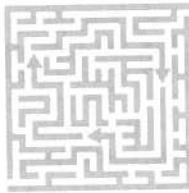


Self-Regulated Learning Interventions With At-Risk Youth

*Enhancing Adaptability,
Performance, and Well-Being*



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CONTEXTS SUPPORTING SELF-REGULATED LEARNING AT SCHOOL TRANSITIONS

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For more than 20 years, there has been growing interest in self-regulated learning (SRL), or the extent to which students are active participants in their own education (Zimmerman, 1989, 2000). Self-regulated learners are not passive recipients of knowledge; instead, they are active and self-directed, and approach learning tasks with volition and agency. Most educators and parents would agree that facilitating SRL should be of the utmost priority and that there is a need to understand the contexts that promote SRL so that teachers and parents can best support students, especially during times of motivational risk.

In this chapter, we use self-determination theory (SDT; Deci & Ryan, 1985, 2000) to better understand SRL and its contextual determinants at key school transitions. We begin by describing SRL and its underlying motivational processes in the classroom and then delineate contexts that facilitate it. Notably, these motivational processes are not static, and particular points

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of vulnerability for SRL may exist. We discuss why school transitions, in particular, may undermine SRL and its motivational underpinnings, and we provide evidence for the effects of supportive contexts at these transitions. In doing so, we emphasize the ways in which contexts and outcomes of SRL influence each other and the learner in a series of feedback loops. We end with recommendations for facilitating SRL in home and school contexts.

THEORETICAL FOUNDATIONS OF SELF-REGULATED LEARNING

General Overview and Underlying Processes

At some point, we all have witnessed a self-regulated learner. Proactive, self-regulated learners are problem solvers: They seek out information, take steps to master material, and persist when tasks are challenging. One way of conceptualizing the quality of participation in learning among these students is through the concept of engagement. Skinner, Kindermann, Connell, and Wellborn (2009) defined *engagement* as the “outward manifestation of motivation—namely energized, directed, and sustained action” (p. 225), which is reflected in one’s cognitive, affective, and behavioral orientation toward learning. The self-regulated learner shows active participation, sustained attention, focus, and a propensity to set goals that exceed minimum requirements. Affectively, these students are enthusiastic about learning, find enjoyment and pleasure in classroom activities, and report satisfaction on completing challenging assignments. Their behavior is characterized by perseverance, persistence, determination, effort, and intensity.

Zimmerman’s (1989) theory focuses on the strategies self-regulated learners use, which help them to transform their cognitive abilities (e.g., verbal or spatial aptitude) into knowledge or skill. These learning strategies include environmental structuring (e.g., arranging the physical setting to make learning easier), goal setting and planning, keeping records and monitoring achievement results, organizing and transforming instructional materials, rehearsing and memorizing material, reviewing records and educational material, seeking information, seeking social assistance, providing oneself with positive or negative consequences for success and failure experiences, and self-evaluating.

SRL does not simply begin during the school years; rudimentary SRL skills can be seen in younger children. Early abilities to be engaged and active in learning activities are in evidence when children can focus their attention, resist distractions, and adjust their emotional responses to participate in learning activities. Such skills have been discussed under the rubrics of executive functioning (EF) and emotion regulation. *Executive functioning* involves cognitive skills that are important for learning, such as the ability to shift

one's focus and attention, resist distraction, and hold information in memory. *Emotion regulation* involves the ability to modulate emotional responses. Such skills have been associated with academic competence (Ursache, Blair, & Raver, 2012). Although neither the term *EF* nor *emotion regulation* is meant to reflect the more purposeful nature of Zimmerman's (1989) SRL strategies or the notion of academic engagement, the concepts overlap in that they all refer to skills that allow for active persistence in learning activities.

SRL is manifested during routine learning activities but also is reflected in children's response to academic challenges, such as difficult tasks, test taking, and experiences with failure that affect their cognitions and behavior. Indeed, SRL may be most necessary when such challenges arise. Thus, researchers interested in SRL have examined the coping strategies that students bring to bear so they are not disrupted by these types of stressful academic situations. Work on coping with failure (e.g., Raftery-Helmer & Grolnick, 2012) has suggested that for self-regulated or engaged learners, failure is merely part of the process of learning something that is challenging. Therefore, when challenged, self-regulated learners are likely to focus their attention on task mastery so that they may do better on future assignments: They actively problem solve and seek information to understand the failure and complete the task at hand. In contrast, other learners respond by rigidly focusing on the self, attempting to defensively restore internal experiences threatened by failure; thus, they are less focused on learning, tackling issues, or understanding material. Hence, even in the context of failure or negative feedback, self-regulated learners channel their effort into mastering the environment.

Because they entail new expectations and requirements, school transitions may involve many challenges to established routines and thus require adaptive and flexible SRL skills. How children negotiate these challenges includes a complex interaction between the SRL skills they bring and their new environments. This chapter focuses on such SRL using different conceptualizations, including engagement, direction of attention, and coping at key school transitions.

Researchers from a variety of theoretical perspectives have argued that underlying SRL are attitudes, beliefs, and motivational propensities that students have with regard to themselves and the world. Much work has highlighted the importance of two motivational beliefs for SRL: perceived control and perceived competence (i.e., beliefs in one's competence) or self-efficacy (i.e., beliefs in one's ability to cope). For instance, Zimmerman (1989) suggested that use of SRL strategies is instigated and sustained by perceptions of efficacy. Students reportedly select SRL strategies according to their perceptions of academic efficacy. Furthermore, in what has been referred to as a *self-oriented feedback loop* (Zimmerman, 1989, 2000), students monitor the

effectiveness of these strategies for subsequent performance. If the strategies undermine performance, students' perceptions of self-efficacy will be negatively affected and will affect ongoing motivation and subsequent selection and use of learning strategies. Similarly, control-value theory (Pekrun, Frenzel, Goetz, & Perry, 2007) proposes that students who perceive academic outcomes as within their control are likely to use more active coping strategies, including task- and problem-focused strategies, when confronted with academic stressors. Feedback loops would suggest that, in using more active coping strategies, these students would experience enhanced perceived control or a sense of their own capacities to affect the environment.

In addition to perceived control/competence, many theories have posited that to engage in SRL, students must see learning as interesting or valuable for their own goals. Pekrun (2000) showed that, when confronted with academic stressors, students who perceived the value of the task (i.e., its importance) as high were more likely to use coping aimed at mastering the environment. Similarly, Eccles and colleagues (e.g., Eccles et al., 1983) proposed that achievement-related behaviors (e.g., persistence on difficult tasks, sustained effort during learning activities) are directly related to the importance or value that students attach to the achievement task. SDT, which is discussed in depth in the next section, includes a differentiated theory focusing on why students engage in schoolwork and homework. This theory suggests a continuum of autonomy for regulating school behavior ranging from doing so for purely external reasons (e.g., to avoid punishment) to autonomous regulation, which involves a sense of volition and willingness. It pulls together much of the previously reviewed work by positing universal needs that explain why processes, such as perceived control, perceived competence, and autonomy, are crucial for SRL.

Self-Determination Theory

SDT (Deci & Ryan, 1985) asserts that individuals have psychological needs for competence, relatedness, and autonomy. According to this perspective, the satisfaction of these needs is essential for well-being, whereas their thwarting results in a disturbance of functioning. The need for *competence* entails needing to feel effective in one's interactions with the environment and believing that one has the capacity to produce outcomes and to experience mastery. Individuals also have a primary need for *relatedness*: to feel connected, loved, and valued by others. People also have a need for *autonomy*: to feel volitional regarding their actions, and for behaviors to feel self-initiated rather than externally controlled (Ryan & Connell, 1989).

SDT connects these needs to the motivational processes that allow for SRL. Thus, it provides a framework for understanding why certain

motivational beliefs and propensities set the stage for SRL. In particular, fulfillment of the need for competence is reflected in students' understanding about how to achieve success or avoid failure (perceived control) and their belief that they have the competencies to be successful. Autonomy needs are reflected in students' sense of volition for school activities and is indexed by initiating activities with a sense of agency or willingness. Such initiation is not an all-or-none phenomenon; types of regulation can be seen as varying along a continuum of autonomy. At the least autonomous end of this continuum, children engage in behaviors to avoid punishment, comply with externally imposed rules, or obtain a reward. This type of regulation is *external*. Children also may engage in activities because of self-imposed pressure or avoidance of negative affect, such as guilt or shame. This type of regulation is termed *introjected*. Both external and introjected regulation are forms of controlled or nonautonomous motivation, because students feel coerced or pressured to engage in school behaviors. Students also may engage in behaviors because of their perceived value or importance. This is *identified* regulation. For example, a student may complete extra math problems because he or she wants to understand geometry. Although completing these problems may not be fun, doing so stems from a personal goal and thus the student experiences it as volitional. At the most self-determined end of this continuum, students undertake school behaviors because they find them enjoyable, fun, or interesting. Students' experience of autonomy results in particular patterns of action: Students who are more autonomous show more enthusiastic, focused, and purposeful learning, or exemplify what it means to be self-regulated (Deci & Ryan, 2000).

Children's need for relatedness is satisfied when they feel a sense of connection and belonging, and that others care for them and treat them as important. Work from many traditions, including attachment theory (Bretherton, 1985), has proposed that when people have internal representations of themselves as lovable and others as sensitive and responsive, they are free to explore and master their environment. Empirical evidence has supported this proposal: Using self and teacher ratings of emotional and behavioral engagement, Furrer and Skinner (2003) found that children who reported a higher sense of relatedness were more engaged in school.

A number of theories have proposed that one's environment influences SRL and its motivational underpinnings (e.g., perceived competence/control), although many of these theories have not specified what types of environments may support or undermine SRL. Unlike these approaches, SDT (Deci & Ryan, 1985) delineates the social contexts that fuel SRL by connecting them to the three psychological needs. Thus, linked to these needs are three aspects of the environment presumed to be key in the development of SRL. In particular, SRL will be exhibited most when one's social context

supports autonomy by providing autonomy support versus control, supports competence by providing structure, and supports relatedness by providing involvement. These supportive contexts are most crucial during school transitions, which may undermine the motivational components underlying SRL (i.e., perceived competence, perceived control, autonomous self-regulation), thus leaving needs unsatisfied.

Autonomy Support

Autonomy support versus control refers to caregivers' support for children's perspectives, point of view, autonomous initiations and problem solving at one end, to disregard for children's perspectives and goals at the other (Grolnick & Ryan, 1989). Autonomy support includes valuing children's thoughts and opinions, encouraging their initiations, providing choice, creating opportunities for children to provide input, and supporting children's interests. At the other extreme, controlling behavior ignores children's perspectives and pressures them toward specific outcomes, thus hindering their autonomy and causing them to feel coerced and externally regulated (Grolnick & Ryan, 1989).

Research has demonstrated a clear link between parental autonomy support and motivational propensities associated with SRL. For example, Grolnick and Ryan (1989) showed that, compared to parents who favored pressure, punishment, and controlling rewards, parents who supported autonomous problem-solving, provided choice, and engaged in joint decision making had children who more autonomously regulated learning behaviors. Ginsburg and Bronstein (1993) found that students from families that supported their autonomy showed higher achievement standards, initiated schoolwork more independently, were mastery oriented, and approached learning materials with curiosity, enthusiasm, and interest. In a similar study (Joussemet, Koestner, Lekes, & Landry, 2005), mothers who communicated behavioral standards in an autonomy-supportive way had 5-year-olds who listened attentively, set higher standards for their work, and used free time more productively. Grolnick, Ryan, and Deci (1991) found evidence in elementary school students that perceptions of maternal and paternal autonomy support were associated with children's perceived autonomy, perceptions of control, and perceptions of competence that, in turn, predicted achievement. More recent work has replicated these earlier findings that parental autonomy support robustly predicts students' self-regulation (e.g., Soenens & Vansteenkiste, 2005). Bronstein, Ginsburg, and Herrera (2005), for example, found that maternal autonomy support was associated with higher achievement, which, in turn, predicted greater subsequent perceived competence and intrinsic motivation (2 years later).

The association between autonomy-supportive parenting and self-regulation likely represents a bidirectional transaction such that parents may react to their child's self-regulation and competence with autonomy-supportive or controlling behavior (Grolnick & Ryan, 1989). Indeed, Bronstein et al. (2005) found that autonomy support predicted higher achievement that, subsequently, predicted greater autonomy support. Pomerantz and Eaton (2001) showed that elementary students' poor academic performance elicited more controlling behavior from mothers in the form of intrusive homework-checking and unsolicited help. Overall, empirical work has suggested that parental autonomy support contributes to children's self-regulation through a bidirectional process whereby autonomy support affects motivational processes that then affect parenting.

Evidence also exists that teacher autonomy support relates to children's motivation. Chirkov and Ryan (2001) found that, among U.S. and Russian high-school students, students' perceptions of parent and teacher autonomy support were related to greater autonomous motivation. More recently, Jang, Kim, and Reeve (2012) showed reciprocal effects of an autonomy-supportive teacher context. In particular, children who perceived more support for autonomy tended to feel their need for autonomy was met, which, in turn, predicted higher engagement. Higher levels of engagement then predicted more autonomy need satisfaction over time. Thus, students who are engaged may elicit more autonomy support from those around them, thus creating positive long-term trajectories of active school engagement.

Structure

Structured environments support competence by providing clear and consistent rules, expectations and guidelines, predictable consequences, and clear feedback about how to better meet expectations (Farkas & Grolnick, 2010), thus allowing children to anticipate outcomes and mobilize, direct, and sustain their academic efforts. In taking an active role in their learning, these students may be more able to make use of feedback or structure provided by the environment.

Compared with autonomy support, less research has addressed how structure is related to SRL. In one of the first studies that used an SDT conceptualization of structure, Grolnick and Ryan (1989) coded parent interviews for whether clear rules, expectations, and guidelines had been set in the home, and for parental consistency or adherence to those rules and expectations. Children whose homes were rated high in structure had a greater understanding of how to attain success and avoid failure in school and generally. Grolnick and Wellborn (1988) found that parental structure,

conceptualized as clarity of expectations and predictability of consequences, was positively associated with perceived competence and negatively associated with maladaptive control beliefs (i.e., believing that success in school resulted from luck or powerful others). Similarly, using a self-report questionnaire, Skinner, Johnson, and Snyder (2005) found that parental structure was associated with higher perceived control, perceived competence, and engagement in school.

In our lab, we have examined parental structure in more depth; we have delineated specific components and examined how they relate to motivational outcomes. In particular, Farkas and Grolnick (2010) identified six components of structure: clear and consistent rules and expectations, predictability of consequences for action, information feedback, opportunities to meet expectations, provision of rationales for rules and expectations, and parental authority (i.e., whether parents take a leadership role in the home). Seventh- and eighth-grade students were interviewed about their homes with regard to homework and grades, and from those interviews, parents were rated on these components of structure. All structure components, except information feedback, were combined to form a structure composite, which was correlated with academic perceived control and perceived competence above and beyond the effects of parental autonomy support and involvement. In a second study, Grolnick, Raftery-Helmer, Marbell, Flamm, Cardemil, and Sanchez (2014) rated four components of structure from interviews of 160 sixth-grade children: clarity and consistency of rules and expectations, predictability of consequences, rationales provided, and parental authority. Similar to Farkas and Grolnick (2010), these authors found that parental provision of structure predicted academic perceived control. In a related study on children's academic coping, Raftery-Helmer and Grolnick (2012) found that sixth graders who experienced their parents as providing more structure were more likely to actively attempt to remedy the cause of a perceived school failure and less likely to report blaming the teacher or test, attempt not to think about the failure, and experience worry and anxiety. Tests of mediational models indicated that parental structure affected children's coping directly and through perceived control.

In addition to this new work on parental structure, researchers have begun to examine structure provided by teachers. Jang, Reeve, and Deci (2010) coded classrooms for three components of structure: whether students were provided with a plan of action, clear directions, and constructive feedback. These three components were combined to form a structure composite that related to children's classroom engagement. More empirical support is needed to clearly establish the link between teacher provision of structure and SRL and associated motivational processes.

Involvement

Involvement supports children's need for relatedness. Involvement is manifested in caregivers' provision of psychological resources, such as love and affection, and tangible resources, such as attention and time (Grolnick & Slowiaczek, 1994). High involvement communicates to a child that he or she belongs and is valued by others, whereas contexts that are not involved leave children feeling inconsequential, isolated, and insignificant.

An abundance of research has indicated the importance of parent involvement for student achievement, although fewer studies have examined its effects on motivational outcomes. Sanders (1998) found that students who reported that their parents encouraged their academic endeavors were more likely to value the importance of academic achievement for future success. In a more recent study, Fan and Williams (2010) found that parents' educational aspirations for their children and school-based involvement predicted student self-efficacy, engagement, and motivation. Studies also have shown that parent involvement is related to perceived competence and perceived value of academic effort (Marchant, Paulson, & Rothlisberg, 2001). Others (e.g., Gonzalez-DeHass, Willems, & Holbein, 2005) have shown that parent involvement facilitates students' sense of competence and perceptions of control, and helps them to take in educational values introduced by others and internalize them as their own. In a particularly illustrative study, Grolnick and Slowiaczek (1994) examined three types of parental involvement: behavioral (e.g., involvement in school events); cognitive-intellectual (e.g., exposing children to academically stimulating activities), and personal (showing interest and enthusiasm about learning). Relations existed between mother and father behavioral and cognitive-intellectual involvement and students' perceptions of control and competence. Results suggested a mediational model in which parent involvement affects achievement through perceived competence and control.

Research similarly has supported the importance of teacher involvement for student motivation and self-regulation. Birch and Ladd (1997) found reported closeness between teacher and student-predicted student engagement in the classroom. Voelkl (1995) similarly found that students who perceived their schools as warm showed greater classroom participation and higher achievement. Students who see their teachers as warm and affectionate also have been shown to display higher affective engagement in the classroom (e.g., Skinner & Belmont, 1993) and greater perceived competence (e.g., Skinner et al., 2009). Given the importance of autonomy support, structure, and relatedness in parents and teachers, it is important to examine how they relate to children's adjustment at key educational transitions.

SELF-REGULATED LEARNING AT SCHOOL TRANSITIONS: RESEARCH AND APPLICATIONS

Life transitions, such as starting a new job or entering a new school, involve substantial changes in the new environment in which individuals find themselves. The changes require adaptation, including adopting new roles and behaviors. Transitions offer opportunities for growth and development, but they also are points of potential vulnerability. Successful adaptation involves an interaction between what the individual brings and the qualities of the new environment (Bronfenbrenner, 1979). Individuals bring both their own characteristics (i.e., personality, skills, attitudes, perceptions) and more or less supportive resources (i.e., families, peers). Both factors can contribute to how children weather what may be stressful changes.

Different school transitions present distinct challenges to which children must adjust. The transition to school, for example, may be the first time children are exposed to structured learning environments and the expectations they entail. On the other hand, the change from elementary to middle school typically includes a new organizational structure with a larger and more bureaucratic school, more teachers, and a more diverse student body (Eccles & Midgley, 1989). The specific challenges introduced by school transitions must be considered in understanding their effects on SRL.

One way of understanding the effect of transitions is to consider how they affect need satisfaction. From an SDT perspective, when transitions undermine need satisfaction, they are likely to have disruptive effects. However, when they support need satisfaction, they are more likely to be salutary. A number of reasons exist to expect that transitions to a new school environment, particularly one that is extremely different from the previous one, will be disruptive. Consider the following potential challenges to the three needs discussed earlier: competence, relatedness, and autonomy.

First, an environment with a new organization and new rules and expectations will likely challenge children's sense of (and perhaps actual) competence. When rules, guidelines, and expectations change, children may have a difficult time understanding connections between their actions and their success and failure outcomes. That is, in the new environment, they may not know how to be successful and to avoid failure, thus perceived control and competence will be undermined. New schools may also disrupt a sense of relatedness. Established peer networks may be split up as students enter different schools. Students must form new relationships and achieve a new sense of connectedness with peers and teachers. Autonomy needs also may be challenged, especially when students perceive that environments are more controlling and allow less opportunity for autonomy. Furthermore, because experiencing autonomy or volition requires a backdrop of competence,

discomfort with one's new role may challenge the ability to be autonomous with respect to tasks and behaviors.

Thus, from an SDT perspective, transitions may undermine the autonomy, competence, and relatedness required for SRL. Successful adaptation will be most likely when children bring the requisite skills and attitudes that enable them to take on new roles and to adapt. Furthermore, when environmental resources support their needs, they may more easily adapt. In the following section, we discuss three school transitions that present different challenges. We discuss how having attitudes and motivational propensities connected to greater self-regulation, (i.e., perceived competence, perceived control, and autonomous self-regulation) and need-satisfying environments (i.e., autonomy-supportive, structured, involved) may facilitate successful adaptation. Table 11.1 provides a summary of needs, contexts, and need-challenges posed by school transitions.

Transition to School

Entry into formal schooling may be the first time children encounter a structured classroom setting in which lessons are presented and children are expected to pay attention and focus on material. For children to successfully adapt to such a new setting, they must be able to control their impulses and negative emotions, and display motivation and attention. Children must be able to display at least rudimentary SRL skills. In the literature on young children, such skills often have been discussed as *self-regulation*, defined as the biological and behavioral mechanisms that enable the individual to manage arousal, attention, emotion, behaviors, and cognitions in an adaptive manner (e.g., Calkins & Howse, 2004).

Researchers who have examined self-regulatory abilities in young children have largely focused on two constructs: one cognitive, often termed *executive functioning*; and one more emotional, which has been termed *effortful control* (EC) or *emotion regulation*. *Executive functioning* has been defined as the "volitional control of thinking in purposeful goal-directed activities" (Ursache et al., 2012, p. 122) and refers to higher order cognitive processes that allow for effective learning (see Chapters 1 and 4, this volume). EF includes three components: the ability to hold information in working memory, the ability to resist interference and distraction from extraneous sources, and the ability to shift attention when required. EF is said to allow the child to obtain knowledge by remembering instructions, staying on task, and dealing with concepts and symbols (Best, Miller, & Jones, 2009). The second construct, emotion regulation, sometimes referred to as EC, involves the ability to modulate emotion through cognitive and behavioral strategies (see Chapters 6 and 7, this volume). When children are able to dampen down negative emotion, they are better able to

TABLE 11.1
Needs, Contexts, and Challenges to Needs Posed by School Transitions

Need	Motivational resources	Context	Challenge to need		
			Transition to school	Middle school	High school
Autonomy	Autonomous self-regulation Emotion regulation	Autonomy support	—	Controlling school context Performance goals More normative comparison	Controlling school context Increased competition
Competence	Perceived control Perceived competence Self-efficacy Executive functioning	Structure	Expectations to sit, attend, stay on task	Larger school New organization Higher expectations	New, higher expectations More difficult material
Relatedness	Relational security	Involvement	New peers New teachers	New, diverse peer group Multiple teachers who may know children less well	New, diverse peer group Multiple teachers who may know children less well

follow rules in the classroom, engage in activities, and form positive relationships with teachers and peers (Eisenberg, Eggum, Sallquist, & Edwards, 2010). Emotion regulation is often considered to have a temperamental basis.

Research has supported the importance of EF and emotion regulation for successful adaptation to school. Executive functioning has been predictive of school readiness (e.g., Blair & Razza, 2007), subsequent academic achievement, and classroom behavior (Valiente, Lemery-Chalfant, & Swanson, 2010). The ability to regulate positive and negative emotions has been linked to high levels of achievement in early elementary math and reading and achievement on standardized tests in kindergarten (Graziano, Reavis, Keane, & Calkins, 2007). Children with more developed emotional competence, including better emotion regulation, have been found to be more engaged in the classroom, and teachers perceive them as more academically and socially competent than students with lower emotional competence (Denham, 2006). In a large, longitudinal study, Neuenschwander, Röthlisberger, Cimeli, and Roebbers (2012) examined EF and EC in relation to adaptation to primary school. They found that EF at preschool predicted standardized achievement, grades, and learning-related behavior (assessed by teachers' ratings of children's persistence, attention, and self-reliance) at primary school. EC at preschool predicted learning behavior and grades. Moreover, the effect of EC on grades was mediated by learning behavior. In contrast, EF had both direct and indirect effects on achievement.

Given the significance of EF and EC, it is important to understand the contexts that facilitate these abilities. It is within children's early interactions with caregivers that they learn the strategies and skills to successfully modulate emotional and behavioral responses. From an SDT perspective, autonomy-supportive versus controlling, structured, and involved parenting should facilitate emotional and behavioral regulation. And research has supported this perspective, particularly for the construct of parental controlling interactions. For example, Calkins, Smith, Gill, and Johnson (1998), in a study of 2-year-olds, examined three aspects of emotion regulation: physiological reactivity, behavioral regulation (i.e., impulsivity vs. compliance), and emotion regulation (i.e., the use of distraction vs. focus on focal object during delay tasks). They also coded two aspects of mothers' interactive style: *maternal negative control*, which was the frequency of scolding, anger, and restricting the child's movements; and *maternal positive guidance*, which included the use of praise, demonstration of behavior, and feedback and suggestion, thus including both elements of involvement and structure. Analyses showed that more maternal negative control was associated with more time focusing on the focal object during the delay and less use of distraction. It also was associated with poorer vagal suppression (i.e., emotion regulation). Positive guidance was associated with more compliance.

In our own work (Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998), we examined the regulatory strategies mothers used to assist their 12-, 18-, 24-, and 32-month-old children during mildly frustrating delay situations and how use of these strategies was related to children's ability to regulate distress when on their own. Controlling for children's distress levels, mothers who more actively engaged children in alternative strategies in the delay situation had children who had more difficulty when on their own. Interestingly, it was not mothers' responses per se that were problematic but continuing them despite children's decreases in distress. Thus, mothers who responded to their children's distress, yet also allowed them opportunities to use their own capacities and strategies when not too upset, had children who were more successful at emotion regulation when on their own.

Successful emotion regulation involves not just the ability to modulate emotion but also to recognize and use emotion to guide behavior. Thus, suppressing emotion is at odds with the goal of emotion regulation. Some authors have discussed the importance of parenting in the development of such skills. In particular, it has been argued that parents who dismiss emotion in their children deprive them of the opportunity to learn about emotions in themselves and others. Lunkenheimer, Shields, and Cortina (2007) found that children of parents who tended to dismiss emotions showed poorer emotion regulation.

The results of these studies support the importance of self-regulation for children's successful transition to school. In addition, they highlight how contexts that provide structure (i.e., guidance, support) but also support children's autonomous attempts to discern and to regulate their emotions and behavior (i.e., support autonomy) are central to developing these capacities.

Transition to Middle School

The transition to middle school involves numerous changes to which children must adapt. Notably, children typically move from a smaller school with one teacher to a larger school with multiple teachers. In addition, the standards set by teachers are higher, as are the expectations that children will work more independently (Eccles et al., 1993). In recent years, many school districts have recognized the challenges that such a new organization entails and have worked to attenuate some of the negative effects by implementing smaller teams of teachers and students, which makes for a greater sense of cohesion. However, despite such changes, the new school organization still entails multiple changes to which children must adapt.

From an SDT perspective, these changes may affect children's adjustment to the extent that they impinge on need fulfillment. In particular, the new organization and expectations characterizing middle school may challenge

children's sense of how to attain success and avoid failure, that is, their perceptions of control and their sense of competence. Furthermore, the fact that middle-school teachers tend to be more controlling (Eccles, Lord, & Midgley, 1991) it may be a challenge to a sense of autonomy. Relatedly, the goal structures of middle-school classrooms have been described as more performance oriented (i.e., focusing on performance relative to others as a measure of success) and less mastery oriented (i.e., focusing on developing knowledge or understanding with improvement as a goal; Midgley, Anderman, & Hicks, 1995). Performance goal orientations predict lower feelings of competence (Midgley & Urdan, 1995) and autonomy (Gurland & Grolnick, 2005). The new peers and multiple teachers with whom children need to form bonds may impinge on children's sense of relatedness.

Research has suggested that changes in children's self-concepts and motivation are consistent with these challenges. In particular, some studies have shown declines in academic self-concept at school transitions (e.g., Wigfield & Eccles, 2000), which suggests that such transitions challenge perceptions of competence. Consistent with the notion that transitions challenge relatedness, feelings of affiliation with teachers decrease across the transition (Schneider, Tomada, Normand, Tonci, & de Domini, 2008). Although some studies have found such detrimental effects, others have shown no changes in self-concept, motivation, or connection. Thus, it becomes important to understand who shows changes and what factors predict declines over the transition.

In our work, we have focused on how the home environment might buffer children from declines in self-regulation. In one study (Grolnick, Kurowski, Dunlap, & Hevey, 2000), we found that the more involved parents were in sixth grade, the less children decreased in perceived competence and reading grades over the transition. More maternal autonomy support at sixth grade was associated with lower increases in acting out and learning problems over the transition. Furthermore, children whose mothers increased in their autonomy support over the transition did not show the same negative declines in self-worth, control understanding, and reading grades that other children did. There also were buffering effects of changes in involvement on changes in self-worth and learning problems. Thus, strong evidence exists that both parental involvement and autonomy support play key roles in helping children adjust at the transition to middle school.

A second study of 160 sixth-grade children transitioning to middle school (Grolnick, Raftery-Helmer, Flamm, Marbell, & Cardemil, *in press*) focused on the effects of parental academic structure on changes in perceived competence, autonomous self-regulation, engagement, and grades. The study looked at the degree to which homes included academic structure, for example, provided clear and consistent guidelines, expectations,

and consequences for homework and studying, and examined the extent to which this structure was provided in a way that supported rather than controlled children's autonomy. When structure was conveyed in an autonomy-supportive manner, parents involved children in establishing the guidelines, allowed for discussion of the rules, provided empathy when children did not want to follow the rules, and provided some choice in the way the rules/expectations were followed. Conversely, when structure was implemented in a more controlling manner, parents unilaterally created the rules, did not allow for discussion or did not provide empathy when children disagreed with the rules/expectations, and dictated how the children were to carry out the rules. Results showed that higher parental structure was associated with increases (i.e., lesser decreases) in perceived competence, engagement, and English grades across the transition. In addition, the more structure was implemented in an autonomy-supportive manner, the more perceived competence, and English grades increased (i.e., decreased less) across the transition. Autonomy-supportive structure also was associated with changes in children's regulation of their school behavior. Specifically, children from homes in which structure was implemented in a more autonomy-supportive manner were less likely to increase in their tendency to engage in schoolwork for external reasons (i.e., rewards and punishments) and increased more in their tendency to engage in school behaviors for more autonomous reasons. Furthermore, relations between structure and autonomy support of structure and English grades and engagement were mediated by perceived competence.

Our results also showed reciprocal effects over the transition: More autonomy support, structure, and involvement predicted higher engagement and higher engagement predicted increased provision of structure and involvement (Flamm & Grolnick, 2013). Thus, supportive parental environments both facilitate and respond to children's engagement.

Studies also have addressed facilitative contexts provided by teachers at the transition to middle school. Gutman and Midgley (2000) examined low-income children's perceptions of parents and schools as they transitioned to middle school. Results showed that students who perceived higher levels of parental involvement, teacher support, and school belonging at sixth grade had higher grade point averages in sixth grade, controlling for prior achievement.

Friedel, Cortina, Turner, and Midgley (2010) focused on the effects of the motivational context of the classroom for children's math self-concepts by measuring children's perceptions of their sixth- and seventh-grade classrooms' emphasis on performance versus mastery goals. A classroom emphasis on performance goals involves a focus on grades and a tendency to compare children's performance outcomes. By contrast, a focus on mastery involves

emphasis on learning and finding new ways to solve problems and to reward for effort. Perceived increases in mastery goal emphasis following the transition resulted in higher self-efficacy beliefs in math, whereas increases in performance goal emphasis predicted decreased self-efficacy. Thus, evidence exists that a context that involves pressure and likely feels controlling undermines the feelings of competence and control so crucial to SRL.

Evidence also exists that the transition to middle school entails challenges to the competence, autonomy, and relatedness needs crucial for SRL. Home contexts that are involved, support children's autonomy, and provide structure (implemented in an autonomy-supportive manner) buffer children from decreases in perceived competence, autonomous self-regulation, and, ultimately engagement and grades. In addition, when school environments are experienced as supportive and as emphasizing mastery, children's academic self-concepts benefit.

Transition to High School

Although less research has focused on the transition to high school relative to the transition to formal schooling and middle school, increasing attention has been paid to this key transition (Benner, 2011). As with the middle-school transition, the transition to high school involves organizational and policy changes that may challenge children's feelings of competence and perceptions of control. Grading standards are typically higher, which creates more competition and pressure on students (Reyes, Gillock, Kobus, & Sanchez, 2000) and thus may undermine feelings of autonomy. The larger school size and more diverse student body result in students' losing contact with close friends and may require them to establish a new, supportive peer group. Such a disturbance in peer groups may have consequences for students' feelings of relatedness.

Although diversity exists in the outcomes of the transition in various studies focusing on different populations, some evidence has suggested that this transition can be disruptive. Studies have reported declines in students' motivation and interest in school, and in their perceptions of academic competence (Roderick, 1995). Furthermore, students tend to be less satisfied with teachers, viewing them as more strict and less supportive (Barber & Olsen, 2004). Students have described the school climate as less friendly and that they feel more anonymous. Barber and Olsen (2004) reported that students described lower classroom autonomy and higher perceived need for school organization (which indicates that they perceived less adequate structure) over the transition from eighth to ninth grade.

Given these potential difficulties, it is important to identify contexts that facilitate self-regulation. Reyes et al. (2000) examined the degree to

which changes in students' self-perceptions, perceptions of social support, and academic performance at the transition to high school (eighth to ninth grade) predicted their status at the end of high school (i.e., actively attending school or having withdrawn from or dropped out of school). Students who were inactive at follow-up showed larger declines in grades, greater increases in upset with friends, and more upset with the school than those who were active at follow-up. In addition, those who were active at follow-up perceived themselves as more academically competent before the transition than those who were later inactive.

Barber and Olsen (2004) examined how perceptions of the school environment predicted changes in motivation and achievement across the transition to high school. Notably, they found that perceived support from teachers had the largest effect: Students who reported more decreases in teacher support increased in their levels of depression. Furthermore, there was one effect for school organization: Students who perceived a more organized school environment at the transition showed more participation in school activities over the transition. Perceived gains in classroom autonomy predicted more participation in school activities.

As with the middle-school transition, evidence exists that relationships with parents play a role in the transition to high school. Individuals whose parents monitored them more and were more involved in their academic and social lives experienced fewer disruptions and exhibited greater resilience following the high-school transition (Roderick, 2003). In addition, higher parent involvement—in particular, parents' grade and school attainment expectations—predicted higher teacher-rated student engagement from fall to spring of ninth grade (Chen & Gregory, 2009).

Thus, evidence suggests that supportive contexts may play a key role in students' self-regulation and achievement at the transition to high school. Although some might question the importance of parents to adolescents, who are often portrayed as more peer focused, research has supported the key role of parents' high expectations and involvement in their adolescents' lives for their successful adjustment.

IMPLICATIONS, RECOMMENDATIONS, AND FUTURE DIRECTIONS

Our review of the role of SRL for successful learning outcomes and that of supportive contexts at academic transitions suggests the importance of key stakeholders (i.e., educators, parents, communities) in focusing on helping children make successful academic transitions. The work shows that multiple contexts are important to facilitating successful adaptation.

Given that work on all three school transitions showed relations between home and school autonomy support, structure and involvement and SRL, it is a key task to identify transactional mechanisms in these relations. As discussed, contexts facilitate SRL, but SRL also provides feedback to the learner and to the context. For example, when children are engaged and use SRL strategies, teachers and parents may provide positive feedback that increases engagement and use of such strategies. When children engage in defensive coping strategies, such as blaming the teacher for their failures, the result may be that teachers display less warmth to students, thus decreasing students' sense of relatedness and undermining their motivation. When students engage in SRL, parents may be most likely to allow them autonomy, thus increasing their autonomous regulation of school behavior. Therefore, reciprocal relations exist between need-supportive contexts and self-regulation; more optimal contexts enhance the use of SRL strategies, and self-regulated learners receive more autonomy support, structure, and involvement compared with their disengaged peers. An interesting question would be whether these self-regulated learners also are better able to make use of need-satisfying conditions—being receptive to support for autonomy, competence, and relatedness. More research on the nature of these dynamic relations will help researchers and practitioners to intervene into maladaptive SRL cycles.

It also is important to tackle the barriers that may inhibit parents and teachers from providing need-supportive resources. Our earlier work (e.g., Grolnick, Benjet, Kurowski, & Apostoleris, 1997) showed that multiple factors, including stress, support, and parents' views of their own roles, affect levels of parent involvement. In addition, although teacher practices of involving parents can increase parent involvement, they tend to be most effective for the least stressed parents. Thus, schoolwide efforts that consider characteristics and circumstances of families will be necessary to increase involvement for all families.

Our work has shown that more economically stressed parents and those with lower education are less likely to implement the structure that provides consistency and support for competence at times of transitions. Again, outreach to all parents in culturally sensitive ways is required.

It is crucial that school efforts to involve parents help them to provide structure and involvement in ways that support rather than control their children's autonomy. Given the competitive nature of schools in the United States, parents may feel pressure to ensure that their children perform well. When pressured, they are more likely to push children and solve problems for them (Grolnick, Gurland, DeCoursey, & Jacob, 2002). Thus, efforts to involve parents must clarify the goals of homework (i.e., to build skills and self-reliance) and what their roles might be in relation to those goals.

Acknowledgment in the educational community of the pivotal role of transitions in determining educational pathways has led to some successful programs and interventions. Several programs designed to increase school readiness have focused on self-regulation. For example, the Chicago School Readiness Project (Raver et al., 2009), conducted in Head Start classrooms, focuses on increasing emotional and behavioral self-regulation skills by training teachers to improve the emotional climate of the classroom and lower teacher stress so that children can learn to manage challenging situations in a supportive environment. The project also helps teachers create predictable classroom routines and responses (i.e., structure) to facilitate self-regulation. Compared with children in a control group, treatment group children were higher in EF and rated by observers as showing greater attention and lower impulsivity.

One successful high-school transition program involved restructuring homerooms to ensure greater teacher support and lower student anonymity (Felner, Ginter, & Primavera, 1982). The intervention resulted in students' having more positive views of teachers, schools, and classrooms, and better grades and lower declines in self-concept. Smith (1997) demonstrated that students attending a high-school transition program that targeted adolescents, teachers, and parents did better academically than those who had no support systems or had only partial support systems.

The success of these and other transition programs illustrates the importance of educators' developing programs to help children navigate transitions. Beyond transitions, a need exists for classroom and school contexts, more generally, that will help children to persist and thrive as self-regulated learners. In particular, strategies such as finding room for choice, student voice, and discussion can help children feel autonomous. Providing opportunities for students to get to know school personnel more intimately, such as by assigning students mentors or advisors who see them frequently, can increase feelings of relatedness. Providing clear expectations and strategies to students at the start of activities and lessons can facilitate a sense of competence.

Although the research presented here provides evidence for the importance of autonomy-supportive, structured, and involved contexts at school transitions, much of it followed children for only 1 year or 2 years. It is important to determine whether contexts have enduring effects as children progress in their school careers and make the transition to the adult working world. Many studies have looked at only one context (e.g., teachers) and have focused on only one dimension (e.g., involvement). Studies that examine multiple contexts and multiple dimensions will help identify what might be most important to target. Clearly a focus on school transitions is an excellent step in ensuring that all students enter and stay on trajectories as self-regulated learners.

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