Exploratory Orientation as an Educational Goal

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This article lays the foundations for the notion of exploratory orientation as an educational goal. After reviewing the conceptual roots of exploration, the article examines the essence of the experience of exploration and its developmental benefits. Then, turning to the context of school, the article discusses the mostly implicit role of exploration and of exploratory orientation in a number of perspectives concerned with adaptive student engagement. The article concludes by briefly noting the environmental and instructional practices that could facilitate an exploratory orientation among students, and by calling for further conceptual and empirical work in this domain.

Exploratory action and exploration as a process are emphasized and discussed in a number of bodies of psychological literature with essentially motivational and developmental connotations; yet the meaning of exploration or the development of an exploratory orientation as an educational goal has been widely neglected. Our objective in this article is to probe the developmental and educational significance of this concept and to describe the conceptual roots and lay the foundations for further discussion of an exploratory orientation in developmental and educational contexts. After a brief overview of literatures that mention exploratory processes, the psychological essence of exploration is discerned with an emphasis on its virtues, and both immediate and long-term developmental effects are examined. Then, the discussion turns to the educational context and the hypothesized contribution of an exploratory orientation to short- and long-term educational goals. We conclude by briefly considering the implications of our discussion for educational environments and practice.

OVERVIEW

Exploration is used in a variety of psychological research contexts, ranging from animal behavior research to research on human behavior and development (Archer & Birke, 1983). In its broadest sense, the concept of exploration includes activities of information gathering about the environment and of investigation—respectively referring to passive

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and active forms of exploration that Berlyne (1960) termed inspective and inquisitive behavior. Exploratory behavior was postulated to stem from an exploratory drive in animals and human beings and had been defined as a response to certain environmental features or stimulation (cf. Berlyne, 1960; Harlow, 1950). In Berlyne's (1960) book, titled *Conflict, Arousal and Curiosity,* arousal is underscored as a core experience in exploratory behavior.

In another important body of literature, exploration is observed as a most significant aspect of infants's behavior in relation to attachment. Bowlby (1969) described the need for attachment and the drive to explore as two motivational systems that are mutually related and complementary. Similarly, Ainsworth, Blehar, Waters, and Walls (1978; see also a cross-cultural comparison: Zach & Keller, 1999) investigated the attachment–exploration balance. The attachment system is responsible for keeping the infant in close proximity to the caregiver and providing a sense of security. The exploration system motivates the infant to learn the immediate environment and hence launches the child into the world. Although a great deal of research has been done on the attachment system, the exploration system has been the focus of much less research (cf. Elliot & Reis, 2003). However, findings indicate that young children exhibit different patterns of exploratory activities that correspond to different patterns of attachment, with exploratory behavior most clearly observed when the child feels secure in his or her relationship with a caregiver (Ainsworth et al., 1978; Matas, Arend, & Sroufe, 1978; see also a recent review of the issue in Moss & St. Laurent, 2001). Similarly, adults who report the experience of insecure attachment (either anxious-ambivalent or avoidant patterns) tend to engage less in various types of exploration than

those who report secure attachment (e.g., Green & Campbell, 2000).

From a psychosocial perspective (Erikson, 1968), exploration plays a critical role in identity formation and in the development of young people (e.g., Kroger, 2000; Marcia, 1993). When a person is taking an active role in the process of self-definition and explores the different identity elements to author one's becoming, identity is considered self-constructed (Marcia, 1993). According to Grotevant (1992), the exploration process is the work of identity. In this key process in identity formation, the individual elicits "information about oneself or one's environment" and engages in problem solving behavior to make a decision about a life choice (Grotevant, 1987, p. 204). Similarly, Berzonsky (2003) described individuals who are characterized by an informational identity style as those who deliberately seek out self-relevant information, evaluate it, and deal with identity issues in a "mentally effortful manner" (p. 132). More recently, Arnett (2000) identified exploration of life possibilities and identity issues as the hallmark of "Emerging Adulthood," a distinct period in life, from the late teens through at least the early part of the 20s (18–25).

One of the life domains that Erikson (1968), Marcia, (1993), and Arnett (2000) refer to in relation to exploration is work. Indeed, the issue of exploration is inherent in the context of career development and is regarded as a developmental cornerstone (Ginzberg, Ginsburg, Axelrad, & Herma, 1951; Super, 1957). Career development and vocational exploration are relevant across the K–16 years, affect many choices that students make, and provide important domains for the work of school counselors (Lapan, 2004). In this literature, exploratory behavior is considered critical in making a career choice (with an early statement by Parsons, 1909). Vocational exploration is typically depicted as a process that includes both self-examination (e.g., a probe of one's interests, abilities, and values) and an examination of the "environment" (e.g., educational and vocational options, the world of work) and optimally culminates in the establishment of a coherent career plan, congruent educational and vocational choices, and an engagement in a personally meaningful work life (e.g., Blustein, 1997; Gottfredson, 1996; Holland, 1997; Mitchell & Krumboltz, 1996; Super, Savickas, & Super, 1996). In Super's (1957, 1994) theory of career development, exploration marks the adolescence stage of development and precedes the making of actual vocational choices and the "establishment" of career. Jordaan (1963), who worked with Super and elaborated the concept of career exploration in an important article, contributed an extensive discussion of the nature of exploration. Jordaan made an effort to review various perspectives in psychology (e.g., motivational theory and developmental psychology) and described the concept of exploration through a wide-angle lens. Since then, exploration has been applied in relation to variety of domains (e.g., academic, social), as an investigation of different types of information (e.g., about self, others, environment), and has been applied in conceptualiza-

tions of fields including work (Hazan & Shaver, 1990), curiosity (e.g., Aspelmeier & Kerns, 2003; Mikulicer, 1997), competence (Aspelmeier & Kerns, 2003), and achievement motivation (Elliot & Reis, 2003).

THE ESSENCE OF EXPLORATION

A common denominator of all the preceding perspectives indicates that exploration (as in exploratory action as well as a process of exploration) is about engagement with the environment and the motivation to acquire information through interaction with the world. This is a form of action that is conceived of as translating innate curiosity to an active search for information, its examination, and evaluation in a self-reflective manner. Hence, we define exploration as a deliberate internal or external action of seeking and processing information in relation to the self. An outcome of this processing would be the creation of self-relevant meaning with an integrative effect and thus the facilitation of development. Indeed, with development, exploration seems to become more and more critical for the formation of the individual's self and identity.

Exploration is commonly conceived of as an innate motivational propensity (Bowlby, 1969; White, 1959) and hence as primarily intrinsically motivated (Deci & Ryan, 2000) and as potentially leading to positive affect. However, implicit to an exploratory action is an experience of a certain degree of subjective uncertainty, ambiguity, and incoherence. Therefore, very often engagement in exploration requires a certain capacity to tolerate the unpleasant affect that seems inherent to the process. This uncertainty or ambiguity could be perceived as intolerable and as a threat, and might prevent exploration or lead to the termination of the exploratory action. At the same time, the goal of exploration could be perceived as worthwhile, and the accompanying experience of ambiguity as a challenge (cf. Blustein & Flum, 1999; Deci & Ryan, 1991; Elliot & Reis, 2003; Flum, 1994). Indeed, in tandem with the effort to reach the goal of exploration, the exploratory action, which aims at reducing the ambiguity and enhancing coherence, potentially promotes a sense of effectance, mastery, and competence (White, 1959).

Whereas engagement in exploration is generally associated with adaptive developmental outcomes, there are of course other developmental trajectories that do not involve exploration, or involve exploratory action only to a limited degree, and that are more commonly associated with lower adjustment. In the attachment literature, attachment and exploration are linked. Variations in attachment are related systematically to various patterns of exploration. In general, this literature suggests that the availability and responsiveness of the caregiver in a style of secure attachment provide the secure base from which the child can explore. In comparison, styles of insecure attachment are found to impede exploratory behavior. In the case of anxious-ambivalent attachment style, the child seems preoccupied with uncertainty about the

caregiver's response and availability, and tends to be too anxious to explore. When a secure base is absent, and the style of attachment is avoidant, defensive dynamics that lead to rigid and uninterested exploration are prevalent (Elliot & Reis, 2003). Thus, in this literature, exploration is associated with adaptive models of attachment and is perceived to be essential to children's adjustment.

In a similar fashion, the psychosocial literature that follows Erikson's conceptualization suggests that identity can be formed in a variety of ways. Without getting into subtle differences, three main paths (or developmental styles) of identity formation are identified: self-constructed identity, conferred identity, and diffused identity (Marcia, 1993). Self-constructed identity is reached by an engagement in a process of exploration that leads to commitments. In this process, the individual is actively involved in the construction of identity (cf. Berzonsky, 1992). In a conferred identity, or a foreclosed style of identity formation, the individual does not participate actively in the exploration of identity issues, but rather adopts unexplored commitments and an assigned identity from others. A diffused style is marked by no real interest in identity issues, avoidance of any active engagement in exploration, and no clear commitments.

Generally, research evidence strongly supports the adaptive advantage of self-constructed identity (Marcia, 1993). In explaining these developmental benefits, a few of the effects of engagement in exploration are underscored. Exploration is found to be associated with openness to experience and to new information as both a feature of the process itself and its consequences (e.g., Mikulincer, 1997, in the attachment literature; Berzonsky, Macek, & Nurmi, 2003; Berzonsky & Sullivan, 1992; Kroger, 1996; Flum, 1994, in the identity formation literature). Flexibility (as opposed to rigidity), flexible cognitive style, tolerance of ambiguity (Mikulincer, 1997), and "flexible strength" (Kroger, 1996, p. 35) are another set of corollaries of the process of exploration. Whereas the experience of exploration is found to foster openness to experience and flexibility in self-constructed identity, the absence of exploration in a foreclosed identity is often associated with ego closure, rigidity, and the tendency to overuse defenses (Flum, 1994; Flum & Blustein, 2000), and "inflexible and rigid structural organization" (Berzonsky et al., 2003, p. 125). Indeed, the self virtues of openness to experience and flexibility have become developmentally more important and carry special significance for adaptation in contemporary and future social contexts, a point we elaborate on shortly. Finally, exploration is also found to be associated with the promotion of a sense of autonomy, agency, and self-determination. An experience of participation in a self-directed process is at the core of self-constructed identity (Marcia, 1993), an experience that in turn enhances a sense of autonomy (Deci & Ryan, 2000; Flum & Blustein, 2000).

However, beyond the supportive research evidence, the significance of exploration is underscored when we foresee the upcoming future world of work—that world in which to-day's students are growing up, and in which a self-determined, self-constructed course of development with exploratory orientation at its core seems essential for successful adjustment.

LONG-TERM PERSPECTIVE: THE ADAPTIVE SIGNIFICANCE OF AN EXPLORATORY ORIENTATION

When we consider the available developmental literature collectively, the developmental significance of the experience of exploratory activities and the exploration process becomes clear. Indeed, it is our view that this is even further underscored as we take a future perspective at this juncture in the evolution of Western culture. The adaptive developmental virtues that are fostered by an engagement in exploration become critically important at this juncture, when the natural context of life is becoming more and more typified by a growing amount of choice and an increasing number of transitions during the life span. In this context, having the experience of exploration and exploratory skills in one's personal portfolio could be advantageous beyond the immediate developmental effect.

When we turn to the perspective of career development and the world of work again, we find that with the transformation from the industrial era to the information era, the essence of work and how it interacts with other human roles is being fundamentally reformulated (Richardson, 1993; Savickas, 1993). Rapid technological change, changes in organizational and occupational structures, and modifications in work patterns are among the most prominent features of processes that are reshaping the world of work (Reich, 1991). Most people can no longer expect to spend all of their working lives in the same setting and to have a predicted sequence of positions. Moreover, anticipated changes in jobs or occupations along with changes in work and organizational demands are becoming constants that repeatedly occur throughout the life spans of an ever-increasing proportion of workers in Western cultures (e.g., Marshall & Tucker, 1992; Savickas, 1993; Sennett, 1998). With adult life being increasingly marked by multiple transitions, it is not surprising that a notion of recycling, with reexploration at its core, is introduced in theorizing career development (Super et al., 1996), and cycles of exploration and commitment (as opposed to discrete episodes; cf. Marcia, 1993) can be expected to be the constants across socioeconomic groups and cultural boundaries (Rifkin, 1995).

In this changing climate, organizations that had at one time provided relative security to workers are now seeking a sort of elasticity as they attempt to adapt to the fast-changing environment (Collin, 1994; Savickas, 1995). In short, the notion of a "job for life" is a dying concept; moreover, the very essence of the psychological contract (Watts, 1996) between the individual and the organization is undergoing a profound change. Or-

ganizations devoted to production or service, which have historically provided the socially sanctioned role of employee or worker, have been reconfigured. Consequently, people have to take more responsibility for their own lifelong self-development (Watts, 1996). In addition, the elasticity of organizations demands a parallel level of flexibility from the individual. Much of this flexibility, which is likely to become one of the hallmarks of adaptive career behavior, will rely on the availability and efficacy in use of exploratory skills and on the willingness to engage in exploration (Flum & Blustein, 2000). Together, these characteristics can be said to define an exploratory orientation: the engagement in activities with the purpose of relating experiences to the self.

Current experiences of exploratory activities of young people are likely to impact their readiness or ability to resort to exploration in upcoming situations, and hence affect their long-term, future adaptation. From a cognitive point of view, for instance, we learn that cognitive principles of representation—of availability and accessibility of a schema—are related to earlier experiences and are triggered by relevant environmental cues. As recent research on attachment style activation indicates, whether global or relationship-specific attachment is concerned, attachment style activation is governed by schema availability (i.e., the presence in the mind of cognitive representations of attachment relationships) and accessibility (i.e., the ease with which attachment representations spring to mind; Rowe & Carnelley, 2003). We can assume that similar to the case of attachment style, the availability and accessibility of exploration-related representations would be closely intertwined with the existence of prior exploratory experiences and with characteristics of present relevant environmental cues.

From a motivational perspective, earlier experiences are likely to affect the perception of exploration-demanding situations as a challenge (rather than a threat), and contribute to openness to new experiences and to the development of a sense of competence and mastery of exploratory skills. In short, experiences of exploration and their meaning to the individual have a constructive role in promoting an interest in, and willingness to engage in, exploratory activities (Flum & Blustein, 2000). Engagement in exploratory action and the experience of the exploration process that are likely to result in the development of exploratory orientation may meet immediate developmental goals that also carry to potentially long-term adaptational goals.

Yet, whereas exploratory tendencies may be innate, they do not necessarily manifest always. We believe that for adaptive exploratory orientation skills and behaviors to develop, they need to be learned and supported. We suggest that an important goal of the education system is to teach and support such development. It is in school and other educational settings that students should learn the value of, engage in, and acquire skills in exploration. Moreover, the exploratory orientation and skills that benefit people in the world of work are those that would contribute to adaptive development among adolescents in school: learning material in a meaningful way, developing self-regulatory orientations and skills, forming educational and career trajectories, and constructing identities as individuals and citizens.

EXPLORATORY ORIENTATION IN SCHOOL

We view the notion of exploratory orientation as an educational goal to have a double meaning: Not only do we suggest that exploratory orientation should be considered a goal of the process of education; we also claim that exploration should be the goal orientation of students when they engage in schoolwork. Thus, although we recommend that educators view the essence of the process of education as exploration of the meaning of experiences to the self, and that they should conceive of teaching as eliciting, affording opportunities for, and scaffolding students' exploration, we also suggest that students should adopt an exploratory orientation when engaged in school activities. Specifically, we suggest that the primary focus of students' engagement in schoolwork should be to intentionally and consciously examine, investigate, and evaluate the relevance and meaning of content and action to their sense of who they are and who they want to be, at the same time engaging in constructing and reconstructing these self-perceptions and self-definitions. This implies a reciprocal dynamic process between students' developing identities and the academic tasks and contents. As we argue later, an important element of this process involves an active reflection on both the academic task and on one's sense of self.

Arguably, so far, exploration (at least as discussed in this article) has not received a central role in conceptualizations of academic engagement. Nevertheless, several recent theoretical frameworks emphasize, mostly implicitly, the importance of exploration to adaptive engagement in school. Notably, the concept of exploration that plays a role in these frameworks is somewhat different from the concept that we are attempting to advance in this article as the guide for academic engagement. Most, if not all of these perspectives, conceptualize exploration as a fundamental exploratory motive—the motive exhibited by infants when they engage in exploration of their environment (cf. White, 1959)—whereas we highlight a more conscious and strategic exploratory process. This difference notwithstanding, there are links between the benefits of exploration as conceptualized by these theories and those that we suggest would result from adopting an exploratory orientation in school. Moreover, recent critical perspectives within and of these theoretical perspectives highlight the need for a more conscious and explicit exploratory process than was originally conceived. Arguably, four influential perspectives in this regard are achievement goal theory (Ames, 1992b), interest (Renninger & Hidi, 2002), self-determination theory (Ryan & Deci, 2000), and self-regulation (Boekaerts, Pintrich, & Zeidner, 2000).

ACHIEVEMENT GOAL THEORY AND EXPLORATION

Achievement goal theory (Ames, 1992b; Maehr, 1989; Nicholls, 1989) emphasizes the adaptive nature of adopting mastery goals: engagement in the task with the purpose of enhancing competence; that is, learning, understanding, and developing skills. Whereas theorists define mastery goals somewhat differently (Pintrich, 2000), when broadly defined, mastery goals refer to an orientation toward personal growth and identity development (Kaplan & Maehr, 2002; Nicholls, 1992) that is based in effectance motivation—the motive to engage in "directed, selective, and persistent" behavior that advances mastering of the environment (White, 1959, p. 317; see also Maehr, 1984). Among school children, mastery goals orientation is indicative of students' theories of education that include beliefs that to learn, master matters of substance, and grow as a person, one should invest effort, explore the material, collaborate, approach challenges, take risks, learn from mistakes, be imaginative, and express personal feelings and values (Nicholls, 1992). Moreover, engagement in the task under mastery goal orientation highlights the potential to enhance knowledge and skill and does not concern self-worth (Covington, 1992; Dweck, 1999; Nicholls, 1984). Thus, although not a salient component of mastery goals, exploration of academic content and experiences seems to be inherent in the meaningful pursuit of academic tasks that is conducted with the purpose of development of competencies and of personal growth.

Still, the concept of mastery goals is rarely viewed or treated as being based on exploration, and more narrowly focuses on the development of competence (Pintrich, 2000). Such a definition does not include or require exploration and is interpreted by some researchers as simply being oriented toward "getting better" in knowledge or at a skill. Indeed, criticisms of achievement goal theory suggest that an orientation to develop competence may not be enough for optimal development and learning, and that a more conscious and rigorous process of reflection is required. For example, several researchers (e.g., Blumenfeld, 1992; Blumenfeld, Puro, & Mergendoller, 1992; Meece, 1991; Middleton & Midgley, 2002) argue that, in addition to mastery goals orientation, there is a need for press for understanding, or demands for higher order thinking, to facilitate the level of engagement that is desired. These researchers seem to suggest that the dispositional orientation to master the environment could benefit from more explicit questioning of the meaning of material, and therefore, more reflective exploration of knowledge and its construction.

Perhaps most explicitly, Nicholls (1992) criticized motivation theorists, achievement goal theorists included, for trying to "raise expectations or to change [students'] attributions or goals without promoting open dialogue" (p. 280). He pointed to students' theories of school and of subject matter learning—such as those that incorporate mastery goals orientation

and performance goals orientation—as the point of departure for a dialogue between educators and students: a "spirited discussion of the nature and point of what they learn in school" that aims at "figuring out what matters in school and how to learn" (p. 280). Nicholls contended that this collaborative exploration should be conducted without attempting to manipulate students' theories but leaving open the result of the discussion (see also Nicholls & Hazzard, 1993). Engagement in such a process would lead to knowing the material better, but simultaneously and inseparably also to a more comprehensive development of a sense of self and identity.

INTEREST AND EXPLORATION

Another body of literature that highlights the importance of exploration of content to self is theory and research concerned with interest (Hidi, Renninger, & Krapp, 2004; Renninger, Hidi, & Krapp, 1992). Broadly, two types of interest received most attention in current literature: individual interest and situational interest.

Individual interest refers to a person's long-term and deep concern for particular subject content. Such concern involves high valuing as well as a complex and wide knowledge base (Renninger, 2000; although see Tobias, 1994). Well-developed individual interests provide important components of the self-concept (Hidi & Ainley, 2002) and are associated with personal values and self-related feelings (Krapp, 2002). When engaged in content related to their well-developed individual interest, students manifest subjective experience of effortless deep engagement in difficult tasks, high concentration and focused attention, initiation of challenge, positive emotion, and enhanced performance (Renninger, 2000). Renninger and Hidi (2002) argued that students working on content in their well-developed individual interest can be described as pursuing a mastery goals orientation. Krapp (2002) associated this engagement with intrinsic motivation.

In comparison, situational interest does not necessarily involve high valuing or a knowledge base, or even a positive emotion (Hidi & Berndorff, 1998). However, situational interest has been also found to contribute to effort and adaptive engagement, although not in the same magnitude as individual interest does. More important, situational interest has the potential of developing to become an individual interest (Krapp, 2002). This development involves, almost by definition, a process of explicit exploration that is aided by others. Krapp (2002) contended that the first step in the development of situational interest into an individual interest "requires learning conditions that make the content of learning meaningful for students according to their actual goals and longer-lasting motives and values" (p. 399). Renninger and Hidi (2002) argued that:

> With support … individuals with triggered situational interest can identify meaning for established goals, as well as

some utility, importance, and personal relevance. With support they may be positioned to begin shifting their understanding of what a subject area includes and being able to make meaningful connections to the tasks they are assigned. (p. 189)

These researchers contended that such support should target exploratory skills: "The emergence of individual interest has been attributed to the ability to begin *seeking answers to curiosity questions*—the kind of questions that enable an individual to begin organize information for him or herself," and this requires "positive feelings about content and … *metacognitive awareness* of what is known and what still needs to be figured out" (Hidi et al., 2004, p. 104, italics added). That is, the potential for situational interest to flourish into individual interest and thus facilitate adaptive engagement and development requires an active, conscious, and intentional exploration that necessitates the exploratory skills of information seeking and organization, and involves relating the experience of interest in the content, and perhaps of the process of exploration itself, to the self through self-reflection and through reorganization of the self-concept to incorporate these experiences (Hidi & Ainley, 2002, p. 268). The facilitating role of exploration in the development of individual interest was summarized recently in a review of research on interest with the following words: "Young people, who carefully explore their future aspirations and commit themselves to their decisions, show long term interests in their chosen subject, even in the case of a gender atypical major (e.g., women in mathematics)" (Hidi et al., 2004, p. 93).

However, Renninger and Hidi (2002) also argued that having a well-developed individual interest may be insufficient for optimal development. They emphasized the lack of reflectivity that may characterize such engagement—a lack that seems to demand a more explicit and conscious exploration of competencies, strategies, and meaning of content to the self. Supporting their argument with a case of one middle school student (Sam), Renninger and Hidi (2002) noted:

Even though Sam achieves in contents that are of well-developed interest, he does not appear to have a clear sense of what his strengths and strategies are. He does not know why he does not need to study for the test on the novel, or why he was singled out as a good writer. He seems to garner a sense that he is good or smart from his performance and others' recognition of him, and it may be that this is sufficient to lead him to begin to identify with reading (Language Arts) as a subject he likes because he does well in it. On the other hand, despite feelings of efficacy, he also harbors doubts about his abilities and thinks that maybe he is unusually slow. (pp. 188–189)

What is required to facilitate optimal development is engagement in content of well-developed individual interest that is complemented by a more rigorous and conscious exploration of the processes that students experience and their meaning to their self-aspects. Such exploration should be fa-

cilitated by the educational environment: "Sam needs to continue to receive support and feedback that enables him to continue to refine, develop, and sustain his interest" (Renninger & Hidi, 2002, p. 189). Sam should also be supported in thinking about and deliberating on the meaning of this interest and of his engagement in it to who he is and who he wants to be. Moreover, having one well-developed individual interest should not mean abandonment or rejection of other topics and content. The importance of an exploratory orientation to students with a well-developed individual interest should be also in preventing them from being narrowly focused too early in development, and in encouraging them to be open to the possibility of the development and emergence of new domains of interest (cf. Krapp, 2002).

SELF-DETERMINATION THEORY AND EXPLORATION

The centrality of exploration can be seen most explicitly, perhaps, in self-determination theory (Deci & Ryan, 1985, 1991, 2000). Also referring to effectance motivation (White, 1959), self-determination theorists see exploration as a core of intrinsic motivation—engagement in an activity for its own sake—which they define as "the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn" (Ryan & Deci, 2000, p. 70). Research in self-determination theory highlights the benefits of such engagement to personality, social development, and well-being (La Guardia & Ryan, 2002; Ryan & Deci, 2000).

However, exploration in self-determination theory is not limited to intrinsically motivating actions. Self-determination theorists acknowledge that beyond childhood, and particularly in organizational settings such as schools, people are not free to pursue only intrinsically motivating actions. They are sometimes asked to perform activities that they are not interested in or do not enjoy and for which they may be only extrinsically motivated. Whereas engaging in such actions has less adaptive consequences than engagement that is intrinsically motivating, self-determination theorists contend that people are naturally oriented toward exploring the values of these activities and tasks and attempting to internalize the actions and integrate their values to the self. This process, which is labeled *organismic integration,* is most likely to occur when three fundamental psychological needs are supported: the needs for relatedness, competence, and autonomy. The need for relatedness is supported when people feel that they belong, are related to, and are supported by significant others; the need for competence is supported when people feel efficacious in their interaction with the environment and its challenges; and the need for autonomy is supported when people who engage in a certain activity feel that they "grasp its meaning and synthesize that meaning with respect to their other goals and values" (Ryan & Deci, 2000, p. 74). Support for the need for relatedness seems to provide the

necessary secure base for exploration to take place. Parents, teachers, employers, and students themselves can seek and create secure environments and supportive and caring relationships that make the uncertainty involved in exploration less risky. However, for exploratory action to be optimally effective the individual also needs a space to explore and a context with an optimal degree of structure. An overstructured or understructured context is likely to undermine self-determination and inhibit exploration. Hence, support for the needs of competence and autonomy through the provision of sufficient space for personal choice within discernible boundaries would also facilitate exploration (Deci & Ryan, 1991). Yet, the support for the needs for competence, and particularly for the need for autonomy, seem to also require an active and explicit facilitation of exploration: encouragement by others of figuring out competencies, values, and goals that are related to the task and to the self (cf. Flum & Blustein, 2000).

Recently, in considering the role of explicit exploration in self-determination theory, Blustein and Flum (1999) suggested that support for the needs for autonomy, competence, and relatedness is likely to facilitate the development of vocational interests, with interest and exploration having a recursive relationship. Indeed, in one empirical study, Assor, Knafo, Kanat-Maymon, and Kaplan (2003) found that the exploration of aptitude and of interest in a subject were experienced as self-determined by college students, and were related to their intrinsic motivation and occupational goals in the domain.

Interestingly, some who critique the view that intrinsic motivation is the most desirable motivational orientation also seem to suggest that explicit exploration of values and self should be the guiding process in education. Nisan (1992) argued, for example, that intrinsic motivation (and extrinsic regulation, as in working toward a reward or away from punishment) is based on gratification of what is desired, which is not an appropriate goal for the educational process. Instead, he suggested that what should guide the curriculum as well as students' motivation for engagement are values, or a sense of the desirable (see also Brophy, 1999). Nisan argued that the sense of the desirable—what is deemed "worthy and proper" (p. 127)—is culturally determined, and its internalization constitutes cultural socialization. However, he contended that the personal development of such a sense is based on reflection and consideration. Nisan viewed the processes of reflection and consideration, and the sense of the desirable, as integral elements of the construction of personal identity. Whereas he made a distinction between what is perceived to be desirable universally, for people belonging to a particular group, and for an individual, he argued that all of these relate to central aspects of the self. Indeed, according to Nisan, all of these perceptions of the desirable can be summarized by this formulation: "It is desirable to develop oneself and actualize and act in accordance with one's personal identity" (p. 133). Using a language that is close to self-determination theorists' notion of organismic integration, Nisan suggested that action out of a sense of the desirable is autonomous. Unlike self-determination theorists, however, Nisan emphasized the processes of reflection and self-construction as the core of integrating the sense of the desirable to the self.

Thus, similar to students who engage in topics of well-developed individual interest (Renninger & Hidi, 2002), intrinsically motivated students are not perceived to critically evaluate the role of their engagement to their developed identity. It requires a conscious, rigorous, and intentional critical perspective on content and on the self, as well as the development of exploratory skills, for the benefits of engagement to fully be actualized.

EXPLORATION AND SELF-REGULATION

Although not concerned with exploration, research in the domains of metacognition (Hacker, Dunlosky, & Graesser, 1998) and self-regulated learning (Boekaerts et al., 2000; Zimmerman & Schunk, 2001) also support the possible benefits of an exploratory orientation. The domains of metacognition and self-regulation overlap in their emphasis on self-awareness and on self-initiated decision making concerning the acquisition and use of knowledge and skills. Both highlight the contribution of knowledge and regulation of one's cognition to the processing and retention of information (Zeidner, Boekaerts, & Pintrich, 2000). Moreover, they specify the importance of self-reflection in facilitating the initiation, maintenance, and efficiency of learning. Traditional differences between these domains may be glimpsed in a comment by Zimmerman and Schunk (2004), who argued that self-regulation is more comprehensive than "information processing and metacognitive theories that view intellectual functioning in terms of acquiring and applying systems of knowledge" (p. 324; Zeidner et al., 2000). In their model of self-regulation, these social cognitive theorists emphasize the reciprocal relations among cognition, behavior, and the social environment, and the crucial role of social processes and motivation in facilitating self-regulation of learning. However, more recently, metacognitive theorists have also recognized the importance of incorporating social cognitive processes into their conceptualizations (e.g., Hacker & Bol, 2004). Therefore, in the remainder of this section, we refer to the domain of self-regulation as it encompasses metacognitive processes as well.

The domain of self-regulation is vast, and involves multiple conceptualizations that are based on different perspectives and emphasize different concepts and processes (see Boekaerts et al., 2000). The shared characteristics among these perspectives converge on a definition of self-regulation as "a systematic process of human behavior that involves setting personal goals and steering behavior toward the achievement of established goals" (Zeidner et al., 2000, p. 751). Moreover, the theorists agree that this process "involves cognitive, affective, motivational and behavioral components that provide the

individual with the capacity to adjust his or her actions and goals to achieve desired results in light of changing environmental conditions" (p. 751). This process must involve metacognitive awareness of various self and environmental processes and states, and the motivation and capacity to regulate them. Thus, self-regulation emphasizes the proactive self-aware involvement of individuals in achieving goals. In school, Zimmerman (1989) suggested that "students can be described as self-regulated to the degree that they are metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 329). Indeed, arguably, it is research in this domain that highlighted the contribution of self-knowledge, self-observation, self-evaluation, and self-control to adaptive engagement in learning and to achievement (Pintrich, 2000; Zimmerman & Schunk, 2004).

Still, the processes involved in self-regulation do not fully capture the characteristics of exploratory orientation, even if they are almost inevitable accompaniments of such an orientation. An important difference between self-regulation and exploratory orientation is the individual's focus of engagement. Self-regulation begins with goal setting and is oriented toward achievement of these goals or objectives. Whether the goals are process goals or outcome goals, they provide a focus of engagement that is not the self itself (cf. Zimmerman, 2002). In comparison, the focus of exploration is simultaneously on engaging in the academic material as well as on the self: what the engagement in the content suggests with regard to who one is, what are one's values, and who does one want to become. In a similar fashion, Brownlee, Leventhal, and Leventhal (2000) made a distinction between self-regulation and self-construction in the domain of health maintenance. They used the label *self-regulation* for occasions in which "the target for problem solving is set by the problem solver and/or when the problem solving focuses on the 'machinery' of the self and/or subjective feelings of the self" (p. 371). In comparison, they used the label *self-construction* for occasions in which "the focus of attention and the goals for problem solving shift to altering self-identities (e.g., who and what one is) and the acquisition of procedural skills for maintaining existent roles and personal function" (p. 372). Somewhat differently, however, the focus on the self in exploration cannot be always operationalized in terms of goal-setting or problem solving, but might often involve continuous processes of self-awareness and self- (or social) deliberation. Desirably, the exploratory process will also lead to reestablishment of self-commitments to beliefs, values, and perceptions, and, at times, to revisions of such commitments.

EXPLORATION AND SELF-AWARENESS

The suggestion that students should adopt an exploratory orientation toward schoolwork might be interpreted as contrary to certain intuitive and even scientific wisdoms concerning students' learning processes. Indeed, it may be seen as a diversion away from what is considered one of the primary purposes of schooling—the acquisition of knowledge and skills. If, instead of simply focusing on understanding and mastering the material, students would initiate a process of exploration, would it not divert their attention and concentration away from learning? Moreover, as some well-established motivational conceptualizations suggest, might not awareness of the self be contrary to adaptive absorption in the task (cf. Csikszentmihalyi, 1990) and raise concerns with impression management and ego involvement (cf. Nicholls, 1984; Ryan, 1982)?

Research suggests that, at times, awareness of the self may be detrimental to adaptive engagement. When awareness of the self is accompanied by a sense of threat—for example, a sense that one's action may implicate negatively the self (cf. Kluger & DeNisi, 1996; Steele & Aronson, 1995)—quality of engagement may be impaired. Indeed, while the self-focus or self-awareness that is elicited by exploration may highlight to the student the relevance of the material to personal interests and goals, it may also highlight negative self-perceptions (e.g., low self-efficacy) and threats (e.g., undesired possible selves; Markus & Nurius, 1986). However, theory and research in the self-awareness literature suggests that awareness to the self may be of different types—and that whereas some types may hinder adaptive engagement, other types may facilitate it (cf. Carver & Scheier, 1981; Crocker & Wolfe, 2001)—all of which may be elicited by exploration. A review of this literature and a detailed discussion of this important issue are beyond the scope of this article. Yet, to summarize our conviction in a couple of lines, we would like to suggest that the elicitation of these multiple types of self-awareness in relation to different domains, material, action, and values is an integral aspect of the adaptive development of self-concept and identity. And, whereas the benefit of self-awareness that facilitates development of interest and learning is obvious, the self-awareness that involves thoughts of threat may also have a role to play in developing recognition of external and internal threats and constructive ways of coping as well as cognitive and social skills that are essential for well-adjusted functioning—an overall healthy affective response (cf. Boekaerts, 1992; Erikson, 1968; Folkman & Lazarus, 1988). Clearly, thoughts about threat should be processed within an exploratory framework that aims at developing a sense of who one is and how one can cope well with such threats. For this to occur, educators should be attentive to the risk of exploratory paralysis that such perceptions of threat may cause. When such situations do occur, it is the responsibility of educators to provide support for exploration of adaptive coping with these thoughts and emotions. Threatening situations are potentially growth-oriented, and positive and negative events can complement each other as both are important to the establishment of a stable sense of self-worth. The importance of such a constructive balance, which is characteristic of adjusted adults, was highlighted by Nisan (1992). Being aware that an

emphasis on the "sense of the desirable" might arouse ego-involved engagement or restraining images of the super-ego, Nisan argued that occurrences of conflicts between values and needs are inherent in a mature individual. Arguing that the sense of the desirable is actually closer to self-realization than intrinsic motivation is, Nisan (1992) concluded by stating that "Cultivation of the sense of the desirable is therefore important … for enabling one to strike a balance between an orientation towards self-interest and one towards values" (p. 137). Thus, although our perspective does not deny the beneficial qualities of a selfless absorption in a task (Csikszentmihalyi, 1990), or of playlike and fun engagement, we argue that such phenomenological states, in and of themselves, are not enough for adaptive development. Moreover, even the concerted focus on learning the academic material will not suffice for optimal growth. For the desired processes to occur, all of these positive experiences should be accompanied, simultaneously or subsequently, by exploration of the meaning of the content and the experience of engagement to who one is, who one is becoming, and who one wants to be. Indeed, it is such exploration that is likely to make the academic content more meaningful to students and facilitate their motivation to engage in learning it deeply even further.

CONTEXTUAL CHARACTERISTICS THAT FACILITATE EXPLORATION

The preceding review highlights the benefits of engagement in schoolwork that involves exploration. However, it also emphasizes the need for contextual scaffolds for this process to occur. What are the contextual requirements for encouraging students to engage in the acquisition of exploratory skills and in meaningfully exploring the relations between academic and nonacademic content and their sense of self? The bodies of literature reviewed earlier provide various recommendations for environmental characteristics that would encourage adaptive engagement. There are many parallels among the general recommendations of these different perspectives including providing autonomy, using content and activities that are relevant to students' lives, focusing on learning rather than merely on performance, providing opportunities for building knowledge, and encouraging interaction with peers and with experts (Ames, 1992a; Bergin, 1999; Maehr & Midgley, 1991, 1996; Renninger & Hidi, 2002). Indeed, some authors also refer more specifically to self-reflection (cf. McCombs, 1998).

Several researchers (La Guardia & Ryan, 2002; Patrick, 2004; Stipek et al., 1998) contend that an important characteristic of educational environments that support exploration is a sense of physical and emotional security: environments in which students feel respected and accepted, in which teachers convey enthusiasm about learning, and in which students feel safe to take risks and make mistakes. Such a secure environment is considered a precondition for eliciting natural or organismic exploratory tendencies, and contributing to the adaptive integration of values into one's identity (Deci & Ryan, 2000). Similarly, Nisan (1992) argued that the "sense of the desirable" develops, in particular, when teachers respect students as whole human beings.

Other researchers are more explicit in recommending practices that help students make connections between academic tasks and content and their self-aspects. Hannover (1998), for example, suggested that "teachers should establish links between the information to be learned and the pupil's self-concept or identity" (p. 114) to facilitate interest in schoolwork. He suggested practices that relate the material to meaningful experiences to students, such as visiting a foreign country whose language students learn in school or experimenting with technical tools.

More comprehensively, Brophy (1999) recommended viewing the student's identification with a subject matter in terms of a motivational zone of proximal development and constructing activities within that zone. These activities should be part of curricula that integrate issues from students' lives in and outside of school, should be authentic to students, and should provide opportunities for exploring the applications of ideas to students' lives. In terms of facilitating exploration and connections between students' self-aspects and the subject matter, Brophy contended that "people, especially children, acquire most of their self-referenced attitudes, beliefs, expectations, and dispositions to action through exposure to socializing influences" (p. 82). Therefore, he particularly emphasized the importance of modeling and coaching in teaching a certain domain, which not only targets cognitive processes, but also students' affective and motivational schemas of the subject matter, thus contributing to development of a sense of purpose, identification, positive self-perceptions of ability, enthusiasm, and appreciation among students toward learning the subject matter. In addition, Brophy also highlighted the importance of appreciation-oriented feedback that teachers should provide to students, in which teachers highlight what the activity affords to students in terms of their developing interests and expertise.

The role of socializing agents in facilitating the acquisition and practice of exploratory skills is also highlighted by self-regulation theorists. Zimmerman (2004), for example, emphasized the processes of social modeling, social feedback, and social collaboration as contributing to self-regulation. In modeling, teachers or peers could model the skills, verbalize cognitive operations, guide students in their attempts to emulate, and exemplify adaptive coping in the face of difficulty, failure, or threat. Social feedback triggers self-awareness and self-evaluation and can contribute to practice of specific skills (e.g., engagement in academic material) as well as facilitate an exploratory orientation (e.g., encourage self-reflection and consideration of links between the material and self-aspects). In social collaboration, teams of teacher and students collaboratively devise a work plan for engagement. The teacher fulfills

the role of a facilitator of processes, allowing and supporting proactive initiation and participation by students. All these processes can be effectively used to facilitate exploratory skills and an exploratory orientation.

Perhaps most closely matching our perspective on facilitation of exploratory orientation are Nicholls's (1992) recommendations to conduct a dialogue with students that focuses on the purpose of engaging in learning. Combined with Brophy's (1999) and Zimmerman's (2004) emphasis on modeling, coaching and feedback, and collaboration, we contend that facilitating a conscious and rigorous exploration should involve conducting a continuous dialogue with and among students about the meaning of school learning, scaffolding their exploratory skills of relating material to their self-knowledge, emphasizing the process of investigation of the relevance of the material to their self-concept, and encouraging students to explore their own sense of self as affected by the material and by their experiences of engagement in it. Such conscious exploration is likely to go beyond creating affective links to certain material, topic, or domain to evaluating the knowledge and action in relation to students' developing sense of self and identity.

Existing reform efforts that have targeted the culture of schools and classrooms (see McCombs, 2003) could provide solid beginnings for programs and strategies that aim to facilitate exploratory orientation. For example, Ames's (1990, 1992a) and Maehr and Midgley's (1996) programs to transform classroom and school cultures, respectively, build on collaborative efforts with educators to evaluate practices in each of six dimensions of the learning environment (task, authority, recognition, grouping, evaluation, and time) and the messages to, and effect of, these practices on students. Other frameworks, such as problem-based learning (Blumenfeld et al., 1991; Evensen & Hmelo, 2000) and community of learners (Brown & Campione, 1998) have also been employed strategically to facilitate rigorous, adaptive, and self-reflective engagement. An elaborated and detailed description of such strategic interventions is beyond the scope of this article. The writing of a follow-up article that aims to build on such strategies in specifying environmental practices that contribute to exploratory orientation is underway.

CONCLUSION

A review of developmental, motivational, vocational, and educational literature underscores the significance of the development of an exploratory orientation and its adaptational benefits. Our purpose in this article was to suggest a concept that incorporates and ties together all these bodies of literature. Clearly, there is a need for further discussion, research, and implementation of exploratory experience to make the development of exploratory orientation an educational goal. Although we made an effort to show the explicit meaning of the exploration process in relation to current educational perspectives, as well as to suggest that the implications of an exploratory orientation go beyond the context of school, some of the points raised here clearly merit more thorough and extensive address in future work.

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