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Chapter 26

Motivation and Self-Determination in Montessori Education

Abha Basargekar and Angeline S. Lillard

To adults entering a Montessori classroom for the first time, the activities they observe may not seem particularly academic. Depending on the students' ages, children might be found working independently, having spirited discussions in small groups, or working on long-term projects. Inconspicuous teachers observe and take notes or give lessons to small groups. Especially if habituated to classrooms that are teacher led and dominated by whole-group instruction, observers might not notice that learning is happening through a different route. In this method, learning activities are self-determined, initiated, and controlled by students according to their own wishes.

As we describe below, learning in the Montessori system hinges on students' self-determined engagement. Students are given opportunities and encouragement to exercise choice in several aspects of their learning; indeed, psychology research indicates that such engagement is good for students' learning and well-being (Gottfried 1986; Hardre and Reeve 2003; Lepper et al. 2005). We explain how environmental conditions that can enhance engagement are encoded in Montessori classrooms. Finally, we review research on motivational and educational outcomes from Montessori education and conclude with questions for future research.

Self-Determination in Montessori Schools

The child, not the adult, is the center of the Montessori educational system. The optimal learning process for the child takes precedence over the teaching process most convenient for the adult. Montessori (2017a, 2017b) holds that children are naturally interested in learning about the world, and a teacher's primary task is to create an environment where this interest can find its natural and ideal expression. Therefore, intrinsic motivation, or motivation to engage in activities because they are interesting and challenging, is not simply a goal but rather both an assumption and a crucial guiding principle of the Montessori method (Lillard 2019).

Montessori schools are organized to optimally support learners at different developmental stages, so the environment varies accordingly (Montessori 2007). The educational psychology literature calls this stage-environment fit (Eccles et al. 1993). This solves what Hunt (1961, 267) famously called "the problem of the match," wherein the educational environment ideally offers activities that are challenging—but not too challenging—for each child. Montessori schools provide choices suitable for a particular developmental stage within the framework of

a comprehensive curriculum including Math, Language, Practical Life, and Sensorial activities. Children work on sequenced lessons presented by a teacher, who subtly monitors work to ensure that children engage with all curricular areas. Montessori classrooms have mixed-age groupings of students based on what Montessori thought were key needs during different developmental stages. Children younger than 3 are in infant or toddler classrooms. Children ages 3 to 6 are enrolled in early childhood classrooms, while children ages 6 to 12 are enrolled in elementary classrooms. When there are enough students to create two classes, the elementary group may be split into lower elementary (ages 6 to 9) and upper elementary (ages 9 to 12) classes. Children older than 12 are in adolescent programs, which may extend to ages 15 or even 18.

At all stages, Montessori education involves creating an environment that enables children to discover and develop their interests. The curriculum is oriented around and springs from these interests—unlike traditional schools, wherein a preestablished body of knowledge is conveyed to the whole class and externally reinforced using grades and extrinsic rewards. Montessori students' self-determination guides them through successive classroom levels that support development at each stage.

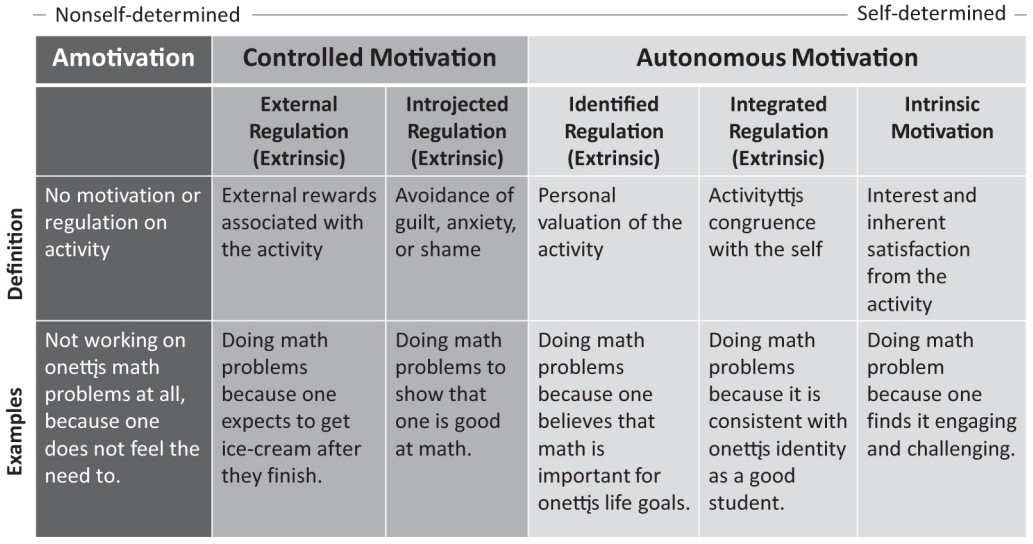
Self-Determination and Intrinsic Motivation

Motivation, or the drive to do something, is a strong predictor of positive life outcomes, including good relationships (Gable 2006), high performance at work (Gagné and Forest 2008), and general well-being (Miquelon and Vallerand 2008). Motivation also predicts positive functioning within the educational context (Lepper et al. 2005; Ratelle et al. 2007; Reeve 2002). Indeed, sustaining and bolstering motivation may be critical in education because research in traditional school settings shows that academic motivation declines across the school years (Lepper et al. 2005). One established way to increase motivation is to provide opportunities for self-determination (Ryan and Deci 2000).

Motivation is a broad construct. As portrayed in Figure 26.1, self-determination theory (SDT) postulates a range: amotivation, controlled motivation, then autonomous motivation (Deci and Ryan 2000). Autonomous motivation predicts positive life outcomes better than controlled motivation (Deci and Ryan 2008).

Whereas amotivation refers to an absence of motivation, controlled motivation is externally regulated through rewards and punishments, or it results from a desire to gain approval and avoid shame. Autonomous motivation is composed of: identified regulation, which is observed when individuals have strongly identified with an activity's value and therefore undertake actions because they want to; integrated regulation, when an activity is viewed as being consistent with one's values and goals; and intrinsic motivation, defined as an internal drive to explore new topics and develop knowledge and skills (Ryan and Deci 2000).

Intrinsic motivation is especially important for learning and academic achievement. Intrinsically motivated students persist longer (Hardre and Reeve 2003; Ratelle et al. 2007), experience less anxiety about content (Gottfried 1986), and engage with content at deeper conceptual levels (Grolnick and Ryan 1987). Although the nature of the relation is known to be complex (Cerasoli et al. 2014), research demonstrates the predictive relation of intrinsic



	Nonself-determined				Self-determined
	Amotivation	**Controlled Motivation**		**Autonomous Motivation**	
		External Regulation (Extrinsic)	**Introjected Regulation (Extrinsic)**	**Identified Regulation (Extrinsic)**	**Integrated Regulation (Extrinsic)**	**Intrinsic Motivation**
Definition	No motivation or regulation on activity	External rewards associated with the activity	Avoidance of guilt, anxiety, or shame	Personal valuation of the activity	Activityttjs congruence with the self	Interest and inherent satisfaction from the activity
Examples	Not working on onettjs math problems at all, because one does not feel the need to.	Doing math problems because one expects to get ice-cream after they finish.	Doing math problems to show that one is good at math.	Doing math problems because one believes that math is important for onettjs life goals.	Doing math problems because it is consistent with onettjs identity as a good student.	Doing math problem because one finds it engaging and challenging.

Adapted from Ryan and Deci (2000: 72)

Figure 26.1 Types of motivation described by the self-determination theory. Image courtesy of the authors.

motivation to academic achievement and performance (Areepattamannil et al. 2011; Lepper et al. 2005; Ratelle et al. 2007). Intrinsic motivation also predicts academic adjustment later in life (Otis et al. 2005). Further, autonomously motivated students have higher self-worth, display positive emotionality, have higher rates of retention, and show greater creativity (Reeve 2002).

According to SDT, individuals' intrinsic motivation in any context is supported through the fulfillment of three fundamental psychological needs: perceiving oneself as competent, feeling a sense of autonomy, and feeling interrelated with others (Ryan and Deci 2000). Such individuals experience high intrinsic motivation, enabling them to exercise control over aspects of their lives. They feel capable of doing something that is important to them. They also feel strong social connections with others. Thwarting of all three needs is associated with amotivation. The levels of motivation between amotivation and intrinsic motivation manifest when the needs of competence and relatedness are met to some extent, but the need for autonomy is thwarted.

Different school situations can support those needs, and therefore affect student motivation, through their principles and practices. Figure 26.2 illustrates the relationship between these three SDT needs, intrinsic motivation, and key features of the Montessori environment.

Need for Autonomy

Within educational contexts, substantial evidence indicates that intrinsic motivation is enhanced when students' autonomy is supported, like when they are offered choices (Patall et al. 2010). Compared to controlling teachers, autonomy-supportive teachers, who listen more to their students, spend less time holding instructional materials, give students time for independent

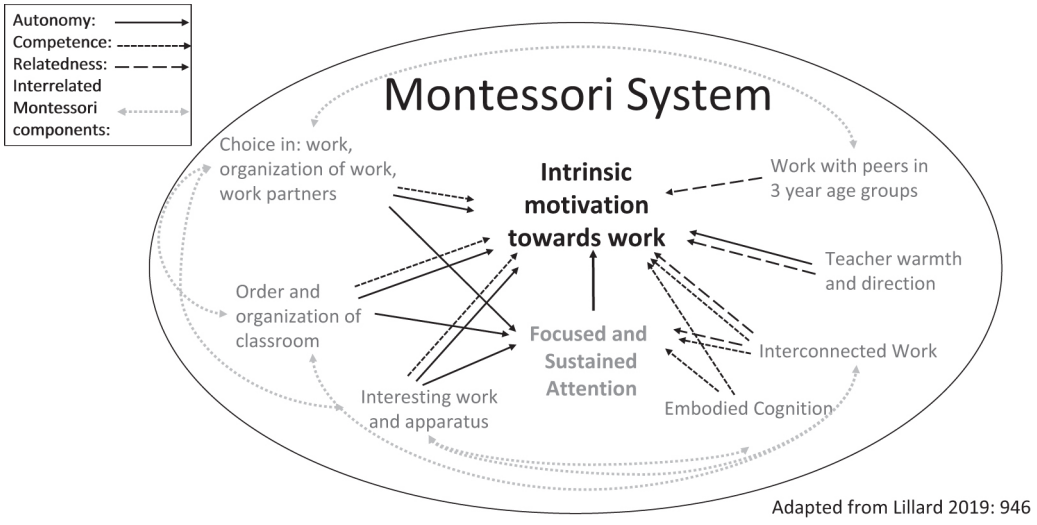


Figure 26.2 Montessori system's support for intrinsic motivation through the fulfillment of the three self-determination needs. Image courtesy of the authors.

work, and provide fewer answers are more likely to have students who thrive (Reeve 2002). When learning goals are presented in an autonomy-supportive rather than a controlling manner, depth of processing, test performance, and persistence are enhanced (Vansteenkiste et al. 2004). Conversely, external controls, such as reward and punishment, detract from the sense of self-determination, thereby undermining intrinsic motivation (Deci et al. 1999). In educational contexts, external regulators include high-stakes assessments, grades, or rewards, including approval and praise.

The clearest way Montessori schools support student autonomy is by providing choice in learning activities within the limits defined by a structured environment and the teacher's discernment. Students choose activities from the ones available and introduced by their teacher, and they work on them for long, uninterrupted periods of time. Whereas younger children work independently most of the time, elementary-age children often make their activities collaborative, learning in self-chosen groups. Yet all Montessori schoolchildren set their own schedules and follow their interests. For instance, a child especially interested in art may take the lead on creating illustrations for a team project; elementary and older children may organize small-group field trips to an external location they choose. Adolescent programs support independence by emphasizing real-world applications of academic material and engagement in meaningful work in the school and/or community (Montessori 2007). As children get older, opportunities to become autonomous within their communities multiply.

Learning driven through students' autonomous choices is possible in Montessori classrooms because the materials are inherently interesting and because the classroom processes are orderly and organized (Figure 26.2). Choice also fosters focused and sustained attention—another manifestation of intrinsic motivation. Yet the Montessori system limits choices to be commensurate with children's current abilities because "to let the child do as he likes when he has not yet developed any powers of control is to betray the idea of freedom" (Montessori

2007, 204). Teachers limit children's choices to work that children are capable of performing and then expand options as children mature. Finally, features that can deplete one's sense of self-control, such as grades, are absent from the Montessori system (Montessori 2017a, 2017b).

Need for Perceived Competence

Intrinsic motivation is enhanced when people work within what Vygotsky (1978) calls their zone of proximal development, the theoretical learning space containing tasks that a child may not be able to accomplish independently but can complete with support. Even infants seek out stimuli slightly more complex than what they have already mastered, thereby driving their own development (Kidd et al. 2012, 2014). Problems that are too hard diminish motivation, likely because they deplete the sense of competence; in contrast, problems that can be solved with effort and attention increase the sense of competence.

In Montessori schools, offering choice within limits may contribute to a sense of competence, and thus intrinsic motivation, because students can decide to engage in work that is in their zone of proximal development (Figure 26.2). Children only take out work that they have been shown how to do, and teachers only present materials that they perceive children are ready to engage with. Even in cases when children might errantly attempt too-difficult work, the classroom's support of their autonomy allows them to recognize this and choose alternative optimally challenging work. Hands-on activities allow students to see what they have accomplished, thus supporting perceived competence. Extrinsic motivators are absent, so no external source tells children they are underperforming; instead, children can keep trying until they master the material. Finally, the interrelated curriculum and orderly classrooms allow children to build on what they know. All these elements work together to promote competence.

Need for Relatedness

In line with SDT predictions, intrinsic motivation is enhanced in situations that impart a sense of security and interpersonal relatedness (Grolnick and Ryan 1987). In school research, this is likely why a warm, responsive relationship with a teacher is one of the best predictors of children's success (Cash et al. 2019). Humans function best when they are part of a social network while also perceiving themselves to have autonomy within that network. Montessori classrooms foster a sense of relatedness through mixed-age groupings, which give students a consistent company of peers and teachers across multiple years (Figure 26.2). Children may freely interact with their peers. They need not keep quiet while listening to the teacher for long periods of time; they can converse and collaborate with friends, thereby building relationships. In addition, relatedness to the teacher is fostered through the lack of grades (a form of judgment) and through the ways Montessori instructed teachers to interact with students: to behold them with love and trust and to see misbehavior as a fault of the environment rather than the child. Children help care for their classrooms and their curricular materials, which may also foster relatedness to the shared environment.

Substantial research thus supports the SDT prediction that situations fostering individual autonomy, a sense of competence, and a sense of social connectedness are conducive to students'

intrinsic motivation, which in turn supports good academic outcomes. Montessori schools, which are made up of features and practices that support these three needs, are well poised to foster students' intrinsic motivation to learn.

Motivation in Academic Activities

The limited research on young children's motivation in Montessori schools suggests that the environment encourages motivation compared to traditional school models. One lottery-controlled study based in the Northeastern United States examined 3- to 5-year-old students' mastery orientation—that is, the belief that through effort, abilities can be increased and challenging tasks mastered (Lillard et al. 2017). Students who are mastery oriented choose challenging work in order to learn (Dweck 2017). Because the propensity to approach relatively unfamiliar and challenging content is a hallmark of intrinsic motivation, mastery orientation encompasses intrinsic motivation; indeed, it may even promote it by making work rewarding. Compared to their traditional preschool peers, 4- and 5-year-old Montessori students are significantly more likely to choose a task they previously found challenging, indicating their mastery orientation. In contrast, their peers in conventional preschools were more likely to choose a task they found easy, or no task at all.

Other studies have looked at older children. Rathunde and Csikszentmihalyi (2005a) found that compared to students in traditional middle schools in the US Midwest, their peers in demographically matched Montessori schools reported higher levels of flow and intrinsic motivation while engaged in schoolwork. Further, the Montessori students had a more positive perception of the social environment of their schools: they found their teachers to be more supportive, experienced their classrooms as less disruptive, and experienced greater emotional safety in the classrooms (Rathunde and Csikszentmihalyi 2005b). However, the study's almost nine-year gap between data collection confounded results; further, four of the study's five Montessori schools were private, whereas the traditional schools were all public.

Ruijs (2017), comparing Montessori and non-Montessori students, provided an experimental control by using school-admission lotteries in the Netherlands. Lottery-winning adolescent students reported slightly but not significantly higher school enjoyment and better relationships with their teachers than their peers in traditional schools. No differences were found in motivation or independence. Besides the lottery preferences rendering the groups unequal at the outset, insufficient information about characteristics of the Montessori schools in this study raises questions about implementation fidelity. Because Montessori adolescent programs were the last to develop, advancing primarily after Montessori's death, they vary in their conceptualization and implementation, including the extent to which they adhere to core Montessori principles. Even assuming that secondary schools implement the Montessori method faithfully, any advantage may be more strongly evident in some educational systems than others. Montessori and typical secondary schooling experiences in the Netherlands may both afford students substantial autonomy (Ruijs 2017), given the widespread general movement toward self-regulated learning and individual time (Veugelers 2004). Motivational differences may be more accentuated in systems where traditional school students' activities are highly externally regulated.

Qualitative research on Montessori students' self-determination has also attempted to elucidate the ways that student motivation is supported. Classroom observations and teacher interviews in one Montessori elementary classroom showed that teachers espoused beliefs and demonstrated practices upholding students' autonomy (Koh and Frick 2010). Students in a Montessori adolescent program in Indonesia had positive perceptions of the motivating qualities of their school environment (Setiawan and Ena 2019). In another study, when asked about their experiences, adolescent Montessori students addressed autonomy, relatedness, and competence, suggesting that all three SDT psychological needs were being met (Johnson 2016). Although these studies hint at intriguing findings across different country contexts, most included only a small number of participants, and several lacked a comparison group—reasons why we cannot draw strong conclusions. Overall, however, the theoretical features of Montessori schooling support intrinsic motivation, with some research supporting this finding.

Implications for Future Research

Students are optimally motivated in educational contexts when their needs for autonomy, competence, and relatedness are supported. In line with this principle, Montessori schools, which are organized to support students' stage-specific needs, have been generally associated with positive motivational outcomes. However, these studies have raised many questions for future research to address. One study found associations between Montessori education and long-term well-being; a possible reason for the association (if causal) is the high degree of self-determination in Montessori contexts (Lillard et al. 2021, Ryan & Deci 2000). Well-being often coexists with intrinsic motivation.

Much of the research investigating self-determination and motivation in Montessori schools has involved students from early to late adolescence. This emphasis may be well-placed because motivation to learn in school declines across middle and high school (Lepper et al. 2005); adolescents may be particularly vulnerable to a drop in intrinsic motivation. Further, the most prevalent research methods involve self-report, which may be less reliable at younger ages. Nevertheless, studying motivation among younger children, potentially using behavioral observations or experience sampling, can contribute to our understanding of developmental outcomes. While we know that Montessori education prepares students to develop a mastery orientation from an early age (Lillard et al. 2017), longitudinally studying the effects of such self-determination support at younger ages may help us examine its long-term benefits.

Future studies might also investigate the effects of the Montessori system's stage-specific approach for sustaining motivation. Developmental research supports some aspects of this approach; adolescents have a higher need for autonomy, for contributing to society, and for closer peer interactions (Eccles et al. 1993; Fuligni 2019). The Montessori curriculum for adolescents may provide an appropriate stage-environment fit. However, we know relatively little about how independent and collaborative approaches work together to support motivation to learn at the early childhood and elementary levels.

Research could also investigate the interactions between Montessori schooling and the broader sociocultural contexts that shape motivational outcomes. Teachers in more collectivistic

societies are more likely to adopt a controlling motivating style; those in more individualistic societies are more likely to adopt an autonomy-supportive style (Reeve et al. 2014). Indeed, such cultural variations exist within Montessori implementations. Montessori classrooms in China depart from strict Montessori implementation by having shorter work cycles and lower student-teacher ratios (Chen 2021). We still have much to learn about the adaptiveness of these variations within their sociocultural contexts; evidence suggests that the universal need for autonomy may have different thresholds in different cultural contexts. Iyengar and Lepper (1999) show that in contrast to European American children, who showed the highest intrinsic motivation when they were allowed to choose their activities, Asian American children were the most intrinsically motivated when activities were chosen by their parents. What constitutes optimal autonomy may vary according to one's socialization in specific cultural contexts, with implications for motivation and schooling. Research should therefore investigate whether Montessori schools in individualistic and collectivistic cultures differ in their approach for supporting students' self-determination, and how these practices support student engagement.

Conclusion

Students' engagement and learning in Montessori schools is predicated on sustained support for self-determination, which leads to good motivational outcomes for individuals at different ages and in different contexts. Accordingly, Montessori schools have been associated with positive outcomes related to students' intrinsic motivation, academic engagement, and social cohesion. However, studies have not always reported details related to the quality of the Montessori schools or the comparison samples, or the schools' broader cultural contexts. Many questions related to students' motivation and engagement in Montessori schools await investigation. However, available research-based knowledge on Montessori schools' impact on student motivation is promising, with strong theoretical grounds for such a relation.

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