence, religion, and race/ethnicity.¹⁰ In the United States, socioeconomic status is frequently divided into three hierarchical groups; high, middle, and low.

Power. Refers to access to privileges such as information, connections, experiences, resources and decision-making that enhance a person's chances of getting what they need to live a comfortable, safe, productive and profitable life.¹¹

Privilege. Refers to unearned power that is afforded to some but not others based on status rather than earned merit; such power may come in the form of rights, benefits, social comfort, opportunities, or the ability to define what is normative or valued.

Middle School. Refers to the transitional schooling period between elementary and high school in the United States. Middle schoolers represent grades 6 through 8 and typically range from 11- to 13-years-old.

High School. Refers to the final period of mandatory schooling in the United States. High schoolers represent grades 9 through 12 and typically range from 14- to 18-years-old.

Postsecondary. Refers to elective additional education received from institutions of higher learning after completing one's k-12 education; postsecondary education can refer to the pursuit of a 2- to 4-year degree and or enrollment in vocational school.

Marginalized. Refers to Individuals, groups and communities that have experienced disparities or disadvantages in obtaining assistance, services, or access to resources based on group membership.¹²

Underrepresented. Refers to the historical marginalization of populations or groups in the United States, particularly based on race, ability, gender, socioeconomic status, and additional group membership.¹³

⁹ American Psychological Association. (n.d.g). Social support. <https://dictionary.apa.org/social-support>

¹⁰ American Psychological Association. (n.d.f). Socioeconomic status. <https://dictionary.apa.org/socioeconomic-status>

¹¹ American Psychological Association. (n.d.h). Inclusive language guidelines. <https://www.apa.org/about/apa/equity-diversity-inclusion/language-guidelines>

¹² Law Insider (n.d.a), Marginalized. <https://www.lawinsider.com/dictionary/marginalized>

¹³ Law Insider (n.d.b), Underrepresented groups. <https://www.lawinsider.com/dictionary/underrepresented-groups>

Glossary, cont.

Rapid Review. Refers to an alternative evidence gathering process as opposed to the traditional systemic review. Rapid reviews use an accelerated approach, variations on traditional methods, a narrowed scope, and incorporate stakeholder rationale in order to synthesize information from a body of literature quickly and efficiently.¹⁴ These abbreviated searches have been shown to be a viable alternative to more comprehensive methodologies.¹⁵

Locus of Causality. Refers to how individuals perceive the cause of an event, such as passing or failing a course. The cause of an event can be contributed to internal (e.g., not being smart enough) or external (e.g., distraction in the classroom) sources.¹⁶

Goal Orientations. Refers to the reasons or motivations students have for pursuing particular goals.¹⁷

Pedagogy. Activities or practices related to the imparting of knowledge or instruction (e.g., teaching practices and styles).¹⁸

Dominant Groups and Values. In a multicultural society the “Dominant Group” is the one which culture’s values, language, beliefs, and behaviors are imposed on other groups through social or political power.¹⁹

¹⁴ Hamel, C., Michaud, A., Thuku, M., Skidmore, B., Stevens, A., Nussbaumer-Streit, B., & Garrity, C. (2021). Defining rapid reviews: A systematic scoping review and thematic analysis of definitions and defining characteristics of rapid reviews. *Journal of Clinical Epidemiology*, 129, 74–85. <https://doi.org/10.1016/j.jclinepi.2020.09.041>

¹⁵ Nussbaumer-Streit, B., Klerings, I., Wagner, G., Heise, T. L., Dobrescu, A. I., Armijo-Olivo, S., Stratil, J. M., Persad, E., Lhachimi, S. K., Van Noord, M. G., Mittermayr, T., Zeeb, H., Hemkens, L., & Gartlehner, G. (2018). Abbreviated literature searches were viable alternatives to comprehensive searches: A meta-epidemiological study. *Journal of Clinical Epidemiology*, 102, 1–11. <https://doi.org/10.1016/j.jclinepi.2018.05.022>

¹⁶ American Psychological Association. (n.d.i). Locus of causality. <https://dictionary.apa.org/locus-of-causality>

¹⁷ Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41(10), 1040–1048. <https://doi.org/10.1037/0003-066X.41.10.1040>

¹⁸ American Psychological Association. (n.d.j). Pedagogy. <https://dictionary.apa.org/pedagogy>

¹⁹ Oxford Reference (n.d.). Dominant Culture. <https://www.oxfordreference.com/display/10.1093/oi/authority.20110803095725838>

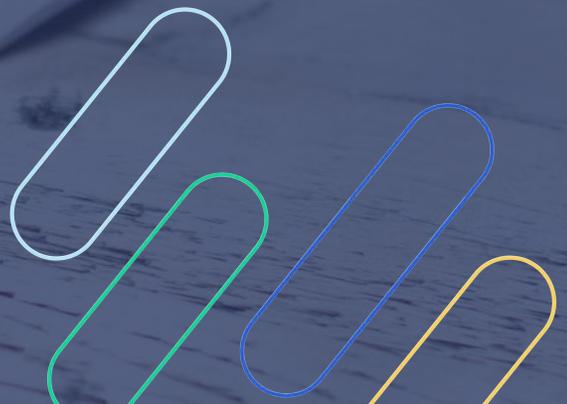


SECTION ONE

Defining Motivation, Engagement, & Persistence

Overview

Motivation, engagement, and persistence (MEP) are interrelated theoretical constructs (i.e., ideas or theories containing multiple elements) that are key to facilitating student learning and achievement and promoting equitable educational outcomes. However, few studies examine MEP in Black, Latinx, and economically disadvantaged populations as compared to white students from higher socioeconomic status (SES) backgrounds. Further, the literature describes these terms in great variation. It is, therefore, beneficial for practitioners, policymakers, and educators to understand how the literature defines MEP and any common patterns presented with a particular focus on equity considerations for these underrepresented students. This research synthesis outlines common definitions of MEP, highlights the importance of context, and offers recommendations for future research.



Motivation

Defining motivation presents a challenge to scholars and practitioners alike due to its multifaceted and dynamic nature (Reeve, 2016).

Motivation may reflect a momentary state or an enduring character trait of an individual (Baumeister, 2015). Further, motivation is inextricably tied to context (i.e., factors in the student's school, life, and sociopolitical setting), and defining it requires taking into account the context in which an individual is situated (King & McInerney, 2014; Paris, 1997). Individual and contextual variations in motivation are, in turn, reflected in the multidimensional models and various types of motivation discussed in the literature. While motivation cannot be narrowed down to one concise definition, the literature points to common patterns and themes.

Of the 103 studies included in our rapid review, 52 explored motivation. Our review uncovered over 60 theories used to explain student MEP; six prominent theories of motivation emerged (see Table 1). Several distinct definitions of motivation then arose from these theories.

Types of Motivation

1. Intrinsic vs. Extrinsic Motivation

One of the most prominent theories of motivation is *Self-Determination Theory (SDT)*. Two key terms within this theory are intrinsic and extrinsic motivation (Deci & Ryan, 2020). Intrinsic motivation arises from a genuine interest or curiosity in a task at hand. When students are intrinsically motivated, a task itself is rewarding, resulting in students who are more likely to stay engaged and complete a task regardless of challenges. Conversely, extrinsic motivation arises as a response to external rewards or punishment. When students are extrinsically motivated, their focus is not on the inherent value of a task (e.g., learning, satisfaction, or pride), but on the outcomes (e.g., better grades, rewards, or avoiding punishment) associated with it. Excessive reliance on extrinsic motivation may lead to decreased enjoyment, and persistence with a task (Deci et al., 1999). SDT further suggests that intrinsic and extrinsic motivation exist on a continuum (see Figure 1). That is, individuals may be motivated to engage in a task due to a combination of intrinsic and extrinsic factors. Therefore, the distinction and interplay between extrinsic and intrinsic motivation is key to understanding how motivation may impact long-term persistence and academic achievement.

Exploring Autonomy and Motivation

While distinctions between intrinsic and extrinsic motivation exist, it is important to note that these two categories exist on a continuum and often overlap and coexist within an individual. Deci and Ryan (2020) conceptualize motivation as a spectrum that varies based on how much autonomy (i.e., the degree to which decisions are driven by the self) an individual experiences. At the far end of the spectrum is amotivation; this is the least autonomous motivation type and reflects a lack of motivation. Intrinsic motivation is at the other end of the spectrum, representing the most autonomous motivation type.

Deci and Ryan further conceptualize extrinsic motivation as consisting of four motivation sub-types (i.e., external regulation, introjected regulation, identified regulation, and integrated regulation), each representing varying degrees of autonomy. The least autonomous form of extrinsic motivation is external regulation, which refers to behavior solely driven by external punishments and rewards. Conversely, the most autonomous form of extrinsic motivation, integrated regulation, refers to behavior driven by an alignment between the task and the individual's identity and broader goals and aspirations. **By supporting more autonomous forms of motivation, such as intrinsic motivation and integrated regulation, educators and practitioners can help increase student engagement and persistence.**

Figure 1.
Self-Determination Theory Continuum of Motivation*



*Adapted from Center for Self-Determination Theory (2017)

Types of Motivation, Continued

2. Academic and Achievement Motivation

While the MEP literature widely discusses intrinsic and extrinsic motivation, two other key constructs emerge within the field of education research: academic and achievement motivation. Academic motivation refers to a student's drive to do well in school. Students are thought to develop academic motivation through meaningful learning experiences and a sense of identity aligned with academics (Butler-Barnes et al., 2017; Healey & Stroman, 2021). That is, students with high academic motivation value academic tasks (e.g., homework and classroom activities) due to the impact of previous academic experiences on their developing sense of self (e.g., being an honors student). Similarly, achievement motivation refers to a student's drive to perform well in a setting where achievement is highly valued. Achievement motivation may therefore encompass student motivation beyond the school setting (e.g., career or sports settings). In education research, academic and achievement motivation often overlap in definition and examination.

Expectancy-Value Theory posits that students' values of academic tasks and achievement drive their motivation, along with their expectations of success (Eccles et al., 1983). That is, a student must not only value an academic task to pursue it but also believe the task is achievable. For example, a student may see the value in enrolling in AP biology but may decide not to take the course if they believe they are unlikely to pass the AP exam. Therefore, a student's prior experiences related to the task, both in and out of the classroom, impact their academic and achievement motivation.

Additionally, academic and achievement motivation are highly malleable constructs that depend on the resources provided by the school (Scales et al., 2020; Sherman et al., 2013). That is, the availability of resources in their environment impacts a student's academic and achievement motivation. As such, scholars who study these constructs also examine contextual factors, which include the school environment, teacher support, peer support, and barriers to motivation (e.g., experiences of bias). Academic and achievement motivation are, therefore, not solely internal processes but involve the interaction between the student and school environment.

3. Multidimensional Models of Motivation

Beyond academic and achievement motivation, scholars sought to develop a more comprehensive understanding of motivation by examining various dimensions of student behaviors, attitudes, and beliefs. Researchers who focus on behavior tend to study students' choices, their level of engagement on a task, resilience, and overall effort. Scholarly research on attitudes explores students' interests, goal orientations, perceived value of a task, and growth mindset. Additionally, researchers examine motivational beliefs, such as self-efficacy (i.e., a student's internal perception of their abilities and competence in a given domain or task) and locus of causality (i.e., whether a student attributes their success or failure to internal or external reasons). Despite the vast variation in constructs that scholars use to define motivation, the common theme in these conceptualizations is that it is multi-faceted and cannot be defined by a single construct or theory. It is, therefore, critical for scholars to employ a multidimensional model of motivation.

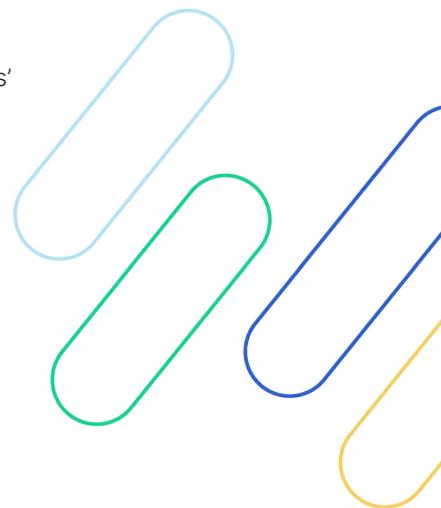


Table 1. Prominent Theories of Motivation by Evidence Base

THEORY # OF CITATIONS & SOURCE	THEORY DESCRIPTION	MOTIVATION CONSTRUCT(S)	MAIN TAKEAWAY(S)
<p>Self-Determination Theory n=29</p> <p>Ryan & Deci, 1985</p>	<p>School environments and teaching methods that support students' psychological needs of autonomy, competence, and relatedness impact motivation</p>	<p>Intrinsic Motivation: Promotes students' engagement in a task through enjoyment and enthusiasm</p> <p>Extrinsic Motivation: Promotes student engagement in a task through external means such as rewards or punishments</p> <p>Amotivation: A lack of drive to engage in a task</p>	<p>Intrinsic and extrinsic motivation exist on a spectrum, and students can demonstrate both simultaneously</p> <p>Both intrinsic and extrinsic motivation lead to short-term student engagement, but higher intrinsic motivation is the key to longer-term persistence</p>
<p>Expectancy-Value Theory n=18</p> <p>Eccles et al., 1983</p>	<p>Students' perception of a task's value, and their belief that they will succeed at a task, informs how a student assigns motivation to, and engages with, a task</p>	<p>Expectancy: Student beliefs about their success in a task</p> <p>The 4 Task Values</p> <ul style="list-style-type: none"> • Attainment Value: The perceived importance of a task to a student's identity • Intrinsic Value: A student's interest, enjoyment, and enthusiasm for a task • Utility Value: The perceived usefulness of a task towards one's personal goals • Cost: The amount of time and energy a student devotes to a task or that is taken away from another pursuit due to participation 	<p>Students assign motivation to a task by weighing multiple values vs. the cost of participation</p> <p>Students' motivations are shaped by their prior experiences, beliefs, and perceptions around a task (i.e., students are motivated to devote energy to activities they expect they will succeed at)</p>
<p>Goal Orientation Theory n=8</p> <p>Dweck, 1986</p>	<p>Students have broad goal orientations that inform how and why they are motivated to learn</p>	<p>Mastery Goal Orientation: Students are motivated to learn due to a desire to understand materials</p> <p>Performance Goal Orientation: Students are motivated to learn due to a desire to perform well (i.e., get good grades or praise)</p>	<p>Students with a mastery goal orientation are more likely to persist past challenges than those with a performance goal orientation</p>

Table 1. Prominent Theories of Motivation by Evidence Base, cont.

THEORY # OF CITATIONS & SOURCE	THEORY DESCRIPTION	MOTIVATION CONSTRUCT(S)	MAIN TAKEAWAY(S)
Self-Efficacy Theory n=5 Bandura, 1977	Students' self-efficacy is a predictor of academic behaviors	Self-Efficacy: A student's internal perception of their abilities and competence in a given domain or task	Self-efficacy is often task/domain-specific and is not reflective of a student's overall self-concept Positive self-efficacy beliefs predict academic behaviors such as effort and persistence
Attribution Theory n=4 Weiner, 1985	Students try to assign reason/cause to their performance which can impact their future motivation	Locus of Causality: Whether a student attributes their success or failure to internal or external reasons Stability: Whether the causes of a student's successes and failures are stable or predictable over time Controllability: Whether a student can control the cause of their success or failure	The perceived causality, stability, and controllability of a student's success/failure will affect their motivation Students who contribute success and failures to internal, stable, and controllable reasons are more likely to persist
Mindset Theory n=3 Dweck, 2006	Students' beliefs that their ability to learn is either malleable or unchanging affects their motivation	Growth Mindset: A student's belief that their abilities are flexible and can be influenced by learning Fixed Mindset: A student's belief that their abilities are flexible is unchanging and can not be influenced by learning	Having a growth mindset is associated with greater school engagement while a fixed mindset is associated with more maladaptive student behaviors

Motivation Measures

Self-report measures of motivation are useful to determine students' desire to initiate learning processes and assess changes in motivation. Our rapid review identified 29 studies using self-report data tools to measure student motivation, and the majority of these measures use Likert scales (i.e., where 1=completely disagree and 5=completely agree) to calculate student motivational experiences; (see Table 2). These tools primarily measure a combination of five constructs frequently used in the literature and are heavily supported by the prominent theories of motivation. These constructs include intrinsic value, attainment value, utility value, self-efficacy, and attribution.⁵

1. Intrinsic Value

Students assign a task high intrinsic value when they are genuinely interested in and enjoy it. Student reports of intrinsic value appear in studies measuring students' motivation orientations (intrinsic/extrinsic) and goal orientations (mastery/performance), both of which look at whether students' internal interest or external reinforcements motivate students. Most studies used intrinsic value and mastery orientations as indicators (i.e., "I want to understand and know science material"; Ben-Eliyahu et al., 2018). Meanwhile, extrinsic and performance orientations were only occasionally explored as indicators of positive motivation (e.g., "When I work on science, I want to appear: 'More skilled than everyone/most'"; Ben-Eliyahu et al., 2018).

2. Attainment Value

Attainment value is the importance students place on a task as it relates to their identity. To assess attainment value, researchers quantify the importance an individual assigns a task/subject (e.g., "Compared to other subjects, how important is it to be good at —?"; Simpkins et al., 2020). **This construct is important to motivation, as students are more likely to execute tasks they consider important to their sense of self; for example, a student who identifies as analytical may deem coursework that supports that skill set as more important (Clark & Saxberg, 2018).** Kiefer et al. (2015) found students from a variety of diverse backgrounds are more likely to stay motivated if the content they are learning is relevant to their interests and lives. Assessing attainment value may be particularly salient for understanding marginalized students' motivation; these students have to contend with the added effects of stereotypes which can affect their identification with subjects, such as STEM, leading them to disidentify, and thus lose motivation in the area (Seals et al., 2016).

²⁰ In our review, these were the most frequently measured constructs of motivation. While these constructs are not inclusive of all measures of motivation, they align with constructs identified by a previous review (see review by Clark & Saxberg, 2018).

3. Utility Value

Usefulness, or utility value, assesses if a student perceives a task/subject to be relevant to their personal goals. Measures of utility value often attempt to evaluate if a student perceives an activity as helping them reach a desired outcome (e.g., “I can apply what we’re learning in this class to the real world”; Hulleman et al., 2017). Students may be more likely to stay motivated through unenjoyable and difficult tasks if they can see a use in what they are doing. **For example, students who do not see their identities represented in STEM opportunities may not see the use in learning mathematics (Seals, 2016). Student motivation is, therefore, also influenced by whether they can see the future benefits of a task/subject.**

4. Self-Efficacy

Self-efficacy is reflective of a student’s belief that they can succeed at a task. Students are more likely to pursue subjects and complete tasks or assignments in subjects they believe to be good at (Simpkins et al., 2020). Measures of self-efficacy, therefore, examine a student’s perception of their ability, not their performance (e.g., “I think I am pretty good at designing experiments”; Ben-Eliyahu et al., 2018). **This construct plays an especially important role in measuring students of color’s motivation, as experiencing stereotypes in academia can lower these students’ self-efficacy, ultimately inhibiting their motivation (Kurtz-Costes & Woods, 2017).**

5. Attribution

Ascribing one’s successes and failures to the appropriate causes is known as attribution. Measures of attribution try to understand if students are attributing their successes and failures to causes within or outside of their control (e.g., “If I get bad grades, it’s my own fault”; Suizzo et al., 2016). **Students who attribute the cause of their actions to be more internal than external tend to be more invested in activities (Clark & Saxberg, 2018).**

As a whole, these constructs are used to quantify student motivation, as measured in the studies we reviewed, and can provide valuable insights into students’ internal perceptions of their motivational experiences. The question remains whether these student-reported constructs of motivation match observable behaviors. Few motivation studies (n=7) include additional respondents such as teachers and parents, and there were mixed results regarding whether students’ self-report and external reports matched. Table 2 summarizes the most common validated (i.e., previous studies have gathered statistical evidence to determine whether the scales measure what authors intend) measures of motivation in the reviewed literature. Table 2 highlights a lack of consistency in the use of motivation measures across the reviewed literature. That is, researchers commonly develop new measures of motivation to address the specific populations and contexts of studies.



Table 2. Examples of Validated Tools For Measuring Motivation

TOOLS # OF CITATIONS & SOURCE	RELEVANT CONSTRUCTS MEASURED	EXAMPLE ITEM	RESPONSE
The Patterns of Adaptive Learning Survey (PALS) Student Scales n=2 Midgley et al., 2000	Mastery and Performance Goal Orientations Student beliefs, attitudes, and strategies (including self-efficacy)	“An important reason I do my schoolwork is because I want to improve my skills”	Students rate their response on a 5- point scale (1=not at all true to 5=very true)
Identified Self-Regulation scale of the Self-Regulation Questionnaire - Academic (SRQ-A) n=1 Connell, 1989	Internalized/Intrinsic value of education	“Because I want to understand the subject”	Students rate their response on a 5- point scale (1=not true to 5=very true)
Personal or Internal Control Scale of the Multidimensional Measure of Children’s Perceptions of Control n=1 Connel, 1985	The perceived causality, stability, and controllability of a student’s success/ failure (i.e., attribution)	“If I want to do well in school it is up to me to do it”	Students rate their response on a 5- point scale (1=not true to 5=very true)

Table 2. Examples of Validated Tools For Measuring Motivation, cont.

TOOLS # OF CITATIONS & SOURCE	RELEVANT CONSTRUCTS MEASURED	EXAMPLE ITEM	RESPONSE
The School Motivation Scale n=1 Ford & Tisak, 1982	Attainment value/Interest in class activities	"I usually enjoy being in this class"	Students rate their response on a 5- point scale (1=false to 5=true)
Self-Report Scale of Intrinsic Versus Extrinsic Orientation n=1 Harter, 1981	Intrinsic and extrinsic orientation alignment	"Some kids like hard work because it's a challenge" BUT "Other kids prefer easy work that they are sure they can do"	Students are asked which statement applies to them and then asked to rate their chosen statement as "Sort of True for me" or "Really True for me"
Motivated Strategies for Learning Questionnaire (MSLQ) n=1 Pintrich & DeGroot, 1990	Students' multidimensional motivation strategies toward learning	"I prefer class work that is challenging so I can learn new things"	Students rate their responses on a 7- point scale (1=not at all true of me to 7=very true of me)

A Special Look at Grade Band Differences

Of the 52 studies reviewed that explored motivation, the distribution of these studies across grades was not even: the majority of studies took place in middle school (n=18) or did not specify grade bands (n=19). This may skew our findings in favor of these studies as opposed to those taking place in high school or a postsecondary setting. In addition to the broader themes and definitions of motivation, researchers conceptualize motivation differently across grade bands (see Table 3).

Table 3. Differences in Motivation by Grade Band

GRADE BAND # OF SOURCES*	VARIATIONS IN MOTIVATION	CONSIDERATIONS
Middle School n=18	N/A	<i>Middle school motivation findings were in line with those for all grade bands</i>
High School n=7	Motivation is heavily conceptualized as multidimensional (i.e., pulling from multiple theories and utilizing a variety of constructs)	A multidimensional model of motivation indicates that, while high school studies are largely using the same theoretical base, measurements and constructs vary greatly between studies
Postsecondary n =10	Motivation is more so focused on academics than in other grade bands (i.e., competence, affect, and interest in/about school; or one’s desire to do well in school) Motivation has an added focus on student persistence (i.e., the internal drivers of why students are persisting in academia)	As students enter the postsecondary space, focus on motivation shifts from students’ motivational orientations and internal beliefs and instead focuses on academic goals and what elements drive them to persist

*Several studies included multiple grade bands and are included in multiple rows.

Engagement

Of the 103 studies included in our rapid review, 46 explored engagement. Researchers define engagement as the “observable manifestation” of motivation (Froiland & Worrell, 2016). That is, engagement involves a wide range of observable student behaviors or interactions on and with the learning materials (e.g., participating in class discussion, interest in a task). Student engagement is, therefore, a tangible expression of their active involvement and investment in the learning process, reflecting their level of interest, attention, and participation.

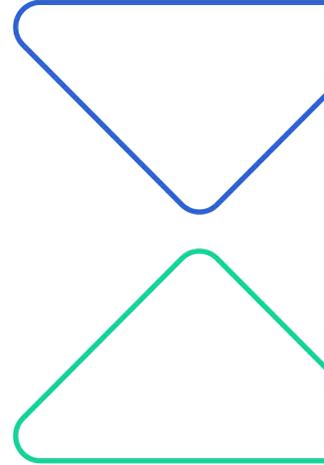
Engagement is a multidimensional construct (i.e., pulling from multiple theories and utilizing a variety of constructs) consisting of interrelated types of engagement. **By considering and addressing each dimension of engagement, educators and practitioners can enhance students’ overall engagement, leading to improved academic outcomes, motivation, and persistence.**

Types of Engagement

The most common model of engagement found in the literature is a tripartite model consisting of behavioral, emotional, and cognitive engagement. These components of engagement are highly intertwined and overlap considerably (Sinatra et al., 2015). That is, as student behavioral engagement (e.g., class participation) increases, so does their cognitive (e.g., use of critical thinking skills) and emotional (e.g., enjoyment of class) engagement.

1. Behavioral Engagement

Behavioral engagement commonly refers to student participation in learning (e.g., engaging deeply with an assignment, paying attention in class) in and out of the classroom (Skinner et al., 2016; Wang & Eccles, 2013). Behavioral engagement, therefore, refers to observable interactions between students and educational resources and activities. Beyond academic behaviors, behavioral engagement also refers to how much effort students exert on a task. That is, a student’s work ethic and the amount of time and attention spent on a task are key components of behavioral engagement (Griffin et al., 2020; Guthrie & Klauda, 2014).



2. Emotional Engagement

Emotional engagement refers to the feelings students experience while completing a task (e.g., curiosity, boredom). It relates to the intensity of positive or negative emotions an individual associates with a task (e.g., excitement regarding a classroom activity) and the value they place on tasks. Student emotional engagement may be examined at the micro-level (i.e., relating to students' experiences within a particular context or activity). Additionally, emotional engagement is viewed as a student's general attitude toward school or academics (e.g., sense of belonging or positive feelings toward school). Further, emotional engagement fuels intrinsic motivation, as individuals who enjoy a task are driven by their genuine interest rather than external rewards or pressures (Ozhan & Kocadere, 2019).

3. Cognitive Engagement

Cognitive engagement refers to the mental effort and level of cognitive processing that occurs during a task. It encompasses critical thinking, problem-solving skills, and deep learning strategies. Therefore, appropriate cognitive engagement is essential for meaningful learning (Sinatra et al., 2015).

While most scholars employ the tripartite model of engagement, there is disagreement regarding the distinction between cognitive engagement and other engagement types (i.e., behavioral and emotional engagement). Some authors conceptualize cognitive engagement as the use of problem-solving and learning strategies and self-regulation skills (e.g., impulse control) (Binning et al., 2019; Wang & Holcomb, 2010). Others include the extent to which students value their education (e.g., "I want to learn as much as I can at school") in definitions of cognitive engagement (Li & Lerner, 2013). Moreover, cognitive processes, such as focused attention, are often included in definitions of behavioral engagement (Ben-Eliyahu et al., 2018; Froiland & Worrell, 2016).

Engagement Measures

Given the multidimensional nature of engagement, scholars primarily use measures with behavioral, emotional, and cognitive components. Additionally, scholars employ these multiple measures of engagement simultaneously to gain comprehensive insights into this construct. Behavioral engagement is measured by assessing student attendance, completion of tasks, participation in a task, and overall task performance (n=10). Emotional engagement measures include self-reported enjoyment, interest, or excitement during the task (n=10). While fewer tools address cognitive engagement, this construct is typically captured through self-reports of cognitive effort, concentration, beliefs or values, or the use of higher-order thinking skills (n=5). Table 4 summarizes the most common validated measures of engagement in the reviewed literature. Table 4 highlights a lack of consistency in the use of engagement measures across the reviewed literature that is similar to our findings regarding motivation measures.

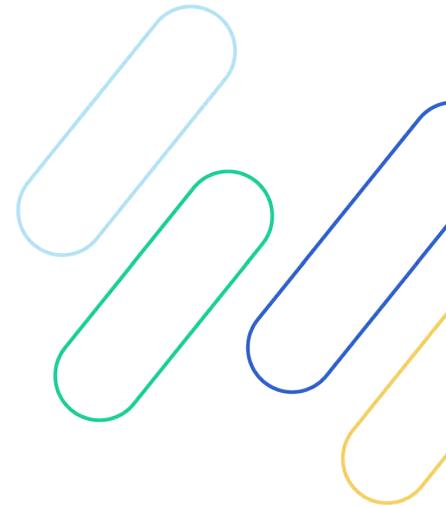


Table 4. Examples of Validated Tools for Measuring Engagement Constructs

TOOLS # OF CITATIONS & SOURCE	RELEVANT CONSTRUCTS MEASURED	EXAMPLE ITEM	RESPONSE
Identification with School Scale n=2 Voelkl, 1997	School belongingness (i.e., an internal sense that one is an important part of the school environment) Value of School (i.e., appreciation of success in school-related goals)	Belongingness: "I feel proud of being part of my school." Valuing: "School is more important than most people think."	Students rate their response on a 4-point scale (1=strongly agree to 4=strongly disagree)
Motivated Strategies for Learning Questionnaire n=2 Pintrich & De Groot, 1990	Cognitive strategy (i.e., use of learning strategies, such as rehearsal) Self-regulation (i.e., use of effort management strategies, such as planning)	Cognitive strategy: "When I read material for science class, I say the words over and over to myself to help me remember." Self-regulation: "Even when study materials are dull and uninteresting, I keep working until I finish."	Students rate their response on a 7-point scale (1=not at all true of me to 4=very true of me)
School Engagement Versus Disaffection Scale n=2 Furrer & Skinner, 2003; Skinner, Kindermann, & Furrer, 2009	Behavioral engagement (i.e., effort, attention, and persistence) Emotional engagement (i.e., positive school-related feelings)	Behavioral engagement: "I pay attention in class." Emotional engagement: "When I'm in class, I feel good."	Students rate their response on a 4-point scale (1=not at all true to 4=very true)

Table 4. Examples of Validated Tools for Measuring Engagement Constructs, cont.

TOOLS # OF CITATIONS & SOURCE	RELEVANT CONSTRUCTS MEASURED	EXAMPLE ITEM	RESPONSE
Student Academic Engagement in Introductory STEM Courses n=1 Gasiewski et al., 2012	Behavioral engagement (i.e., the activities of successful students) Emotional engagement (i.e., positive school-related feelings)	Behavioral engagement: "Asked questions in class." Emotional engagement: "Felt excited about learning new concepts."	Students rate their response on a 5-point scale (1=never to 5=very often)
Adapted Items from the NELS: 88 Questionnaires n=1 Finn & Voelkl, 1993	Behavioral engagement (i.e., student attendance, participation, and classroom conduct)	Teachers reported on student attendance	Frequency reports of student attendance
Commitment to School Scale n=1 Thornberry et al., 1991	General attitudes toward school	"Homework is a waste of time."	Students rate their response on a 4-point scale (1=strongly disagree to 4=strongly agree)

Table 4. Examples of Validated Tools for Measuring Engagement Constructs, cont.

TOOLS # OF CITATIONS & SOURCE	RELEVANT CONSTRUCTS MEASURED	EXAMPLE ITEM	RESPONSE
Student Questionnaire of School Engagement n=1 Li & Lerner, 2013	Behavioral engagement (i.e., students' voluntary behaviors within the school context) Emotional engagement (i.e., students' sense of belonging and school affect) Cognitive engagement (i.e., students' value of education and thoughts about learning)	Behavioral engagement: Students reported number of hours spent on homework Emotional engagement: "I am happy to be at my school." Cognitive engagement: "I think the things I learn at school are useful."	Behavioral: Students rate their response on a 4-point scale (1=never to 4=always) Emotional and Cognitive: Students rate their response on a 4-point scale (1=completely agree to 4=completely disagree)
Student Engagement Scale n=1 Skinner & Belmont, 1993	Behavioral engagement (i.e., students' effort, attention, and persistence) Emotional engagement (i.e., student affect in school)	Behavioral engagement: "When I'm in class, I usually think about other things." (Reverse-coded) Emotional engagement: "When I'm in class, I feel happy."	Students rate their response on a 4- point scale (1=not at all true 4=very true)
Assessment of School Engagement n=1 Wang et al., 2011	Behavioral engagement (i.e., attentiveness and school compliance) Emotional engagement (i.e., school belonging and valuing of school) Cognitive engagement (i.e., self-regulated learning and cognitive strategy use)	Behavioral engagement: "How often do you have trouble paying attention in classes?" Emotional engagement: "In general, I feel like a real part of this school." Cognitive engagement: "How often are you very good at carrying out the plans you make for solving problems?"	Students rate their response on a 5- point scale (1=almost never 4=almost always)

A Special Look at Grade Band Differences

Of the 46 studies that explore engagement, the majority include middle school students (n=19) or those in high school (n=18). Few studies look at engagement in postsecondary education (n=8) or specify a grade band (n=7) but were still relevant to the review. Due to the prevalence of studies exploring middle to high school grades, our definition of engagement may be skewed in favor of how engagement is conceptualized in these younger student populations. To aid in understanding the nuanced differences that exist between grade bands, we provide individual grade band perspectives in addition to an overarching view of engagement (see Table 5).

Table 5. Differences in Engagement by Grade Band

GRADE BAND # OF SOURCES	VARIATIONS IN MOTIVATION	CONSIDERATIONS
Middle School n=19	Students' curiosity and interest were an emphasized aspect of engagement	In addition to emotional, cognitive, and behavioral engagement, some studies included interest/curiosity (elements of intrinsic motivation) to gauge student engagement - demonstrating a lack of clarity between measures of motivation and engagement
High School n=18	N/A	High school engagement findings were in line with those for all grade bands
Postsecondary n=8	Only one postsecondary study looked at student emotional engagement Academic engagement (i.e., specific motivation to participate in and complete academic tasks) was prominent	As students enter the postsecondary space, the definition of engagement relies more heavily on external manifestations of academic engagement (i.e., completing and being cognitively engaged in assignments) and less on students' emotional engagement

Persistence

Unlike the definitions of motivation and engagement, definitions of persistence are more consistent across the literature.

Persistence can be seen as a form of continued engagement, where a task, subject, or academic path is consistently undertaken despite possible barriers or setbacks (Farrington et al., 2012). Of the 103 studies included in our rapid review, 52 explored persistence. Most of these studies included students in high school (n=18) or pursuing postsecondary education (n=27) due to how close these grades are to major milestones (i.e., high school graduation, college degree completion) that require student persistence.

Types of Persistence

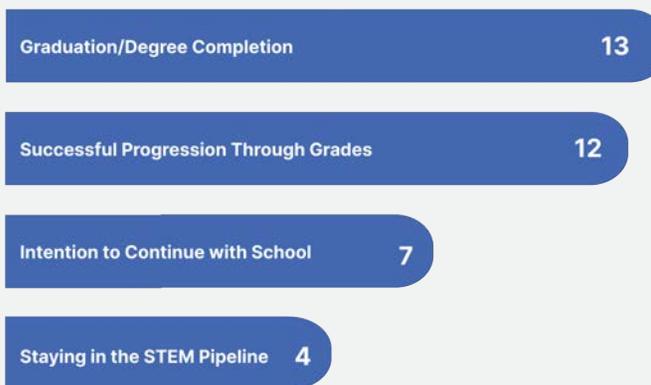
1. School Progress

School progress studies (n=37) use observable indicators to measure persistence (e.g., year-to-year progress or graduation) or students' reports of their intention to continue (e.g., intent to re-enroll, satisfaction with current schooling, or having matriculation plans) to indicate persistence. Consequently, high school and postsecondary studies almost exclusively measure persistence through school progress. There is also no consensus on a singular indicator of school progress across studies; typically school progress is conceptualized as meeting a variety of milestones and progressing linearly through academia (see Figure 2).

2. Effort in the Face of Challenge

A less common, but still prominent, definition of persistence examines the goal-directed action exerted by students despite barriers or discouragement (n=12). While school progress specifically explores students' persistence in and through school to a designated milestone, "effort in the face of challenge" refers to how students interpret difficult tasks (e.g., as doable or impossible) as well as how students interact with these challenges (e.g., with continued engagement or a lack thereof).

Figure 2. Distribution of School Progress Milestones



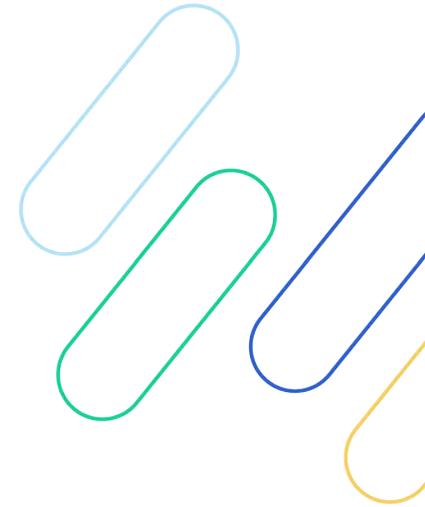
Persistence Measures

Measuring persistence is useful for determining student outcomes, as persistence is not guaranteed even if students are motivated and engaged. Unlike motivation and engagement, persistence tends to use observable milestones (n=11) in addition to self-reported measures (n=30). That is, since researchers often conceptualize persistence as school progress, they measure persistence through traceable events in a student's academic career, rather than relying on students' perceptions of their persistence. Similar to motivation and engagement, persistence studies often use Likert scale or fill-in-the-blank responses to quantify students' experiences. Table 6 summarizes the most common validated measures of persistence in the reviewed literature. As found with measures of motivation and engagement, Table 6 highlights a lack of consistency in the use of persistence measures across the reviewed literature. Additionally, focus groups and interviews (n=12) were frequently used to assess students' experiences and reasons for persistence or a lack thereof.

1. School Progress

School progress encompasses a variety of academic events and student achievements. Understanding the nuance between these various milestones is important, as each brings a unique perspective. The milestones include successful progression through grades, staying in the STEM pipeline, intention to continue with school, and graduation/degree completion (see Figure 2).

Successful progression through grades (n=12) looks at a student's year-to-year progress through academia. Within this construct, multiple independent factors exist and can be combined; factors include re-enrollment, attendance, credits earned as well as factors that may disrupt students' academic progress (Bonilla et al., 2021; Hernandez et al., 2020). Despite this breadth, some studies (n=4) use simple binary enrollment indicators (e.g., "0"=not enrolled; "1"=enrolled), or similar measures, to assess a student's progression (Cowan et al., 2022; Fong et al., 2016; Strayhorn et al., 2017; Wood & Harris, 2015). Student perspectives were also collected (n=2) to evaluate the likelihood of or reasons for students successfully progressing. These interviews and open-ended questionnaires often included factors important to understanding the experiences of students of color and those from low SES backgrounds (e.g., "How has being a first-generation student impacted your college experience?"; Gutierrez-Serrano, 2022).



Graduation and/or degree completion (n=13) looks at a singular factor to indicate persistence: completing school. This measure is slightly different for high school and postsecondary students; respectively defining persistence as graduating at the end of the 12th grade or completing a 2- to 4-year program (Cox, 2016; Borman & Hall, 2021; Eller & DiPrete, 2018; Witkow et al., 2015). Measures, therefore, include interviews that look at students' plans to enroll in postsecondary education as well as surveyed measures of life factors affecting students' persistence to graduation, the likelihood of persisting to graduation, and actualized graduation.

Intention to continue with school (n=7) is focused on students' likelihood, and reasons for, persisting (e.g., "When I feel stuck on a school task, it's a sign that my effort is better spent elsewhere"; Browman et al., 2017). This relies on a variety of self-report measures collected through interviews or surveys and general college attrition rates.

Staying in the STEM pipeline (n=4) refers to students' intention to enter, continue, and stay in the STEM field (McGree, 2020). Measures can include students' future STEM plans (e.g., questions asking students if they "planned to persist"), interest in STEM (e.g., plans to take future classes based on enjoyment), sense of belonging in STEM (e.g., "You see yourself as a math/science person" or "Others see you as a math/science person"), and students' STEM self-efficacy (e.g., students' perceptions of their abilities in math/science; Anderson & Ward, 2014).

2. Effort

Measures looking at student effort are predominantly self-reported (n=9) and focus on quantifying students' behavioral responses to challenges (e.g., "When confronted with a problem, I give up easily"; Kisansa et al., 2020). Generally, these measures look at a combination of student self-control (e.g., not being distracted), focus on long-term goals, and perseverance past barriers (Farrington et al., 2012). As such, examining students' efforts can concern a specific task (e.g., completing math problems) or school in general (i.e., an academic environment that may be innately challenging).

Table 6. Examples of Validated Tools for Measuring Persistence Constructs

TOOLS # OF CITATIONS & SOURCE	RELEVANT CONSTRUCTS MEASURED	EXAMPLE ITEM	RESPONSE
Multidimensional Measure of Children's Coping n=2 Skinner et al., 2013	Students' methods of coping with academic problems (i.e., persisting or giving up)	"When something bad happens to me in school (like not doing well on a test or not being able to answer an important question) ___"	Students respond with 1 of multiple pre-written responses that tap into adaptive or maladaptive coping (e.g., "I try to see what I did wrong")
Scale of Academic Engagement n=2 Skinner & Bellmont, 1993	Students' effort in the face of challenge	"If I can not get a problem right for the first time, I just keep trying"	Students rate their response on a 4- point scale (1=not at all true to 4=very true)
Grit-S n=2 Duckworth & Quinn, 2009	Consistency of student interest Perseverance of student effort	"I often set a goal but later choose to pursue a different one" AND "I am diligent"	Students rate their response on a 5- point scale (1=not at all like me to 5=very much like me)
College Persistence Questionnaire-Version 2 (CPQ-V2) n=1 Davidson et al., 2015	Elements or challenges that may affect a student's postsecondary persistence	"How confident are you that this is the right college or university for you?"	Students rate their response on a 5- point scale (1=very unconfident to 5=very confident)
School Cognitive Engagement Measure n=1 Wang et al., 2017	Student's effort in the face of challenge	"I keep trying when I get stuck on my schoolwork"	Students rate their response on a 5- point scale (1=not at all like me to 5=very much like me)

A Special Look at Grade Band Differences

While 52²¹ studies explored student persistence, more than half of these studies focused on postsecondary student populations (n=27), with high schoolers also being fairly prominent in the literature (n=18). Middle school had the least amount of studies examining persistence (n=13), potentially skewing our definitions of persistence in favor of older students' experiences. For example, studies looking at persistence in older students may place an additional emphasis on academic persistence, with major accomplishments such as degree completion and graduation prioritized over smaller, task-focused forms of persistence, which are more relevant for younger students. In order to glean a better understanding of student persistence across grade bands, we break down the differences for middle school, high school, and postsecondary accordingly (see Table 7).

Table 7. Differences in Persistence by Grade Band

GRADE BAND # OF SOURCES*	VARIATIONS IN MOTIVATION	CONSIDERATIONS
Middle School n=13	Persistence is often conceptualized as students re-engaging with a task or simply as engagement	In middle school, there is less of a focus on year-to-year progression or graduation as measures of persistence Engagement is often conflated with persistence in early grade bands, wherein students' engagement is seen as a sign of persistence
High School n=18	N/A	<i>High school persistence findings were in line with those for all grade bands</i>
Postsecondary n=27	N/A	<i>Postsecondary persistence findings were in line with those for all grade bands</i>

*Several studies included multiple grade bands and are counted in multiple rows.

²¹ 4 of these 52 studies did not specify one or more grade bands but were included due to their general focus on student persistence.

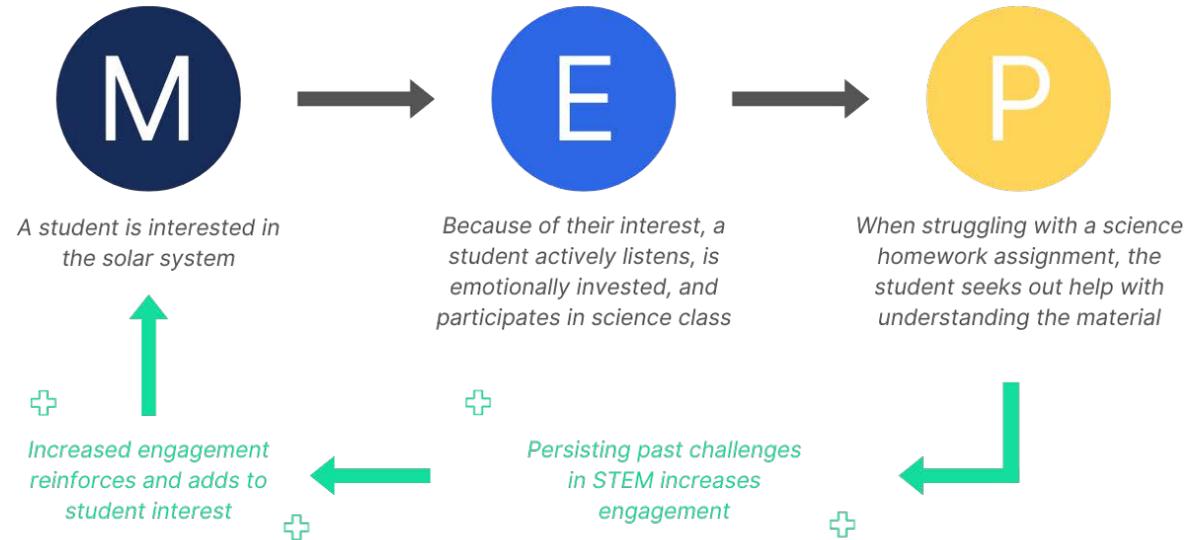
Associations Between Motivation, Engagement, and Persistence

While motivation, engagement, and persistence have distinct definitions, it is important to acknowledge that these constructs are believed to interact and affect each other.

Motivation is commonly thought of as the driving force behind student engagement and persistence (see Figure 3). That is, a motivated student is more likely to engage with schoolwork and persist despite challenges (Skinner et al., 2009). However, motivation, engagement, and persistence are not static but rather dynamic and interactive processes; just as motivation may impact engagement, engagement may also impact motivation (Reeve, 2012). The interplay between motivation, engagement, and persistence complicates our understanding of the association between these constructs.

How the literature distinguishes between motivation, engagement, and persistence are defined in the literature is not always clear, partly due to the complex associations between these constructs.

Figure 3. Example of The Proposed Relationship Between MEP



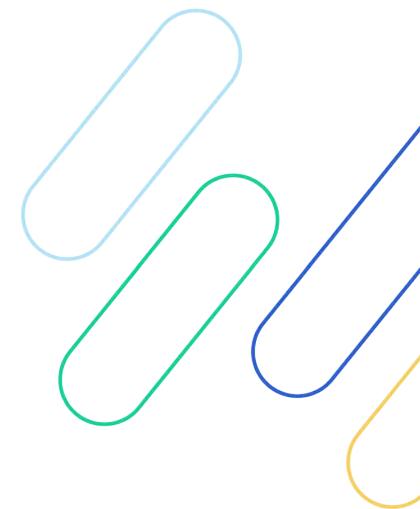
Additionally, motivation, engagement, and persistence share similar components, such as effort, commitment, and goal-directed behavior. This overlap blurs the boundaries between these concepts, making their distinction challenging. Further, scholars often address various theories, frameworks, and contextual elements in their research, which complicates clear and common definitions of MEP. For example, researchers studying student motivation in a science classroom require context-specific measures of motivation that focus on drastically different constructs (e.g., student interest in STEM), compared to researchers studying student motivation in a college preparatory course (e.g., intention to apply to college). Because each study is unique in context and theoretical framing, it requires different approaches to define and measure motivation.

Association of Engagement with Persistence

Engagement and persistence are often assessed concurrently in the literature. In fact, persistence can be thought of as engagement in the face of challenge. Studies suggest that engagement and persistence have a reciprocal relationship. That is, engaging in a task or activity heightens one's motivation to persist in the face of obstacles (Flynn, 2016). Similarly, increased persistence in the face of challenges can lead to increased engagement, as individuals experience a sense of accomplishment and self-efficacy when overcoming difficulties. The reciprocal relationship and overlap between these two constructs results in studies and measures using them interchangeably. Therefore, future research is needed to disentangle these constructs and further understand their relation.

Theoretical Considerations for MEP in Target Populations

When defining MEP, it is important to keep in mind that the prevailing theories and measures found in the literature were developed based on the experiences of predominantly white and wealthy student populations with little regard for individual cultural and education-specific contexts (King & McInerney, 2016). As previously noted, researchers exploring the experiences of Black and Latinx students, as well as those from low-income families, frequently compensated for the lack of consideration of these groups by including supplemental theories. In fact, over 40 of the theories mentioned in the literature were supplemental. Although these theories do not directly center on student MEP, they help explain elements of diverse students' lived experiences. Scholars use these theories to explain how elements of culture (e.g., racial/ethnic identity, class, gender, and broader educational and societal norms), as well as context (e.g., school, home, and additional environmental factors), inform students' experiences of motivation, engagement, and persistence. The majority of these theories fell into four broader domains: developmental theories, identity theories, equity-centered theories, and pedagogical theories.



1. Developmental Theories

Developmental theories explain how children’s development is shaped by their context and the various stages of development they go through to become adults. Frameworks such as *Stage Environment Fit Theory* explain how mismatches in a student’s developmental needs and their school environment can impact their learning experiences; as students get older, classroom structuring changes, which decreases the beneficial time students spend bonding with teachers, impacting their sense of belonging, and—ultimately—their ability to stay engaged (Binning et al., 2019; Borman et al., 2021). This mismatch can be particularly salient for students of color, as they are already more likely to feel less belonging in environments where there is a lack of representation, limited peers of color, and prevalent biases, which is common in middle school through postsecondary academia (Joseph et al., 2020; Healey & Stroman, 2021; Simpkins, et al., 2020).

2. Identity Theories

Identity theories explore how students conceptualize their belonging to a particular group as well as the importance of that belonging in a given scenario. Often, identity theories explore students’ internal self-concepts and their perception of others’ beliefs about their group. Frequently mentioned is *Stereotype Threat Theory*, a theory that establishes the idea that individuals’ ability to perform impacts their perception of their own identity, the relevance of their identity to a task, as well as others’ beliefs about them (Chavous et al., 2017; Spitzer & Aronson, 2015).

Within this framework, students’ MEP and academic performance can be threatened when stereotypes about their abilities in a domain or on a task are salient (e.g., previously known and or actively mentioned). Fortunately, this threat can be negated if students’ belief in their own abilities is strong (see Table 8). While one of the most prevalent theories across studies, Stereotype Threat Theory is not the only framework to explore the benefits of a strong internal self-concept.

The *Multidimensional Model of Racial Identity* (MMRI) is also prominently used to explore the effects of identity on MEP (Baker et al., 2020; Chavous et al., 2018; Griffin et al., 2020). The MMRI proposes that there are four dimensions of African-American identity: salience, centrality, private and public regard, and ideology (see Table 8). Generally, students who have more internalized racial experiences (i.e., higher centrality and private regard) report more positive academic and MEP experiences (Baker et al., 2020; Chavous et al., 2018). These positive internal identity beliefs have also been shown to buffer the negative effects of a negative school racial climate on students’ engagement (Griffin et al., 2020).



3. Equity-Centered Theories

Equity-centered theories outline the relationships between marginalized groups and dominant ethnic and economic groups through systems of power and privilege. Such theories discuss structurally reinforced disparities in the assets and opportunities for different groups within the education system and broader society. Frameworks, such as *Critical Race Theory*, state that marginalized racial groups encounter laws, policies, and systems that seem impartial but in actuality perpetuate these inequities (Hall, 2017; Joseph et al., 2017).

4. Pedagogical Theories

Pedagogical theories are centered on the learning environment and instruction methods used with students. Pedagogies can have both positive and negative effects on students' MEP and learning outcomes. While we found a range of pedagogical theories used across studies, the majority of the frameworks highlighted the importance of bringing strengths-based perspectives into the classroom and moving past traditional deficit-focused narratives. One possible framework for these strength-focused pedagogies, *Yosso's Cultural Wealth Model*, argues against the notion that racially and economically dominant groups possess all valuable capital and that marginalized college students have their own inherent cultural wealth (Lawton-Stickler, 2018; Sáenz et al., 2018).

Yosso's model establishes six types of capital these students possess: aspirational, linguistic, familial, social, navigational, and resistance capital (see Table 8). In this framework, when marginalized students enter academic environments, such as postsecondary classrooms, it is important to acknowledge these unique strengths—not just perceived deficits based on socially dominant values.

Overall, these theoretical domains explore both students' internal experiences and their perceptions of the environments in which they live and learn. Together, these theories begin to explain the complex contextual and cultural interplay present in these underrepresented students' MEP experiences.

“Together, these theories begin to explain the complex contextual and cultural interplay present in these underrepresented students' MEP experiences.”

Table 8. Breakdown of Prominent Supplemental Theories

THEORY # OF CITATIONS & SOURCE	FOUNDATION	CONSTRUCT(S)	MAIN TAKEAWAY(S)
<p>Stereotype Threat Theory n=7</p> <p>Steele & Aronson, 1995</p>	<p>Students' internal strength of self-concept (i.e., belief in one's abilities) can moderate the effects of stereotypes</p>	<p>Stereotype: a socially prevalent message about a group and their abilities based on their identity (e.g., 'girls are worse at STEM than boys')</p> <p>Stereotype Threat: a situational psychological threat that arises from others' endorsement of a stereotype applicable to an individual's identity</p> <p>Stereotype Management: the ability to operate past stereotype threats due to one having a strong self-concept</p>	<p>The more salient a student's threatened identity is to a task, the more it may impact their performance</p> <p>Outcomes of stereotype threat are situational and not permanent</p> <p>The stronger one's self-concept, the less likely they are to be impacted by stereotype threat</p>
<p>Stage Environment Fit Theory n=4</p> <p>Eccles & Midgley 1989</p>	<p>Learning is social and depends on both the environment and the developmental needs of students</p>	<p>Autonomy: The ability of students to make independently driven choices related to their learning</p> <p>Teacher Efficacy: The effectiveness of teachers at teaching necessary materials</p> <p>Teacher Connections/Support: Beneficial and meaningful relationships with adults in school</p>	<p>When school environments are not suited to students' developmental needs, student MEP and performance suffer</p> <p>As students enter middle school and high school, academic usually offers less autonomy, teacher efficacy, and less opportunity for teacher connections/support- contrary to students' developmental needs</p>

Table 8. Breakdown of Prominent Supplemental Theories, cont.

THEORY # OF CITATIONS & SOURCE	FOUNDATION	CONSTRUCT(S)	MAIN TAKEAWAY(S)
Multidimensional Model of Racial Identity n=3 Seller et al., 1998	<p>Individuals assign importance and meaning to dimensions of their own racial identity</p> <p>Individuals may look to others' beliefs to define dimensions of their racial identity</p>	<p>4 dimensions of African American identity</p> <p>Salience: The importance of race to one's self self-concept at a particular moment or in a particular situation</p> <p>Centrality: The importance of race to one's self-concept. Unlike salience, centrality is stable across situations.</p> <p>Private Regard: Internal racial pride in one's group/identity</p> <p>Public Regard: Perceptions of other's beliefs about one's group/identity</p> <p>Ideology: The attitude an individual takes to how their African American Identity interacts with broader society</p>	<p>The importance, perception, and meaning of African American identity can be different across individuals</p> <p>Holding more positive beliefs about one's racial group and refusing to internalize to public opinion (such as stereotypes) is beneficial for MEP and overall academic experiences</p>
Critical Race Theory n=3 Delgado & Stefancic, 2001	<p>American laws, policies, and systems are used to uphold racial inequities creating an inherent deficit (e.g., lack of assets that limit social mobility) for particular groups</p>	<p>Race: A socially constructed factor used to group individuals based on differences in characteristics</p> <p>Racism: Normalized, and systemically upheld, beliefs of the white social majority about other races; includes acts of passive and active aggression caused by these beliefs</p> <p>Racial Hierarchy: The social standing order created to serve the white social majority; advancements and setbacks made for racial/ethnic minority groups thus tend to serve the goals of the social majority or reinforce hierarchical order</p>	<p>Structural and social obstacles intentionally exist within society to limit the advancement and progression of students of color in order to uphold racial hierarchy</p>

Table 8. Breakdown of Prominent Supplemental Theories, cont.

THEORY # OF CITATIONS & SOURCE	FOUNDATION	CONSTRUCT(S)	MAIN TAKEAWAY(S)
Yosso's Cultural Wealth Model n=2 Yosso, 2005	Marginalized groups possess their own strengths; cultural capital (e.g., assets that can create social mobility)	Types of Capital Aspirational: Ambitions for the future even in the face of barriers such as racism and generational poverty Linguistic: Language resources that emerge from being multilingual or translating for a family member Familial: Historical and cultural knowledge that emerges from communities and families Social: Access to institutional resources and knowledge through interpersonal relationships Navigational: Skill navigating predominantly white social institutions, such as the educational system	This theory argues against the deficit narrative of critical race theory, acknowledging that unique and beneficial resources can exist within marginalized groups When considering students' abilities and context, it is important to focus on strengths, such as their cultural capital - not just deficits



SECTION TWO

How Context Facilitates or Impedes Student Motivation

Overview

More recently, there has been a concerted effort among researchers to examine the contextual factors that impact diverse students' motivation. To do this, scholars have developed models of motivation that incorporate contextual elements from multiple theoretical frameworks simultaneously. This recognition that students' MEP does not exist in isolation from their lives and the larger world is essential, as there are micro- (e.g., individual) and mezzo-systems (e.g., community and cultural) that students interact with daily that affect their development as learners (Arbelo-Marrero & Milacci, 2016). These systems cover the unique and multifaceted circumstances of students' lives, and can both negatively and positively impact students' motivational experiences. In our review, we identified four relevant categories of contextual elements in the literature that extend from the micro- to macro-level (e.g., political and structural). These categories include internal, school, life/community, as well as systemic contexts (see Table 9).



While these distinct categories aid our understanding and interpretation of contextual elements, it is important to recognize that contextual levels are not independent. Instead, Bronfenbrenner's Bioecological Systems Theory (1993) suggests these elements interact and impact each other in various ways (e.g., social policy budgeting at a systemic level can influence students' lives both in and outside of school). Therefore, students' perceptions of their world also alter their experiences, making the impact of many contextual elements subject to the student's interpretation and internalization (e.g., the impact of unjust treatment on a student's motivation largely depends on the student's perception of the treatment as unfair). In sum, context is a layered and multidimensional component of students' MEP experiences (see Figure 4).

Table 9. Descriptions of Contextual Levels

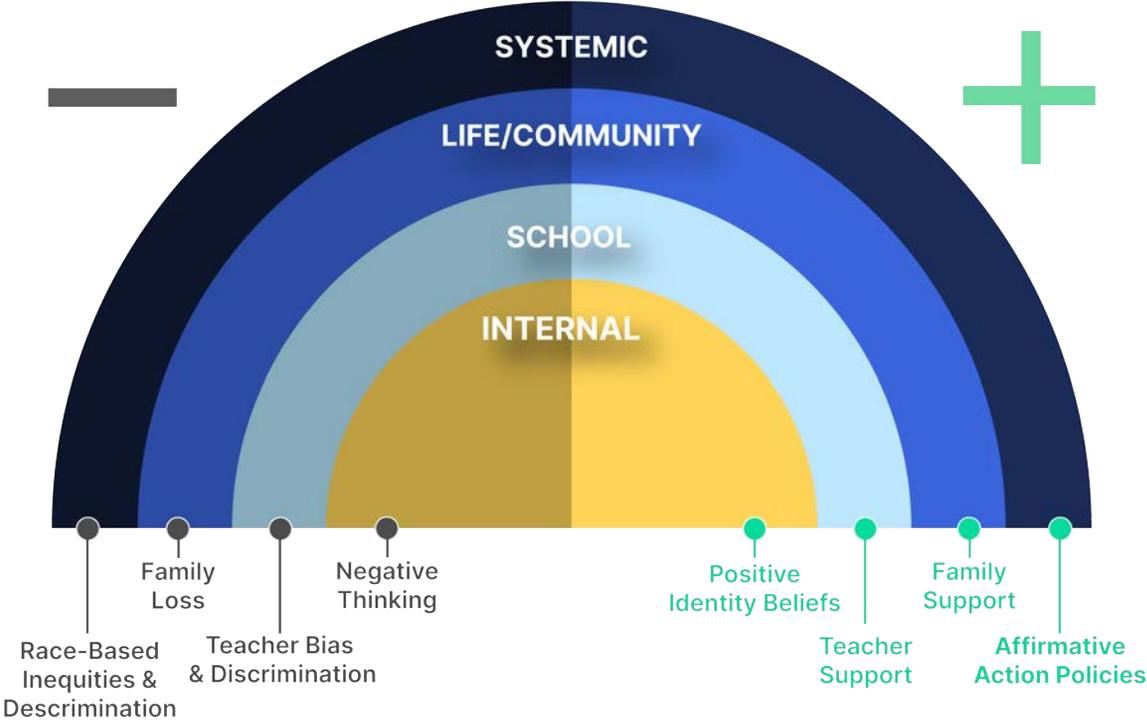
CONTEXT LEVEL	DESCRIPTION
INTERNAL	Student-specific attitudes, behaviors, beliefs, and traits
SCHOOL	School, institution, or classroom-specific factors such as the learning environment and institutional practices/policies
LIFE/COMMUNITY	Circumstances, experiences, or events related to the student's non-academic life
SYSTEMIC	Factors at a socio-political level

Given the complex and interdependent nature of how contextual elements affect student motivation, it is valuable to use a systems-based perspective to understand this impact.

A systems-based perspective allows educators and policymakers to recognize that no single strategy or intervention can address the complexity of motivation for all students.

Instead, key decision-makers can employ a holistic approach that emphasizes the unique experiences of students. This review outlines contextual elements to help educators and policymakers think more comprehensively about the drivers of student motivation but is by no means an exhaustive list.

Figure 4. Levels and Examples of Contextual Elements Involved in Student MEP



Internal Context

The internal student context encompasses students' individual qualities, preferences, and identity beliefs.

These factors inform how a student interprets and interacts with all elements they encounter in their school environment, community, and lived context, as well as in response to larger systemic influences. Due to its impact on all other contexts, students' Internal context was explored in 84 of the 103 studies reviewed. Of these studies, the majority (n=51) actively tested the impact of internal factors on student MEP, while the rest (n=34) exclusively acknowledged these factors' effects. Across these studies, several internal contextual factors emerged as the most frequently discussed (see Table 10).

Extensive research has demonstrated both the positive and negative effects of internal contextual elements (e.g., beliefs, attitudes, and mindsets) on students' MEP. Positive internal contextual elements include beneficial internal perceptions, attitudes, beliefs, and behaviors that are advantageous to students' MEP. On the other hand, factors such as internalized stereotypes, lack of belonging, and unfavorable perceptions of school negatively impact student MEP.

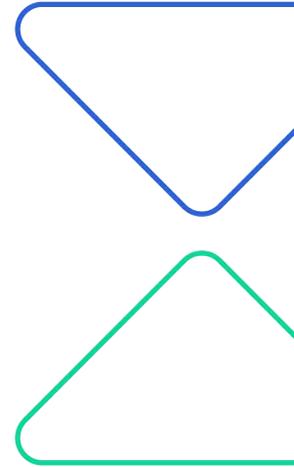


Table 10. Overview of Internal Context Factors’ Positive & Negative Effects

FACTORS # OF MENTIONS	DESCRIPTION OF FACTOR	POSITIVE EFFECT(S)	NEGATIVE EFFECT(S)
Self-Perception n=35	A student’s perception of their abilities and expectations regardless of actual skill	The higher a student’s self-efficacy, self-competence, and expectations, the higher their MEP	The lower a student’s self-efficacy, the more likely they are to self-sabotage and not engage at all
Attitudes Toward Learning n=27	Students’ emotions, mindsets, and manner of thinking about education	<p>Having a positive attitude towards learning results in higher engagement</p> <p>Having a growth mindset positively impacts student persistence</p> <p>Having hope for the future is associated with engagement and persistence</p>	<p>Perceiving academic tasks as too challenging negatively impacts persistence</p> <p>Not seeing value in academics is associated with lower performance</p> <p>Not seeing oneself as capable of success leads to decreased persistence as well as self-</p>
Identity Beliefs n=25	How students perceive the importance and relevance of their identities	<p>A strong internalized sense of racial/ethnic identity can increase academic interest and curiosity, as well as their MEP</p> <p>A strong academic identity increases student effort, achievement, engagement, and persistence</p> <p>A strong vocational identity can buffer against the effects of discrimination</p>	When students have a weaker sense of identity, stereotypes can negatively impact their performance and MEP

Table 13. Overview of Internal Context Factors' Positive & Negative Effects

FACTORS # OF MENTIONS	DESCRIPTION OF FACTOR	POSITIVE EFFECT(S)	NEGATIVE EFFECT(S)
Sense of Belonging n=25	The sense that a student has a place in, and is a member of, their learning community*	A strong sense of belonging informs what goals students pursue, and influences academic engagement	Not belonging leads to emotional distress and isolation which significantly impedes student engagement and motivation
Academic Behaviors & Beliefs n=33	Students' academically focused behaviors (e.g., study habits) as well as beliefs (e.g., "math is/isn't valuable") surrounding school and classwork	Positive academic practices and beliefs can increase student MEP	Negative perceptions of school and classwork lead to decreased MEP
Sociocognitive Development n=9	Stages of social and cognitive development inform how students learn	N/A	Middle to high school students need additional support and connections that schools are not designed to support-leading to decreased motivation and academic difficulties Students still undergoing cognitive development have flawed decision-making, leading them to misjudge their knowledge and over assume their mastery, which can decrease their motivation and persistence

*A student's learning community ranges from the education system, institution, and campus to classroom and peer group.

Self-Efficacy

How a student perceives their abilities, regardless of their actual capability, is essential to understanding their MEP. Self-efficacy is frequently mentioned across the literature (n=32), and includes a range of internal beliefs about one's abilities; including concepts such as the belief that one can succeed and the belief that the cause of one's success is internal (i.e., self-competence). It also includes expectations about one's long- and short-term success, such as a student believing they can pass a class or become a successful scientist. Students' lived experiences in and outside of school inform these self-perceptions.

For example, a prior literature review on the educational experiences of Black women documented that positive connections with teachers help these students develop their self-efficacy and larger intellectual self-concept (Allen et al., 2023). Therefore, when considering the effects of self-efficacy on students' MEP, especially among marginalized groups, it is important to remember that low self-efficacy is not innate. Instead, students' self-efficacy reflect a complex relationship between context, student behavior, and the outcomes of their behavior (e.g., positive teacher feedback).

Multiple studies have shown that the higher a student's self-efficacy, self-competence, and expectations for their self, the higher their motivation, engagement, and persistence (Hernandez et al., 2020; Koch et al., 2019; Navarro et al., 2018; Suizzo et al., 2016). Having high self-efficacy also has additional benefits for students, such as overcoming the effects of contextual barriers and challenges. For example, one study found that student confidence in their math ability mediates the influence of a lack of classroom support (Kitsansa et al., 2020). Additionally, the more a student believes that they can succeed in a task, the more likely they are to engage and expend effort on it (Urdañ & Schoenfelder, 2006).

This confidence in one's ability to engage is then reinforced by their engagement, creating a positive feedback loop wherein students are increasingly more likely to engage as their belief in their abilities is actualized (Skinner et al., 2008). The opposite occurs for students with low self-efficacy. Children with low self-efficacy tend to self-sabotage by avoiding challenges and engaging in tasks half-heartedly which causes them to not succeed, reinforcing their initial self-doubt (Skinner et al., 2008). For example, some students with low self-efficacy avoid studying because they do not believe it will result in success (Blatt et al., 2020). These students are also especially vulnerable to stereotype threats due to their lack of confidence in their abilities. Therefore, students' self-perceptions can help either support or inhibit motivational behaviors.

“How a student perceives their abilities, regardless of their actual capability, is essential to understanding their MEP.”

Attitudes Towards Learning

The attitudes students hold toward learning impact their motivational experiences. Having a positive attitude is essential when students face barriers or unforeseen challenges, such as not understanding a math concept. The 24 studies in our review that include these attitudes discuss students' emotions, mindsets, and perceptions of coursework and school when faced with challenges.

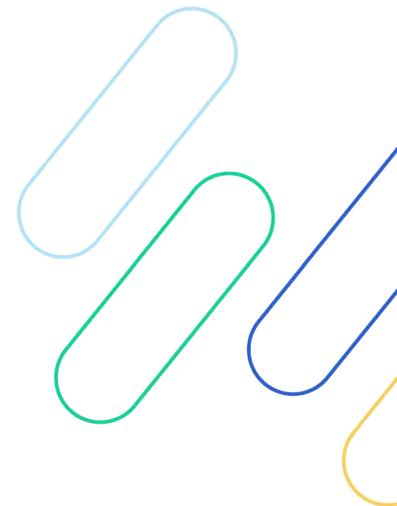
Positive Attitudes

In general, positive attitudes drive students' effortful engagement in school (Skinner et al., 2008). This is seen through students' attitudes toward the content they are learning. For example, multiple studies show that when students take a positive perspective, such as that the work they are doing is contributing to a larger goal (e.g., becoming a mathematician or contributing to a vulnerable community), they are more likely to be engaged (Gutierrez-Serrano et al., 2022; Navarro, 2018). Additionally, having a growth mindset, wherein a student believes their intelligence is fluid and influenced by learning, has also been shown to increase persistence (Koch et al., 2019). Even higher levels of student hope (i.e., having positive expectations for the future) are associated with lower levels of attrition and higher levels of engagement in college (Browning et al., 2018). In all, these positive attitudes serve as assets that promote students' engagement and persistence, especially when their learning circumstances are less than optimal.

Negative Attitudes

Just as positive student attitudes toward school and classwork play a pivotal role in motivating students, negative attitudes also help explain students' MEP. Student attitudes toward coursework and learning, such as the perceived difficulty, high time commitment, and the lack of value seen in a task, are all shown to impact student MEP and performance negatively (Anderson & Ward, 2014; Guthrie & Klauda, 2014; Hulleman et al., 2016). For example, high school students are less likely to persist in STEM courses when they do not see the value in STEM (Anderson & Ward, 2014). Negative attitudes and perceptions about one's ability to succeed academically also lead students to employ coping strategies that negatively affect their MEP. For example, students who doubt their ability to succeed at an academic task are less likely to exert effort on challenging tasks (Urduan & Schoenfelder, 2006).

These students are more likely to employ strategies associated with decreased rates of persistence, such as self-pity or projection (i.e., blaming others for adverse outcomes; Jones et al., 2021; Skinner et al., 2016). Negative mindsets about their future success impact student academic performance, and poor academic performance reinforces negative mindsets, leading to a self-defeating cycle (Farrington et al., 2012). Therefore, negative attitudes and perceptions toward school and coursework profoundly affect students' MEP and mental health.



Identity Beliefs

How students perceive the importance and nature of their identities is also key to understanding their MEP. These identity beliefs were explored across 25 studies in our review and predominantly focused on students' beliefs about their perceptions of their race, academics, and stereotypes they may internalize. No two students experience an identity the same way, and their unique experiences and understanding of their identities, influenced by the people and culture around them, color how they interact with school and the larger world.

Racial Identity Beliefs

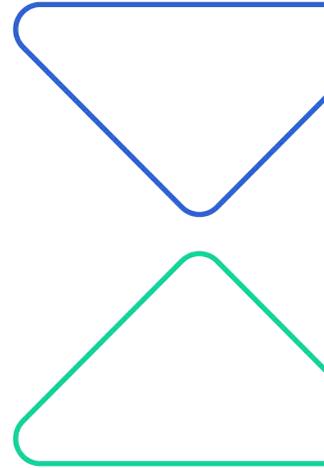
External and internal factors influence Black students' perceptions of their racial identity, such as how central race is to their identity, level of pride in being a member of their race, others' views of their race, cues or relevance of race in a given scenario, as well as beliefs students have about how their race interacts with larger society (Butler-Barnes et al., 2017; Chavous et al., 2017; Leath et al., 2019). These racial identity beliefs are more important to some students than others.

While there is no correct way to have an identity, the literature shows that certain beliefs are more beneficial to students' MEP than others. In a study looking at Black college freshmen's racial identity beliefs, placing more importance on racial identity increased academic competence, promoted positive academic attitudes, and enhanced academic curiosity and motivation (Chavous et al., 2017). Conversely, Black students who place less importance on their racial identity while in school displayed less academic interest and persistence.

As such, these students often disidentify from their racial identity to protect themselves psychologically (e.g., from racism and bias) but, in doing so, also disengage from their education. Similar effects have also been identified for Latinx students with a clear sense of racial identity (Martinez-Fuentes et al., 2021). **Overall, having a more internalized sense of identity (i.e., relying less on others' perceptions) also has beneficial effects for both Black and Latinx students, such as negating the effects of stereotypes and biases present in peers as well as other effects of harmful school environments (Booker, 2016; Coutinho & Koinis-Mitchell, 2014; Griffin et al., 2020).**

Academic Identity Beliefs

Identity also plays an important role outside of race and ethnicity. Identification with an academic subject or vocation helps to explain students' motivational experiences. For example, students with a higher sense of identification with science are more likely to persist in STEM (Anderson & Ward, 2014). A broader sense of strong academic identity also benefits students, as a prior review of motivational literature found that having a positive academic self-concept is associated with higher levels of achievement, effort, engagement, persistence, and increased help-seeking behaviors (Brooms et al., 2021). Vocational identity (i.e., occupational goals, career goals, and job interests) interacts with student MEP differently than academic identity, as a more formalized vocational identity can serve as a buffer against discrimination. One study on Black immigrant students found that those with stronger vocational identities demonstrated strong academic engagement regardless of perceived discrimination (Coutinho & Blustein, 2014).

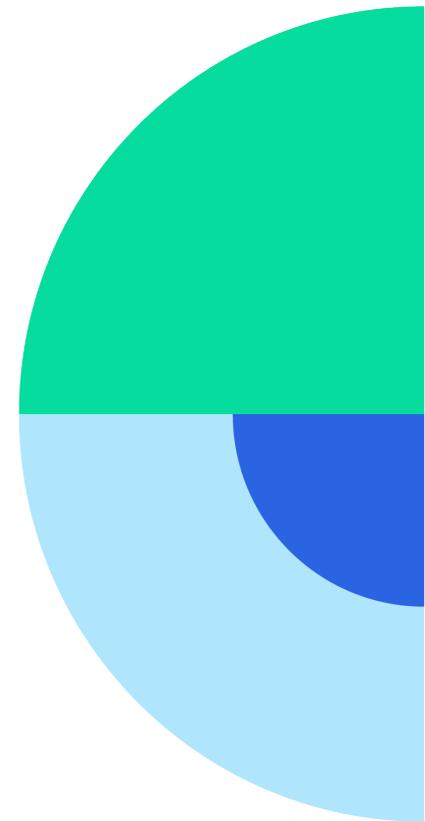


Stereotypes and Identity Beliefs

Stereotypes are preconceived notions and generalizations about particular groups based on race, gender, ethnicity, socioeconomic status, or other characteristics. These stereotypes influence student motivation by affecting their self-perception and academic aspirations. Students may internalize stereotypes that portray their group negatively, leading to reduced self-efficacy (Kurtz-Costes et al., 2017). For example, female students may fear being judged as less capable in math or science, while students of color may feel anxious about performing poorly due to racial stereotypes. As a result, they may be less motivated to strive for excellence in their studies, as they may believe their efforts will be futile. This phenomenon is known as **stereotype threat**, wherein students underperform due to the fear of confirming negative stereotypes about their group (Allen et al., 2023). Internalized stereotypes and experiences of stereotype threat limit students' academic choices and contribute to the underrepresentation of marginalized groups in STEM fields (Allen et al., 2023; Joseph et al., 2017). That is, students may choose not to persist in particular fields if they believe that they are not capable of success due to their racial or gender identity.

Further, internalized stereotypes impact a student's psychological well-being and, in turn, their MEP. Research has shown that internalized stereotypes lead to increased student anxiety and decreased functioning memory (Borman et al., 2021). That is, internalized stereotypes exacerbate the mental cost of challenging school environments (Seals, 2016). Therefore, by addressing the negative effects of internalized stereotypes, educators and practitioners can help foster student MEP and overall well-being.

Internalized stereotypes also have detrimental effects on feelings of belonging. For example, Black students experiencing daily challenges are more likely to attribute these to a lack of belonging as compared to white students (Healey & Stroman, 2021). That is, stereotyped students are more likely to attribute academic setbacks (e.g., failing a test) to stereotyped traits (e.g., girls aren't good at math), leading them to believe they do not belong in particular fields or settings (e.g., an advanced math course), and therefore impacting their overall persistence (Binning et al., 2019).



Sense of Belonging

Studies (n=17) discussing belonging look at students' sense that one has a place in a given academic setting and has membership within their learning community (Farrington et al., 2012). Therefore, belonging includes students' internal appraisals of their social networks as well as judgments of their fit within their academic environments. Sense of belonging is especially important when considering MEP for Black and Latinx students, as these groups are underrepresented in academia and may feel their values are not suited to white-normed learning environments (Seals, 2016).

Belonging

Students' perceptions and assessment of their social relationships (e.g., friends, peers, teacher) inform their decisions to engage in and pursue goals; students evaluate the fit between their wants and the support of these relationships in order to decide if pursuing a goal, such as focusing on STEM, is worth it (Wentzel et al., 2010). As such, a large body of research has indicated the importance of a sense of belonging to multiple aspects of students' motivational experiences (Skinner et al., 2008). For example, research has found that students who are confident they belong in their learning environments are able to engage in learning more fully, which in turn leads others to respond better to them (e.g., teacher recommending them for advanced courses based; Healey & Stroman, 2021).

This means that not only does a sense of belonging impact engagement, but it also influences further opportunities and resources presented to students. Additionally, the benefits of belonging can be effective in keeping students engaged over time, as students who indicate a stronger sense of belonging demonstrate higher persistence even as far as persisting to degree completion (Booker, 2016; Wood & Harris, 2015).

Lack of Belonging

Lack of belonging leads to students' emotional distress and psychological isolation (Hulleman et al., 2016). This burden significantly impedes their motivation to engage in learning activities and academic achievement. Students from marginalized groups are more likely to experience a lack of belonging due to an awareness of negative perceptions (e.g., stereotypes) and differential treatment in the school setting. This lack of belonging, directly and indirectly, impacts their MEP and academic achievement (Healey & Stroman, 2021). For example, feelings of anxiety about not belonging can lead students to disengage from school, leading to decreased academic achievement and poorer health outcomes (Hulleman et al., 2016). In the postsecondary setting, such feelings are particularly prevalent for women of color in white male-dominated fields, such as mathematics, where even high-achieving students are less likely to persist (Joseph et al., 2017).

“Sense of belonging is especially important when considering MEP for Black and Latinx students, as these groups are underrepresented in academia and may feel their values are not suited to white-normed learning environments.”

Academic and Future Behaviors and Beliefs

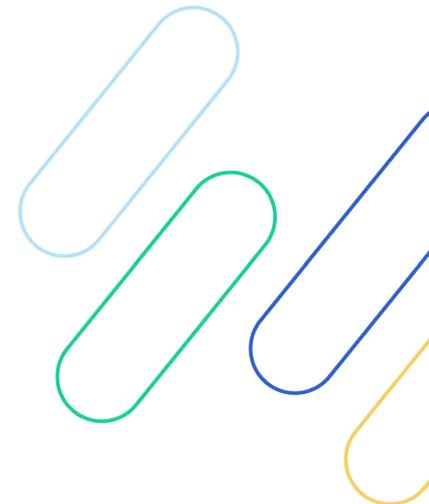
Studies (n=25) across our review, explore how students' behaviors and beliefs around academics and future careers both positively and negatively impact their MEP. Students may view their education as being useful to their future goals (i.e., utility value) and take an active role in their education through participating in classroom assignments. Others may not participate or see a place for themselves as fitting in a particular career.

Positive Behaviors and Beliefs

Positive behaviors and beliefs involve completing tasks or engaging in practices necessary for long-term academic success (e.g., setting goals for the future). For example, in college students, behaviors such as declaring a major earlier, practicing positive study habits, and forming relationships with professors increase persistence (Eller & DiPrete, 2018; Wood & Harris, 2015). Meanwhile, positive beliefs include students' perceptions about school and classwork (e.g., "an education is necessary for getting a good job" or "math is a valuable skill"), which in turn influence behaviors. For example, one study found that college students' discipline-specific interests, such as in math, predict performance regardless of other attitudes or resources a student has (Blatt et al., 2020). Additionally, placing a high internal value on academic tasks is associated with long-term motivation and persistence (Hulleman, 2017). These positive academic beliefs influence persistence because students see their academics as necessary for their futures, and continue to remain academically engaged and overcome challenges (Browman et al., 2017).

Negative Behaviors and Beliefs

Negative behaviors and beliefs impact students' MEP. For example, students are less likely to persist in school when they lack a concrete belief about their futures (Lardier et al., 2019). This is particularly salient for students of color, who lack guidance from role models or mentors on a clear path toward career success, leading to decreased school engagement (Coutinho & Blustein, 2014). Similarly, when students do not believe their future success is within their control, they report lower levels of motivation and spend fewer hours studying (Hulleman et al., 2016). Students who endorse beliefs such as "I'll never have as much opportunity to succeed as kids from other neighborhoods" show decreased emotional engagement (Jimerson et al., 2003). Such students may endorse performance-avoidance goals (i.e., goals based on the desire to avoid performing poorly) or other social goals (i.e., having fun and making friends) rather than mastery goals (i.e., goals aimed at developing new skills and learning). A lack of student mastery goals leads to decreased academic persistence and achievement (Urduan & Schoenfelder, 2006; Wentzel, 1999).



Sociocognitive Development

Sociocognitive development refers to the cognitive processes and social interactions that shape students' understanding of themselves and their social world. Despite the centrality of this process to students' experiences, few studies (n=7) in the reviewed literature discuss the effects of child development on student motivation. During adolescence, young individuals go through a critical developmental stage where they strive to strike a balance between asserting their independence and relying on support from both adults and peers (Erikson, 1982). This process is crucial in the development of a positive sense of self and identity. However, when these adolescents experience a school transition, such as moving from elementary to middle school, they encounter additional challenges. For instance, they may develop perceptions that teachers are no longer as invested in their well-being (Wentzel, 1999). This vulnerable developmental stage, and the challenging transition to middle school, can lead to academic difficulties and decreased motivation. It is important to recognize and address these factors to support students' academic success and overall well-being during this critical period of their lives.

Although students' brains undergo significant growth during adolescence, underdeveloped cognitive processes impact their decision-making abilities (Halpern-Felsher, 2009). For example, adolescents are less able to judge their mastery of course topics, thus affecting their academic performance (Farrington et al., 2012). Overconfident students who have inaccurate beliefs about their knowledge of course topics tend to blame external factors for their lack of success, leading to decreased motivation (Clark & Saxberg, 2018). Further, students who struggle with cognitive processes, such as adapting their thinking while working through a problem, have greater difficulty sustaining mental effort on academic tasks, leading to decreased persistence (Pintrich et al., 1993). Subsequently, student challenges with MEP are a function of their development.



School Context

The school context encompasses academic environments in which students spend considerable time, and these learning environments have immense importance in shaping and nurturing students' drive to succeed.

With school context included in 85 studies out of the 103 reviewed, the environments in which students learn are clearly central to their motivational experiences. Of these studies the majority (n=50) actively tested the effects of various school factors on students' MEP, while the others (n=35) simply acknowledged factors within this context. Schools provide both academic opportunities for students and socioemotional guidance and support for learners. Additionally, prior research has shown that schools are key in shaping students' views of the world and their place in it, meaning school environments can have lifelong impacts on students (Decuir-Gunby, 2009). However, the school setting does not always provide students with the resources they need to succeed.

Student experiences at school can have either positive or negative effects on their motivation (see Table 11). When a school context meets its students' physical (e.g., safe facilities) and psychological (e.g., positive relationships with others at school) needs, it fosters student motivation. Alternatively, school contextual elements can also negatively impact student MEP. Examples of negative school contexts include inadequate or flawed educational supports (e.g., ineffective pedagogies). In the following sections, we describe a range of school factors that affect student motivation.



Table 11. Overview of School Context Factors’ Positive & Negative Effects

FACTORS # OF MENTIONS	DESCRIPTION OF FACTOR	POSITIVE EFFECT(S)	NEGATIVE EFFECT(S)
School Environment n=69	The physical structure and socioemotional support features present in institutions of learning	Safe, inviting, and properly stocked classrooms enhance student motivation Classrooms that accommodate diverse student needs and perspectives support motivation and engagement	Negative school racial climates cause students to disengage and fail to persist Schools that minimize students’ identities lead to further disconnection and cause barriers to achievement
Teachers n=54	The quality of support and connections students experience from teachers	Teacher support promotes student engagement, and these relationships also help students develop their beliefs about themselves as learners Having similar racial/ethnic identity teachers supports students’ sense of belonging	Teachers can bring biases and discrimination into the classroom, negatively impacting students’ belonging and MEP
Peers n=33	The quality of support and connections students experience from peers	Peer groups convey and enforce social norms and behavioral standards in school which can promote motivation, as well as persistence, and can inform career goals Similar racial/ethnic identity peers promote students’ sense of belonging and help negate the effects of bias from others	Peers can exert pressure on students to behave in non-academically minded ways Bullying from peers can affect students’ persistence, leading them to drop out Peer biases lead to decreases in engagement, motivation, academic curiosity, sense of belonging, and persistence

Table 10. Overview of School Context Factors' Positive & Negative Effects, cont.

FACTORS # OF MENTIONS	DESCRIPTION OF FACTOR	POSITIVE EFFECT(S)	NEGATIVE EFFECT(S)
Pedagogy n=45	The style of instruction and strategies used to teach students	Promote students' learning and MEP Learning occurs when students are experiencing productive struggles and optimal challenges with instructional materials	Pedagogies that are commonly used in education, such as weed-out structures used in STEM, are detrimental to students' motivation When coursework is too hard, it shifts the focus away from learning and toward getting good or passing grades When coursework is too hard or too easy, it reduces engagement in learning
Learning Products & Interventions n=17	Study-specific products and interventions used to support or advance student learning or MEP	Interventions using a strengths-based approach, which focuses on students' needs rather than their perceived faults, increase student MEP Repeated positive experiences with learning technologies increase student self-efficacy	Deficit-based approaches, which emphasize student failings, are not a good basis for interventions

School Environment

The school environment refers to the structural and socioemotional supports inherent to individual learning institutions. In our review, a significant proportion of school context studies (n=69) discuss the impact of school environment on student motivation, such as school racial climate and school policies.

School Infrastructure

A school's infrastructure is one of the most easily observable aspects of a school environment, however, infrastructure was only explored in one resource in our review. In a literature review, Cheryan et al. (2014) discuss a wealth of findings from studies on classroom facilities, supplies, technology, atmosphere (e.g., lighting, air quality, noise, and temperature), layout, as well as decor.

They found that, across the literature, well-equipped classrooms with access to modern technology and human-centered spaces (e.g., spaces with natural light and positive posters) contribute to a safe and inviting environment, enhancing student motivation, while poorly equipped classrooms can detract from students' learning and motivation. Thus, infrastructure can serve as a way to support or deter student motivation.

School Policies

Beyond the brick and mortar of a school building, school policies, such as disciplinary measures, grading systems, and academic support mechanisms, shape the overall learning experience and students' perceptions of fairness and equity. **Positive and inclusive policies prioritize student well-being, accommodate diverse learning needs, and affirm students' identities.** Multiple studies have tested the effects of such policies in practice, demonstrating that they foster a sense of belonging and encourage students to stay engaged and motivated (Skinner et al., 2016; Wang & Eccles, 2013).

Additionally, evidence suggests that when students perceive school policies and rules as strict but fair (e.g., transparent and unbiased enforcement of school rules), there is increased engagement at the middle and high school levels (Konold et al., 2017).

However, school policies that further marginalize students (e.g., unjust disciplinary measures) are associated with decreased student engagement (Gutierrez-Serrano et al., 2022). These findings highlight the importance of considering school policies when supporting student motivation, engagement, and persistence.

“...Across the literature, well-equipped classrooms with access to modern technology and human-centered spaces ...contribute to a safe and inviting environment, enhancing student motivation, while poorly equipped classrooms can detract from students' learning and motivation.”

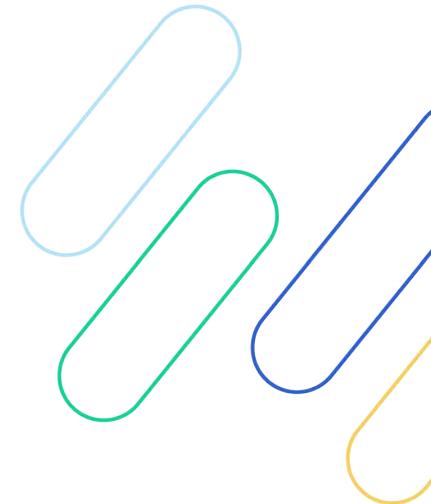
School Racial Climate

A positive and inclusive school racial climate, where students feel their racial identity and cultural backgrounds are respected and valued, can have a profound impact on student motivation. This is an important aspect of the school environment, particularly when considering the experiences of Black and Latinx students. **Both qualitative and quantitative findings have demonstrated the association between Black and Latinx students' perceptions of their school's inclusive climate and their sense of belonging and connectedness (Griffin et al., 2020; Museus et al., 2016).** The evidence suggests that, in such school environments, students feel empowered to express themselves, share their perspectives, and actively engage in their learning. Further, additional research in schools with positive racial climates shows that, in these environments, students develop positive racial identities which may foster their academic persistence (Chavous et al., 2017). Altogether, these key aspects of the school environment are correlated with a significant positive influence on student motivation.

Not all school racial climates are positive. Schools that are alienating or unsupportive of the needs of students of color hinder students' motivation, causing disengagement and ultimately decreasing their chances of academically persisting (Bonilla et al., 2021; Farrington et al., 2012; Gutierrez-Serrano et al., 2022; Konold et al., 2017). One study characterized these negative school environments as “chilly,” wherein faculty are perceived as apathetic or uninvested in underrepresented students' learning (Lancaster & Xu, 2017). For some students, the detrimental effects of such unsupportive environments lead to them dropping out (Koch et al., 2019).

Disidentification

When students' racial/ethnic, cultural, and socioeconomic backgrounds are disconnected from the school environment, they further disengage academically. For example, 'colorblind' school environments, which require students to minimize or exclude their cultures and identities from their learning, are detrimental to students' mental health and motivation (Kundu, 2019; Toshalis & Nakkula, 2012). These school environments contribute to further marginalization and create additional barriers to students of color's achievement (Toshalis & Nakkula, 2012). **Overall, schools either affirm their students' identities, promoting their motivation and achievement, or they do not, leading to disengagement;** this disengagement makes students more susceptible to stereotypes, further negatively influencing their motivation and performance (Griffin et al., 2020).



School Fit

Several scholars (n=4) in our review emphasize the importance of school fit, which refers to the alignment between the educational setting and the individual characteristics of students, such as their identities, learning styles, interests, financial and career goals, and values. **These authors propose that when students experience a strong fit with the school's culture and overall environment, they are better equipped to be academically motivated.** Farrington et al. (2012) point to the work of Eccles and her colleagues, which suggests that a mismatch between students' developmental needs and the school supports they receive are associated with declines in academic effort during middle school. Further, Binning et al. (2019) acknowledge that a student is more likely to persist when they perceive that the benefits and costs of attending college align with their own experiences. Therefore, recognizing and nurturing school fit is essential in creating an educational experience that empowers students to persist and reach their full potential.

Unfortunately, school environments are often not structured to support students' positive motivational and development needs (Binning et al., 2019; Ryan & Deci, 2020). How schools structure learning can be too rigid (e.g., having no space for autonomy) or overly flexible (e.g., having limited structure or support) for students, and these approaches often have limited adaptability to individual students' intellectual or developmental differences (Wang & Eccles, 2013).

Additionally, as students get older, school environments provide fewer opportunities for developmentally necessary interpersonal connections (e.g., decreasing the time students spend with one teacher and one cohort of peers), ultimately decreasing student engagement (Binning et al., 2019). Together, these elements create a mismatch between the needs of students and their learning environments.



Teachers

Teachers have the potential to provide positive socioemotional and academic support to students as well as to detract from their MEP and learning. Approximately half of the 103 studies reviewed (n=54) noted the negative and positive impacts of teachers, making it clear that teachers play a vital role in students' MEP. Across the literature, meaningful connections with educators are frequently seen as beneficial, while individual teacher biases contribute to reinforcing stereotypes and academic barriers.

Connections and Support

Researchers acknowledge that when students feel valued and supported by their teachers, they are more likely to be engaged and invested in their learning (Urda & Schoenfelder, 2016; Wentzel et al., 2010). Researchers further acknowledge that personalized academic support and encouragement from teachers help students develop a sense of self-efficacy and competence in their abilities (Healey & Stroman, 2021; Wentzel et al., 2010). As such, large scale research on high school students across institutions demonstrates that these supportive relationships impact how students see themselves as learners, empowering students to overcome obstacles and persist in their academic pursuits (Leath et al., 2019). Thus, teacher connections and support are integral to student motivation and well-being.

Representative Teacher

When students encounter teachers with similar backgrounds, identities, or experiences, they are more likely to feel a sense of belonging (Healey & Stroman, 2021). This visibility fosters students' confidence in their abilities, driving them to persist through challenges. Additionally, representative teachers bring diverse perspectives to the classroom, enriching the learning experience and creating a more inclusive and culturally responsive environment. Through their culturally responsive teaching approaches and relatable experiences, representative teachers nurture a positive learning atmosphere that encourages student motivation and empowers students to thrive (Allen et al., 2023).

“**Researchers acknowledge that when students feel valued and supported by their teachers, they are more likely to be engaged and invested in their learning.**”

Teacher Biases and Discrimination

While teachers play an essential role in supporting students' learning and motivational development, they can also contribute negatively to students' MEP. For example, **multiple studies show that experiencing racial discrimination and microaggressions from teachers leads to decreased student curiosity, engagement, and belonging**; these negative experiences can influence students to drop out of school altogether (Coutinho & Koinis-Mitchell, 2014; Gutierrez-Serrano et al., 2022; Leath et al., 2019; Martinez-Fuentes et al., 2021). From subtle forms of bias, such as white teachers underestimating the abilities of underrepresented students regardless of actual academic ability, to overt forms, such as racial discipline discrepancies, these incidents ultimately lead to decreases in performance and motivation (Borman et al., 2021; Kurtz-Costes & Woods, 2017; Vega et al., 2015). Moreover, racial bias and discrimination have long-lasting effects that students carry across multiple institutions, altering their academic careers. For example, research shows that discriminatory experiences in high school contribute to lower persistence in college (Witkow et al., 2015).

Teacher biases also alter the amount of support students of color receive, which negatively impacts their achievement and success (Vega et al., 2015). **Black students are less likely to approach and get support from teachers when white faculty demonstrate insensitivity** (e.g., perpetuating negative stereotypes or generalizations, not incorporating Black perspectives into curricula; Lancaster & Xu, 2017; Simmons, 2019).

Teachers can also limit students' participation in opportunities that increase STEM engagement due to stereotypes about who belongs in such spaces (Kennedy & Smolinsky, 2015). For example, teachers who believe female students are not suited to math may recommend fewer STEM clubs and activities for these learners.

Additionally, disrespect and differential treatment from authority figures within educational institutions are not uncommon for students from low socioeconomic backgrounds. These students report explicit and implicit low expectations from teachers as an additional barrier to their success (Vega et al., 2015). As such, students from low SES backgrounds frequently have worse relationships with their teachers by the end of the school year, and, for those from very low SES backgrounds, these negative student-teacher relationships are even seen at the start of a new school year (Scales et al., 2020). These fractured student-teacher relationships are a concerning expression of bias, as they are also linked to poorer end-of-year academic outcomes (e.g., grades).

Peers

While receiving less scholarly attention compared to teacher support, peer support is a factor addressed in the literature (n=18). Just as teachers can provide socioemotional and academic support or hinder students' motivational experiences, peers can also help with or detract from students' MEP.

Connections and Support

Positive peer connections and support create a sense of belonging, camaraderie, and well-being within the school environment (Griffin et al., 2020). When students feel accepted and valued by their peers, they are more likely to be socially and academically engaged in school (Wentzel et al., 2010). Peer groups also convey and enforce social norms and behavioral standards in school, leading to greater student motivation and engagement as students strive to gain peer acceptance (Wentzel, 1999; Wentzel et al., 2010). Moreover, peer support is a key driver of student persistence, as peers' expectations motivate student career goals and academic pursuits (e.g., Clark et al., 2013). Overall, peer connections and support are integral to cultivating student MEP.

Similar-Identity Peers

For Black and Latinx students, having peers of similar identities and backgrounds increases their academic motivation. When students see others who share their racial or ethnic identity achieving success and actively participating in the educational environment, it creates a sense of belonging (Healey & Stroman, 2021; Strayhorn, 2017).

For example, at the college level, access to affinity groups and communal spaces on campus where students can engage with peers from similar backgrounds also leads to increased student persistence (Wood & Harris, 2015). This sense of community and support significantly boosts Black and Latinx students' motivation to excel academically and actively engage in their studies. Having relatable role models and a supportive peer network empowers students to face not only academic and social challenges but also overcome experiences of bias. For example, Joseph et al. (2017) emphasize that a sense of belonging is key to buffering against the negative effects of stereotypes for Black women and girls in schools.

Prior research also demonstrates that a lack of peers with similar identities negatively affects Black and Latinx learners. Predominantly white institutions often expect underrepresented students to work in exclusionary spaces, which makes it impossible for them to develop a sense of belonging (Healey & Stroman, 2021). This is especially salient for higher-level courses, where the effects of such underrepresentation and subsequent lack of belonging can negatively impact student engagement, well-being, and academic achievement (Seals, 2016). This lack of belonging can also increase the amount of stereotype threat students experience (Simpkins et al., 2020). For example, those from underrepresented student groups report frequent requests to be spokesperson for their entire racial/ethnic group (Booker, 2016). These students may feel like their performance is viewed as representative of their entire racial/ethnic group, and that their efforts need to reflect or exceed expectations for their identity.

“Peer groups also convey and enforce social norms and behavioral standards in school, leading to greater student motivation and engagement as students strive to gain peer acceptance (Wentzel, 1999; Wentzel et al., 2010).”

Peer Biases and Discrimination

Peers can be a valuable asset to students' MEP, but they are also potential detractors. Much like with teachers, across the literature, peer bias leads to decreases in engagement, motivation, academic curiosity, sense of belonging, and persistence (Coutinho & Koinis-Mitchell, 2014; Griffin et al., 2020; Gutierrez-Serrano et al., 2022; Leath et al., 2019; Witkow et al., 2015). **However, the impact of peer bias is found to extend beyond the school setting. For example, a study on Black college freshman's experiences found that instances of peer racial biases were the strongest social influence on how students perceived society's broader view of their race (Chavous et al., 2017).** This means that peer biases serve as a unique influence on students' lives and that peers have a distinct impact on MEP when compared to teachers.

Peer Pressure and Behavior

Peers can negatively influence each other's behavior, such as through social pressure or bullying. Students have to balance both school-prompted values (e.g., achievement) and those of friends (e.g., devaluing of school), which can be at odds, resulting in lower motivation (Urdan & Schoenfelder, 2006). For example, a study looking at the academic experiences of Black 7th through 10th graders noted that students experience pressure from peers to not "act white" (e.g., participate in traditionally white-dominated activities, such as STEM) or to not academically succeed to fit in, leading to disengagement (Butler-Barnes et al., 2017). Failure for students to conform to social pressures such as these ultimately lead to peer rejection and a loss of interest in school, further increasing the chances of dropping out (Wentzel, 1999). In the US, many students are also the target of outright aggression from classmates. The effect of these social pressures and bullying is widespread with students who are socially isolated, aggressors themselves, or who experience victimization at risk for lower motivation and poorer academic performance (Wigfield et al., 2012). These considerations make the negative aspects of peer relationships a vital part of students' lifelong motivation.



Pedagogies

Teachers employ numerous teaching strategies to foster student motivation. In the reviewed literature, scholars commonly addressed pedagogies impacts on students MEP (n=45). Positive pedagogies are student-centered practices that require teachers to foster genuine connections with their students. Further, teaching practices can increase student motivation by addressing students' psychological needs for relatedness, autonomy, and competence. This literature emphasizes the positive impact of three main teaching practices: authoritative style, authentic pedagogy, and culturally responsive pedagogy, while also noting common pedagogies that can detract from students' MEP.

Authoritative Style

An authoritative teaching style can influence student motivation in the classroom. When educators exhibit an authoritative style, characterized by clear expectations, firm boundaries, and fair discipline, it establishes a structured and equitable learning environment. Students understand what is expected of them and the consequences of their actions, which allows them to feel agency and autonomy over their academic success (Wang & Eccles, 2013). When implemented effectively, an authoritative teaching style positively impacts student motivation by promoting discipline, self-assurance, and a sense of purpose in academic pursuits. Further, an authoritative teaching style fosters motivation by communicating to students that they are respected and that teachers have high expectations for them (Pintrich et al., 1993; Toshalis & Nakkula, 2012).

Teachers, therefore, can increase student MEP by developing an authoritative classroom management style in which students make meaningful choices about their learning (Pintrich et al., 1993).

Authentic Pedagogy

When educators adopt an authentic pedagogical approach, they prioritize real-world connections and meaningful learning experiences in the classroom. Students report that, by designing lessons relevant to students' lives and interests, teachers foster their intrinsic motivation to engage with the learning material (Booker & Lim, 2018). When students see the practical applications of what they are learning and understand how it aligns with their goals and aspirations, they are more likely to be driven to engage and succeed academically. Furthermore, an authentic pedagogical approach requires teachers to consider student needs and employ a variety of strategies to meet those needs, thereby cultivating student engagement (Booker & Lim, 2018). Overall, authentic pedagogy frames learning material as pertinent to students, ultimately fueling their motivation to reach their full potential.

“**Teachers, therefore, can increase student MEP by developing an authoritative classroom management style in which students make meaningful choices about their learning.**”

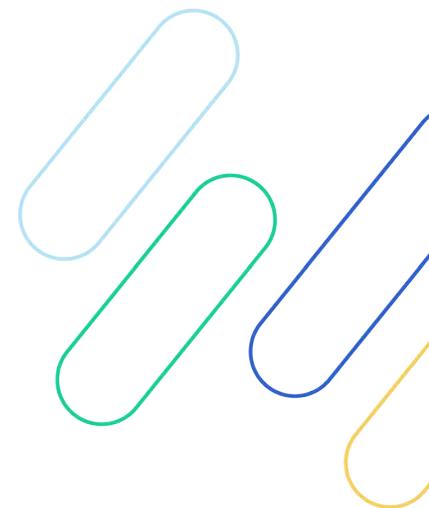
Culturally Responsive Pedagogy

In addition to authoritative and authentic pedagogical approaches, Black and Latinx students especially benefit from culturally responsive pedagogy (Williams et al., 2018). Culturally responsive teaching goes beyond surface-level representation, as it actively incorporates culturally relevant content and perspectives that represent diverse voices into the lesson plans. Research on this approach shows that it validates students' lived experiences, making the learning experience more meaningful and relatable, therefore increasing student belonging (Bonilla et al., 2021; Williams et al., 2018). Students are more motivated to engage in the classroom when they feel a sense of belonging and that their perspectives are valued (Farrington et al., 2012; Williams et al., 2018). Thus, culturally responsive pedagogy empowers students by creating a positive and supportive learning atmosphere that fosters their intrinsic motivation and desire to succeed academically.

Commonly Used and Negative Pedagogies

While positive, well-suited, and structured pedagogies support students' MEP, poorly structured and ill-suited pedagogies can be actively harmful. These negative pedagogies include many common instruction styles used in classrooms. For example, instruction methods that give students rewards in response to academic success are shown to undermine students' motivation to engage in academic tasks (Hulleman et al., 2016; Toshalis & Nakkula, 2012). Additionally, across the literature, pedagogies that fail to balance academic support, advising, and structure (e.g., control) and independent decision-making (e.g., autonomy) also negatively impact students' interest in, and perceived value of, academia (Farrington et al., 2012; Pintrich et al., 1993; Skinner et al., 2016).

Certain instruction styles, such as those commonly used in STEM, are particularly harmful for underrepresented students. Students of color and those from low-income backgrounds, who have comparatively lower academic preparation than their white middle-class peers, are more susceptible to STEM's weed-out courses (e.g., classes structured so that only the top-performing students can progress; Eller & DiPrete, 2018). Even introductory STEM classes have common instructional formats (e.g., large lecture-based classes, exam-based grades, and a lack of diverse educators) that further limit who enrolls (i.e., those who enroll often have prior prep and experience in these settings). These learning environments can decrease student participation, undermine their sense of belonging, and even diminish the value students place in education (Wang & Holcombe, 2010).



Learning Products and Interventions

In addition to implementing teaching strategies, educators also utilize various learning products and interventions to foster motivation in the classroom. Multiple studies (n=17) have demonstrated the impact learning products and interventions can have on student motivation within the classroom setting. These products and interventions encompass a wide range of educational resources, such as interactive learning platforms, gamified educational apps, interactive programs, and adaptive learning technologies (e.g., video games).

Interventions

Interventions found in the literature sought to increase student MEP by addressing student strengths, sense of belonging, mindsets, goals, and access to resources during critical academic transitions (e.g., academic support for students transitioning to college). Research suggests that interventions using a strengths-based approach, which focuses on the contextual supports that students need, rather than a deficit approach, which focuses on student shortcomings, is especially effective in increasing student MEP (Hernandez et al., 2020). For example, Binning et al. (2019) developed an intervention to impact the mindsets of middle school and high school students. Following the intervention, Black students developed a growth mindset (i.e., a belief that their abilities can improve with effort) and demonstrated significantly increased cognitive engagement.

Learning Products

Few studies explored the use of learning products to increase student MEP, however, studies that did primarily explored the effects of pre-designed in-class and after-school programs and frameworks on students' learning. Such products included a garden-based science learning program, an afterschool math group program, a reading instruction framework, and a four-year comprehensive out-of-school program for girls in STEM (Guthrie & Klauda, 2014; Kennedy & Smolinsky, 2015; Koch et al., 2019; Williams et al., 2018). There is promising evidence of the effect of such products, with studies demonstrating increases in students' motivation, engagement, self-efficacy, and beliefs about themselves as learners (Kennedy & Smolinsky, 2015; Koch et al., 2019).

While the majority of learning products did not heavily rely on technology, one study looked at the use of an in-class learning video game (Deater-Deckard et al., 2014). This study found that the novelty of such educational technologies can lead to greater student interest and engagement, particularly in STEM subjects. After COVID-19, there has been a vested interest in exploring how technology can enhance students' learning. However, our review found that research on the use of technology to foster MEP in Black, Latinx, and economically disadvantaged student groups is limited. Further, this may be related to the fact that these underrepresented student groups are less likely to have access to advanced educational technology in the classroom (Morales-Chicas et al., 2021). These considerations are important when examining the use of technology-based learning products with these learners.

Life/Community Context

While the school environment is often seen as the place where students' MEP is fostered, students' lives outside of school are also essential to their motivational experiences.

The life and community context encompasses what students encounter and interact with outside of school. Of the 103 studies reviewed, 58 explore the life and community context; 38 directly test community factors while 20 acknowledge these factors. This includes a range of factors such as community environments, parent and sibling relationships, and extrafamilial connections.

These factors can positively and negatively impact students' MEP in the classroom. Positive life and community contextual factors include emotional support and advice from parents and extrafamilial connections. Conversely, negative contextual factors include students' lack of extended social support (i.e., beneficial extrafamilial relationships) and financial resources. These negative contextual factors often demonstrate the complex interplay of social and economic disadvantages present in marginalized communities fueled by structural inequities. The following section discusses the positive and negative effects of these life and community contextual elements in more detail.



Table 12. Overview of Life/Community Context Factors' Negative and Positive Effects

FACTORS # OF MENTIONS	DESCRIPTION OF FACTOR	POSITIVE EFFECT(S)	NEGATIVE EFFECT(S)
Familial Connections n=43	Connections and support students receive from parents, siblings, and other relatives	<p>Parents provide valuable emotional support and advice to students that can inform their academic interests and pursuits</p> <p>Latinx students frequently persist to set an example for their siblings</p>	Students' emotional and financial obligations to their families, such as feeling like they need to support them, can impede upon academic goals and interests
Extrafamilial Connections n=17	Connections and support students receive from non-family members	<p>Connections outside of the family provide students with support, opportunities, and enhance their motivation</p> <p>Strong extrafamilial connections help inform students' decision-making</p>	<p>Students with restricted social networks have less access to opportunities, support, and beneficial connections</p> <p>Restricted social networks demonstrate fewer examples of academic behaviors and strategies</p>
Socioeconomic Status n=23	A combination of social and economic factors that influence students' status in society	High socioeconomic status is associated with academic persistence	<p>A low socioeconomic status can negatively impact student persistence and engagement</p> <p>Low socioeconomic status learners encounter barriers to their MEP and academic success such as limited access to academic programs and additional teacher bias</p>

Familial Connections

Familial connections include the relationships and support students receive from members of their close and extended families (e.g., parents, siblings, and other relatives). These familial connections are frequently mentioned in the literature (n=43) and include a range of family behaviors that can impact student MEP.

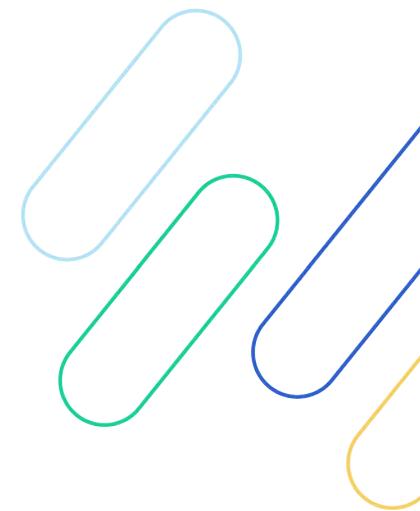
Parent Support

Parent support positively impacts children's motivational experiences (Fan et al., 2012). This support can vary but is often emotional (e.g., encouragement or belief in a student's ability), social (e.g., communicating with students about goals and classwork), and physical (e.g., helping with homework) in nature. In a study on parent involvement that included reports from over 10,000 students and their parents, students whose parents actively participated in their education (e.g., discussing coursework, attending open houses, and advocating for educational opportunities) demonstrated higher achievement in reading and math, performed better on standardized tests, participated more in school, spent more time on assignments, and had lower dropout rates (Fan et al., 2012). As such, parents act as advisors and advocates for their children by providing advice as well as emotional and physical backing that bolsters students' beliefs and abilities.

Family Socialization

Parent support is particularly salient to shaping students of color's MEP. An extensive prior review on Black and Latinx students' developmental experiences showed that racial/ethnic socialization (e.g., parents' guidance on how to navigate complex racial messaging) impacts students' motivational beliefs (e.g., goal orientations, values, and self-concept; Starr et al., 2022). Additionally, research also shows that the more socialization students receive from their families regarding their ethnic-racial group (e.g., cultural knowledge, history, and appreciation), the more prepared they are to counter bias and academically achieve (Martinez-Fuentes et al., 2021). Culturally-rooted advice from parents is also a unique and beneficial asset that boosts Black and Latinx students' learning and MEP (Lawton-Stickler, 2018; Starr et al., 2022). Such advice can help students prioritize the value of education and help them reengage and persist when school environments may be less than optimal for their learning.

The role of culturally-rooted advice is evident in STEM degrees and career pathways. For instance, in the previously mentioned review on Black and Latinx students' developmental experiences, the importance parents placed on STEM positively affected a student's beliefs about STEM's importance, their perception of their own competence, as well as informed larger career aspirations and identity beliefs (Starr et al., 2022). Similarly, additional research shows that Latinx parents can encourage their children to pursue their own paths by expressing interest in what they do and learn, such as STEM (Suizzo et al., 2016). This means that students who independently express interest in STEM, and are then encouraged by their parents to pursue that interest, also benefit.

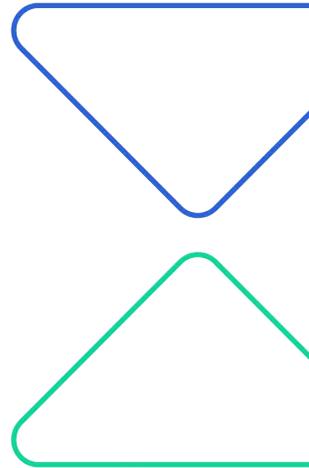


Sibling Support

Parents are not the only familial support that can impact student motivation (Simpkins et al., 2020). While less frequently discussed across the literature than parents, emerging research shows that siblings also act as an additional supportive factor, particularly for Latinx learners. Multiple studies show that Latinx students' siblings positively impact their MEP (Gutierrez-Serrano et al., 2022; Jones et al., 2021). In this emerging work, one study documented that Mexican-origin students demonstrate even stronger relationships with their siblings than other racial/ethnic groups, as they spend considerably more time with their siblings than with peers, parents, or other relationships (Jones et al., 2021). Additionally, sibling relationships are also particularly notable for first-generation Latinx learners; students are driven to persist in order to set an example for their siblings (Gutierrez-Serrano et al., 2022). This makes siblings a unique and powerful support consideration for Latinx students' MEP.

Obligations

While family support positively impacts student motivational experiences, family can also act as an MEP detractor. Family obligations refer to the expectations families place on students. These obligations often arise from unmet needs within a family, such as financial needs or those caused by unexpected life events (e.g., loss or illness). For example, students from low-income backgrounds often have to balance work with school, students from immigrant families tend to serve as community navigators (e.g., translating, making calls), and older siblings act as childcare support for younger siblings. Research on economically disadvantaged and racially diverse students academic engagement shows that, as these students strive to meet the demands of their family obligations along with school, they develop a false sense of resilience, leading them to not seek outside help when needed, and eventually experience burnout (Kundu, 2019). Financial hardships and stressors are especially common among Black and Latinx students who face pervasive adversity such as poverty, additional stress, and bias (Vega et al., 2015). Research shows that, even when these students persist to college, continued financial pressure to work causes them to enroll part-time or eventually drop out (Sáenz et al., 2018). Overall, stress from these expectations impacts students' larger academic performance throughout their academic careers (Skinner et al., 2016).



Extrafamilial Connections

While relationships within families are essential to bolstering students' MEP, extrafamilial connections (i.e., relationships with non-family members) are also discussed (n=17), albeit less commonly. These extrafamilial relationships are a part of students' larger social networks, which represent those who provide extended support (e.g., guidance and access to resources) to students.

Strong Social Networks

Having strong supportive social networks (i.e., a network of friends and community members who have the skills and ability to help students with their pursuits) is associated with overall student success (Browning et al., 2018). Additionally, having mentors, such as community leaders and professionals, provides students with support and guidance that enhances their sense of competence and motivation (Kurtz-Costes & Woods, 2017). These connections provide additional perspectives and lived experiences that students can learn from and lean on as they make decisions about their future, such as pursuing careers or certain academic fields (Toshalis & Nakkula, 2012).

Restrictive Social Networks

While strong supportive social networks facilitate student success, smaller, more restrictive, social support systems pose an additional barrier. Reports from students from low-income urban communities demonstrate that these learners have less access to activities and individuals to expand their social networks, which in turn negatively impacts their social mobility and worsens educational outcomes (Lardier et al., 2019). Additional research also highlights other negative consequences associated with these restricted networks. For example, students with restricted networks also have fewer relationships demonstrating the self-regulatory skills needed for academic success (Mitchall & Jaeger, 2018). More so, when students' social networks are not inclined toward pursuing higher education, students themselves will be less likely to continue on to college (Clark et al., 2013). This research highlights the importance of diverse and varied relationships to students learning, persistence, and overall life outcomes.

Socioeconomic Status

Researchers mentioned socioeconomic status (SES) across the literature (n=23) in our review. SES refers to a combination of social (e.g., location of residence, education, race/ethnicity, and occupation) and economic (e.g., income) factors that inform the position of an individual or group within society. As such, SES is multidimensional and intersectional, making it difficult to examine one aspect without consideration of other factors.

Multiple studies document that high-income status alone predicts student persistence (Witkow et al., 2015; Wood & Harris, 2015). However, many of these studies do not examine the interplay of additional social and demographic factors, such as race. One study looking at the effects of both race and wealth found that having a high income does not predict persistence without considering race; highlighting the importance of intersectionality to SES (Anderson & Ward, 2014). Additionally, students' pre-college socioeconomic resources are the largest predictor of the racial degree attainment gap, meaning that white students, on average, have additional socioeconomic resources than their peers of color (Anderson & Ward, 2014; Eller & DiPrete, 2018). Discrepancies in socioeconomic resources can manifest in a variety of ways, such as additional educational opportunities like college preparation programs and additional coursework (Cox, 2016).

Another example of how socioeconomic resources can affect students' opportunities through indirect means is through parent education. Parents' higher level of educational attainment, which is often associated with income, also predicts student persistence and is associated with overall student achievement across the literature (Froiland & Worell, 2016; Leath et al., 2019; Witkow et al., 2015). As such, the benefits of students' high SES to their persistence can manifest in multiple ways, and societal racial barriers affect the advantages of high-income status on students of color's persistence.

On the other end of the socioeconomic spectrum, research links low SES to lower motivation, engagement, and persistence (Browman et al., 2017; Lackner, 2023; Museus & Shiroma, 2022; Skinner et al., 2008). However, why these differences in engagement and persistence occur, much like high SES benefits, is multifaceted; with researchers acknowledging that students from low SES families face multiple barriers to success. For example, students from low-income Black families often live in zip codes with poorer educational outcomes and less movement to four-year colleges post-graduation (Eller & DiPrete, 2018). Even if educational programs exist outside of their schools, low SES families lack the resources (e.g., transportation and fees) for students to access these opportunities (Kurtz-Costes & Woods, 2017; Mitchell & Yaeger, 2018).

“ Additionally, students' pre-college socioeconomic resources are the largest predictor of the racial degree attainment gap, meaning that white students, on average, have additional socioeconomic resources than their peers of color.”

Systemic Context

Systemic context includes factors underlying processes and structures within sociopolitical, economic, and cultural systems (e.g., sociopolitical climate and race-based inequities perpetuated through culture and policy).

Despite their evident contribution to educational outcomes, systemic factors are largely neglected in educational research, likely due to the difficulty of isolating and testing such effects. Of the 103 studies reviewed, 46 include considerations for systemic factors. Of these studies, only seven directly test the impact of such factors on student motivation with the majority (n=39) only acknowledging potential systemic considerations. To better support and nurture student motivation, it is essential to recognize and investigate the impact of educational policies, sociopolitical climate, and other systemic factors.

Educational systems and policies in the United States have had historically detrimental effects on student MEP. As mentioned, scholars regularly acknowledge various impacts of systemic factors on educational outcomes but rarely test their effects on student MEP. There is also a lack of research addressing how supportive policies and systems impact student MEP (n=10). Studies frequently focus on the negative impacts of systemic factors (e.g., systemic inequities). However, our review uncovered several positive aspects of educational and political systems that influence students' drive to succeed.

Scholars suggest that affirmative action policies, student retention initiatives, and positive cultural expectations all lead to increased student MEP. It is important to note that, of these studies, only one (Ellen & Diprete, 2018) directly tests the positive impact of systemic factors on student MEP.

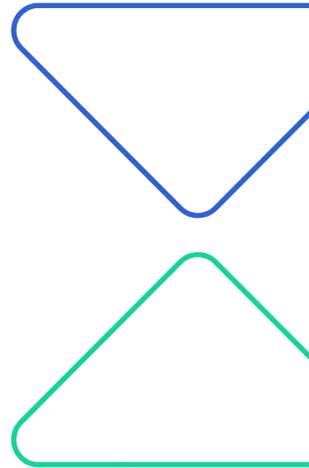


Table 13. Overview of Systemic Context Factors’ Negative and Positive Effects

FACTORS # OF MENTIONS	DESCRIPTION OF FACTOR	EFFECT(S)
Affirmative Action n=2	Policies that increase education opportunities for underrepresented students	Affirmative action policies have a positive impact on Black students’ persistence
Student Retention Initiatives n=1	Initiatives that aim to prevent student attrition	Larger initiatives are shown to improve the retention and graduation rates of college students
In-Group Cultural Expectations n=13	Expectations for behavior within specific cultural, racial, and ethnic groups that are socially enforced	Sociocultural values and expectations that students are exposed to by members of their racial/ethnic inform their beliefs and can increase or decrease their MEP
Systemic Inequities and Discrimination n=33	Discrepancies in treatment and resources based on things such as race, gender, and income	<p>Race-based inequities are pervasive in education, with Black and Latinx students overrepresented in low-income urban schools and underrepresented in universities and STEM fields</p> <p>Gender-based inequities perpetuate educational and workforce disparities</p> <p>Black and Latina women face both gender and race inequities compounding barriers they face</p> <p>Marginalized communities often receive fewer academic resources, (e.g., funding, qualified teachers and mentors, and learning facilities), while wealthy white students have more access than other groups</p> <p>Students from low-income backgrounds have to balance more responsibilities, especially in higher education, such as having to balance work and school obligations</p>

Table 13. Overview of Systemic Context Factors' Negative and Positive Effects, cont.

FACTORS # OF MENTIONS	DESCRIPTION OF FACTOR	EFFECT(S)
Educational System Biases n=11	Inequitable practices at the school level that are based on socially-held harmful beliefs regarding historically marginalized students	Biases within the education system can significantly negatively impact student MEP
Sociopolitical Climate n=8	The social and political atmosphere within a given region, state, or the wider country	The prevalent political ideologies and economic opportunities inform students' future prospects, sense of belonging, and academic motivation
Immigration n=3	The process of moving to the United States from another country and the unique barriers and challenges it presents for learners	English-language learners face added language barriers impacting participation and comprehension in class, resulting in decreased engagement and persistence Immigrant students also face the barrier of others' limited belief in their ability to succeed, which can impact their motivation

Affirmative Action Policies

Affirmative action refers to policies meant to increase educational opportunities for underrepresented students. Historically, laws that keep children in schools, such as child labor laws, and compulsory free education, have largely benefitted education outcomes and our society (OECD, 2016). Research (n=4) suggests that affirmative action policies positively impact student persistence, particularly for Black students. A study conducted by Eller and Diprete found that if Black students matched to quality colleges, on par with white students with similar backgrounds, the dropout rate would decrease from 50.4% to 47.5%, and the bachelor's degree attainment rate would increase from approximately 18.7% to 19.8% (2018). These statistics highlight the significant potential of affirmative action to enhance educational outcomes for underrepresented students. By providing access to greater educational opportunities, such policies encourage Black students to strive for academic success. For example, one study found that affirmative action policies and programs lead to significantly increased retention of Black women and girls in mathematics programs (Joseph et al., 2017). Therefore, the existence or lack of affirmative action policies is a systemic factor worth considering when aiming to promote student persistence.

Student Retention Initiatives

While only one study discussed the benefits of student retention initiatives, it examined the efficacy of a multi-institution student retention initiative. The University Innovation Alliance (UIA), demonstrated a significant impact on student persistence (Banks & Dohy, 2016). Through the collaborative efforts of 11 public higher education institutions in the United States, such as Arizona State University and Georgia State University, the UIA engaged in a knowledge-sharing consortium aimed at improving the retention and graduation rates of college students. Membership in the UIA led to an impressive 24.7% increase in graduation rates and a 9.2% rise in the completion of undergraduate degrees. These statistics underscore the importance of student retention initiatives in fostering a more supportive and conducive learning environment, which in turn motivates students to persist in their academic pursuits.

“...one study found that affirmative action policies and programs lead to significantly increased retention of Black women and girls in mathematics programs.”

In-Group Cultural Expectations

In-group cultural expectations are also acknowledged across multiple studies included in our review (n=9). These expectations refer to the beliefs that exist within groups and subcultures. These expectations can be unique from those of broader society (e.g., sending money back to parents after moving out of the home). As such, different groups can have distinct expectations for their members based on ideas about race, gender, and roles within their community. Students often internalize these cultural expectations through interactions with their family, community, and similar-identity peers.

Beneficial Cultural Expectations

Positive in-group cultural expectations and norms impact student MEP. That is, when students feel a strong sense of belonging within a learning community (e.g., their school or neighborhood) that values academic work, they are more likely to share this value and demonstrate greater academic motivation (Farrington et al., 2012). In this sense, the sociocultural context teaches students what is expected of them, thus motivating them to meet these expectations.

These values and expectations are embedded in cultural systems and transmitted to students through key figures in their community, such as parents. A study conducted by Suizzo et al. explored how Latinx and African-American parents impact their children's motivation, and they found that these parents communicate cultural values and expectations to their children in distinct ways (2016). For example, African American parents promote educational attainment as a means to social mobility through Afrocentric values, instilling cultural pride, and an awareness of struggles. Latinx parents similarly promote the value of education, child autonomy, and independence while teaching children the importance of and interdependence of family (i.e., familismo). **Further, African American and Latinx students who report feelings of family responsibility, familismo, and gratitude for their parents' sacrifices show greater MEP (Suizzo et al., 2016).** Therefore, the extent to which various drivers of motivation (e.g., autonomy) increase student MEP depends on the sociocultural values and expectations students are exposed to (King & McInerney, 2016).

Detrimental Cultural Expectations

Just as cultural norms and expectations can lead to increased student MEP, biases can negatively impact student motivation. For example, students of color can experience culture shock when the values and norms in their cultural communities differ from those of the white-normed educational system. White-normed expectations and biases are perpetuated both by interpersonal interactions (e.g., teacher bias), as well as the policies and social conditions of the campus or classroom (e.g., lack of student diversity). As such, two prior reviews on students' racial experience show that these cultural differences present an additional challenge to students, as they feel pressured to conform to cultural norms, leading to diminished motivation (Farrington, 2012; Seals, 2016).

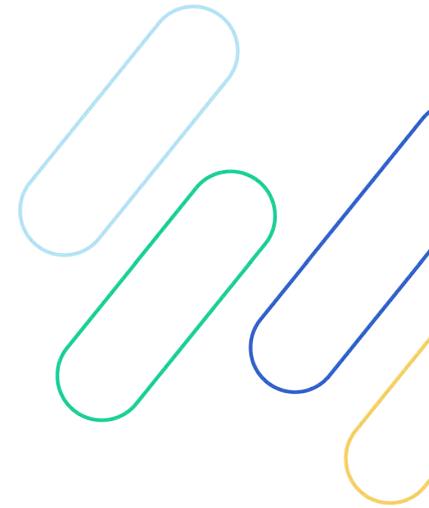
Moreover, cultural expectations impact students' beliefs about their potential and competence. For example, Black and Latinx students may equate schooling with assimilation or "acting white," and therefore disengage from their education (Butler-Barnes, 2017; Toshalis & Nakkula, 2012). It is, therefore, important to consider how the cultural expectations and biases that students are exposed to may impact their perceptions of schooling and overall MEP.

Systemic Inequities and Discrimination

Systemic inequities, such as those based on race, gender, income, and inequitable allocation of resources have profound consequences on students' academic experiences. Subsequently, these were the most commonly discussed systemic factors (n=32) addressed across the literature. Such systemic barriers perpetuate disparities in access to quality education, opportunities, and support, which can significantly impact students' academic achievement and overall MEP (Banks & Dohy, 2016; Witkow et al., 2015).

Race-based Inequities and Discrimination

Race-based inequities have long been pervasive in education, and the effects of such are acknowledged across the literature. The history of slavery and continued racial oppression in the United States has ongoing effects on student MEP, particularly for Black, Indigenous, and Latinx students (Toshalis & Nakkula, 2012). For example, Black and Latinx students are overrepresented in low-income urban school districts and are more likely to attend underfunded schools (Healey & Stroman, 2021; Suizzo et al., 2016). At the postsecondary level, Historically Black Colleges and Universities (HBCUs) receive significantly less funding as compared to Predominantly White Institutions (PWIs) (McGee, 2020). These disparities then lead to significant achievement gaps between racial groups (Banks & Dohy, 2016; Witkow et al., 2015).



Additionally, Black and Latinx students face biases and discrimination that impact their MEP. Negative stereotypes about these students, particularly in STEM fields, impact their motivation and career goals (Blatt et al., 2020). Such biases are reflected in harsher disciplinary practices as compared to white students (Farrington et al., 2012). Further, stressful experiences of racial bias and discrimination negatively impact college student motivation (Reynolds et al., 2010).

Gender-based Inequities and Discrimination

Gender-based inequities also pose significant challenges to student motivation. Children develop gendered beliefs and values regarding their education based on cultural biases and norms. Such expectations have historically led boys to value domains such as math and sports, while girls traditionally value English and music (Wigfield et al., 2012). Gender-based biases, therefore, perpetuate educational and workforce disparities by influencing student motivation at an early age.

At the postsecondary level, a majority of faculty are white men, meaning they are less likely to understand the lived experiences of their female students (Allen et al., 2023). Further, discipline-specific stereotypes impact female student MEP. For example, perceptions of women as weak in STEM fields while strong in the social sciences lead to increased feelings of self-efficacy in women who are psychology majors as compared to women who are physics or chemistry majors (Blatt et al., 2020). Therefore, gender-based biases and inequities impact female student persistence by reinforcing stereotyped beliefs about their abilities.

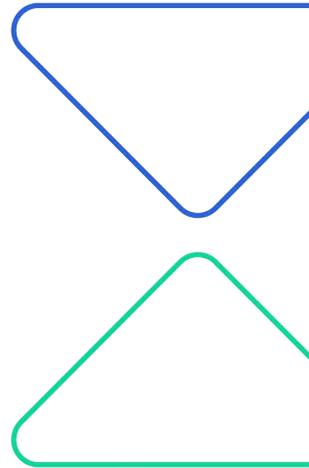
Intersectional Systemic Factors

Black women and girls, as well as non-Black Latinas, face additional barriers to their academic success due to the intersections of their racial, ethnic, and gender identities. For example, Black women have historically faced similar academic challenges as Black men, but their experiences are often understudied and overlooked in the educational system (Allen et al., 2023).

Additionally, the gender role expectations placed on women of color, such as expectations to care for their families, make them less likely to pursue careers in mathematics (Joseph et al., 2017). Thus, the lack of girls and women of color in fields such as mathematics is not a consequence of student effort or ability but a product of systems that actively do not address their unique experiences and needs (Booker & Lim, 2018).

Inequitable Allocation of Resources

Cultural biases based on race and income inform policies that lead to inequitable allocation of resources across schools. Schools in marginalized communities often receive fewer resources, including funding, qualified teachers and mentors, and adequate learning facilities (Kurtz-Costes & Woods, 2017; Landau et al., 2017). As a result, students in such schools may not have the same opportunities to excel academically as their peers in more privileged institutions. For example, attending low-quality schools with non-rigorous curricula and exposure to violence impacts the educational outcomes of students of color (Vega et al., 2015). Structural inadequacies of school facilities, such as problems with plumbing or ventilation, are also associated with poor



Education System Expectations and Biases

The education system plays a crucial role in shaping students' academic experiences and their prospects. Moreover, the expectations and biases inherent within the system can significantly impact student MEP and were discussed across studies (n=11) in our review (Seals, 2016). For example, the myth of meritocracy (e.g., the false idea that anyone, regardless of race, can succeed on effort alone) that is prominent in the United States education system impacts underrepresented students' MEP by overlooking the impact of biases and other systemic factors on their academic performance (McGee, 2020).

These expectations and biases can manifest in various ways, such as standardized testing, grading, and other educational policies. For example, decreased intrinsic motivation is associated with strict grading policies and high-stakes testing (Ryan & Deci, 2020). The negative effects of standardized testing particularly impact male students of color (Spitzer & Aronson, 2015). Further, perceived student deficits and diminished expectations for students of color by policymakers and educational leaders also lead to policies that focus on less rigorous coursework. This focus on student deficits and remedial education negatively affects student persistence, leading to increased college dropout rates (Banks & Dohy, 2016). Additionally, government-funded educational programs often require students to be enrolled in full-time credit hours to be eligible for campus resources (Banks & Dohy, 2016). Such policies further marginalize students who would most benefit from these resources.

Sociopolitical Climate

The sociopolitical climate of a society encompasses the prevailing cultural, social, economic, and political conditions that shape the experiences and perceptions of its members. As such, factors like dominant political ideologies and economic opportunities were discussed across studies (n=17) as potential influences on how students perceive their prospects, sense of belonging, and motivation to excel academically. For example, the disparity in access to capital between middle-class and upper-class youth has solidified class-based segregation in the United States, widening class-based achievement gaps (Lardier et al., 2019).

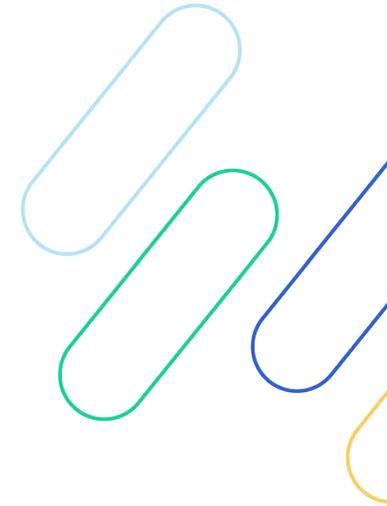
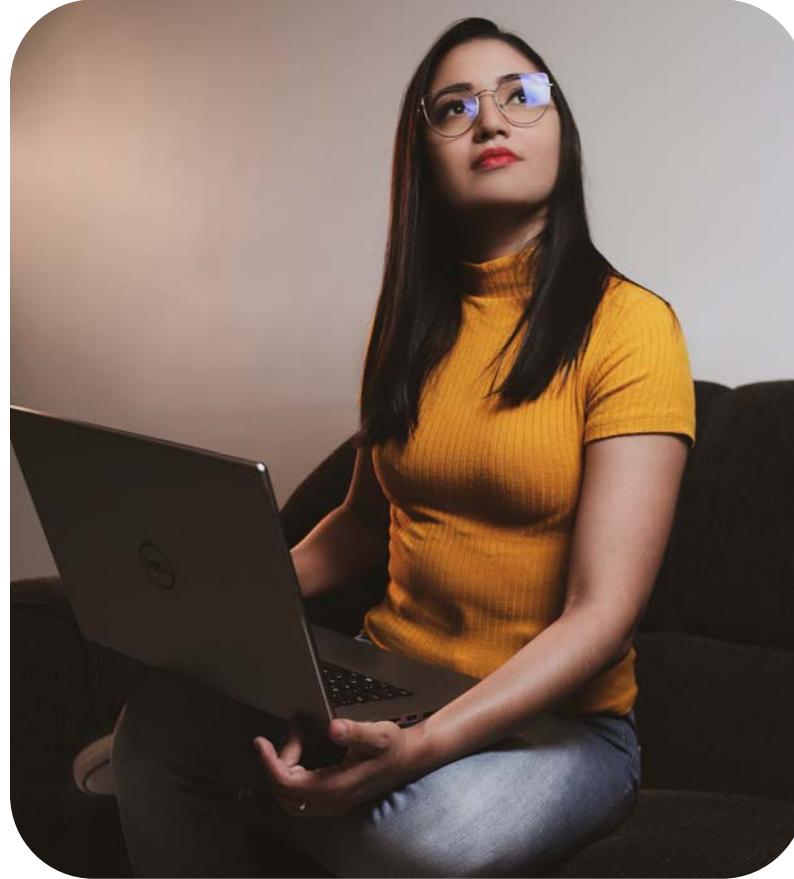
Government policies and norms are often steeped in racist, sexist, and classist beliefs, further marginalizing students from minoritized racial, ethnic, and gender identities and low-income backgrounds (Healey & Stroman, 2021). For example, anti-Latinx rhetoric and legislative acts negatively impact Latinx developmental outcomes, such as school engagement (Martinez-Fuentes et al., 2021). Therefore, a push to dismantle legislation perpetuating harmful rhetoric about underrepresented students is necessary to improve student MEP.

“ The education system plays a crucial role in shaping students' academic experiences and their prospects. Moreover, the expectations and biases inherent within the system can significantly impact student MEP and were discussed across studies in our review.”

Immigration

The immigration process can significantly impact student MEP, as immigrant students face unique challenges and opportunities in their educational journey. While immigrant students' experiences were not a central focus of this review, multiple considerations for their unique systemic circumstance arose across the literature (n=4). Factors such as cultural adjustment, language barriers, family and financial pressures, and legal and residency status influence students' motivation to succeed academically (Arbelo-Marrer & Milacci, 2016; Kurtz-Costes et al., 2017; Witkow et al., 2015). Immigrants and other English-language learners face barriers, such as language, that make it challenging to participate in class discussions and comprehend the curriculum.

As a result, they show decreased engagement and persistence (Arbelo-Marrer & Milacci, 2016). Additionally, when parents are not fluent in English, they are less likely to volunteer at school or be involved in their children's academic experiences (Kurtz-Costes et al., 2017). In addition to language barriers, the experiences of immigrant students lead them to have limited views of their potential. Involuntary immigrants (i.e., those forced to move to the United States due to socioeconomic or government pressures) view their economic and educational futures as less promising than voluntary immigrants or non-immigrants. That is, they may not believe that hard work and education will lead to future success, thereby reducing their academic motivation (Unrau & Schlackman, 2006).





SECTION THREE

Equity Shortcomings & Limitations



Overview

While a considerable amount of information on Black and Latinx students' motivational experiences appears in the 103 studies in our review, several shortcomings and limitations are also evident. These gaps include valuable insights needed to equitably understand student MEP, such as the exploration of intersectional identities and within-group differences (e.g., breakdowns of socioeconomic groups beyond simply identifying low- and high-income learners). The lack of insight into such areas limits the understanding of underrepresented students' nuanced motivational circumstances, potentially concealing effects relevant to addressing some students' MEP needs. As such, it is important to fully understand what limitations are present in the literature.



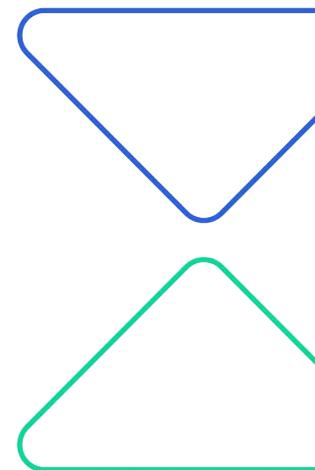
Diversity Limitations in Current MEP Research

The larger body of motivational literature predominantly focuses on white middle-class learners' experiences, which limits the applicability of such findings to Black and Latinx students as well as those from low-income backgrounds (King & McInerney, 2016). **Even studies that do consider these underrepresented groups still rely on theories developed based on white students, which lack consideration for contextual factors that may impact diverse learners' MEP.** This lack of consideration means that researchers often have to supplement motivation theories with additional literature that does account for students of color and learners from low-income backgrounds, leading to little consistency between studies. This lack of consistency due to the limits of motivation theories further affects the consistency of motivation measures used, and contextual levels explored, across studies. This means that the current body of research on student motivation is itself a limitation when it comes to forming an equitable understanding of students' motivation, engagement, and persistence.

Additionally, while international motivation studies have focused more intentionally on capturing racially and ethnically diverse students' experiences, US-based studies on these student populations are still limited. Instead, much of the US research examines race/ethnicity at a surface level without exploring deeper implications. The paucity of studies exploring contextual factors on diverse learners limits our ability to understand how the unique racialized sociopolitical climate of the US affects students' experiences.

Shortcomings of Intersectional and Inner-Group Identities

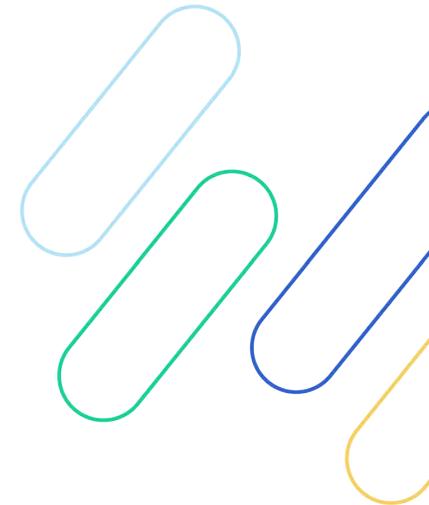
In our review, we noted that motivation research focused on Black and Latinx learners often lacks considerations for intersectional identities (e.g., interactions between race, gender, and income) as well as the differences in experiences between cultural groups of the same race/ethnicity (e.g., the difference between Mexican and Puerto Rican Latinx students' contextual and motivational experiences). For example, one study found that Mexican-American students have uniquely strong sibling relationships that influence their motivation (Jones et al., 2021). When viewing Latinx students as a homogeneous group, such findings become obscured. **While assumptions about shared contexts can help inform widely applicable MEP interventions, they also lead to confusion over what contextual factors are essential to consider when working with certain students.** For example, Black students from low-income backgrounds in rural communities may have different contextual considerations than those in urban areas. For a truly equitable understanding of students' motivational experiences, the limited research exploring these nuances needs to be expanded.

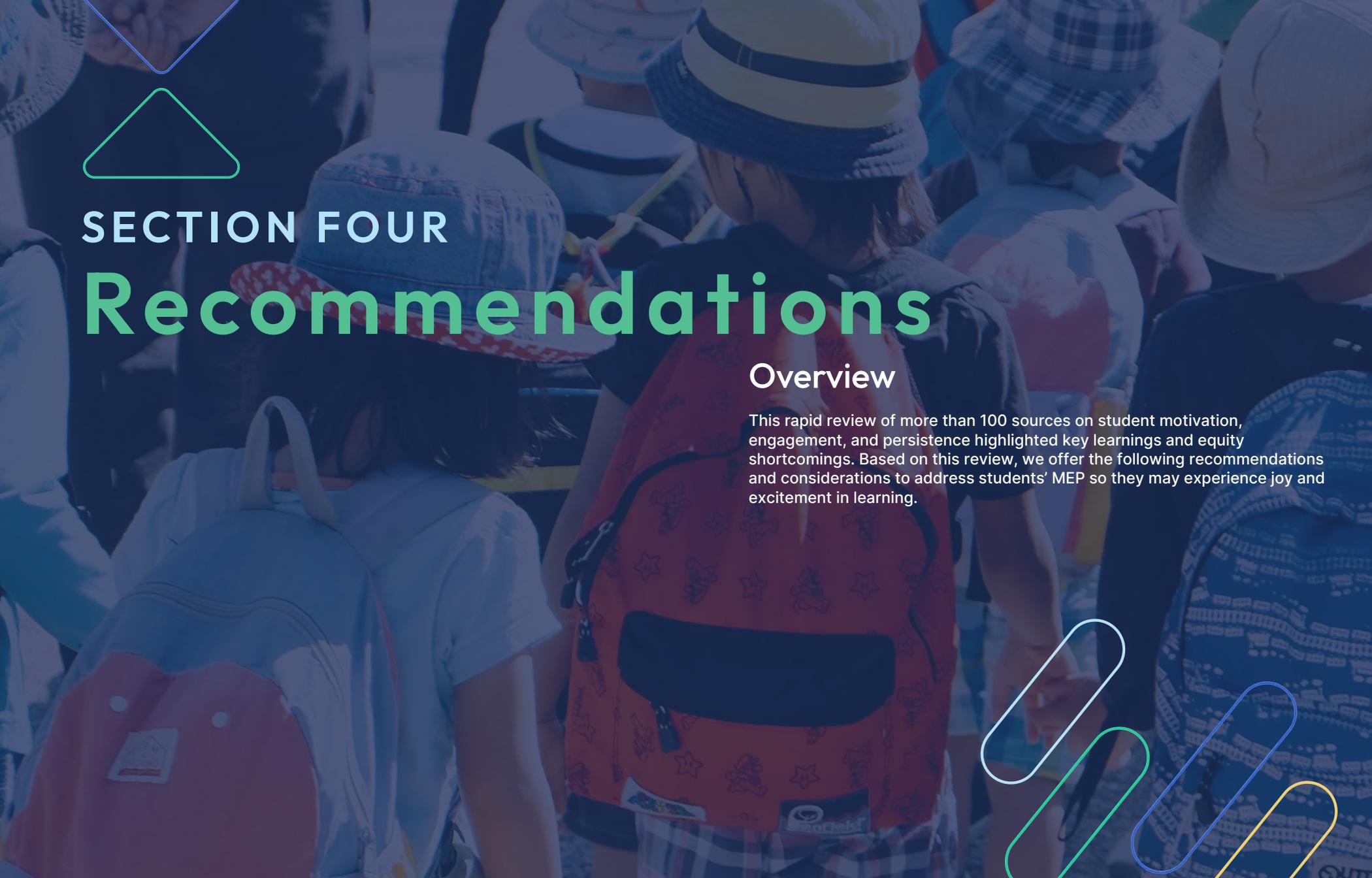


Context Considerations and Deficit Narratives

While the literature explores various contextual elements, not all context levels are examined equally. Most contextual considerations are at the school or internal student level, and fewer studies mentioned factors at the community and family or systemic levels (see Section 2: Context). Although looking at school and student contexts is more accessible in terms of measuring student MEP (e.g., through the use of student and teacher surveys administered in class), understanding more distal contexts is also essential to get the full picture of students' motivational experiences. Information on disparities, such as access to educational and social resources, are visible at the community and systems level, while they often go unnoticed at the internal student level. Research focusing on the internal context also places additional emphasis on students' attitudes, identity beliefs, and perceptions of learning. While insightful, this approach promotes a deficit narrative that places the blame for low motivation on students without acknowledging potential external barriers.

When discussing student MEP, it can be easy to unduly emphasize the perceived internal failings of students (e.g., blaming students for being unmotivated or not trying hard enough). This deficit narrative lacks consideration for the complexity of students' lived experiences and contexts (Hernandez et al., 2020). For example, teachers may assume students who do not appear highly engaged in the classroom have low motivation. Yet, these students may be motivated to engage in other aspects of their lives, such as hobbies, work, community involvement, or other independent pursuits. These areas of student interest may be untapped by the classroom environment and require shifting the focus from student shortcomings to addressing the school environment. Unfortunately, student deficit narratives are pervasive when discussing motivation. In order to avoid perpetuating this, it is important to discuss students' motivation in the context of internal responses to external events; students react in response to this environment, not independently. This means that considering only internal factors when exploring student MEP is not preferable for an equitable perspective.





SECTION FOUR

Recommendations

Overview

This rapid review of more than 100 sources on student motivation, engagement, and persistence highlighted key learnings and equity shortcomings. Based on this review, we offer the following recommendations and considerations to address students' MEP so they may experience joy and excitement in learning.

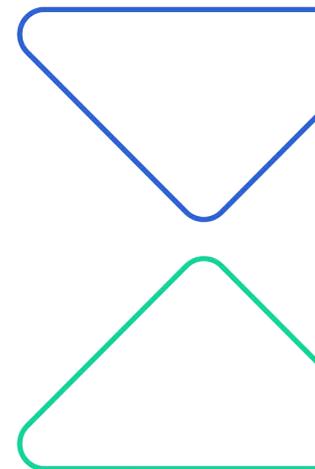
Research Recommendations

Invest in research that examines the role of contextual factors to shed light on the conditions and strategies that support student motivation, engagement, and persistence, with a focus on students from diverse backgrounds.

As noted in our literature review, the body of research on student MEP focuses predominantly on white middle-class student populations. Very few motivation research studies in the field of education center students from diverse backgrounds, including racial/ethnic background and socioeconomic status. This limits our understanding of how students from diverse backgrounds experience motivation and engagement. Future research should prioritize students from low socioeconomic backgrounds and diverse racial and ethnic groups to effectively design targeted and supportive policies and practices. For example, areas of further study can examine how to develop Black students' academic curiosity to increase motivation, how to support Black women and girls' interest in STEM, and the unique obstacles Latino males encounter throughout their education.

Support research that expands the field's understanding of how school factors shape students' MEP.

Most models and theories of student learning, motivation, engagement, and persistence focus on individual student attributes, beliefs about themselves as learners (e.g., self-efficacy, beliefs about intelligence), and their goals and interests. While researchers have adapted these models and theories to acknowledge the student environment and context, studies do not cover these elements expansively. As noted in our literature review, scholars use supplemental theories to understand how culture and context inform students' experiences of MEP. Future research should examine how aspects of school climate and classroom structure shape students' MEP, particularly for students from diverse backgrounds. There is an opportunity to build theories adapted from the existing literature that include considerations for contextual factors, reducing the need for supplemental theories to explain the experiences of students from diverse backgrounds.



Apply an intersectionality lens in research and analysis of students' MEP.

Researchers should use an intersectional framework to explore variation within racial and ethnic student groups, asking for whom and under what circumstances students are motivated and engaged in academics and beyond. As highlighted in our rapid review, the motivation research often lacks consideration for intersectional identities and differences in experiences within racial/ethnic groups. Further research exploring the interplay of student racial/ethnic identity in addition to gender, socioeconomic status, cultural background (e.g., Mexican, Dominican, Puerto Rican), and community context (e.g., rural, metropolitan, and suburban) is needed to form a more nuanced understanding of students' motivational experiences that supports effective policy and practice design. Researchers' ability to apply an intersectional lens requires greater investments to enable studies that include larger representative student samples rather than convenience samples.

Invest in community-informed, mixed methods, and qualitative research.

Our review of the literature found few mixed methods and qualitative research studies. It is critical to center the voices and perspectives of students, families, and educators in order to understand students' motivational experiences more deeply. Researchers should utilize qualitative and culturally responsive approaches that engage students and families directly to highlight their lived experiences and reveal important aspects of MEP, including the role context plays.

All students are motivated, but perhaps in different ways than the body of literature posits. Qualitative research can uncover students' motivations that can be tapped into and shed light on why some students from certain low-income communities succeed academically while others do not. Further, researchers should use multiple sources (e.g., teachers, parents) to unpack MEP factors that contribute to positive student outcomes.

In the aftermath of the pandemic, conducting school-based research has become more challenging. Teacher and staff shortages combined with resource constraints have hampered research efforts. Further, changing policy priorities and a heated political climate also influence education, creating more challenges for researchers. Obtaining access to and informed consent from students and families also requires approval and buy-in from stakeholders. Given these ongoing challenges, funders of research should recognize that authentic, community-informed research requires significant time, financial and human resources, and intentionality – and invest accordingly. Relationships between researchers and schools are also essential. Leveraging researchers with established relationships within schools and communities, where trust already exists, can facilitate the research process and yield accurate results.

Invest in longitudinal research that examines the role of contextual elements on student trajectories and the long-term effects on motivation, engagement, and persistence.

Existing research shows that engagement decreases as students progress through their schooling. However, few studies examine the long-term effects of context, systems of support, and interventions. Longitudinal research can better isolate these factors to uncover how changes in school context and environment might influence students from diverse backgrounds, specifically during transition periods (e.g., from middle school to high school and high school to college).

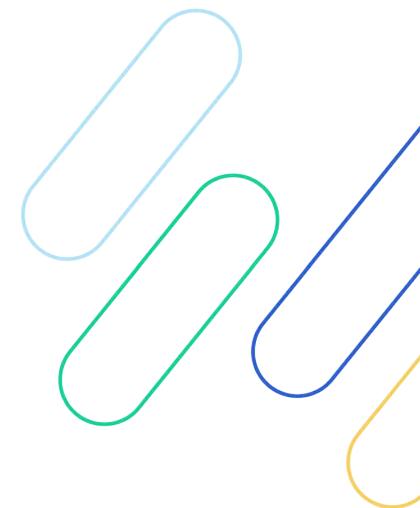
Invest in implementation research that examines teacher practices and the student experience to draw more direct linkages to student motivation, engagement, and persistence.

Research shows the positive impact of teaching practices on student motivation. However, less is known about teaching practices in the classroom and how students experience and make meaning of them. Future research should focus on evidence-based, equity-focused teaching practices that spark students' MEP. In particular, research should explore the relationship between intrinsic and extrinsic motivation and how educators support autonomous forms of motivation.

Another area of inquiry to explore further is how STEM pedagogy impacts student learning. Traditional STEM pedagogy is structured to be highly competitive, pinning students against their peers and using coursework designed to weed out all but the highest performers. This approach can limit students' intrinsic motivation, sense of belonging in the STEM field, and ultimately their persistence. Future research should aim to explore alternative and innovative STEM pedagogies that build on existing positive instructional practices (e.g., fair discipline and expectations, applicable and relevant instruction, and positive and supportive classroom environments), as well as collaborative STEM learning experiences in the classroom.

Further explore the role of teacher-student relationships.

Our review of the literature highlighted the important role teachers have in students' MEP. Because teacher-student relationships occur in complex classroom settings and are influenced by that setting, the field needs a deeper understanding of both the role of context and the aspects of teacher-student relationships that contribute to student motivation, engagement, and sense of belonging.



Further explore the role of peer-to-peer relationships.

Previous studies show that peer relationships also affect learning engagement. Positive peer relationships, characterized by long-term interaction, close friendship, and loyalty, help students engage in school-related activities, thereby enhancing their academic achievement. Peer support can influence classroom behaviors considering how contagious peer beliefs are. However, few studies have focused on the mechanism between peer relationships and student engagement and achievement. The majority of peer literature focuses on the negative influence of peer-to-peer relationships, such as bullying and peer pressure. Future research should examine the role of peer relationships and student engagement and the implications for school policies and practices.

Refine existing measures of motivation, engagement, and persistence to be more precise, with consideration for students from diverse backgrounds.

Our literature review and insights from experts in the MEP field highlighted the abundance of measures used across the field, which has led to inconsistency in what researchers use. The most commonly used measures are quantitative and typically include student self-reported data. Measurement constructs include student interest, competency, and achievement goals. However, these measures are generally devoid of context, making it unclear if they are truly measuring students' MEP - leaving room for more robust tools. Further, few measures exist with students of color in mind, and therefore, may not encompass key elements of their motivational experiences, such as belonging or stereotypes.

Although contextual and systemic factors are difficult to measure and understand, innovative measurement approaches should be developed and tested. Researchers can take a step back and focus on refining existing measures and consider qualitative, asset-based, and community-values based measures to broaden our understanding of student MEP. Rather than relying on the many existing measures that may not accurately measure student MEP, researchers can develop a few precise replicable measures.

Aim for consensus regarding theories and measures used across the field of student motivation, engagement, and persistence.

As noted in our literature review, scholars use a wide range of MEP theories and measures in their work. This has led to inconsistent definitions and measures across the field. Establishing an advisory group of scholars and practitioners could inform the development, refinement, and adoption of a consistent, validated, and widely used set of measures to advance the field of MEP.

Policy & Practice Recommendations

Apply a holistic, systems-level lens when designing programs, policies, and interventions that support students' motivation, engagement, and persistence.

The body of literature overwhelmingly focuses on the individual student and what additional supports and interventions are needed to encourage students' motivation, engagement, and persistence. Doing so assumes the problem is situated in *the student* and not in the conditions and context of their educational experiences.

As highlighted in our rapid review, contextual factors (i.e., school, community, systemic, and internal) are intertwined and influence each other. To effectively nurture students' MEP, systemwide policies and practices must also be acknowledged and addressed. When designing interventions, efforts should target the systemic barriers that keep students from diverse backgrounds from reaching their full potential, such as unwelcoming and hostile school environments, teacher bias and discrimination, unfair discipline practices, and inequitable access to school and community-based resources, among others.

Build teacher capacity to spark student motivation, engagement, and persistence through policies, systems of support, and resources.

Teachers cultivate not just feelings of student security and inclusion, but also engagement. However, our review of the literature found that teachers can have both a positive and negative impact on student MEP. For example, students of color encounter teacher implicit bias and discrimination, negatively impacts their sense of belonging and MEP. Interventions to combat racial bias and address structural racism are long overdue. At the school and district level, school leaders can adopt structures and practices to ensure teachers receive ongoing professional development and experiences working with students from diverse backgrounds, including training on implicit bias and structural racism. By learning how implicit bias operates, teachers can take action to interrupt inequities at the interpersonal, institutional, and structural levels.

Our rapid review also highlighted the positive impact of specific teaching practices, including culturally responsive pedagogies. Providing schools and educators with ongoing support to actively incorporate student-centered pedagogies and practices, including culturally relevant pedagogy and content representative of the student and school community, can foster students' sense of belonging and motivation.

Adopt structures and practices that foster strong and positive relationships within and between students, families, school staff, and communities.

Our review of the literature highlighted the important role familial and non-familial connections have on students' MEP. School leaders are uniquely situated to support relationship-centered school designs by removing barriers to structures and practices that exist within traditional school environments. For example, school leaders can design structures such as small learning communities, block scheduling, advisory systems, and reduced class sizes to support teachers in building authentic connections and relationships with students. Research shows the value of each of these practices in supporting student attendance, engagement, and achievement.²²

Identifying effective ways to build on the strengths offered by families can positively impact students' motivation. School leaders can adopt a range of strategies to foster strong relationships with families. For example, facilitating the development of parent networks can help families to collaborate with one another and with teachers so they are encouraged to talk to their children about teaching and learning experiences. Offering parents accessible opportunities to learn strategies, tools, and resources can ensure continual student support and encouragement. Soliciting meaningful engagement with families can also enhance student MEP. For example, creating advisory panels with students, parents, staff, and community leaders can provide a forum where their voices can be heard.

While limited, research points to the role peers play in driving student MEP. Creating intentional spaces for peers to build positive relationships and support one another can contribute to students feeling included and connected, thereby positively impacting MEP. In particular, affinity groups for peers of similar identities and backgrounds increase a student's academic motivation. However, having few peers from similar backgrounds makes it difficult for students of color to find these safe spaces. Schools and institutions of higher education should ensure they are creating a diverse and inclusive student body through equitable enrollment and admissions policies.

²² Learning Policy Institute & Turnaround for Children. (2021). Design principles for schools: Putting the science of learning and development into action. <https://k12.designprinciples.org/>

Embrace innovative educational technologies and learning products with caution.

Despite the potential risks, embracing new technologies can make learning agile and fun, especially at a time when students feel less engagement and enthusiasm with school following the COVID-19 pandemic. In fact, a recent Gallup survey of students found only 13% of students gave their school an “A” on making them excited about learning.²³ Artificial intelligence, such as virtual reality technology, can expose students to learning opportunities they otherwise would not have, from new subjects and topics to exploring a variety of careers. For example, learning technologies can show how a subject is relevant to students’ lives and future careers. Technology can also help alleviate many routine and administrative tasks teachers encounter so they can focus on relationships with students.

Educational technology has the potential to support student motivation, engagement, and persistence. Learning products, including artificial intelligence, can be used to create dynamic, culturally relevant, and interactive learning experiences that encourage student interest and engagement in a subject, thereby increasing motivation.

Technologies that support students’ needs for autonomy, competence, and belonging can support their intrinsic motivation. However, caution should be taken to ensure learning products do not replace the critical role of teachers in building authentic and meaningful relationships with students. Further, because AI-powered technologies may be skewed by racial bias, education leaders should fully understand these products and tools to ensure that AI systems are not biased. Finally, access to technology should be considered, particularly in under-resourced schools where access to devices and Wi-Fi may not be widely available.

²³ Walton Family Foundation (2023).. Voices of gen Z: Perspectives on U.S. education, well-being and the future .<https://www.waltonfamilyfoundation.org/learning/voices-of-gen-z-perspectives-on-u-s-education-well-being-and-the-future>



Appendix

Methodology, Research Questions, & Strategy

Rapid Review Framework

We adopted a rapid review framework to efficiently gather and synthesize relevant literature. This approach combines a focused search strategy and expert consultation to ensure a comprehensive yet expedited review process. Given the urgency and dynamic nature of the research area, a rapid review is ideal for quickly identifying and synthesizing the most pertinent studies related to MEP in middle school, high school, and postsecondary education. By streamlining the review process without compromising rigor, this framework enabled us to obtain valuable insights into the impact of contextual elements on student MEP, particularly for marginalized populations, and shed light on strategies to support and promote equitable, if not positive, student outcomes.



Methodology

Research Questions

Our review focused on three distinct research questions, which were developed and refined in collaboration with the Bill and Melinda Gates Foundation (Foundation). Sources were only included in the review if they addressed at least one of the key research questions.

RQ1. How does the literature define student motivation, persistence, and engagement (MEP) in K-12 and postsecondary education?

- What contextual elements (such as enabling environments, school and classroom community, identity-affirming instructional materials and services, and teacher beliefs that all students can succeed in math) are found in existing models and definitions of student MEP in K-12 and postsecondary education?
- What other school- and classroom-level factors (e.g., physical space, school climate, safety, reward, autonomy) are found in existing models and definitions of student MEP in K-12 and postsecondary education?
- At the postsecondary level, what institutional factors, such as instructor type (e.g., part-time, full-time, tenure), learning modality (face-to-face, online, or hybrid), and course size, are found in existing models and definitions of student MEP?
- What internal student-level factors (e.g., self-efficacy, sense of belonging, perceived value, perceived relevance) are found in existing definitions of student MEP in K-12 and postsecondary education?

- What student-level life circumstances (e.g., adverse experiences, home learning environment, lived trauma, hunger, homelessness) are found in existing models and definitions of student MEP in K-12 and postsecondary education?
- What are the similarities and differences in how existing models and definitions of student MEP consider contextual elements and systemic factors?

RQ2. How do different definitions and models of student motivation, engagement, and persistence (MEP) in K-12 and postsecondary education incorporate systemic factors (e.g., school and district policies and practices, funding and resources, teacher capacity, accountability policies)?

- How do structural inequities and systemic factors impact student MEP in K-12 and postsecondary education?
- What equity shortcomings exist in student MEP models and definitions?

RQ3. Given the limited MEP literature focused on K-12 and postsecondary education, how can existing MEP definitions and models be adapted for the higher education context?

- How can MEP adaptation be tested in the higher education context?
- What additional research is needed?

Literature Search Strategy

We utilized four electronic search databases (i.e., Google Scholar, PsycInfo, PsycNet, and SageJournals) to identify peer-reviewed articles, reports, and studies published between 2013 and 2023. Table I outlines the most frequent search terms and the number of sources included in each search.

We implemented a focused search strategy by incorporating three phases of search and review. Each phase of the search process had distinct inclusion criteria, minimum and maximum number of sources required, and goals. Table II provides greater detail of each literature search phase.

Table I. Summary of Most Frequent Search Terms

SEARCH DATABASE	SEARCH TERMS	N SOURCES INCLUDED
Google Scholar	Black, middle school, motivation, persistence	7
Google Scholar	structural barriers, motivation, Black OR Latino/a	5
Google Scholar	systemic barriers, persistence, motivation, engagement, Black OR Latino/a	4
Google Scholar	Middle School, Motivation	4
Google Scholar	Low-Income, Motivation, School	3
Google Scholar	African American, engagement, motivation, curriculum, classroom	2
Google Scholar	structural barriers, persistence, Black OR Latino/a	2
PsycInfo	Black OR Latino AND engagement OR motivation OR persistence AND classroom	11
PsycInfo	gamification AND motivation OR persistence OR engagement AND race Additional filter: Childhood, Adolescence	8
PsycInfo	motivation OR persistence OR engagement AND microaggression OR racism OR systemic Additional filter: Adolescence	4
PsycInfo	motivation, college, Black, low income	2
Sage Journals	motivation, engagement, persistence, Black	6

Table II. Summary of Literature Search Process

PHASE OF SEARCH PROCESS	INCLUSION CRITERIA	PHASE GOAL
<p>Round 1 Sourcing</p> <p>N of Sources Goal: 30-75 Actual: 53</p>	<ol style="list-style-type: none"> 1. Source must focus on student MEP occurring during early middle school, middle school, high school, or postsecondary education. 2. Source must focus on at least one of the major constructs of interest, i.e., student motivation, engagement, and persistence. 3. Source must address one or more of the research questions of interest. 4. Source must include Black, Latinx/a/o, and/or Low-income students. 5. Source must focus on core subject areas (i.e., math, science, English, language arts, social studies). 6. Source must be published within the last 10 years. 	<p>This phase ensures that the research questions and populations of interest are prioritized by identifying appropriate sources. Relevant foundational sources that fail to meet the source criteria can be stored in a secondary folder for later review.</p>
<p>Round 2 Sourcing</p> <p>N of Sources Goal: 30-75 Actual: 40</p>	<ol style="list-style-type: none"> 1. Source must focus on learning occurring during early middle school, middle school, high school, or postsecondary education. 2. Source must focus on at least one of the major constructs of interest, i.e., student motivation, engagement, and persistence 3. Source must address one or more of the research questions of interest. 4. Source population may extend beyond Black, Latinx/a/o, or low-income students if RQs are addressed. 5. Course subjects in source may extend beyond core subjects if RQs are addressed. 6. Source must be published within the last 10 years. 	<p>This phase provides supplemental information missing from the sources found in the initial identification phase. Assessing supplemental information utilizes the following guiding questions:</p> <ul style="list-style-type: none"> • Are all grade bands adequately represented in the database? • Are all populations of interest adequately represented in the database? • Are all RQs adequately addressed? • Are learning products being identified within the sources?
<p>Round 3 Sourcing</p> <p>N of Sources Goal: 20-30 Actual: 25</p>	<p>Source must address one or more of the research questions of interest OR provide additional context necessary for addressing the RQ.</p>	<p>This phase ensures that the synthesis is grounded in the broader literature and incorporates feedback from the MEP experts as well as the Foundation. Assessing supplemental information utilizes the following guiding questions:</p> <ul style="list-style-type: none"> • Are all RQs adequately addressed? Is there missing context in the preliminary analysis? • Have new questions emerged from the experts, our search, or from the Foundation?

Expert Consultation

Our research team identified and contacted key scholars who have made significant contributions to the field of MEP. We employed a snowball recruitment strategy by asking scholars to recommend others whose work would align well with our research questions. As such, we leveraged feedback from Mary Murphy, Carlton Fong, Kathryn Wentzel, and Francesca Lopez. We then conducted multiple semi-structured interviews to garner expert insights and recommendations for our review. We incorporated these insights by expanding our list of included literature to reflect fundamental studies highlighted by the experts and incorporating expert recommendations and insights into our synthesis.

Data Analysis and Synthesis

Our research team conducted a systematic analysis and synthesis process. We used an equity-centered thematic analysis approach to identify recurring themes and patterns across the literature. We summarized key findings from each study and tabulated relevant data comparisons within a comprehensive database. Therefore, this review highlights key integrated findings from different studies to address the research questions of interest.

Figure I: Distribution of Studies Answering Research Questions 1, 2, and 3

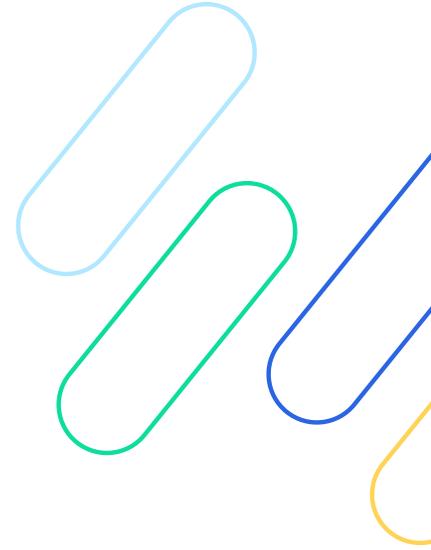
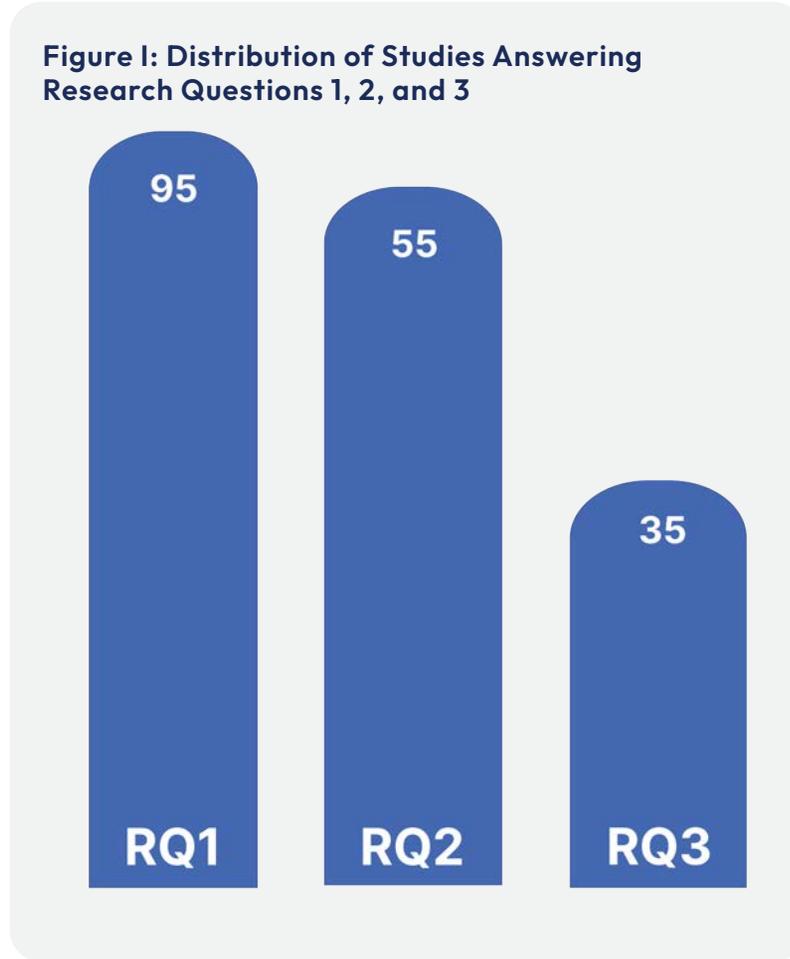


Figure II: Distribution of Studies Mentioning Motivation, Engagement, and Persistence

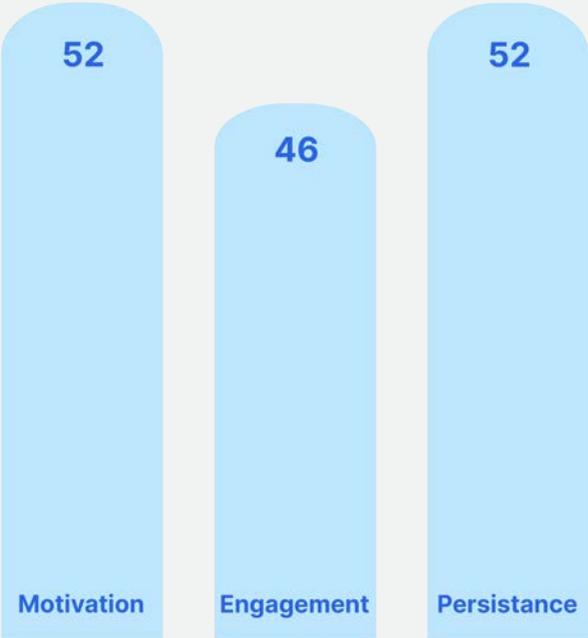
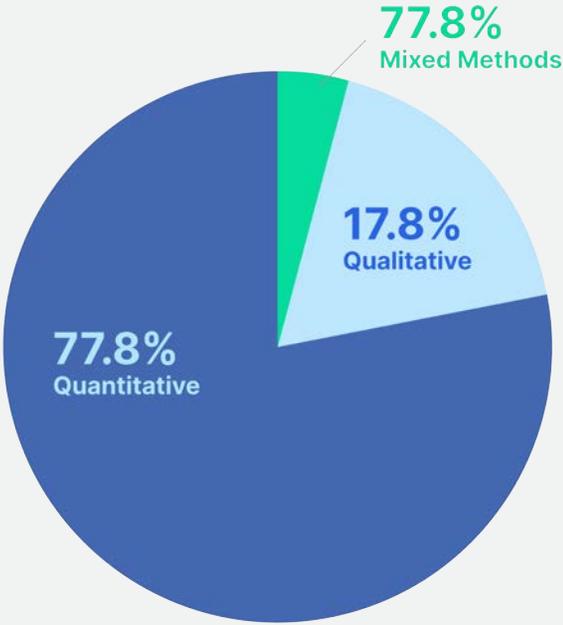


Figure III: Distribution of Types of Studies Included in the Review





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REFERENCES

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