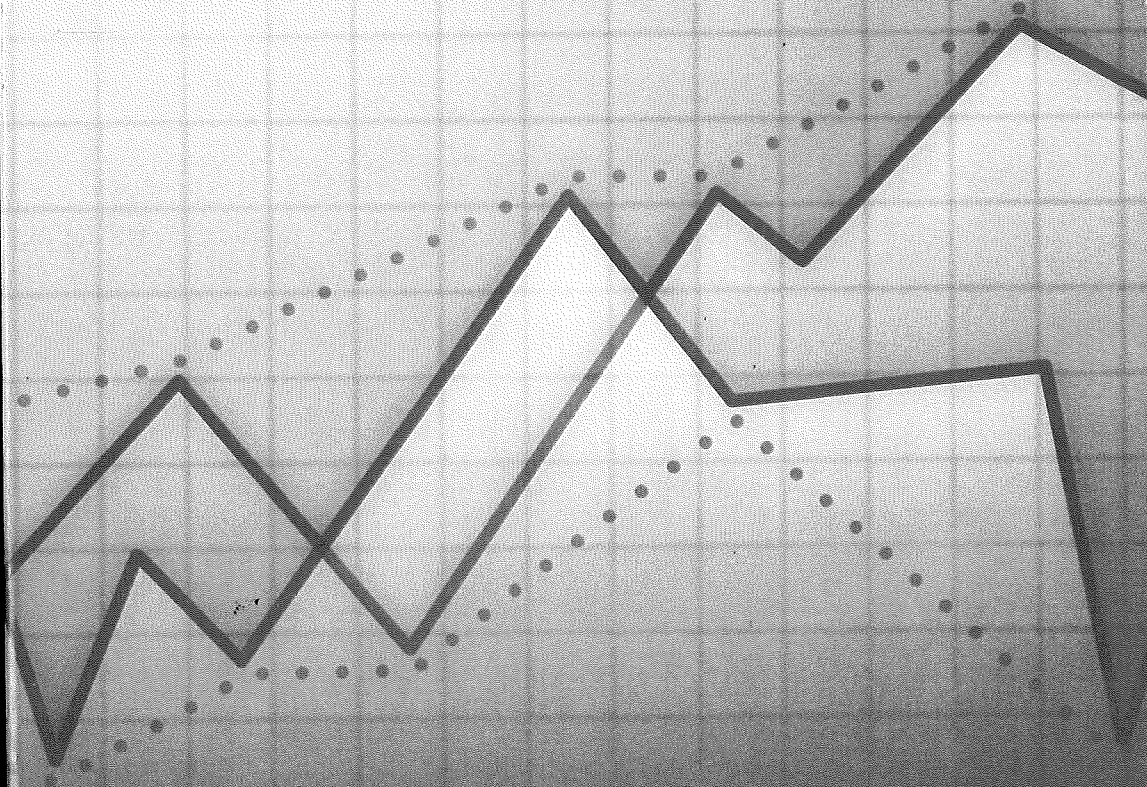


# Handbook of Self-Determination Research



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## 2: Intrinsic and Extrinsic Motivation: A Hierarchical Model

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For almost three decades, two distinct types of motivation have been of interest to researchers in psychology: intrinsic motivation and extrinsic motivation (Deci & Ryan, 2000; Vallerand, 1997). The concept of intrinsic motivation (IM) refers to behaviors performed out of interest and enjoyment. In contrast, extrinsic motivation (EM) pertains to behaviors carried out to attain contingent outcomes (Deci, 1971). The purpose of this chapter is to present the Hierarchical Model of Intrinsic and Extrinsic Motivation (Vallerand, 1997). The model facilitates the integration of findings from various theoretical perspectives in the intrinsic-extrinsic motivation literature, and it provides novel and testable hypotheses to orient future research on IM and EM. This model addresses the multiplicity of ways to represent motivation in individuals, as well as the structure, determinants, and consequences of these different representations. Selected empirical studies that support the Hierarchical Model are presented to illustrate how motivational phenomena can be understood within the framework of this model. As we will see, the model embraces several of the elements of Self-Determination Theory (Deci & Ryan, 1985b, 1991).

Before introducing the model in its full length, we provide an example that illustrates the kind of issues that the model deals with. Take the case of a sixteen-year-old named Amanda. In general, she is the kind of person who engages in activities because she likes them. She therefore interacts with friends, plays sports, and goes to school because of the pleasure inherent in these activities. As a result, these activities are a great source of enjoyment and satisfaction for her. This is, however, not the case when it comes to playing the piano. Amanda plays the piano because she feels obliged to, certainly not because she likes it. In fact, she really plays the piano for her parents (especially her father, a former piano virtuoso). In addition, she feels pressured by her piano instructor who never appears to be satisfied by her performance. Ever since she started piano lessons, Amanda

has had Ms. Verkawski, a very controlling woman, as an instructor. The teacher never provides her pupils with opportunities to experience choice, and she gives poor competence feedback. She always pushes Amanda to play musical pieces that are out of her realm of skills. Playing the piano is thus associated with feelings of being controlled and lacking autonomy and competence. As a consequence, her performances were never very good and the satisfaction derived from playing music has been virtually absent.

However, things have started to change recently. For the last two months, Ms. Verkawski has been afflicted with pneumonia and Amanda has been taking her piano lessons with a new instructor, Mr. McConnell. Amanda's new teacher is more autonomy-supportive, giving her more freedom to express herself and letting her explore new avenues. In contrast to Ms. Verkawski, Mr. McConnell often lets Amanda choose among a wide array of musical pieces, including more contemporary genres. For years, this is what Amanda had been wanting. More and more, Amanda goes to her piano lessons out of choice and sometimes experiences pleasure. Consequently, her performance has improved dramatically and she has started to enjoy herself more at her lessons.

A few weeks ago on a Sunday, Mr. McConnell asked Amanda if she would like to perform in a student recital and asked her to choose a musical piece to present. She opted for Harry Connick Jr.'s "It Had to Be You", one of her favorite jazz numbers. Amanda experienced feelings of autonomy because her teacher provided her with the opportunity to choose whether to participate and to choose a piece to play. During the weeks prior to the recital, Amanda devoted considerable time and energy to practicing and perfecting her number. She was nevertheless very stressed at the idea of performing in public. On recital day, before it was her turn, Mr. McConnell told Amanda that she did not have to play if she did not want to. It relieved her from a lot of stress. She chose to play anyway and it went well. During her musical number, she felt deeply concentrated on the rhythms and subtleties of the arrangements in this piece. Even though she did not put enough emphasis on the decrescendo at the end, Amanda was happy and satisfied with her performance. After the recital, Amanda felt inclined to practice more and she became more fully engaged in piano playing. In fact, at home after the recital, Amanda went straight to the piano to play some more.

### The Hierarchical Model of Intrinsic and Extrinsic Motivation Outlined

Several motivational features can be derived from the above example. The first feature concerns the complexity of the motivation construct. Referring to motivation as a general, unitary concept is insufficient to explain such complexity.

Instead, we need to focus on a collection of motivations differing in types and levels of generality. In the example above, Amanda manifests IM toward school, interpersonal relationships, and sports. At the same time, she displays EM toward playing the piano. Each of these different motivations constitutes an aspect of Amanda and must be addressed if we want to fully understand who she really is. Furthermore, it would appear that different motivations exist at three levels of generality, namely the global, contextual, and situational levels. For example, we mentioned that, in general, Amanda engages in activities out of enjoyment. Consequently, Amanda can be said to have, at the global level, an intrinsically motivated personality, which predisposes her to be intrinsically motivated in her many life contexts. Indeed, we saw that at the contextual level Amanda seems typically to be motivated in an intrinsic way in several contexts such as in education, sports, and interpersonal relationships. Distinguishing between motivations toward different life contexts is important. Indeed, focusing uniquely on her contextual motivation toward piano playing might mistakenly lead one to conclude that Amanda is an extrinsically motivated person when, in fact, this is the only domain in which she is not intrinsically motivated. Finally, at the situational level, during the recital, Amanda was intrinsically motivated to perform her musical piece.

A second feature of motivation is that other individuals can have a substantial impact on our many motivations. Such was the case for Amanda and her piano instructor, Ms. Verkawski. Despite the fact that Amanda is intrinsically motivated in general, the impact of her piano instructor was powerful enough to make her become extrinsically motivated in this life domain. At each level of generality, corresponding social factors function as significant motivational determinants. Thus, at the situational level, Mr. McConnell's support in providing Amanda choice about whether to be in the recital and about what to play had the beneficial effect of facilitating her intrinsic motivation toward practicing, leading her to finally enjoy playing the piano. He was very influential in shaping Amanda's situational motivation in playing the piano at the student recital too. Mr. McConnell's support allowed her to feel autonomous in her decision to play, which made her intrinsically motivated to play on that day.

A third feature of motivation is that it yields important consequences occurring at three levels of generality. At the global level, motivation is considered an individual difference that applies across situations and yield's general consequences. At the contextual level, these consequences differ according to the context which influences motivation at the corresponding level. In the example, we saw that Amanda experienced positive consequences such as satisfaction and enjoyment when she engaged in school activities, sports, and interpersonal relationships. It was however not the case with piano playing, where her motivation was extrinsic. She experienced dissatisfaction and her performance was poor. However, the change in piano instructor (which constitutes a change in contextual factors) shifted her motivation from an extrinsic orientation to a more intrinsic

one. As a consequence, she started enjoying playing the piano more and her performance reached higher levels. At the situational level, the day of the recital, Amanda's IM led her to be deeply concentrated on playing, to feel good about herself, and to want to practice some more at home. Thus, motivation is associated with important consequences.

A fourth motivational feature concerns the recursive bottom-up influence of situational motivation on contextual motivation. Repeatedly engaging in intrinsically motivating activities (at the situational level), together with experiencing their beneficial consequences will play a role in facilitating contextual intrinsic motivation. It may not come as a surprise that Amanda is now more intrinsically motivated in general toward playing the piano. Indeed, experiencing situationally motivated intrinsic motivation in a repeated manner, such as having numerous enjoyable piano rehearsals and recitals, has had recursive positive effects on her contextual motivation toward playing the piano, although her contextual-level intrinsic motivation may not be as strong as her situational-level intrinsic motivation because she has been with her new teacher for only a short time.

The example presented above illustrates some of the elements of the Hierarchical Model of Intrinsic and Extrinsic Motivation (Vallerand, 1997). This coherent framework for integrating social psychological and personality perspectives on motivation is outlined in Figure 2-1 and is described more thoroughly by means of 5 postulates.

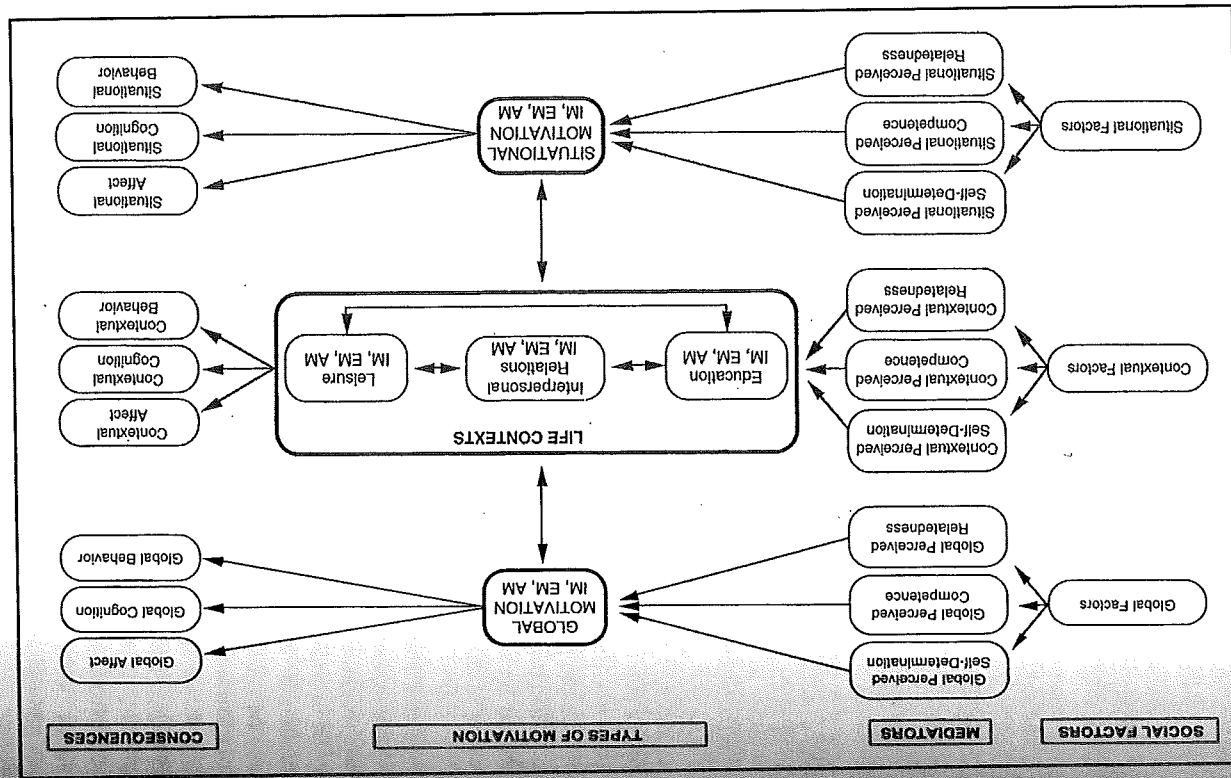
### The Importance of Distinguishing Intrinsic Motivation, Extrinsic Motivation, and Amotivation

In order to provide a complete analysis of motivational processes, three important constructs must be considered: IM, EM, and amotivation (AM). The importance of clearly distinguishing all three concepts is supported by (1) their ability to explain a considerable range of human behaviors; (2) their capacity to represent essential aspects of human experience; and (3) the variety of important consequences they engender. This brings us to the first postulate.

#### Postulate 1: A Complete Analysis of Motivation Must Include Intrinsic and Extrinsic Motivation, and Amotivation

Here, the focus is on the conceptual distinction between IM, EM, and AM. First, we describe and differentiate each construct as well as discuss their multidimensional nature. Second, the issue of levels of generality is addressed. Finally, we discuss measurement issues.

Figure 2.1 The Hierarchical Model of Intrinsic and Extrinsic Motivation (adapted from Vallerand, 1995).



### A Multidimensional Perspective on IM, EM, and AM

*Intrinsic Motivation.* IM implies engaging in an activity for the pleasure and satisfaction inherent in the activity (e.g., Deci, 1975; Deci & Ryan, 1985b). Students doing their homework because they enjoy it and find that learning new things is interesting and satisfying are said to be intrinsically motivated. Although the majority of researchers advocate a global, unitary IM construct, Vallerand and his colleagues (Vallerand, 1993; Vallerand, Blais, Brière, & Pelletier, 1989; Vallerand, Pelletier, Blais, Brière, Sénécal, & Vallières, 1992) have suggested a tripartite taxonomy of IM. First, *IM to know* implies engaging in activities because of the pleasure and satisfaction derived from learning, exploring, and understanding new things. Second, *IM to accomplish* things refers to engaging in activities because of the pleasure and satisfaction derived from trying to surpass oneself, creating, or accomplishing something. Third, *IM to experience stimulation* operates when one is engaged in an activity because of the stimulating sensations associated with it.

*Extrinsic Motivation.* In contrast to IM, EM refers to a broad array of behaviors having in common the fact that activities are engaged in not for reasons inherent in them but for instrumental reasons. Extrinsically motivated behaviors are undertaken to attain an end state that is separate from the actual behavior. In early discussions of the topic, it was thought that behaviors performed with a lack of choice were the only type of extrinsically motivated behaviors, so that all EM behaviors were evoked by contingencies. However, research and thinking by Deci, Ryan, and their colleagues (Deci & Ryan, 1985b, 1991) have put forth a more complex typology of EM where some types of extrinsically motivated acts involve self-determination and choice. They identified four types of extrinsic motivations that vary in their degree of self-determination and can be ordered along a self-determination continuum ranging from non self-determined to self-determined forms of extrinsic motivation.

The first type of EM is *external regulation*. When someone is externally regulated, acts are performed to attain a positive end state (e.g., to get money) or to avoid a negative end state (e.g., to avoid a parent's reprimands) which are separate from the activity itself. External regulation lies at the nonself-determined end of the continuum because it is the least self-determined type of extrinsic motivation. This type of regulation is typically how EM is being portrayed in the literature.

The second type of EM, *introjected regulation*, represents the first stage of the internalization process, where individuals take prompts from their environment and bring them inside themselves. With this type of motivation, individuals start to internalize the reasons for their behaviors. However, motivation is still not self-determined because this type of regulation deals with past external contingencies that have now been internalized inside the person. The person acts out of obligation, in order to avoid feeling shame and internal pressure. For example, a woman may vote at municipal elections because she feels she has to, because it is

her duty as a citizen. This elector can be said to be introjected toward municipal politics.

The third type of EM is *identified regulation*. When the reasons to engage in an activity are internalized such that the activity is judged valuable by the person, he or she will perform the activity with a sense of choice and the behavior is said to be regulated through identification with the activity. The person acting out of identified reasons is said to be relatively self-determined. For instance, a boy in high school who decides to get up an hour earlier to review his chemistry notes because he feels it is personally important to do so is regulated by identification.

Although identification implies choice, choices to engage in some activities are not necessarily coherent with other self-structures. When such coherence is reached, however, the choice underlying behavior is in harmony with other structures within the self. This type of extrinsic motivation refers to *integrated regulation*. For example, a ballet dancer might choose not to go to a party with friends in order to be in shape for dance class early on the next morning. Integrated regulation is the most self-determined type of EM.

It is important to note that, although these types of external motivation can be ordered along a self-determination continuum, one need not go through them successively for each behavior. For example, when a young man who has not had much experience painting houses is offered a job painting the house of a family friend he may readily become identified in his regulation of the activity (because he personally values doing the job well for his father's long-time friend).

*Amotivation.* Deci and Ryan (1985b) proposed that a third motivational construct, AM, should be considered when trying to understand human behavior. Amotivation is at work when individuals display a relative absence of motivation. In such instances, individuals do not perceive a contingency between their behaviors and outcomes, so they do not act with the intention to attain an outcome. AM is a construct similar in many ways to learned helplessness (Abramson, Seligman, & Teasdale, 1978), mostly because amotivated individuals feel incompetent and act like they have little or no control. Their behaviors are perceived to be caused by forces outside themselves. They begin to feel helpless and may start to question the usefulness of engaging in the activity in the first place. A highly probable consequence of AM is to quit the activity toward which the individual is amotivated. Examples of amotivated individuals are students who, because they cannot see what staying in school will bring to their future, decide to drop out of high school.

Over the years, numerous studies have provided empirical support for the first postulate of the model. As such, results from confirmatory factor analyses on the different motivation scales that have been validated using the present perspective have consistently provided support for the existence of IM, EM, and AM (see Vallerand, 1997). In addition, as we will see later, confirmation of predictions about the determinants and consequences of specific motivational types provides support for the construct validity of these motivational types.

Of importance for the model is the SDT proposition that the different motivational orientations represent different levels of self-determination, which can be ordered along a self-determination continuum. Thus, IM is the most self-determined motivational type, followed by integrated regulation, identified regulation, introjected regulation, and external regulation. AM involves a complete lack of self-determination. As we will see in Postulate 5, this continuum allows us to predict the impact of the different types of motivation on important consequences.

### Motivation at Three Levels of Generality

Over the past 20 years or so, research and theories on the self have represented self-regulation processes at different levels of a hierarchy. Carver and Scheier (1981), for example, suggested a hierarchy of self-regulatory processes while Shavelson and Marsh (1986) proposed a hierarchy of self-concepts which includes the global level, the academic and non-academic level, and the specific activity level. In concordance with such theorizing and with past research conducted in the motivation area, the second postulate proposes that IM, EM, and AM are represented within the individual at three hierarchical levels of generality: the global, the contextual, and the situational levels.

### Postulate 2: Intrinsic Motivation, Extrinsic Motivation, and Amotivation Exist at Three Levels of Generality: The Global, Contextual, and Situational Levels.

*The global level.* At this level of the hierarchy, the individual is seen as having developed a global (or general) motivational orientation to interact with the environment in an intrinsic, extrinsic, and/or amotivated fashion. Research on the General Causality Orientation Scale (GCOS; Deci & Ryan, 1985a) conducted by the members of the Rochester group (e.g., Hodgins & Deci, 1999; Hodgins, Liebeskind, & Schwartz, 1996; Knee & Zuckerman, 1996, 1998), and that of Guay, Blais, Vallerand, and Pelletier (1999) with the Global Motivation Scale (GMS), illustrate research carried out at this level of generality. Motivation at the global level is expected to be the most stable.

*The contextual level.* Several studies performed in the last 20 years have examined motivation at the contextual level of generality. Here, we use the word "context" to refer to "a distinct sphere of human activity" (Emmons, 1995). Although many different life contexts exist, research with young adults has revealed that the three most important contexts are education, leisure, and interpersonal relationships (Blais, Vallerand, Gagnon, Brière, & Pelletier, 1990). Individuals develop motivational orientations toward each life context that are moderately stable,

although they can be influenced to an extent by social factors that are specific to each context. At the contextual level, motivation is influenced by contextual determinants and leads to contextual consequences (the issue of motivational determinants and consequences is discussed further in the next two sections). Studies on motivation in intimate relationships by Blais, Sabourin, Boucher, and Vallerand (1990), and in education by Vallerand and his colleagues (e.g., Vallerand, Fortier, & Guay, 1997) are examples of research studying motivation at the contextual level.

*The situational level.* When studying motivation at the situational (or state) level of generality, we are interested in understanding why individuals engage in a specific activity at a particular time. Motivation at this level is assumed to be unstable because of its responsiveness to the environment. A study by Guay, Vallerand, and Blanchard (2000, Study 2), conducted in the educational setting, is one example of research studying motivation at the situational level. In this study, a self-report measure of situational motivation was given to students 35 minutes after their class had begun in order to measure their motivation toward the educational task they were engaged in at that specific point in time.

In sum, the present model posits that it is useful to study motivation at three different levels of generality: the global (or personality) level, the contextual (or life domains) level, and the situational (or state) level. Distinguishing among levels of the hierarchy becomes important, particularly when specifying determinants and consequences. For example, it is important to accurately identify a student as being externally regulated toward education in order to use the appropriate teaching strategy that will lead him or her to become more self-determined toward school. Looking only at this student's global intrinsic motivation would have led one to neglect some very useful information.

### Measuring Intrinsic Motivation, Extrinsic Motivation, and Amotivation

Measuring motivation at each level of the hierarchy, requires use of the appropriate scales. For instance, if a researcher is interested in studying students' usual motivation toward school, it would be appropriate to use a contextual measure rather than either a global measure which is too broad in focus or a situational measure which is too narrow.

In order to empirically test postulates from the Hierarchical Model, it was necessary to assess the different motivations at each level of generality. Therefore, we developed and validated scales that assess the different motivations discussed above at global, contextual, and situational levels. At the global level, we developed the Global Motivation Scale (GMS; Guay, Blais, et al., 1999). It assesses the 3 different types of IM, and the identified, introjected, and external types of EM, as well as AM toward life in general. Results with the GMS indicate that the scale

is both reliable and valid. Furthermore, its factorial structure indicates that an independent assessment of the different motivational types is provided. Internal consistency and temporal stability were also found to be adequate. Furthermore, the different subscales of the GMS were found to be unrelated to scores on the Social Desirability Scale (Crowne & Marlowe, 1960).

Scales assessing motivation at the contextual level have also been developed. Because we were interested primarily in college students and research revealed that education, leisure, and interpersonal relationships were the three main life contexts for this age group (Blais, Vallerand, et al., 1990), scales were developed to measure motivation in these contexts. For instance, the Academic Motivation Scale (Vallerand et al., 1989, 1992, 1993) assesses contextual motivation toward education, the Interpersonal Motivation Inventory (Blais, Vallerand, Pelletier, & Brière, 1994) assesses contextual motivation in interpersonal relationships, and the Leisure Motivation Scale (Pelletier, Vallerand, Blais, Brière, Green-Demers, 1996) measures contextual motivation toward leisure activities. Contextual measures of motivation have been developed for other life domains, as well. Examples are the Sport Motivation Scale (Brière, Vallerand, Blais, & Pelletier, 1995; Pelletier et al., 1995; see also Frederick, this volume), the Blais Work Motivation Inventory (Blais, Brière, Lachance, Riddle, & Vallerand, 1993), the Gambling Motivation Scale (Chantal & Vallerand, 1996), the Volunteering Motivation Scale (Chantal & Vallerand, 2000), the Motivation Toward the Environment Scale (Pelletier, Green-Demers, & Béland, 1997; Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998), the Political Motivation Scale (Koestner, Losier, Vallerand, & Carducci, 1996), and the Elderly Motivation Scale (Vallerand & O'Connor, 1991; Vallerand, O'Connor, & Hamel, 1995). Indices of reliability and validity have been found to be acceptable for all of these scales (see Vallerand, 1997).

At the situational level, two main techniques have been used to measure motivation. The first approach measures situational motivation by way of the free-choice measure (Deci, 1971), which measures the amount of time an individual has spent on an activity during a free-choice period. The assumption underlying this measure is that individuals intrinsically motivated toward an activity will return to the activity when they are free to do so. However, this measurement approach can be problematic in distinguishing between types of motivation (see Vallerand, 1997; Vallerand & Fortier, 1998). Indeed, research has shown that, under some circumstances, the free-choice measure, besides being associated with IM, can also reflect introjection (Ryan, Koestner, & Deci, 1991) as well as identified regulation (Deci, Eghrari, Patrick, & Leone, 1994). Another way to measure situational motivation is with a self-report measure. By using such a technique, it becomes possible to consider the multidimensional aspect of motivation. We thus developed the Situational Motivation Scale (SIMS; Guay et al., 2000) which measures IM (without distinguishing types of IM), identified and external types of EM, as well as AM. The choice to measure only 4 motivational

types was dictated by the need to keep the scale as brief as possible in order to capture situational motivation in many lab or field situations. Indices of reliability and validity have been found to be very satisfactory (see Guay et al., 2000).

Sometimes, researchers will integrate the different types of motivation (at one specific level) into a single motivation index, called the Self-Determination Index.<sup>1</sup> The advantage of using such an index is the significant reduction of variables needed to represent the different types of motivation at a given level. To do so, a different weight is allocated to each subscale, with the autonomous subscales having positive weights and the nonself-determined having negative weights (e.g., Grolnick & Ryan, 1987; Vallerand & Bissonnette, 1992; also see Vallerand, 1997 on this topic). Thus in one approach, a weight of +2 is awarded to the intrinsic motivation subscale because this construct represents the highest level of self-determination. A weight of +1 is assigned to the identified regulation subscale; a weight of -1 is allocated to the external regulation subscale; and a weight of -2 is awarded to the amotivation subscale, because it represents the lowest level of self-determination. Multiplying the score for each subscale by its corresponding weight and adding all the products yields an index for the individual's self-determined motivation. This procedure can be used at each level of the hierarchy.

### The Determinants of IM, EM, and AM

The present section introduces determinants, or antecedents of IM, EM, and AM. We highlight studies that have measured motivational determinants and their impact on motivation at the three levels of generality. The goal is not to review all studies on the determinants but rather to demonstrate the heuristic nature of the Hierarchical Model as an integrative framework.

#### Postulate 3: Motivation at a Given Level Results from Two Sources: (1) Social Factors and (2) Top Down Effects from Motivation at the Proximal Level

The third postulate of the model tackles the role of motivational determinants on the different motivational orientations. It is subdivided into three corollaries.

1. The "Self-Determination Index" is also called the "Relative Autonomy Index" by the Rochester group.

*Corollary 3.1: Motivation at a Given Level Can Result from Social Factors Which Can Be Global, Contextual, or Situational Depending on the Level in the Hierarchy.* The term "social factors" is used to refer to both human and nonhuman factors encountered in one's social environment, such as comments from another person (human) or instructions on a sign (nonhuman). These factors can also be distinguished according to their level of generality. *Situational social factors* concern transient variables encountered in a specific activity, at a specific time, that may not remain constant. Receiving an ovation after a clarinet solo represents an example of a situational factor. *Contextual factors* refer to recurrent variables that are systematically encountered in a specific life context but not in others. For example, a controlling third-grade teacher is a social factor in a student's academic context but she is not in this student's leisure context. *Global factors* pertain to social factors whose impact extends across several life domains. Parents represent such a factor during our upbringing. Because they are initially involved in most of our activities, parents can have a profound effect on our global motivation (see Grolnick & Apostoleris, this volume). Nursing homes for senior residents also represent a global factor. Having all activities take place within a single social environment can strongly affect global motivation. It is crucial to take social factors into account at each level of generality because they have been found to have a deep impact on motivation (see Deci & Ryan, 1985b; Vallerand, 1997).

We believe that clearly discerning the level of generality of social factors is of great importance when it comes to making predictions regarding the types of factors that should influence motivation at each level of the hierarchy. Empirical support for the first corollary has been provided by results from a study that examined the effects of success/failure, a situational variable, on situational, contextual, and global motivations (Vallerand, 1996). These findings revealed that failing at a task significantly undermined situational IM but increased AM, relative to succeeding at the task. However, contextual and global motivations were not significantly affected by this situational social factor.

*Corollary 3.2: The Impact of Social Factors on Motivation is Mediated by Perceptions of Competence, Autonomy, and Relatedness.* According to Cognitive Evaluation Theory, a subtheory of Self-Determination Theory (CET; Deci, 1975; Deci & Ryan, 1985b, 1991), the impact of situational factors on motivation is mediated by perceptions of autonomy, competence, and relatedness. These perceptions relate to basic psychological human needs. The *need for competence* pertains to the human desire to efficiently interact with one's environment so as to feel competent in producing desired outcomes and preventing undesired outcomes (Connell & Wellborn, 1991; Deci, 1975; Deci & Ryan, 1985b; Harter, 1978; White, 1959). The *need for autonomy* refers to the human desire to be the origin of one's behaviors (deCharms, 1968; Deci, 1975, 1980; Deci & Ryan, 1985b). Finally, the *need for relatedness* implies a desire to feel connected to significant individuals (for recent

reviews on belongingness and/or relatedness, see Baumeister & Leary, 1995; Richer & Vallerand, 1998; Ryan, 1993).

CET proposes that, to the extent that social factors foster perceptions of competence, autonomy, and relatedness in individuals, self-determined types of motivation (IM as well as integrated and identified regulation) will be enhanced whereas nonself-determined types of motivation (introjected and external regulations, and AM) will be diminished (see Deci, Vallerand, Pelletier, & Ryan, 1991). Thus, an activity that promotes perceptions of autonomy, competence, and relatedness, is performed volitionally because it nurtures these three basic psychological needs. The Hierarchical Model further posits that such mediating effects take place at each of the three levels in the hierarchy.

Much research has brought empirical support for CET at the situational level (see Vallerand, 1997). The study of Vallerand and Reid (1984) exemplifies such support. In this study, participants engaged in a motor task during a pretest and a posttest. In the posttest, they received either positive, negative, or no performance feedback. Individuals' perceptions of competence and IM were measured after both the pretest and the posttest. Results of path analyses revealed that positive feedback led participants to feel more competent, which in turn, led them to be more intrinsically motivated. Studies by Vallerand and Reid (1988) and by Whitehead and Corbin (1991) have provided replications of the mediating role of perceived competence. These findings are even stronger when individuals strive to achieve competence (Sansone, 1986) and when the environment supports individuals' autonomy (Ryan, 1982).

The mediating role of perceived autonomy at the situational level was empirically tested in a study by Reeve and Deci (1996). They examined the impact of competition on situational motivation, as mediated by perceptions of competence and autonomy. They found support for the mediating role of these variables. With regard to perceptions of relatedness, results of a study by Blanchard and Vallerand (1996a, Study 2) revealed that the extent to which the individual feels connected to other teammates mediates the impact of individual and team performance on self-determined forms of motivation (as evidenced by the self-determination index) in basketball players.

At the contextual level, several studies have examined whether the impact of social factors on motivation was mediated by perceived autonomy, competence, and relatedness. In Blanchard and Vallerand (1996b), basketball players completed questionnaires assessing contextual measures of perceived competence, autonomy, and relatedness, and self-determined motivation toward basketball, as well as their perceptions of their coach's autonomy-supportive style. Results provided support for the proposed causal sequence where social factors determined perceptions of competence, autonomy, and relatedness, which in turn influenced self-determined motivation. Other studies in the academic setting have provided support for this mediation link (Guay & Vallerand, 1997; Vallerand, Fortier, &



Guay, 1997). Finally, support for the mediating role of perceptions of competence at the global level of the hierarchy has also been reported (Ratelle, Vallerand, Chantal, & Provencher, 2002).

Overall, these results indicate that perceptions of competence, autonomy, and relatedness mediate the impact of social factors on motivation, at situational, contextual, and global levels. Future research is needed to further establish the validity of these results, especially at the global level of the model.

*Corollary 3.3: In Addition to the Influence of Social Factors and Their Psychological Mediators, Motivation at a Given Level also Results from Top Down Effects from Motivation at the Proximal Level Higher in the Hierarchy.* One important novel contribution of the model is that it acknowledges the possibility of top-down effects with motivation at one level of the hierarchy affecting motivation at the next lower level. Thus, global motivation should have a stronger impact on contextual motivation than on situational motivation and contextual motivation should influence situational motivation. To illustrate such effects, we can take the example of someone who is globally motivated in an intrinsic way. We can expect this individual to be intrinsically motivated in several life contexts as well, because the top-down effect of motivation is assumed to go from the global to the contextual level. Similarly, we can expect the person who is intrinsically motivated at the contextual level in education to also be intrinsically motivated at the situational level on educational tasks.

Conceptual links can be drawn between Corollary 3.3 and research on self-regulatory processes, which has shown that global properties of the self can shape more specific self attributes (Brown, 1993; Brown & Dutton, 1995; Sansone & Harackiewicz, 1996). Few studies have tested Corollary 3.3. One of them (Williams, Grow, Freedman, Ryan, & Deci, 1996), measured obese patients' global motivation and their contextual motivation toward the medical treatment. Path analyses revealed that being motivated in a self-determined fashion at the global level predicted a self-determined contextual motivation toward the treatment at a later time. Similar findings were reported by Blanchard, Vallerand, and Provencher (1998) in the context of sport. Altogether, these results provide empirical support for the top-down effect of motivation at higher levels on motivation at the next lower level. Although these findings are encouraging, experimental studies are nevertheless necessary to firmly establish the validity of this postulate.

It thus appears that Postulate 3 and its corollaries have been empirically supported by several studies. In addition, the heuristic nature of the distinction between social factors at global, contextual, and situational levels of generality was underscored. Furthermore, evidence was

found for the role of perceptions of competence, autonomy, and relatedness as psychological mediators of social factors' impact on motivation at the three levels of generality. Finally, the top-down effect of motivation at higher levels on motivation at the proximal lower level has been supported.

**Postulate 4: There is a Recursive Bottom Up Relationship Between Motivation at One Level and Motivation at the Next Higher Level in the Hierarchy**

According to this postulate, we need to consider these recursive effects—the situational level on the contextual and global levels and the contextual level on the global level—in order to explain the motivational changes likely to take place over time. The specific goal of this postulate is to specify how the dynamics between motivation at the various levels of generality can account for these motivational changes.

As an illustration of this recursive effect, let's take the example of a man who is about to teach his first high school English class of the semester. He is generally intrinsically motivated toward teaching, but he has been warned that this particular class is really something else and that he should be ready for it. As he is walking down the corridor, he can hear students talking loudly and desks being moved around. Upon entering in the classroom, he is hit by a flying eraser. The class starts to laugh. Students then go back to what they were doing, that is, talking and shouting. The teacher begins to speak, asking everyone to sit and stop talking. He cannot get any response as student are totally uninterested in him. He is disappointed because he was looking forward to meeting his new students. It finally took ten minutes to get them to listen to what he had to say. The class was, in all, disastrous. The next morning, as he was going over in his head what had happened the day before in class, he felt anxious. He was afraid that the next class with this group would be just as bad. Unfortunately, his fears were concretized the next day. At the end of the period, his situational motivation was at its lowest. He did not feel like teaching them: he was completely unmotivated. Later that night, as he was preparing for the third class with this group of students, he started to wonder if he would be able to put up with them for the whole year. Within a few weeks he had begun, for the first time in his career, to question whether teaching was really for him. Perhaps working in a private company would suit him better. Maybe it was time to grasp new opportunities and take up new challenges. And that's what he did: he updated his résumé, applied for jobs in the private sector, and wrote his resignation letter.

How did the teacher come to such a decision? First, at the situational level, the totally disinterested attitude of his students as well as their lack of respect represent crucial social factors that had a negative impact on the teacher's situational motivation. He felt incompetent and experienced repeated instances of

decreased IM and increased AM at the situational level. In turn, his situational nonself-determined motivation had a recursive negative impact (Postulate 4) on his contextual motivation toward teaching. Because his contextual motivation toward teaching has now become nonself-determined, the teacher decided to quit his job (an important behavioral consequence of motivation, which will be examined in Postulate 5).

Empirical support has been provided for this fourth postulate. In a first study with basketball players, Blanchard, Vallerand, and Provencher (1998, Study 1) assessed contextual motivation toward basketball before a tournament, as well as situational motivation and contextual sport motivation after each of the two games of the tournament. Finally, contextual motivation was assessed 10 days after the tournament. Results revealed that situational motivation had a recursive bottom-up effect on contextual motivation toward basketball after each of the two games, as well as 10 days after the tournament. These results have been replicated over a complete season (Blanchard, Vallerand, & Provencher, 1998, Study 2). Similar findings at the contextual and global levels have also been found by Blanchard and Vallerand (1998), who tested the postulate with individuals engaged in an exercise program. They measured global motivation at times 1 and 3 and contextual motivation toward exercising at time 2. Results showed that global motivation influenced contextual motivation toward exercising (Postulate 3), which in turn had a recursive bottom-up effect on the global motivational orientation (Postulate 4). Thus, Postulate 4 has been supported by empirical evidence involving all three levels of the hierarchy.

### The Consequences of IM, EM, and AM

Thus far, attention has been devoted to determinants of the types of motivation, as well as to the psychological processes responsible for their effects. We now turn to motivational consequences.

#### Postulate 5: Motivation Leads to Important Consequences

The postulate that motivation produces consequences is supported by at least two types of evidence. First, it appears intuitively appropriate to view variables such as attention, satisfaction, and behavioral persistence as being affected by motivation. Thus, a ballet dancer motivated in an intrinsic fashion would be expected to concentrate more during practice than one who is motivated for dance and could not care less about it. Second, research has shown that motivation leads to a host of consequences such as creativity (Amabile, 1985; Hennessey, 1989), learning (see Lepper, 1994), and smoking abstinence (Curry,

Wagner, & Grothaus, 1991; Harackiewicz, Sansone, Blair, Epstein, & Mandelink, 1987). For instance, writers for whom EM was induced produced poems of lower quality than intrinsically motivated or control-group participants (Amabile, 1985). Other studies provided support for the causal effect of motivation on consequences (Curry et al., 1991; Lepper & Cordova, 1992). Thus, motivation does lead to important consequences and researchers in the IM/EM literature have isolated cognitive (e.g., concentration, attention, and memory), affective (e.g., interest, satisfaction, and positive emotions), and behavioral (e.g., choice of behavior, persistence at a task, intensity, task complexity, behavioral intentions, and performance) consequences (see Vallerand, 1997 for a review).

**Corollary 5.1: Consequences Are Decreasingly Positively From Intrinsic Motivation to Amotivation.** This first corollary relates motivational consequences to types of motivation. Deci and Ryan's (1985b) self-determination continuum is particularly useful when predicting motivational consequences. Because we know the location of the different types of motivation on the self-determination continuum and that self-determination is associated with enhanced psychological functioning (Deci, 1980; Ryan, Deci, & Grolnick, 1995), we can predict the impact of the different types of motivation on consequences. More specifically, IM is expected to lead to the most positive consequences, followed by integration and identification. External regulation should be associated with negative consequences, and AM with the most negative ones. Introjection is hypothesized to lead to consequences that lie between those generated by external regulation and identification.

Much support exists for Corollary 5.1. For instance, in the context of couple relationships, a study by Blais, Sabourin, et al. (1990) revealed that the most self-determined types of motivation (IM, integration, and identification) led to the most positive consequences (i.e., positive interpersonal behaviors, couple happiness) whereas nonself-determined types of motivation (introjection, external regulation, and AM) yielded the most negative consequences. Several other studies have provided empirical support for this corollary (see Ryan, 1995; Vallerand, 1993, 1997) in life domains such as work (Blais et al., 1993), leisure (Pelletier, Vallerand, Green-Demers, Brière, & Blais, 1995), education (Vallerand & Bissonnette, 1992), environmental protection (Pelletier et al., 1998), and aging (Vallerand et al., 1995).

**Corollary 5.2: Motivational Consequences Exist at Three Levels of the Hierarchy, and the Level of Generality of the Consequences Depends on the Level of the Motivation That Has Produced Them.** This second corollary pertains to the levels of generality of motivational consequences. The level of generality of a particular consequence is a function of the level of generality of the motivation that produced that particular consequence. Thus, consequences of situational motivation will be situational. They will include feelings of satisfaction, level of attention, and behavioral persistence with respect to a particular task at a specific point in time. Likewise, contextual consequences, resulting from contextual motivation, will be specific to

the context at hand, and will be of moderate generality. Lastly, consequences at the global level of generality, resulting from global motivation, will be the most general.

Support for this second corollary has been provided by Chantal, Guay, and Vallerand (1995). In this study, students' global motivation, as well as contextual motivations toward education and interpersonal relationships were measured. Five weeks later, educational and relational consequences were measured. Results showed that contextual educational consequences were better predicted by contextual educational motivation than by contextual motivation toward interpersonal relationships. Similarly, relational consequences were better predicted by contextual motivation toward interpersonal relationships. Finally, global motivation did not affect the different types of consequences.

Further support was provided for Corollary 5.2 in a study by Vallerand and Blanchard (1998) in which exercise participants completed motivation and consequence scales at the three different levels of generality, at three points in time. At Time 1, they completed the Global Motivation Scale (Guay et al., 1999) as well as a scale assessing contextual motivation toward exercise (adapted from the Sport Motivation Scale; Brière et al., 1995). At Time 2, four weeks later, participants completed the Situational Motivation Scale (Guay et al., 1999) and scales assessing situational consequences such as concentration and positive emotions. Finally, at Time 3 (four weeks later), they completed scales assessing global consequences (i.e., global negative affect), and contextual consequences pertaining to exercise. Regression analyses showed that global motivation was the best predictor of global consequences, contextual motivation toward exercise was the best predictor of contextual consequences related to exercise, and situational motivation was the most important predictor of situational consequences.

In sum, Postulate 5 and its corollaries have been supported by numerous research findings. It thus appears safe to conclude that motivation leads to important cognitive, affective, or behavioral consequences. Consistent with the level of generality of the motivation that produced them, it is also possible to distinguish among consequences occurring at the global, contextual, and situational levels of the hierarchy. Furthermore, motivational consequences were found to be increasingly positive as we go from AM to IM.<sup>2</sup> Future research is nevertheless needed to validate these results, using other types of consequences.

2. Although the majority of research findings indicated that IM leads to the most positive consequences, Koestner, Losier, Vallerand, and Carducci (1996) reported that in the political domain, identification leads to more positive behavioral consequences than IM. The same was true for research in the domain of environmental protection (Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998). These results are explained by Vallerand (1997) as resulting at least in part from the nature of the task. When some aspects of a task are perceived as uninteresting, identified regulation may be required for individuals to experience positive outcomes. Future research is needed to test this hypothesis.

## Integrative Studies

In this section, additional studies are reviewed which have examined more than one postulate and corollary of the model and have included all three levels of generality (for a more complete analysis of integrative studies, refer to Vallerand, 1997).

A first integrative study was conducted by Vallerand, Guay, Blanchard, & Cadorette (2002, Study 1) in the education domain. In this study, several postulates and corollaries of the model were tested simultaneously. College students involved in an educational task in class completed scales assessing situational level mediators (perceptions of autonomy, competence, and relatedness), motivations, and consequences (concentration, positive affect, and behavioral intentions of engagement in the activity). Furthermore, contextual-level motivations and mediators (perceived competence, autonomy, and relatedness) toward leisure, education, and interpersonal relationships were also measured. Finally, global-level motivations and mediators were measured. Thus, motivation as well as psychological mediators were measured at each level of the hierarchy and for each of the three life contexts. In addition, situational consequences were assessed.

Results from a structural equation modeling analysis (with EQS) provided strong support for the Hierarchical Model. First, it was possible to distinguish motivation at the global, contextual, and situational levels, thereby providing support for the hierarchical structure of the model (Postulate 2). Second, at each level, perceptions of autonomy, competence, and relatedness were found to predict motivation (Corollary 3.2). There was also support for the fact that perceptions of autonomy, competence, and relatedness for each of the different contexts affected only motivation that was relevant to that context. The top-down hypothesis (Corollary 3.3) where global motivation influenced each of the three contextual motivations also was supported. Of interest is that only motivation in education was found to significantly influence situational motivation toward an educational task (as proposed by the specificity hypothesis). Analysis also confirmed the hypothesized consequence aspects of the model. First, it was possible to distinguish the three types of consequences, namely affect, cognition, and behavior, at the situational level (Postulate 5). Second, Corollary 5.1 was supported in that situational self-determined motivation was found to positively influence affect, cognition, and behavioral intentions. Finally, there was support for Corollary 5.2 in that only situational motivation affected situational consequences. Neither global nor any of the contextual motivations influenced situational consequences.

Although the study by Vallerand et al. (2002, Study 1) provided support for several of the postulates and corollaries of the Hierarchical Model, all measures were assessed at the same time, so support for the direction of causality among variables was far from perfect. In a second study, Vallerand et al. (2002, Study 2) used a prospective design to test some of the postulates and corollaries of the

model. One hundred and seventy-eight college students completed scales assessing motivation at the global and contextual levels (toward education, leisure, and interpersonal relationships). Five months later, they were contacted again and asked to complete scales assessing situational motivation and consequences (positive affect and behavioral intentions) toward a leisure activity they had just been engaged in. Thus, the measures assessed in this second study were similar to those used in the first study, except that perceptions of competence, autonomy, and relatedness were not assessed and situational measures dealt with a leisure activity instead of an educational activity. The results from a path analysis (with EQS) were almost identical to those obtained in the first study. Further, alternative models were tested and yielded poorer fit indices than the hypothesized model.

In sum, findings from the above two studies provide strong support for the Hierarchical Model. In fact, combined, the two studies empirically support most of the model's postulates and corollaries including: Postulate 1 (on the importance of including IM, EM, and AM for a complete analysis of motivation), Postulate 2 (on the three levels of generality of motivation), Corollary 3.2 (on the mediating role of perceived competence, autonomy, and relatedness), Corollary 3.3 (on the top down effect of motivation), and Postulate 5 (on motivational consequences). However, additional research is needed in order to more fully understand some of the intricacies of the model. We now turn to this issue.

### Future Research on the Hierarchical Model

As evidenced by the studies reviewed above, there is empirical support for the postulates and corollaries of the Hierarchical Model of Intrinsic and Extrinsic Motivation. Thus, we believe that the theoretical framework provided by the model is a reliable and robust one in that it allows the integration of research findings on IM and EM. Furthermore, it can lead to novel and testable research hypotheses in the area of IM/EM. Here are a few research directions based on the model.

A first research avenue would be to investigate the interaction between social factors and personality variables. It is possible that, at a given level such as the contextual level, motivation results from the interplay of social factors at that level (e.g., contextual social factors) and personal forces at the higher level (i.e., global motivation). For example, Williams and Deci (1996) have shown how medical students' global motivational orientations and the interpersonal style of their professor (being autonomy supportive vs. controlling) have additive effects on students' contextual motivation toward their interviewing course. However, little is known about the interaction of these two variables on motivation. Similarly, testing whether social factors at the situational level influence situational motivation

differently as a function of contextual motivation could also lead to new and interesting research. For instance, are people with self-determined contextual motivation relatively immune to the impact of situational factors on situational motivation?

A second research direction involves motivational conflict. So far, the model has looked at how contextual and situational motivation can influence each other through top-down and bottom-up effects. However, little attention has been devoted to the interplay of different contextual motivations and their influence on situational motivation. For example, a girl involved with a tedious algebra assignment who is brought to think about participating in a soccer game is likely to experience motivational conflict. Her situational motivation will then be a function of her contextual motivations both toward school and toward sports. The relative strength of each contextual motivation will dictate which of these two contexts will have the most prevalent effect on situational motivation. To the extent that the student's contextual motivation toward school (and algebra) is less self-determined than that toward sports (and soccer in particular), she will experience a drop in IM toward her assignment. In a recent study (Raiselle, Rousseau, Vallierand, & Provencher, 2002), we examined the consequences of a motivational conflict between education and leisure activities. Participants involved in an educational task were led to think about an attractive leisure activity through a priming procedure, after which they were to return to the educational activity. Results have shown that participants who were led to think about an interesting leisure activity experienced significant drops in IM toward the educational task. These results indicate that experiencing a conflict between two motivations (e.g., motivation toward education and motivation toward leisure) can lead to negative consequences, especially if the person has to remain engaged in the less interesting activity.

A third promising area of research is that of motivational compensation. Compensation effects can result from a dynamic interplay between contextual motivations. From the model's perspective, losses in self-determined motivation in one context can lead a person to compensate in another context by becoming more intrinsically motivated there. Such a phenomenon allows individuals to restore (or keep) their global motivation at a certain (self-determined) level. A preliminary study by Blanchard, Vallierand, and Provencher (1998) seems to support such compensatory effects within the self. Basketball players completed scales assessing their contextual motivation and their perceptions of competence toward education and sports on two separate occasions. They were also asked to rate their school performance at Time 2. Individuals who experienced failure in the academic context at Time 2, and who perceived themselves as competent in sports (basketball) at Time 1, reported a small increase in contextual motivation toward sports. No other group experienced an increase in contextual sport motivation. Losses of competence and self-determined motivation in one domain (school) may have motivated individuals to restore their sense of self and, con-

sequently, to experience an increase in self-determined motivation toward the other context (sport). However, such an effect seems to take place in life domains in which people feel competent. More research on this issue is needed.

A final research avenue concerns the testing of the "Social Factor → Psychological Mediators → Motivation → Consequences" sequence within the confines of the same study. Several studies in the motivation literature have looked at subparts of this sequence but only one, to our knowledge, has tested the whole sequence. In this study by Grouzet, Vallerand, and Thill (1999), social factors were manipulated such that participants were put either in a success or in a failure condition to perform the NINA task (drawings in which the word NINA is embedded several times). Perceptions of competence and autonomy (psychological mediators), self-determined situational motivation, and concentration and intentions of future persistence (motivational consequences) were measured. Structural Equation Modeling provided support for the sequence. More specifically, the success/failure variable influenced perceptions of competence and autonomy, which affected situational self-determined motivation. In turn, motivation predicted concentration and future behavioral intentions. Replication at other levels of the hierarchy are needed to further establish the validity of the sequence.

### Conclusion

The purpose of the present chapter was to present the Hierarchical Model of Intrinsic and Extrinsic Motivation (Vallerand, 1997) along with related evidence. In the introduction, we identified two functions of the model. First, the model provides a conceptual framework for organizing and understanding the core mechanisms underlying intrinsic and extrinsic motivational processes. Overall, the research evidence reviewed in the present chapter provided support for the postulates and corollaries of the Hierarchical Model. A second function of the model lies in its heuristic nature. From the framework provided by the model, we can derive new and testable hypotheses. One of the ways through which testing such new hypotheses becomes possible is through conceptual and methodological progressions. From a methodological standpoint, the tools needed to study the model's postulates and corollaries are now available. Scales have been developed in order to measure motivation at each level of the hierarchy. From a conceptual standpoint, the framework provided by the Hierarchical Model provides the means to study motivation from a multidimensional and hierarchical perspective. It is hoped that the model and the research that it will generate will lead us to a better understanding of the psychological processes underlying motivated behavior.

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