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Family Processes and the Development of Children's Self-Regulation

Wendy S. Grolnick, Carolyn O. Kurowski, and Suzanne T. Gurland
Clark University

Recent research stresses the key role that motivation plays in children's learning and school success. There is strong evidence that children whose school behavior is more intrinsically motivated (Harter, 1981), self-regulated (Connell & Ryan, 1987), or learning oriented (Dweck & Elliot, 1983) perform better in school than those whose behavior is more extrinsic, externally regulated, or performance oriented, respectively. For this reason, it is important to explore the factors that facilitate such adaptive motivational orientations. However, beyond this more instrumental goal, one can also see motivation as an aim in itself. One of the goals of education is to facilitate the development of students who will be lifelong learners: those who engage in the school enterprise (Connell & Wellborn, 1990), see its value (Eccles et al., 1989; Ryan, Connell, & Grolnick, 1992), and go beyond the minimum requirements. Such attitudes and regulatory processes may be particularly salient at choice points in children's school careers (Grolnick, Ryan, & Deci, 1991). In short, one major goal of schooling is to create a self-regulated learner. In this article, we explore the origins of self-regulation in children's learning, with a focus on the home and family environments that help to develop and maintain self-regulation.

In focusing on self-regulation in learning, we take a developmental approach, conceptualizing motivation as a set of resources that children develop. Such an approach entails two assumptions. First, we assume that there is continuity in children's motivational resources—continuity over time and across different contexts. By continuity across time, we mean that there are individual differences in children's motivational resources that they take with them from one learning experience to the next. It is clear to teachers that children come into their classrooms with marked differences in their self-regulatory styles, perceived competence, and other motivational qualities. By continuity across context, we mean that the resources children display in different domains (e.g., schools, homes, peer contexts) are not unrelated. Rather, resources built at home translate into those at school and vice versa. Such a view is consistent with theories focusing on intersetting connections (Bronfenbrenner, 1979). Whereas earlier models of home and school saw each context as having its own goals, systems theories stress overlapping goals of homes and schools (e.g., Epstein, 1990). One area in which these goals come together is that of parent involvement. We explore, in depth, the importance of parent involvement in children's schooling to children's motivation and present findings in this area in several forthcoming sections.

Although we assume continuity of individual differences, such continuity occurs in the context of another developmental phenomenon—namely, normative, age-graded events (Baltes, Reese, & Lipsitt, 1980). These are events that virtually all children encounter around the same age. Such events include the major transitions in children's school lives, such as the entry into school and the transition to junior high. We assume that each transition represents a challenge for children, requiring new skills and coping mechanisms. For example, entry into school requires the ability to modulate emotional responses (Calkins, 1997) and to take on an identity and patterns of action consistent with that of a "school child" (Entwisle & Alexander, 1993). Junior high requires a flexible response to a larger, more bureaucratic institution that is likely to be less warm and personal than elementary school (Eccles & Midgely, 1989). We assume that children's ways of negotiating these challenges involve a complex interplay between the individual motivational resources that children bring, the home environment, and the structure and interpersonal context of the new experience. In this article, we attempt to capture some of these complexities.

Consistent with this framework, we organize this article according to normative motivational challenges that children face in preparation for and during their school careers (see Figure 1). We begin with a description of our theory of self-regulation in learning. In doing so, we draw on self-determination theory (Deci & Ryan, 1985; Grolnick, Ryan, & Deci, 1997) with an emphasis on environments con-

Requests for reprints should be sent to Wendy S. Grolnick, Frances L. Hiatt School of Psychology, Clark University, 950 Main Street, Worcester, MA 01610.

Developmental Period	Motivational Resources*
Infancy and Toddlerhood	- Mastery motivation - Emotion regulation
Transition to School	- Social initiation and responsivity - Familiarity with school genre
Elementary School	- Perceived control - Perceived competence - Autonomous regulation of school behavior
Transition to Junior High	- Flexible coping - Adaptive (versus reactive) response to new environment

FIGURE 1 Development of motivation across children's schooling.
*Resources are cumulative across development.

ducive to self-regulation. From there, we discuss parents' roles in shaping early motivational and self-regulatory propensities that provide the basis for children's successful transitions to school. Then we describe theory and research relevant to environments that facilitate self-regulation of school activities. Finally, we discuss the role of the home environment in children's transition to junior high and beyond.

SELF-REGULATION IN LEARNING: THE ROLE OF AUTONOMY

There has been much recent interest in children's self-regulation in school as a key to effective learning. Several approaches have been offered, all of which share certain key features and differ in others. One key aspect of self-regulation running through all approaches is the child's role in enacting school behaviors; such concepts as autonomy (Deci & Ryan, 1985), agency (Zimmerman, 1989), and purposefulness (Schunk, 1995) suggest children's activity in their learning behaviors. Researchers also acknowledge that it is not enough to have knowledge of effective strategies to cope with school challenges and setbacks; one must be motivated to apply them and persist in using them (Pintrich & DeGroot, 1990).

One popular view, the social-cognitive view, suggests that students can be described as self-regulated when they are metacognitively, motivationally, and behaviorally active participants in their own learning (Zimmerman, 1989). Self-regulated learning involves the use of certain strategies, such as self-management and organization of time and materials, to achieve academic goals. The basis of these strategies is children's sense of self-efficacy; when children use these strategies, they feel efficacious, which leads them to use additional strategies, and the cycle continues. Similarly, Pintrich and DeGroot (1990) described children's use of metacognitive strategies. Motivational processes underlying their use include expectancy of success, a value for the activity, and positive feelings about the task. In these approaches, emphasis is on self-regulatory behaviors, though there is, importantly, the assumption that purposefulness in achieving goals and feelings of efficacy underlie these behaviors.

Our concept of self-regulation takes a somewhat different focus. Rather than beginning with behaviors that indicate self-regulation and then determining what underlies them, our concept directly emphasizes the energization and direction of activity (Ryan, Deci, & Grolnick, 1995). Self-determination theory focuses on the point of initiation of action. Thus, the same behaviors can be initiated with differing degrees of self-regulation. The self-regulatory processes through which behaviors are initiated and maintained then determine how children engage in the learning enterprise and how they fare with regard to learning outcomes. Thus, engaged patterns of action are an outcome of self-regulation (Connell & Wellborn, 1990; Skinner, Wellborn, & Connell, 1990).

A key concept in our theory is that of locus of causality. deCharms (1968) described behaviors that a person experiences as self-initiated as having an internal locus of causality. Such behaviors are engaged in willingly by the person and thus are experienced as choiceful. By contrast, behaviors that have an external locus of causality are those that are experienced as initiated from without, coerced, or prompted. Self-regulated behaviors are those that have an internal locus of causality. They are engaged in choicefully, out of interest, personal goals, or desired outcomes. Our notion of self-regulation is coincident with that of autonomy, which connotes endorsement of action by the self.

The construct of self-regulation cuts across traditional notions of intrinsic and extrinsic motivation. Earlier theories described these types of motivation as dichotomous. Our concept of autonomous self-regulation, by contrast, includes intrinsic motivation as well as certain kinds of extrinsic motivation. First, action that is intrinsically motivated is the prototype of autonomous activity. Intrinsically motivated behavior requires no outside prompts or external contingencies (Deci & Ryan, 1985). It is autotelic, or done for its own sake (Csikszentmihalyi, 1975). Such activities include curiosity, exploration, and persistence in goal-directed activity that is done for the pleasure, interest, and enjoyment of the activity itself rather than some separable reward or goal. Some school activities may be spontaneously interesting, and children will gravitate toward and persist in these activities out of their own intrinsic motivation.

A second set of activities are those that individuals do to obtain some outcome that is separable from the activity itself. Such activities—for example, doing homework or learning multiplication tables—may not be engaged in spontaneously but may initially need to be prompted from without by a par-

ent, teacher, or other socializing agent. The activities are considered to be extrinsically motivated because children engage in these activities as means to an end, for some goal other than interest or enjoyment of the activity itself. Children differ in their degree of intrinsic motivation as well as in the extent to which they adopt as their own the value of these different extrinsically motivated activities and thus autonomously regulate them.

Self-determination theory describes four types of extrinsic motivation, two of which have an external locus of causality (external and introjected) and two of which have an internal locus of causality (identified and integrated). These types are connected in that they lie along a continuum of autonomy, with external the least and integrated the most autonomous. As individuals take on or internalize the values of school activities, they move toward a sense of autonomy and greater self-regulation. Thus, we are interested in how children internalize the regulation of school behaviors and thus move toward forms of regulation that have an internal locus of causality. We next describe the types of regulation we have studied and how they are connected (see Figure 2).

In *external regulation,* participation in the activity is initiated and maintained by the promise of a reward, the threat of a punishment, or some other external contingency. Individuals at this point along the continuum need only understand and anticipate the external contingencies to regulate their behavior.

Once individuals have internalized the regulation of a value or behavior, though not yet accepted it as their own, the external contingencies are no longer necessary. Rather, individuals considered to display an *introjected* type of regulation have taken on those contingencies and impose the contingencies on themselves. Individuals at this point on the continuum are likely to experience conflict and tension because, although the source of regulation is now within them, they have not "made it their own." Instead, it continues to feel coercive and outside of their choice.

Further along the internalization continuum is regulation through *identification*. In such regulation, individuals identify with the value or importance of the activity and regulate accordingly. In identified regulation, the conflict and tension associated with introjection are absent because decisions are based on personal valuing and are thus congruent with internal preferences.

Finally, at the most autonomous end of the internalization continuum is *integrated* regulation. Here, individuals not only identify with a value as important for their goals, but have brought that identification into line with their other values to form a unified and internally consistent network of values and goals.

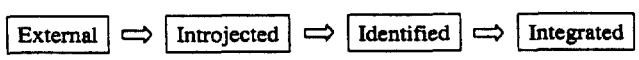

FIGURE 2 Types of self-regulation.

To illustrate these styles of regulation, we consider third-graders' regulation of the completion of their class work in school. Students high in external regulation might complete their work only because they will earn privileges by doing so, or because they will not be allowed to play at recess if their assignments are incomplete. Students who have introjected the regulation of their class work might work because they would feel guilty otherwise or because they wish to earn the approval of their teachers. Children who identify with the value of class work do their work because they want to learn the material or because they recognize that it will help them to fulfill the self-valued goal of doing well in school. Because integrated regulation is a developmentally more advanced form, it is unlikely to be prominent in the elementary years and so is not applicable to our example.

The argument could be made that because all of the children in the above example actually completed their class work, the reasons they did so are irrelevant. However, research on the internalization continuum demonstrates that children's degree of internalization is related to a number of important outcomes in the academic domain. In these studies, children's self-regulatory styles are assessed using a questionnaire tapping children's reasons for engaging in school-related activities, such as doing homework and class work (Connell & Ryan, 1987). Each reason is associated with one of the styles of regulation: external, introjected, or identified. A scale of intrinsic motivation is also included. The subscales can be used separately or weighted and combined to form the relative autonomy index, which indicates the degree of autonomy in children's regulation of school activities.

According to parent and teacher ratings, children who are high in external regulation are less motivated and independent, and they require more prodding and outside encouragement to do their work (Ryan et al., 1992). These children are more likely to see school-related outcomes as being controlled by "powerful others" or by "unknown" sources (Connell, 1985) than by their own actions. In addition, they evidence lower perceived competence and self-worth (Harter, 1982) relative to those lower in external regulation. Further, these children use more defensive styles of coping with setbacks in school (Tero & Connell, 1983).

In contrast, identified regulation is associated with mastery motivation and perceived competence in school. Ratings by parents and teachers show children high in identified regulation to be more independent, more motivated, and less dependent on outside pressure or encouragement relative to those lower in this type of regulation (Ryan et al., 1992).

As the internalization continuum suggests, an introjected style of regulation falls midway between external and identified styles. Introjection is generally not correlated with self-esteem and teacher ratings of independence and motivation. It does, however, show an association with a particular

style of coping known as anxiety amplification (Tero & Connell, 1983), in which failure is met with self-criticism and added anxiety.

Given the concomitants of the various styles of regulation, fostering children's internalization of nonintrinsically motivated activities is a major goal of socialization. We add this goal to that of facilitating intrinsically motivated activity in the elementary years. That is, we aim to foster both intrinsic motivation and autonomous regulation of extrinsically motivated behaviors. These constitute children's self-regulation.

Thus, children's autonomous self-regulation is a key motivational resource. Our work also focuses on two other resources that are crucial to motivated action, perceived control and perceived competence. First, to initiate action, children must understand the connections between their actions and success and failure outcomes—that is, have a sense of perceived control (Skinner et al., 1990). Further, children must have the sense that they can carry out these actions—that is, a sense of perceived competence (Harter, 1982). Finally, children can have a sense of control and competence but still feel coerced into behaving. Thus, to initiate action, they must also have a sense of volition around school activities—that is, the autonomous self-regulation described previously (Connell & Ryan, 1987; Ryan et al., 1992). Together, we refer to these resources as children's inner motivational resources (Grolnick et al., 1991).

A key aspect of the theory is that there are three innate needs that underlie these motivational resources: autonomy, competence, and relatedness (Deci & Ryan, 1985). With regard to autonomy, we postulate that individuals have an innate need to experience an inner locus of causality for action—that is, to experience themselves as the origin of their actions (deCharms, 1968). Second, individuals need to feel competent in their interactions with the environment (White, 1959). Finally, individuals need to feel related to or connected with important others (Bowlby, 1969; Harlow, 1958). These needs fuel the seeking out of interesting activities and opportunities for mastery, or intrinsically motivated action, and the internalization process.

Given that innate needs for autonomy, competence, and relatedness fuel intrinsic motivation and the development of extrinsic motivation in the direction of greater autonomy, our theory holds that environments that are supportive of these needs will facilitate these processes and those undermining the needs will forestall these processes. Thus, environments that support autonomy, competence, and relatedness will fuel intrinsic motivation and internalization (see Figure 3). We have hypothesized that such environments are those that support children's autonomy versus controlling their behavior, provide structure so that children understand the connections between their actions and desired outcomes, and provide positive involvement for a sense of relatedness. Our work has addressed the questions of how these dimensions are manifested by individuals significant in children's lives and what environmental conditions allow for the provision of autonomy support, involvement, and structure to children.

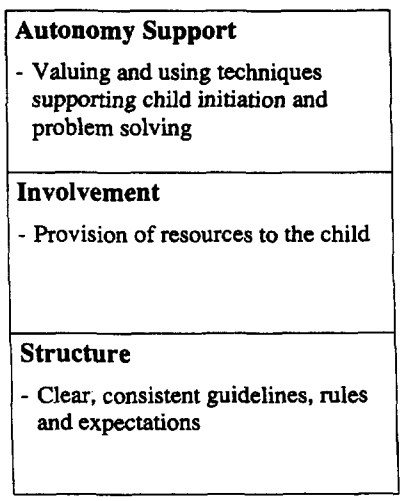

FIGURE 3 Three dimensions of parental context in middle childhood.

Based on self-determination theory, then, key questions for our paper become: Which environmental dimensions facilitate intrinsic motivation for learning? What family factors are associated with greater autonomy for more extrinsically oriented activities and with greater perceived competence and control? How do these relations change at various points in children's school careers, and how do these factors interact with the nature of the transitions children face at various key points in their school careers? We explore these questions in the remainder of this article.

THE TRANSITION TO SCHOOL

Before turning to our discussion of the transition to school, it is important to recognize that motivational resources are being built long before children begin their formal schooling. As early as the 1st year of life, there are individual differences in children's persistence in their efforts to master their environments, or mastery motivation (Morgan, Maslin-Cole, Biringen, & Harmon, 1991); their capacities to regulate autonomously their positive and negative emotions (Grolnick, Bridges, & Connell, 1996); and by preschool, their perceptions of control and competence (Skinner, 1986). As these capacities have each been linked to school competence, it is important to emphasize that home environments can foster or undermine these early capacities.

For example, mothers' responsiveness has been linked to better learning in a habituation task in infants (Lewis & Goldberg, 1969) and attributions of internal responsibility and task engagement in preschoolers (Skinner, 1986). Children whose mothers allow them to take the lead during play interactions and encourage their initiations—that is, who

are more autonomy supportive—show more persistence at solving tasks at 1 year (Grolnick, Frodi, & Bridges, 1984) and more persistence and competence at 20 months (Frodi, Bridges, & Grolnick, 1985) than children of mothers who are more controlling. Further, mothers who support their toddlers' efforts to regulate their own emotions, rather than taking responsibility for such regulation, have children who are less distressed when required to regulate on their own (Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998; Nachmias, Gunnar, Mangelsdorf, Parritz, & Buss, 1996).

These findings all lend support to the notion that, well before school, children's home environments are building key motivational resources. We now turn to factors that facilitate the transition to school per se.

The transition to school represents a critical event in a child's school life. First, very early in their school careers, children learn basic academic skills that they will build upon throughout their schooling. Second, once achievement trajectories are established, they tend to be extremely stable (Husen, 1969). Many adjustment problems of school children can be traced back to the 1st year or 2 of school (Alexander & Entwisle, 1988). Thus, the skills and attitudes with which children enter school begin an important and often continuing process.

Research suggests the importance of children's home environments in their school readiness. Emerging work suggests that home practices make some children better equipped to handle the task of transitioning into the school environment than other children. Specifically, children benefit if the social and communicative behaviors of their families are similar to those that are valued by schools (Heath, 1983). Unfortunately, for many children, the differences between home and school are dramatic and can render these children ill-prepared for the requirements and responsibilities of the school environment.

This issue is exemplified in research on parent involvement in school-like activities at home. Through activities such as reading books and going to the library, children become familiar with the practices of the school context. For instance, in her ethnographic examination of the parent involvement practices of families in a working-class and a middle-class community, Lareau (1987) noted that the majority of middle-class families engaged in parent involvement practices. They attended parent–teacher conferences, read to their children, and tested them on spelling words. Similar activities occurring prior to entrance into school may also serve to build the connections between homes and schools (Greaney, 1986). Engaging in reading and literacy activities at home may enable some children to engage in the decontextualized thinking associated with a variety of school tasks. Snow (1983) pointed out that reading between middle-class parents and their children often involves a linear narrative with an impersonal narrator, a distanced setting, and various points of view. These characteristics are consistent with teacher expectations regarding good writing and decontextualized thinking in general. The absence of these types of storytelling and story-making activities may limit a child's ability to use texts effectively or compose written assignments.

Evidence also indicates that the creation of links between the home and school context can improve children's chances for academic success. Work by Reynolds, Mavrogenes, Bezruczko, and Hageman (1996) on the academic trajectories of at-risk children found that increased parent involvement associated with participation in a preschool program predicted academic outcomes for low-income minority children. Tizard, Blatchford, Burke, Farquhar, and Plewis (1988) found that children who come from homes with a high number of books and high frequency of reading activities at home outperform their age-mates in writing. These findings raise important concerns about children's differential access to books and other school-related resources.

Involvement in school-like activities that may decrease the distance between home and school is not the only parent behavior that helps children in their transitions. Autonomy supportive parenting may also be key to children developing resources that will help them in their transitions to school. Barth and Parke (1993) looked at parent–child interaction styles on the dimension of autonomy support and school adjustment at the transition to school. Their results suggested that children of parents who were more controlling showed poorer behavior at school. The authors suggested that children of controlling parents may not have practice with initiating and organizing play, a self-regulatory skill that may help them to cope in a new setting. Similarly, Hess, Holloway, Dickinson, and Price (1984) found that more positive, less critical, and less controlling interaction with 4-year-olds was associated with higher school readiness scores. These findings lend support to the idea of autonomy support as providing children with opportunities to self-regulate. When children from controlling environments arrive at school, they may not yet have developed the self-regulatory resources they need to succeed.

In general, research supports the importance of both autonomy support and involvement in children's transitions to school. We now turn to the facilitation of children's motivation and school success during the elementary school years.

INTERNALIZING THE REGULATION OF SCHOOL ACTIVITIES IN THE MIDDLE YEARS

During the elementary school years, children face a new set of challenges. Children are exposed to a broader range of tasks, and the focus of the teacher is less on relationship building and more on teaching and learning (Brophy & Evertson, 1978). Grades become increasingly based on performance rather than effort, making social comparison more salient (Blumenfeld, Hamilton, Bossert, Wessels, & Meece, 1983). The ideas that children develop about their abilities and styles

as learners can have important and enduring effects on children's ways of approaching learning materials (Eccles, Wigfield, & Schiefele, 1998; Stipek & Mac Iver, 1989).

Elementary school provides children with a rich array of activities, opportunities, and challenges. Children engage in some of these activities readily and without prompting. Children are said to be intrinsically motivated to participate in these activities, in the sense that they naturally engage in them for the enjoyment of the activity itself. At the same time, there are many school activities, such as learning multiplication tables or doing homework, that adults feel are important but that children may not be intrinsically motivated to do.

The self-regulated learners we seek to develop in our schools have high levels of intrinsic motivation to learn and explore. In addition, with regard to extrinsically motivated activities, these children seek out challenges, set high standards for themselves, and work hard, not because they have been coerced into doing so with promises of rewards or threats of punishment, but because they have taken on the value of those activities—for example, of learning and doing well in school—and have made them their own. As we described earlier, the process of taking on the regulation of behaviors introduced and initially regulated by socializing agents is called internalization.

Internalization is best conceptualized as a continuum describing the extent to which the regulation of extrinsic behaviors has been taken in and integrated with the individual's own sense of self. Four styles of self-regulation—external, introjected, identified, and integrated—organized along a continuum of autonomy (Connell & Ryan, 1987) were described earlier. Before exploring the conditions under which internalization and intrinsic motivation flourish, however, it is important to reiterate that the process of internalization is a natural and spontaneous one. That is, children naturally take on the regulation of originally externally initiated activity as they fulfill needs for competence, autonomy, and relatedness. Movement toward autonomous regulation is a way of mastering regulatory challenges, helping one to feel more choiceful, and bringing one into closer connection with significant others who value the behaviors. Thus, the social-contextual factors that facilitate intrinsic motivation—namely, autonomy support, structure, and involvement—should also help to facilitate children's movement along the self-regulatory continuum toward greater autonomy.

In this section, we describe the three dimensions of the parental environment as they are manifest in the school years. To support children's autonomy is to affirm them as unique, active, and volitional beings. Autonomy support includes valuing children's feelings and perspectives, encouraging them to think independently and solve their own problems, and providing opportunities for them to make decisions and fulfill developmentally appropriate responsibilities. Conversely, controlling children's behavior involves using surplus pressure or controls to assure behavior, solving problems for children, and taking responsibility for their actions. In several studies in the elementary age range, we have defined and measured autonomy support as the degree to which parents value and use techniques that encourage independent problem solving, choice, and participation in decisions, as opposed to dictating outcomes externally and motivating children using punitive disciplinary techniques, pressure, or controlling rewards.

Structure allows for competence by making the environment predictable, such that effects follow reliably from action and contingencies are logical and consistent. In our work in the elementary period, structure is defined and measured as the extent to which parents provide clear and consistent guidelines, expectations, and rules for behavior, without respect to the style in which they are promoted.

Finally, involvement refers to the provision of resources by parents to the child. We conceptualize these resources as being provided within particular domains, for example, the school, peer, or home domains. Such a view allows for the fact that parents may choose to or, because of contingencies in their own lives, be forced to dedicate resources within particular areas. These resources can come in the form of time spent together, the provision of emotional resources such as warmth and caring, interest and attention, or both. The provision of involvement fulfills needs for relatedness as children experience a caring, engaged adult.

We have used several methods to measure these dimensions in our own work, including interview methods and reports of children, parents, and teachers. We now turn to literature supporting the importance of parental environments for children's self-regulation in school.

Grolnick and Ryan (1989) conducted interviews with 114 mothers and fathers of third- through sixth-grade children regarding the ways in which the parents motivated their children to engage in school-related and home activities and how they responded to poor and good performance of these activities. Data yielded from observer ratings of these interviews on dimensions of autonomy support, structure, and involvement were then related to indexes of self-regulation measured by child and teacher report as well as to objective achievement indexes. Parental autonomy support was associated with (a) children's reports of more autonomous self-regulation and greater perceptions of competence, (b) teacher ratings of students' competence and behavioral adjustment, including less acting-out and learning problems in the classroom, and (c) children's grades and achievement test scores. Thus, autonomy support appears to be a key resource for children's self-regulation. Parents' provision of structure was associated with children's self-reports of greater understanding of the control of their success and failure outcomes both in school and in general. Finally, maternal involvement was positively associated with teachers' ratings of children's competence and adjustment and with children's grades and achievement scores.

Building on this work, Grolnick et al. (1991) examined the pathway through which parental resources affected chil-

dren's school outcomes. They suggested a model whereby parenting dimensions facilitated children's school success through their effects on children's inner motivational resources. These authors tested a mediational model, in which the motivational resources of control understanding, perceived competence, and self-regulation mediate the relations between parental autonomy support and involvement and achievement outcomes. Results indicated that both mother and father involvement and autonomy support were associated with children's motivational resources of perceived competence, control understanding, and self-regulation. These resources were, in turn, associated with children's academic achievement. It is interesting to note that there was also a negative relation between academic achievement and mothers' involvement, indicating that when children are doing more poorly, mothers become more involved. We interpret this direct effect as a feedback mechanism in which children's behavior determines mothers' behavior. This effect illustrates the important point that there are bidirectional effects in which parents are not only affecting motivational resources but also responding to their children's behavior.

In several recent studies, we focused more specifically on the involvement dimension, looking at parents' involvement in their children's schooling and its effects on children's school success. There is now a large body of literature showing the effects of parent involvement on children's school performance across a variety of ages and populations. For example, Stevenson and Baker (1987) found strong relations between parent involvement and children's school performance across a wide age range. Further, supporting our earlier argument that family background affects school performance at least in part through home–school similarity, these authors showed that parent involvement almost completely accounted for the relations between family socioecomonic status and school performance. Epstein (1982) showed that students whose teachers and parents used frequent parent involvement practices reported more positive attitudes toward school, better homework habits, and more homework completed on weekends. Heyns's (1978) work on the effects of summer learning is particularly compelling. In her research, the disparity between more- and less-advantaged families lessened during the school year and widened following the summer when children returned to school. These results focus on the importance of the home environment and suggest that activities going on in the home are important in children increasing skills and maintaining achievement gains.

In our work, we have challenged the traditional notion that parent involvement affects children's school success directly by building skills such as those in math and reading. Rather, we have posited an indirect-effects model whereby parent-involvement activities affect children's school success through their impact on children's motivational resources (Grolnick & Slowiaczek, 1994). More specifically, we have posited that parents who are highly involved will facilitate their children's control understanding, perceived competence, and self-regulation, which will then translate into positive school outcomes. In one study, we used a multidimensional conceptualization of parent involvement to examine this model.

Consistent with other researchers (Cone, DeLawyer, & Wolfe, 1985; Epstein, 1990), we have suggested that parents can be involved in their children's schooling in a number of ways. These ways can differ for diverse groups of parents. In particular, we have described three types of parent involvement. The first, school involvement, involves participation in activities at the child's school, such as parent–teacher conferences and attendance at school activities and events. Cognitive–intellectual involvement includes parents exposing their children to cognitively stimulating materials, such as reading books to them, taking them to museums, or discussing current events. Finally, personal involvement refers to parents' knowledge about and interest in their children's school experience. These dimensions are assessed using multiple raters, including children, teachers, and parents.

Grolnick and Slowiaczek (1994) assessed the three dimensions of involvement in 302 mothers and fathers of 11- to 14-year-old children. Results indicated that for mothers, school and cognitive–intellectual involvement indirectly affected school grades through their relations with perceived competence and control understanding. For fathers, school and cognitive involvement affected perceived competence, which in turn affected school grades. It is interesting that there was one direct effect, that between mothers' school involvement and children's school grades. As in the study cited earlier, we interpret this as a feedback effect, although in this case, mothers became more involved when their children did well in school.

In all of this work, the studies were correlational and conducted at one time point. Thus, the direction of effects was ambiguous. For example, parents who are more involved could be so because their children are more self-regulated; such students might make involvement more satisfying, actively elicit their parents' involvement, or both. Some of these bidirectional findings were evident in our feedback mechanisms. Thus, longitudinal work is key to addressing the direction of effects as well as determining whether involvement can affect children over the long term.

In a recent study (Grolnick, Gehl, & Manzo, 1997), we assessed parent involvement and children's motivation and school outcomes over 3 years. A total of 209 third-, fourth-, and fifth-grade children, their mothers, and their 28 teachers participated. To look at involvement and children's resources over time, we computed individual starting points and trajectories of mothers' involvement and children's resources and performance outcomes. We then correlated these starting points and trajectories to ask whether starting points for involvement and motivation were related and whether changes in parent involvement related to changes in resources and outcomes over time. The results suggested that for all three types

of involvement, starting points or intercepts were correlated. Specifically, parents who were higher in involvement at the start of our study had children who were higher in perceived competence, self-regulation, control understanding, and reading and math grades and who were lower in acting-out and learning problems at the start of our study. Our analyses of change were strongest for personal involvement and indicated that parents who increased in involvement over time had children who increased in perceived competence and in reading and math grades and decreased in learning problems over time. These results provide strong support for the effects of parent involvement. In addition, they are hopeful, in that interventions that increase involvement may have salutary effects on children.

In the same sample, we were interested in whether parent involvement could make a difference for children at risk for school failure. We identified a number of risk factors associated with school failure in past studies, including low parent education and single-parent status. We then divided our sample into high-, medium-, and low-risk children. In confirming the power of these factors to predict children's school outcomes, we found that children in our high-risk group were lower in all motivational resources and school outcomes. We then looked at whether involvement might buffer such risk effects by determining whether there were interactions between involvement and risk in predicting outcomes. As predicted, we found that when involvement was low, risk predicted negative outcomes. However, for reading grades and behavioral problems, the risk groups did not differ when parents were highly involved. Thus, especially for behavior problems, parents who are involved can compensate for other risk factors.

There are a number of challenges for our work on the motivational effects of parent involvement in children's schooling. First, in the aforementioned studies, we looked at parent involvement separately from parent autonomy support and structure. It is certainly likely that although some parent involvement is better than none, involvement that supports the autonomy of the child and provides clear structure will be optimal. We are now engaged in a study examining how parents and children work together on homework and the factors that determine how autonomy supportive parents will be in working with their children. Such studies, along with the previously described findings, will begin to address the complexity of factors affecting children's motivation.

In recent work, we are also focusing on factors that make it possible for parents to become involved in their children's schooling (Grolnick, Benjet, Kurowski, & Apostoleris, 1997). In this work, we have attempted to build on earlier research showing that lower income, less educated parents were less involved than more educated or higher income parents (Hoover-Dempsey, Bassler, & Brissie, 1992; Lareau, 1987) by examining the proximal factors that might account for these relations. We focused on aspects of parents and children, such as parents' attitudes about their roles in their children's learning and parents' perceptions of how difficult their children were to work with; contextual aspects, such as stress, support, and family resources; and parent-involvement practices of classroom teachers. In Year 1 of the longitudinal study described earlier, we found that parents who saw themselves as efficacious and those who saw their role as that of teacher were more likely to be cognitively involved than those who felt less efficacious and those who did not view themselves as their children's teachers. Difficult environmental circumstances undermined school involvement, especially for mothers of boys. Teacher practices were important, but they appeared to have their strongest impact when other factors were optimal. For example, when teachers used high levels of parent involvement practices, they facilitated parent involvement, but only when parents also saw themselves as teachers or experienced a low level of stress. Thus, teacher efforts, though effective, do not seem to be having an impact on those parents most in need. If parent involvement is one of the pathways to educational equality (Grolnick et al., 1997), we need to find innovative ways to reach those parents whose circumstances do not allow for more traditional forms of involvement.

The work in this section stresses the way that different home experiences lead to motivational resources. Children thus leave elementary school with different levels of these resources. We now turn to research on the transition to junior high and events that challenge children's developing resources.

NAVIGATING TRANSITIONS INTO JUNIOR HIGH AND BEYOND

The normative transition into junior high school brings with it a new set of changes and challenges for the developing child. A new role for the "school child" emerges as the rapidly developing adolescent is expected to take on an increasing number of responsibilities, both academically and socially. These new responsibilities are also accompanied by a new and often unfamiliar environment. Given the potentially stressful nature of these changes, researchers view this transition as a time of vulnerability. Specifically, children are at increased risk of experiencing disruptions in their self-esteem and academic performance (Eccles, Lord, Roeser, Barber, & Jozefowicz, in press). At the same time, evidence for negative sequelae of the transition is mixed. For instance, several studies found evidence of decreases in self-esteem following a transition to junior high (Seidman, Allen, Aber, Mitchell, & Feinman, 1994; Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991), but others found no change (Berndt, 1987; Hirsch & Rapkin, 1987) and still others found evidence of an increase in self-esteem (Proctor & Choi, 1994). The literature is further complicated by the fact that some studies found the negative consequences to be limited to female adolescents (Blyth, Simmons, & Bush, 1978) or to minority students, particularly male African-American students (Simmons, Black,

& Zhou, 1991). The variability in the results of these studies can most likely be attributed to differences in populations, as well as to the size and quality of the schools from which and into which students are transitioning.

Recently, the literature has begun to focus on who is vulnerable to declines and what factors might protect children's self-perceptions and academic performance (Lord, Eccles, & McCarthy, 1994). Evidence indicates that child characteristics, such as low achievement (Lord et al.), and environmental factors, such as peer social support (Hirsch & DuBois, 1992), predict the quality of children's adjustment to the transition. The family represents another important contributor to children's adjustment. Our own work and that of others (e.g., Lord et al.) indicated that aspects of the family context predict children's abilities to navigate the transition into junior high successfully.

In thinking about the role of home environments in the transition to junior high, it is important to examine the specific context into which students are transitioning. First, junior high is likely to be larger and more impersonal than the elementary school context (Midgley, Feldlaufer, & Eccles, 1988). Students do not have an opportunity to get to know teachers in the same way as they did in elementary school. Further, the large bureaucratic structure of junior high includes more control and regimentation and fewer opportunities for children to make decisions. Eccles et al. (1993) argued that such a structure represents a lack of fit for adolescents who desire more opportunities for decision making as they view themselves as emerging adults.

Given these characteristics, students' home environment may help to build the resources students need to cope with these changes and serve as a protective factor as they experience stressful events associated with the transition. In our own work, we have focused on how parent involvement and autonomy support build children's motivational resources and assist them in dealing effectively with the transition. Parent involvement should continue to play a role because children need parental support as they encounter the more impersonal nature of junior high. In addition, when parents keep abreast of what is going on in school, they are able to help their children manage issues in their school lives. Such involvement should continue to translate into the motivational resources of perceived competence, perceived control, and self-regulation so crucial to motivated action and adjustment. But in addition, this involvement should specifically protect against negative effects associated with the transition. Although we posit that parent involvement in general remains important at the transition, the relative importance of different forms of involvement may change. For instance, school involvement decreases as children get older (e.g., Stevenson & Baker, 1987). A decrease in school involvement is expected given that junior high affords fewer opportunities for parents to be directly involved with their children at school and in their classrooms. For this reason, we expected that school involvement would be a less developmentally appropriate facilitating factor over the transition. Personal and cognitive involvement, however, were expected to buffer children from experiencing declines in grades and motivational resources over the transition.

Similarly, the role of autonomy support may take on new meaning with the onset of adolescence. Adolescence is a time when children often seek out increased responsibility for their own behaviors and decisions. How parents respond to this increased pressure for autonomy has important consequences for children's adjustment to junior high. This may be especially true given the regimentation of the junior high setting. Support for this view was found by Lord et al. (1994) in their work on family decision making and the transition to junior high. These authors asked sixth-grade children how attuned their parents were to their needs for decision making and how often their parents used democratic decision-making practices. They found that those sixth graders who perceived their parents as less attuned and as less democratic experienced greater decreases in their self-esteem over the transition. Thus, children who felt that their families were attuned to their needs for autonomy were more successful in adjusting to junior high.

In our study examining maternal involvement and autonomy support and the transition to junior high (Grolnick, Kurowski, Dunlap, & Hevey, 1998), we looked at these parental resources both in sixth grade and in seventh grade. Thus, we could assess the effects of sixth-grade parental resources and the effects of changes in those resources across the transition. In the schools included in our study, elementary children moved to a larger junior high. However, the school structure divided children into cohesive teams, which made the school feel somewhat smaller and more personal.

In terms of general transition effects, we found, similar to other studies, that grades dropped following the transition. Children's self-worth also appeared to decrease, but it is interesting that this effect was apparent largely for children from lower socioeconomic backgrounds. These results support the claim that the transition to junior high is a critical juncture in children's school careers.

Our primary analyses addressed how levels of maternal involvement and autonomy support in the sixth grade were related to motivational resources of perceived competence, control understanding, self-regulation and self-worth, reading and math grades, and learning and acting-out problems. Given that several of our outcome variables decreased over the transition, the positive effects of parental resources, when apparent, were interpreted not as increasing motivational resources, but as preventing or minimizing decreases in resources. Thus, we refer to these associations as buffering effects.

Consistent with our predictions, we found that maternal involvement and autonomy support were related to changes in children's motivational resources and performance outcomes over the transition. Sixth-grade levels of cognitive involvement had a buffering effect on perceived competence

and reading grades, such that children of parents high in involvement had less of a decrease in these resources over the transition. Personal involvement had a buffering effect on reading grades and acting-out and learning problems. Sixth-grade maternal autonomy support appeared to prevent increases in acting-out and learning problems. There were also some effects for changes in maternal resources. Mothers who, relatively, increased in cognitive involvement appeared to prevent increases in learning problems, and those who increased or remained stable in personal involvement buffered decreases in self-worth. Changes in autonomy support were related to lesser decreases in self-worth, control understanding, and reading grades.

Our results revealed some interesting links between parents' behaviors and children's outcomes during this period. In particular, mothers appear to have more of an impact on their children's reading performance and school adjustment than on math outcomes. This is consistent with work showing that the school accounts for more of the variance in children's math performance than for their reading performance (Bryk & Raudenbush, 1988). Cognitive involvement, which we see as a link between home and school, appears to build children's confidence and helps to maintain their academic performance. On the other hand, personal involvement and autonomy support were most associated with behavioral adjustment. When parents are available for support and provide for children's needs for autonomy, children may be most able to be flexible and less reactive to the more controlling context they encounter. Finally, changes in involvement and autonomy support were somewhat less predictive of children's outcomes than were sixth-grade levels. This supports the idea that the influence of the parenting context is both cumulative and situational.

In contrast to the other types of involvement, increases in school involvement were associated with increases in acting-out and learning problems in the classroom over the transition. We view this finding as a child-to-parent effect, in which parents of children who are having difficulty in the transition are increasingly called into the school to deal with the effects of these problems. This finding underscores the bidirectional nature of parent–child relationships and the importance of thinking developmentally about the provision of parental resources.

The work on junior high highlights parents' roles in maintaining the self-regulated learner. As we noted earlier, there are strong contextual effects on children's motivation. Parents play a key role in protecting children from the potentially disruptive challenges they encounter in their school careers.

Increasingly, schools are heeding the findings of research and altering the structure of middle and junior high schools to ease the transition. First, as in the schools sampled in our study, many schools are making junior high feel smaller and more personal by dividing children into teams. In such an arrangement, there may be one teacher who can serve as a contact person for parents. Such a person may increase the probability of home–school contact. Also, many schools are exploring ways to involve parents in developmentally appropriate ways at the junior high level.

CONCLUSIONS AND IMPLICATIONS

We believe the findings across development provide strong support for the role of parental resources in building school-relevant motivation in children. Children's intrinsic motivation and self-regulation of behavior and emotion are resources that children bring to the school environment and that are facilitated or undermined in an ongoing manner by the environments in which children learn. We now discuss some of the directions in which we believe the field might move to facilitate the study and practice of self-regulation in children's learning.

We suggest that the study of learning needs to go beyond traditional indexes of school success to take into account children's motivation. As educators, we need to find ways to capitalize on children's intrinsic motivation for activities that might be spontaneously interesting but also to have as a goal the movement toward greater autonomy for activities that are not inherently interesting. Although we focus in this article on the importance of a home environment that provides autonomy support, structure, and involvement, these dimensions are also proving to be key dimensions of the motivation-enhancing school environment (e.g., Skinner, Wellborn, & Connell, 1990).

A second issue illustrated in this article is the importance of considering the developmental stage of the child to determine the environment that will meet his or her motivational needs. For example, the importance of bridging gaps between home and school is especially key at the transition to school.

Third, it is important to recognize in all of this work that home and school environments exist within their own higher order contexts. The ability of parents to provide resources to children depends on family circumstances—including levels of stress and support—and on opportunities presented by other social institutions, especially schools, in providing the structures that allow this provision of resources. Schools might consider interventions that would allow parents to provide autonomy support, structure, and involvement at home. For example, altering the structure of junior high so that parents have contact with a designated liaison may be helpful. Also, teachers may help parents understand that the goal of their involvement in homework is not to make sure the child "gets it right" but to assist the child in solving his or her own problems. This might make the possibility of more autonomy-supportive involvement a reality.

Given these key issues, we suggest areas in which further research is needed. First, we need to explore interventions that educators can use to increase involvement that is opti-

mally structured and autonomy supportive. Second, we need information about how qualities of homes and schools interact to affect children's adaptation. For example, how do expectations of children coming from homes with parents who are more controlling affect their interactions with autonomy-supportive teachers? The answers to this and other questions can help us to encourage all children to become self-regulated learners in our schools.

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