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**There is More to Control than the Absence of Autonomy :
Conceptual Distinctions between Autonomy Support, Behavioral Control, and Psychological Control**

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There is More to Control than the Absence of Autonomy:
Conceptual Distinctions between Autonomy Support, Behavioral Control,
and Psychological Control

Maxime A. Tremblay

Thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
In partial fulfillment of the requirements
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Dédicace

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Abstract

The central purpose of the present thesis was to integrate the construct of autonomy support postulated by Cognitive Evaluation Theory and the literature on parental behavioral and psychological control. Its first specific objective was to demonstrate that autonomy support (AS), behavioral control (BC), and psychological control (PS) are distinct constructs. Its second specific objective was to ascertain unique associations between parental AS, BC, and PC, on one hand, and youth self-processes, internalizing symptoms, and externalized behaviors, on the other hand. Three studies were designed to achieve these goals. In Study 1A ($N=342$) and Study 1B ($N=300$), cross-sectional questionnaires were completed by undergraduate students and the dimensionality of parental behaviors was examined by means of confirmatory factor analyses. Results revealed that AS, BC, and PC are modeled in an optimal manner as distinct constructs. Study 2 ($N=138$) consisted of a laboratory experiment designed to test the unique associations between AS, BC, and PC and youth self-processes, internalizing symptoms, and externalized behaviors. Study 3 ($N=239$) was a prospective field study that also endeavored to examine the unique contribution of AS, BC, and PC to children functioning. In this study, self-processes, internalizing symptoms, and externalized behaviors were assessed over an 8-month competitive season. Globally, results from Study 2 and Study 3 revealed that AS predicted youth autonomous motivation, positive affect, satisfaction, and lower levels of internalizing symptoms. PC reached significant negative influences on youth functioning (i.e., controlled motivation, higher levels of impaired concentration, manifest anxiety and externalized behaviors). BC revealed positive associations with two beneficial outcome variables (i.e., autonomous motivation

and lower levels of intended dropout), and a single negative consequence (i.e., manifest anxiety). Taken together, the findings of the three studies presented here provide support for the importance of distinguishing between AS, BC, and PC as basic functional dimensions that offer unique contribution to our understanding of the influence of socializing agents on youth development and functioning.

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Acronyms

χ^2 :	Chi-square
$\Delta\chi^2$:	Chi-square test of difference
AIC:	Akaike Information Criterion
ANOVA:	Analysis of variance
AS:	Autonomy support and Autonomy-supportive condition
BC:	Behavioral control and Behaviorally controlling condition
CET:	Cognitive Evaluation Theory
CFA:	Confirmatory factor analysis
CFI:	Comparative Fit Index
CSI:	Measure assessing behavioral and psychological controlling strategies
df:	Degrees of freedom
EB:	Externalized behaviors
EFA:	Exploratory factor analysis
GSDS:	General Self-Determination Scale
IBS:	Interpersonal Behavior Scale
IS:	Internalizing symptoms
ISPR:	Integrated system of participation in research
L-M test:	Lagrange Multiplier test
MANOVA:	Multivariate analysis of variance
ML:	Maximum likelihood
NSP:	Negative self-processes
PANAS:	Positive and Negative Affect Schedule

PC:	Psychological control and Psychologically controlling condition
PSP:	Positive self-processes
RAs:	Research assistants
RCMAS-C:	Revised Children's Manifest Anxiety Scale – Version C
RMSEA:	Root Mean Square Error of Approximation
SDT:	Self-Determination Theory
S-B χ^2 :	Satorra-Bentler chi-square
SEM:	Structural equations modeling
SRMR:	Standardized Root Mean Square Residual
W-test:	Wald test

CHAPTER 1

INTRODUCTION

The past decade has witnessed a resurgence of interest in the influence of parenting in the socialization of children and adolescents (Barber, 2002). Although various parenting dimensions have been identified, most literature reviews invariably invoke two fundamental components: autonomy support (AS; e.g., Deci & Ryan, 1980) and control (e.g., Darling & Steinberg, 1993; Peterson & Hann, 1999; Rollins & Thomas, 1979; Schaefer, 1965a). Over the years, numerous studies and review articles have provided evidence for the associations between both parental autonomy support and parental control and outcome variables such as youth cognitive, social, emotional, and behavioral development and functioning (e.g., Barber, 1997; Garber, Robinson, & Valentiner, 1997; Lamborn & Felbab, 2003; Peterson & Rollins, 1987; Steinberg, Dornbusch, & Brown, 1992).

On the one hand, the construct of parental autonomy support is most often considered unidimensional (Barber, 2002). According to Cognitive Evaluation Theory (CET; Deci & Ryan, 1985, 2002), autonomy support occurs when social contexts and interpersonal relationships contribute to the satisfaction of the fundamental psychological needs of competence, relatedness, and autonomy (Connell & Wellborn, 1991; Deci & Ryan, 1985; Grolnick & Ryan, 1989; Skinner, 1995). Autonomy-supportive parenting (i.e., providing choice and minimizing the use of controls) has been a primary predictor of children's self-processes, such as autonomous motivation (e.g., Assor, Roth, & Deci, 2004; Black & Deci, 2000; Chirkov & Ryan, 2001; Grolnick, Ryan, & Deci, 1991; Joussemet, Koestner, Lekes, & Houliort, 2004) and adjustment (e.g., psychological well-

being, confidence, and social competence; Barber, Maughan, Olsen, & Thomas, 2002; Gray & Steinberg, 1999).

On the other hand, the construct of parental control is often considered multifaceted. Numerous dimensions of parental control have been isolated and the construct has also been operationalized in a variety of ways. Controlling parenting is commonly defined as pressures to think, feel or behave in specified ways, thereby ignoring the child's needs, desires, and feelings (Deci & Ryan, 1985, 1991, 2000). These contingencies have consistently been negatively associated with children's self-processes, such as decreased motivational state and well-being (e.g., Grolnick, Deci, & Ryan, 1997; Deci, Driver, Hotchkiss, Robbins, & Wilson, 1993).

Steinberg (1990) and Barber (1996) were the first to explicate the distinction between two dimensions of parental control. The first dimension is "*psychological control*" (PC) and is defined as attempts to exercise control over the psychological and emotional world of the child (Barber & Harmon, 2002). Psychological control is a type of coercive, passive-aggressive, and intrusive control that is characterized by hostility toward the child (Grolnick, 2003). Psychological control is primarily manifested through covert strategies such as invalidating feelings, inducing guilt, or creating an environment in which acceptance is contingent on behaviors (Silk, Morris, Kanaya, & Steinberg, 2003). Psychological control has almost exclusively been conceptualized as a negative form of control (Leondari & Kiosseoglou, 2002), relating mostly to internalizing symptoms (e.g., depressed mood; Doyle & Markiewicz, 2005; Galambos, Barker, & Almeida, 2003; Pettit, Laird, Dodge, Bates, & Criss, 2001) and other negative developmental outcome variables (see Barber & Harmon, 2002, for a review) and

The second dimension is “*behavioral control*” (BC) and is defined as attempts to manage or regulate the child’s behaviors (e.g., demands, monitoring, and setting limits; Barber & Harmon, 2002). Behavioral control is generally understood to be a fairly positive aspect of parenting (Galambos, Bakers, & Almeida, 2003), relating mostly to lower levels of externalized behaviors (e.g., substance use, antisocial behavior, and delinquency; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006).

From a theoretical and an empirical point of view, some work still needs to be done in order to fully capture the intricacies of these parenting dimensions. For example, research within the framework of CET often equates the construct of autonomy support to the “relative” absence of controlling strategies (e.g., Grolnick, Gurland, DeCoursey, & Jacob, 2002; Gurland & Grolnick, 2005) and does not postulate different controlling dimensions. More importantly, very few studies have explicitly tested the theoretically postulated link between parental control and children’s controlled motivation (e.g., Grolnick, Ryan & Deci, 1991). Conversely, extant works on parental control (e.g., Barber, 2002) often equate the construct of control to the absence of (psychological) autonomy (e.g., Barber, Bean, & Erickson, 2002; Vanteenkiste, Zhou, Lens, & Soenens, 2005), hardly ever measure the three parenting dimensions simultaneously (e.g., Bean, Barber, & Crane, 2006), and rarely include the autonomy-supportive component. These prevalent conceptual and methodological inconsistencies have recently been recognized as problematic (Churchill Keating, 2008; Silk, Morris, Kanaya, & Steinberg, 2003), often resulting in equivocal findings.

At this point, the discussion of these three central parenting dimensions can be found within two distinct theoretical approaches, that is, CET (e.g., Deci & Ryan, 1985,

2002) and the literature on parental behavioral and psychological control (e.g., Barber, 1992, 1996; Schaefer, 1965; Steinberg, 1990). Nonetheless, there is an essential need for research unifying these two literatures in a systematic attempt to understand all three dimensions and treat them as distinct components of children's socialization experiences. Consequently, the central purpose of this thesis will be to integrate the construct of autonomy support postulated by CET and the extant work on parental behavioral and psychological control. Its first specific objective will be to distinguish the three dimensions of autonomy support, behavioral control, and psychological control. Its second specific objective will be to examine the unique associations between these three parenting dimensions and youth self-processes, internalizing symptoms, and externalized behaviors.

In the following sections, the components of parental autonomy support and parental control will be discussed in line with both CET and the on parental control literature. Correlates of autonomy-supportive parenting, as well as behavioral and psychological controlling parenting, will also be presented. Conceptual and methodological issues will also be addressed. Finally, the present thesis' goals and content will be synthesized.

Cognitive Evaluation Theory

CET underscores the importance of autonomous motivation, in which behaviors have an internal perceived locus of causality (deCharms, 1968), are experienced as volitional, and are performed out of interest or personal importance (Deci & Ryan, 1985, 2002). Within this framework, children's opportunities to experience themselves as

autonomous are believed to be facilitated by contexts that fulfill their innate needs of competence, relatedness, and autonomy (Deci & Ryan, 1987, 1991; Grolnick & Ryan, 1989; Reeve, Bolt, & Cai, 1999; Ryan, 1982; Ryan & Solky, 1996). These essential psychological nutrients are referred to as basic psychological needs. Basic needs are assumed to be universal (i.e., evident in all cultures), to be innate (i.e., rather than acquired), to operate whether or not the child is conscious of their existence (Ryan & Deci, 2002), and to be in evidence in all developmental periods (i.e., from childhood to old age). Although they may have different expressions or may be satisfied through different vehicles, their core character is said to remain unchanged. The concept of psychological needs further suggests that the healthy human psyche ongoingly strives for these nutrients and, when possible, gravitates toward social contexts that fulfill them (Wild & Enzle, 2002).

Accordingly, children are given opportunities to experience relatedness and belongingness when they interact with socializing agents who love them, who are involved and emotionally available, and who express affection, warmth, care, and nurturance (e.g., Ainsworth, 1979; Lamb & Easterbrooks, 1981). Children also accumulate experiences of competence when they interact with individuals in positions of authority within contexts that are structured and consistent (e.g., Bandura, 1981; Carton & Nowicki, 1994; Schneewind, 1995). In addition, children experience autonomy when their surroundings provide choices (within specific rules and limits) and allow opportunities to take personal decisions and initiatives (Mageau & Vallerand, 2003).

Autonomy-Supportive versus Controlling Parenting

A central concern to the issue of parental autonomy support is whether children construe contexts as supporting their autonomy or controlling their behaviors. Specifically, CET distinguishes between socializing contexts and interpersonal styles that are autonomy-supportive “versus” controlling and links these contextual elements to different motivational orientations (i.e., autonomous vs. controlled motivation, in which the behaviors have an external perceived locus of causality and are experienced as being pressured by interpersonal or intrapsychic contingencies or demands; Deci & Ryan, 1985, 1987, 2002; Ryan, 1982). This focus takes into account that objectively similar social contexts and/or interpersonal styles may have dissimilar effects on different individuals. For instance, two children can experience the same environment differently; thus, it is not the objective quality of the environment but rather its “functional significance” that makes it autonomy-supportive or controlling (Pelletier & Vallerand, 1996). For example, a study of classroom settings conducted by Ryan and Grolnick (1986) revealed wide variations in the degree to which teachers were described by their students as autonomy-supportive or controlling.

By pointing to (psychological) control as a threat to optimal internalization, CET is in line with the literature on parental behavioral and psychological control (e.g., Barber, 1996; Baumrind, 1971). For instance, research within the parental control literature has typically operationalized autonomy-supportive behaviors as the absence of (psychological) control (Barber, 2002) or as strictly providing choice (e.g., Zuckerman, Porac, Lathin, Smith, & Deci, 1978). However, the following definitions of this construct suggest a more complex set of behaviors. Autonomy support refers not only to the

“relative” absence of control, but to “taking the other’s perspective, acknowledging the other’s feelings and providing the other with pertinent information and opportunities for choice, while minimizing the use of pressures and demands” (Black & Deci, 2000, pp. 742). Support for autonomy extends beyond avoiding to be controlling, or allowing a child freedom of choice and expression, to providing genuine respect and encouraging children to actively discover, explore, and articulate their own preferences, desires, and wants.

Moreover, autonomy support concerns placing value on self-initiation, as well as encouraging independent problem solving and participation in decision-making (Grolnick & Ryan, 1989). Autonomy support thus implies that a child is regarded as someone deserving self-determination, and not a mere pawn that should be controlled to obtain certain outcome variables (deCharms, 1968). On the one hand, parents can actively participate in this socialization process through attempts to help the child become aware of, reflect on, and express his or her true feelings, views, and goals (Grolnick & Apostoleris, 2002). On the other hand, children feel controlled when they perceive strong parental pressures to behave and/or think in certain ways, whether in the form of critiques or other behavioral contingencies (Grolnick, 2003). These controlling practices lead children to feel coerced which, in turn, undermine the feeling that they are initiating their own actions, as well as their subsequent functioning.

Nevertheless, it is important to keep in mind that autonomy support is not the only dimension that is necessary to facilitate children’s motivation and adjustment. Recall the earlier discussion of the three innate needs underlying human functioning: Competence, relatedness, and autonomy. It is thus crucial that the environment also supports the needs

for competence and relatedness by providing both structure and involvement (Ryan & Deci, 2002). To feel competent, children need structure in the form of guidelines, rules and limits. To feel connected, children need to feel that their socializing agents are involved and supportive (Mageau & Vallerand, 2003). Without such structures, children may lack the necessary information and experience to progress normally in their development. Without their parents' support and involvement, children may not feel connected. When all three psychological needs are considered simultaneously, it then becomes apparent that autonomy-supportive behaviors can only be beneficial for children's motivation and functioning when they accompany structure and involvement (Deci & Ryan, 1985; Grolnick & Ryan, 1989; Connell & Wellborn, 1991).

However, it is important to note that arguing against the use of controlling strategies such as rewards to motivate children should not be interpreted as advocating permissiveness, because a permissive (or *laissez-faire*) style thwarts the psychological needs for both competence and relatedness (Baumrind, 1991). Parents with a permissive interpersonal style have been described as not being demanding of their children, not requiring them to exhibit mature behavior, allowing total self-regulation and avoiding confrontation (Baumrind, 1991). On the same token, teachers and or coaches who would allow their students/athletes total freedom of behavior without structure or involvement would display a permissive style of teaching/coaching, not an autonomy-supportive one. Such a permissive style would prevent youth from benefiting from their socializing agents' experiences and would send messages of indifference. They sure would feel autonomous but they would also suffer greatly in terms of competence and relatedness. In fact, during an experimental study, Anderson and collaborators (1976) showed that

adults' lack of involvement was worse than adults' controlling behaviors for children's autonomous motivation.

The question, then, is how to provide these structures in a context that supports autonomy. The answer seems to be that autonomy support involves taking children's perspective and encouraging self-initiation and personal responsibility (Joussemet, Koestner, Lekes, & Houliort, 2004). In contrast to a permissive style, supporting autonomy requires a high level of attentiveness and responsiveness to children. Instead of adopting a *laissez-faire* posture toward the child's activities, autonomy support "requires being clear, being consistent, and setting limits in an understanding, empathic manner" (Deci & Flaste, 1995, pp. 104). Autonomy-supportive behaviors thus need to be conveyed within a specific structure and accompanied by high levels of involvement. For example, parents who monitor and set clear limits for their children's conduct (i.e., they provide structure) would be characterized as being autonomy-supportive to the extent that these parents are also highly involved (i.e., providing support), and not purely intrusive or restrictive (i.e., controlling). If this were the case, they would then be most likely considered behaviorally controlling, as noted by Grolnick (2003).

In the next section, correlates of parental autonomy support will be presented in line with CET. The distinction between autonomous motivation and controlled motivation will first be brought forward. Correlates of parental autonomy support will be presented thereafter.

Child and Adolescent Correlates of Parental Autonomy Support

The CET literature stipulates that the most salient and important aspects of the environment are the interpersonal ones (e.g., the way parents treat children). CET also

suggests that motivated behaviors vary in the degree to which they are autonomous versus controlled. Autonomous behaviors have an internal perceived locus of causality, are experienced as volitional, are performed out of interest or personal importance, and emanate from one's integrated sense of self (deCharms, 1968; Deci & Ryan, 1991). In contrast, controlled behaviors have an external perceived locus of causality and are experienced as being pressured by interpersonal/intrapsychic contingencies and/or demands, such as feeling that one has to achieve high standards to be a worthy individual (Ryan, 1982). Intrinsically motivated behaviors are the prototype of autonomy. They are undertaken out of interest and sustained by the spontaneous thoughts and feelings that emerge as one performs the activity. On the contrary, extrinsically motivated behaviors, which are sometimes necessary to facilitate children's accommodation to the social environment, are undertaken and sustained because of contingencies such as the offer of a reward. These behaviors vary in the extent to which they reflect autonomous motivation versus controlled motivation.

Accumulating evidence now corroborates the positive effects of autonomy support on children and adolescents. The studies on this topic are reviewed below and are grouped together according to the underlying level of generality of the motivational constructs (i.e., global, contextual, and situational; Deci & Ryan, 1987; Vallerand, 1997).

The first set of studies focuses on evidence that pertains to the influence of autonomy-supportive social contexts on children's global motivation (i.e., global motivational orientation to interact with the environment in an intrinsic, extrinsic, and/or amotivated fashion; Vallerand, 1997). For example, Assor, Roth, and Deci (2004) reported that when parents provide an autonomy-supportive socializing context, children

are predicted to identify with and integrate the attitudes and values endorsed by their parents. Conversely, when the parenting context is controlling, children are expected to merely introject these same attitudes and values (Grolnick, Deci, & Ryan, 1997). These internalization deficits are associated with introjected regulation (i.e., controlled motivation as characterized by global feelings of internal pressure and compulsion to perform the behaviors), behavioral enactment, and fluctuations in self-esteem.

The second set of studies focuses on the fact that the effect of autonomy support can also be found in a variety of domains (i.e., one's usual motivational orientation toward a specific context, Vallerand, 1997). Within the school context, research has consistently showed that parents' and teachers' autonomy-supportive interpersonal styles are positively associated with children's self-reports of autonomous school motivation, interest/enjoyment, and decreased anxiety, as well as teacher-rated achievement, performance, adjustment, and school grades (e.g., Black & Deci, 2000; Grolnick & Ryan, 1989; Grolnick, Ryan, & Deci, 1991). Also, in comparison to their controlling counterparts, teachers who received information and guidance on how to support students' autonomy displayed significantly more autonomy-supportive strategies (e.g., conversational behaviors and attempts to support students' motivational processes; Reeve, Bolt, & Cai, 1999) which resulted in increased students' engagement in the classroom (Reeve, Jang, Carrell, Jeon, & Barch, 2004).

Without doubt, very few domains are more benefiting than sports to induce interest, enjoyment, and excitement in its participants (Mageau & Vallerand, 2003). Although many factors may impact athletes' sport motivation, the coach-athlete relationship is one of the most important influences on athletes' motivation and

subsequent satisfaction, performance, and persistence (Mageau & Vallerand, 2003; Vallerand & Rousseau, 2001). Using the framework of CET, a study examining whether contextual and personal motivational variables could predict students' cognitive and affective experiences in physical education, revealed that instructors' support of students' psychological needs for autonomy, competence and relatedness was related to greater students' autonomous motivation, which in turn was linked to positive affective, cognitive, and behavioral indices, as well as to intentions to participate in optional physical education in the following year (Ntoumanis, 2005). Similarly, in validating a model that incorporates perceptions of coaches' interpersonal styles (AS vs. control), and athletes' motivation and persistence, Pelletier and his colleagues (2001) found that greater levels of autonomous motivation and persistence occurred when the coach-athlete relationships were experienced as autonomy-supportive. That is, athletes who exhibited autonomous motivation at Time 1 (T1) showed more persistence at both Time 2 (T2; 10 months later) and Time 3 (T3; 22 months later). In contrast, controlled motivation was associated with dropout at T2 and T3.

The third set of studies focuses on the impact of autonomy-supportive social environments on situational motivation (i.e., motivation experienced by an individual when currently engaging in an activity; Vallerand, 1997). The studies on this topic usually consist of laboratory experiments in which instructions, feedbacks and/or rewards are administered within experimentally created autonomy-supportive versus controlling interactions. Results revealed that when parents interact in a controlling manner, children are more likely to give up when they perform the activity on their own (i.e., free-choice period as an indicator of intrinsic motivation; Deci, Driver, Hotchkiss, Robbins, &

Wilson, 1993; Grolnick, Frodi, & Bridges, 1984), and exhibit decreased creativity and performance while performing the task (Grolnick, Gurland, DeCoursey, & Jacob, 2002). Conversely, parents' autonomy-supportive interactions predicted increased children performance over time (Ng, Kenney-Benson, & Pomerantz, 2004; Gurland & Grolnick, 2005).

Researchers have also found that when experimenters use an autonomy-supportive (vs. a controlling) approach, children enjoy the tasks more, feel less pressured, and display better task performance and higher persistence (e.g., Deci, Eghrari, Patrick, & Leone, 1994; Gurland & Grolnick, 2000; Ryan, Koestner, & Deci, 1991; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Vansteenkiste, Simons, Soenens, & Lens, 2004). Operationalizing autonomy support in terms of (a) acknowledging children's feelings (e.g., Koestner & Zuckerman, 1994), (b) offering a meaningful rationale for the task (e.g., Reeve, Jang, Hardre, & Omura, 2002), and (c) emphasizing choice rather than using controlling language (e.g., Deci, Eghrari, Patrick, & Leone, 1994), Joussemet and colleagues (2004) found that a controlling style hindered task integration (i.e., behaviors incongruent from affect and value), while an autonomy-supportive style had various positive effects on children's capacity to self-endorse an uninteresting task (i.e., integrated self-regulation).

Together, these investigations conceptualized and operationalized at the global, contextual, and situational levels of generality offer strong support for the notion that when the social environment functions to support autonomy, children and adolescents display higher (autonomous) motivation and are more creative, cognitively flexible, trusting, and positive in emotional tone. As well, they display higher self-esteem,

perceived competence, and preference for choice; their behaviors are appropriately persistent; and they project less aggression (see Deci & Ryan, 1987, for a complete list of references). Furthermore, isolated studies suggest that controlling social environments lead to decreased motivation, overall functioning, and well-being (e.g., Pelletier, Fortier, Vallerand, & Brière, 2000; Trouilloud, Sarrazin, Bressoux, & Bois, 2006; Vallerand, 1997). However, it must be noted that compared to the vast array of empirical studies pertaining to autonomy support, there is a dearth of documentation on the theoretically postulated relation between social environment that functions in a controlling manner and children's controlled motivation.

That being said, the literature is rather consistent in suggesting that autonomy-supportive parenting has many positive ramifications. Yet, many well-meaning parents use controlling approaches toward their children, which are more than often subtle and laden with good intentions. In the following sections, on the basis of the parental control literature, the concept of psychological control (being "controlling") will be differentiated from that of behavioral control (being "in control"), both conceptually and as a function of their respective correlates.

The Concept of Parental Control

Baldwin's (1948) groundbreaking investigation of child rearing in the late 1940's was one of the first to systematically examine the concept of parental control. Results from factorial analyses of children's ratings yielded two general factors: *control* and *democracy*. According to Baldwin (1948), control refers to the limits, rules, and restrictions placed on children's behaviors. Later, in her highly influential work on

parental authority toward children, Baumrind (1967, 1977) took a typological approach, dividing parents into different categories of parenting. With the use of cluster analyses, four patterns of parenting were initially described: *authoritative* (i.e., demanding and responsive), *authoritarian* (i.e., demanding but not responsive), *permissive* (i.e., more responsive than demanding), and *rejecting/neglecting* (i.e., neither responsive nor demanding). When children of parents placed into these categories were examined, the most positive outcomes were found for authoritative parents and the most negative ones for the rejecting/neglecting parents (Baumrind, 1991).

Psychological Control

Schaefer was the first researcher to attend explicitly to the construct of psychological control. His work in the 1950's and 1960's is known to have set the standard for both the definition and the measurement of the construct. Factorial analyses of child and parent ratings on Schaefer's (1965a, 1965b) Child Report of Parent Behavior Inventory (CRPBI; Schaefer, 1965a; Schludermann & Schludermann, 1970, 1988) discerned three factors, which were labelled *acceptance versus rejection*, *firm control versus lax control*, and *psychological autonomy versus psychological control*. This latter factor, which was primarily defined by the multiple-item scales of intrusiveness, parental direction, and control through guilt, could easily be viewed as similar to CET's notion of control because it also conceives control as the opposite end of a continuum in which (psychological) control would be the equivalent of the absence of (psychological) autonomy.

Schaefer characterized this set of psychologically controlling behaviors as "covert, psychological methods of controlling the child's activities and behaviors that

would not permit the child to develop as an individual apart from the parent” (Schaefer, 1965a, pp. 555). This founding definition of psychological control has been relied on through much of the enduring work that has explicitly explored the construct, with many researchers quoting Schaefer’s precise definition and others paraphrasing it. The most obvious and important element of Schaefer’s characterization is the term “psychological” in describing the methods parents use when relating with their children.

The psychological pressure underlying this dimension of parental control is its most distinguishing characteristic. Most other forms of parental control describe “psychologically neutral” parental strategies that have as their intent the control of children’s behavior toward normative goals of socialization of, or conformity to, parental or societal standards. This distinction between psychological and behavioral control was later made clear by Steinberg (1990).

Behavioral Control

The increase in scientific attention to the construct of parental control of children and adolescents began when Steinberg (1990; Steinberg, Elmen, & Mounts, 1989) reminded the scientific community of the fundamental distinction between psychological control and other, more behaviorally focused, forms of parental control. Steinberg reasoned that although the positive effects of authoritative parenting were compelling, it was primordial to understand which aspects of this typology were most influential in creating positive outcome variables for children.

According to Steinberg, “too little behavioral control may leave the youngster without adequate guidance and supervision and may, as a consequence, expose him or her [...] to an array of developmentally risky temptations and dangers. Too much

psychological control, in contrast, may increase dependency and impede the development of psychological competence and self-direction” (1990, pp. 273-274). Simply put, insufficient behavioral control deprives adolescents of adequate supervision and places them at risk for developmental difficulties (Soenens, Vansteenkiste, Luyten, Duriez, & Goossens, 2005). Behavioral control is therefore thought to facilitate development by providing youth with some degree of supervision, guidance, and limits (Smetana & Daddis, 2002).

Undeniably, Steinberg’s differentiation between psychological control and behavioral control represented an important advancement in research. Whereas psychological control stifles children’s expression of autonomy and independent initiations, behavioral control concerns the presence of rules and limits. This assertion of the important qualitative difference between psychological control and behavioral control, and the differences in their effects on youth development and functioning emerged in Steinberg’s study (Steinberg, Elmen, & Mounts, 1989) of adolescents’ academic success and psychological maturity. Steinberg’s distinction has proven to be an insightful classification of the parental controlling dimensions.

This assertion was also the impetus for Barber’s (e.g., 1992, 1996; Barber, Olsen, & Shagle, 1994) subsequent investigations which were designed to empirically test the conceptual distinctions outlined by Steinberg (1990). Barber (1996, pp. 3296) defined psychological control as attempts that “intrude into the psychological and emotional development of the child” and behavioral control as “attempts to manage or control the child’s behavior”.

Thus, psychological control differs from most other types of parental control in that such parenting is detrimental and unresponsive to the fulfillment of children's psychological needs for competence, relatedness, and autonomy (Maccoby & Martin, 1983). Most traditional measures of parental control define parental attempts to regulate their children's behaviors, either through various disciplinary and supervisory practices or through rewards and punishments. Psychological control, as traditionally and contemporaneously defined, is not concerned with behavioral regulation, but with control (and violation) of the child's psychological self.

Grolnick (2003) also concluded that if control is interpreted as "having" control, being an authority-figure, making age-appropriate demands, setting limits, and monitoring children's behaviors; then a clear consensus can be reached that children do better when parents are "in control". Children certainly need some rules, guidelines, and limits for optimal development even if they are not expected to like them at all times. Alternatively, if "having" control is interpreted as placing paramount value on compliance, pressuring children toward specific outcome variables, and discouraging verbal expressions, a clear yet opposite consensus can be reached that being "controlling" has negative consequences for children. In short, behavioral control is theoretically different from psychological control because, in each case, the focus is on different aspects of the child's development and adjustment.

Child and Adolescent Correlates of Parental Behavioral and Psychological Control

According to Barber and Harmon (2002), the specific aspects of youth development and functioning that are associated with parental behavioral and psychological control can be divided roughly into four main categories: (a) self-

processes, (b) internalizing symptoms, (c) externalized behaviors, and (d) academic achievement.

Self-Processes. A number of studies have linked parental control (although more PC than BC) with elements of the child's psychological self-processes. These include autonomy (Hill, 1995; Pardeck & Pardeck, 1990), self-regulation and motivation (Bernier, Larose, Boivin, & Soucy, 2004; Vansteenkiste, Simon, Lens, Sheldon, & Deci, 2004; Vansteenkiste, Zhou, Lens, & Soenens, 2005; including free-choice period: Vansteenkiste, Simon, Soenens, & Lens, 2004), and self-esteem (Assor, Roth, & Deci, 2004; Bean, Bush, McKenry, & Wilson, 2003; Doyle & Markiewicz, 2005; Leondary & Kiosseoglou, 2002; Soenens, Vansteenkiste, Luyten, Duriez, & Goossens, 2005). Other studies have also associated both parental controlling dimensions with lower levels of self well-being. Indicators of subjective psychological adjustment included vitality (Vansteenkiste, Zhou, Lens, & Soenens, 2005), positive/negative affect (Assor, Roth, & Deci, 2004; Leondari & Kiosseoglou, 2002), and satisfaction with life (Seibel & Johnson, 2001). In sum, the overall pattern of findings from these studies suggests significant negative associations between psychological control and indicators of children's self-processes and well-being, as well as significant positive associations between behavioral control and these same outcome variables.

Internalizing Symptoms. As previously highlighted in some theorizing about the effects of parental control (Barber, 1992), numerous studies tested the associations between parental psychological control and youth internalizing symptoms. Studies found psychological control to be positively related to internalizing symptoms, including anxiety (Bögels & van Melick, 2004; Doyle & Markiewicz, 2005; Galambos, Baker, &

Almeida, 2003; Loukas, Paulos, & Robinson, 2005; Pettit, Laird, Dodge, Bates, & Criss, 2001; Seibel & Johnson, 2001), impaired concentration, and other physical symptoms (Vansteenkiste, Zhou, Lens, & Soenens, 2005). Generally speaking, non significant effects were usually found for behavioral control and these same internalizing symptoms. However, both controlling dimensions (i.e., PC and BC) have been associated (positively and negatively, respectively) to feelings of depression (e.g., Pettit, Laird, Dodge, Bates, & Criss, 2001; Rogers, Buchanan, & Winchell, 2003).

Externalized Behaviors. Findings with externalized behaviors were similar to those for internalizing symptoms. Parental behavioral control has been recurrently linked with lower levels of antisocial behaviors, delinquency, and substance use in children and adolescents (e.g., Herman, Dornbush, Herron, & Herting, 1997; Pettit, Laird, Dodge, Bates, & Criss, 2001; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). Parental psychological control has been positively related to youth absenteeism and dropout intentions (Vansteenkiste, Zhou, Lens, & Soenens, 2005). High levels of perceived parental “affectionless control” during childhood has also been associated with elevated levels of partner dependency (Johnson, Zhang, Greer, & Prigerson, 2007).

Academic Achievement. There is a growing literature illustrating the links between parental behavioral control and psychological control, on the one hand, and children’s school motivation, on the other hand (these associations being positive for behavioral control and negative for psychological control; Hein & Lewko, 1994). Similar links have also been found with indicators of school adjustment, including academic self-esteem (Amato & Fowler, 2002; Bean, Bush, McKenry, & Wilson, 2003; Gonzales, Cauce, Friedman, & Mason, 1996; Gray & Steinberg, 1999; Lamborn, Mounts,

Steinberg, & Dornbusch, 1991; Steinberg, 2001), self-efficacy (Leondari & Kiosseoglou, 2002), and academic achievement (i.e., performance/success; Aunola & Nurmi, 2004; Barber, 1999; Bean, Bush, McKenry, & Wilson, 2003; Bernier, Larose, Boivin, & Soucy, 2004; Ng, Kenney-Benson, & Pomerantz, 2004; Pallock & Lamborn, 2006; Soucy & Larose, 2000; Vansteenkiste, Zhou, Lens, & Soenens, 2005).

To summarize, there is robust evidence that the presence of parental behavioral control is primarily associated with lower levels of youth externalized behaviors (Barber, 2005; Barber, Olsen, & Shagle, 1994; Bernier, Larose, Boivin, & Soucy, 2004), and that parental psychological control is primarily associated with numerous forms of youth internalizing symptoms, as well as with disturbances in self processes, (Rogers, Buchanan, & Winchell, 2003). These findings suggest that behavioral control is instrumental to children's healthy psychological and emotional development, whereas psychological control reflects an interpersonal style in which the parents' psychological status and relational position to the child is maintained and defended at the expense and violation of the child's psychological world and healthy self-development.

This chapter has focused so far on providing a thorough review of the conceptual and empirical literature that highlights the important role played, during childhood and adolescence, by parental autonomy support, behavioral control, and psychological control (e.g., Barber, 1997; Garber, Robinson, & Valentiner, 1997; Lamborn & Felbab, 2003; Peterson & Rollins, 1987; Steinberg, Dornbusch, & Brown, 1992). However, past research has revealed that the effects of these three key parenting dimensions on youth development and functioning often vary from weak to strong and from positive to negative (BC, specifically; Barber, 2002), causing some confusion in the literature.

Furthermore, the many ways in which parental control has been conceptualized and operationalized has resulted in inconsistent or equivocal empirical findings (Barber, 1992; Rollins & Thomas, 1979).

Accordingly, the section below addresses the main conceptual and methodological issues pertaining to the research on parental autonomy support, behavioral control, and psychological control, and explicates how the present thesis endeavours to elucidate these issues. More specifically, concerns such as the prevalence of typological approaches, the limited focus on one or two parenting dimensions, the confounding of the absence of autonomy support and control, the predominant use of adolescent samples and cross-sectional data, and the restricted focus on the parent-child dyad, will be addressed. The work reported in the present thesis is thus believed to represent an attempt to further clarify the parenting dimensions and their respective outcome variables by focusing on the conceptual and operational differences between autonomy support, behavioral control, and psychological control with the aim of trying to shed some light into the commonly mentioned conceptual and methodological issues presented below.

Conceptual and Methodological Issues

Prevalence of Typological Approaches

Typologies are generally created by dichotomizing continuous variables and by subsequently recombining low and high subcharacteristics (from different variables) to generate either types or profiles (e.g., Baumrind, 1966; Magnusson & Bergman, 1990; Rovik, Tyssen, Gude, Moum, Ekeberg, & Vaglum, 2007). This approach has been widely

utilized in research on parental behaviors (e.g., Baumrind, 1971; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Maccoby & Martin, 1983). However, the use of a typological approach prompts concern about whether the parenting processes being examined are truly representative. For example, researchers have excluded up to 70% of parents from their sample because they could not be categorized as having a “pure” parenting approach to children’s socialization (e.g., Dornbush, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Kim & Rohner, 2002; Lamborn, Mounts, Steinberg, & Dornbusch, 1991). Moreover, typologies have also been widely criticized because the dichotomization of continuous variables results in loss of information and predictive power (e.g., Rovik et al., 2007).

Limited Focus on One or Two Parenting Dimensions

Very few studies examined the three parenting dimensions, namely autonomy support, behavioral control, and psychological control jointly. Naturally, numerous studies have employed only one of those dimensions (but there is not enough space to review all of those studies here). Parenting dimensions have also been assessed in pairs (e.g., BC and PC together: Barber, Olsen, & Shagle, 1994; Pettit & Laird, 2002; AS and BC together: Brody, Dorsey, Forehand, & Armistead, 2002; Beyers, Bates, Pettit, & Dodge, 2003; AS and PC together: Goldstein, Davis-Kean, & Eccles, 2005).

When parenting dimensions are examined in isolation rather than in combination (Rovik et al., 2007), there is a risk of overstating or misinterpreting the effects of one dimension, because the three are often significantly related (Garber, Robinson, & Valentiner, 1997; Steinberg, Mounts, Lambron, & Dornbusch, 1991). For instance, Barber and colleagues (Barber, Bean, & Erickson, 2002) reported moderate (negative)

correlations between parental autonomy support and psychological control. They also reported that correlations between parental autonomy support and behavioral control, though lower overall, were substantially higher than between parental psychological control and behavioral control. The number of studies in which all three parenting dimensions have been simultaneously evaluated is therefore small (e.g., Bean, Barber, & Crane, 2006; studies presented in Barber's Monographs, 2005). The extant parental control literature could thus benefit from the simultaneous assessment of parental autonomy support, psychological control, and behavioral control. The first specific goal of the present thesis is to accomplish this and to verify whether these three constructs can be differentiated empirically.

The relevance of distinguishing between parental autonomy support, behavioral control, and psychological control extends beyond just a conceptual clarification (Barber, Olsen, & Shagle, 1994) and the need to differentiate between these three parenting dimensions has been underscored by many key researchers (e.g., Gray & Steinberg, 1999; Grolnick, Ryan, & Deci, 1991). For instance, when the three parenting dimensions are examined together, but as separate dimensions, insights into their unique contribution on youth development and functioning become available (Barber, 1997; Barber, Bean, & Erickson, 2002; Darling & Steinberg, 1993; Gray & Steinberg, 1999; Steinberg, Elmen, & Mounts, 1989; Weiss & Schwarz, 1996). Barber (1997, 2005) has discussed, hypothetically, possible unique associations between parental behaviors and distinct aspects of children's socialization. More specifically, Barber (2005), derived from past theory and empirical work, formulated a specialized relationships framework linking parenting dimensions with youth development and functioning. In this model autonomy

support is linked with social initiative and with lower depression; psychological control is associated with depression and antisocial behavior; and behavioral control is related to lower antisocial behavior. Nonetheless, additional research is necessary in order to further develop this area and to bring more precision to the understanding of how these parenting dimensions are linked to children outcome variables. Consequently, the second specific goal of the present thesis is to demonstrate that parental autonomy support, behavioral control, and psychological control have unique associations with youth self-processes, internalizing symptoms and externalized behaviors.

Confounding the Absence of Autonomy Support and Control

A common practice inherent to CET-based research on interpersonal styles, is to conceptualize control as being the opposite of autonomy support. Examples can be found in studies that have measured autonomy support as being the degree to which parents provide choice for children “versus” pressuring or controlling their behaviors. In those studies, controlling items (e.g., “When it comes to school, my mother is always telling me what to do”), and autonomy-supportive items (e.g., “My mother allows me to decide things for myself”) were averaged (or subtracted after reverse scoring controlling items) to get a score of “autonomy support” (e.g., Grolnick, Gurland, DeCoursey, & Jacob, 2002; Gurland & Grolnick, 2005). The autonomy support versus control approach can also be exemplified by double-meaning items, such as: “Some mothers are always telling their children what to do but other mothers like their children to decide for themselves” (Grolnick, Ryan & Deci, 1991). It is also common practice to create a (psychological) control score by reversing and averaging autonomy-supportive items (e.g., Vansteenkiste, Zhou, Lens, and Soenens, 2005). Conversely, using autonomy-supportive items alone to

measure autonomy support versus control, or performing autonomy support versus control manipulation checks is also quite customary (e.g., Vansteenkiste, Simons, Soenens, & Lens, 2004). Other studies have also measured autonomy support through a variety of related scales, for example, autonomy/relatedness (e.g., Allen, Hauser, Eickholt, Bell, & O'Connor, 1994; Best, Hauser, & Allen, 1997), promotion of autonomy (e.g., Kurdek, Fine, & Sinclair, 1995), and autonomy granting (e.g., Dobkin, Tremblay, & Sacchitelle, 1997).

In line with the assumption that the presence of autonomy support equates the absence of (psychological) control (e.g., Steinberg, 1990), researchers have also reverse-coded controlling items and have presented this aggregation as “autonomy support” (e.g., Herman, Dornbusch, Herron, & Herting, 1997). Most empirical research on psychological control has relied on this implicit assumption that autonomy support and control constitute opposite ends of a continuum (Barber & Harmon, 2002; Barber, Olsen, & Shagle, 1994; Steinberg, 1990). This postulate can be traced to the work of Schaefer (1965a), who originally labelled this parenting dimension *psychological autonomy versus psychological control*. Consequently, over the years, what has been measured mostly is the presence versus the absence of (psychological) control, not the presence of autonomy support. For instance, the two most commonly used measures of parenting style (i.e., CRPBI: Schaefer, 1965a; Schludermann & Schludermann, 1988; and Psychological Control Scale: Youth Self-Report (PSC-YSR): Barber, 1996) index the presence versus the absence of (psychological) control. Many researchers have thus referred to their scales as measures of autonomy support, although the items actually indexed controlling behaviors (examples of items can be read as follow: “My mother (father) is a person who

will avoid looking at me when I have disappointed her (him)” (CRPBI); and “My mother (father) would like to be able to tell me how to feel or think about things all the time” (PSC-YSR); Gray & Steinberg, 1999; Herman, Dornbush, Herron, & Herting, 1997).

To date, only two published studies used separate assessments for autonomy support and psychological control (Gurland & Grolnick, 2005; Shulman, Collins, & Dital, 1993). The first of those studies examined the parent-child relationships and their significance for children’s peer-perceived social competence, (Shulman, Collins, & Dital, 1993). Based on the age-related differences in perceptions and in patterns of correlations with peer nominations of social competence, (e.g., 11-year-olds perceived their parents to allow more autonomy than did 9-year-olds), it was established that some aspects of parenting that have typically been attributed to the adolescent years may also have significant precursors in middle childhood and preadolescence. In the second of those studies, Gurland and Grolnick (2005) found that, whereas greater worry and instability were associated with parental psychological control, self-reports of autonomy support were negatively associated with these two indicators of threat perceptions.

In line with the few studies that have considered parental autonomy support and control as distinct dimensions, the present thesis argues that equating control to the absence of autonomy support is problematic. This issue has also been raised in other conceptual articles (e.g., Silk, Morris, Kanaya, & Steinberg, 2003). For instance, Barber, Bean, and Erickson (2002) contend that the absence of autonomy support does not necessarily imply the presence of control — parents may be low on autonomy support without being controlling, and may be controlling and also supportive of autonomy (e.g.,

Churchill Keating, 2008). Furthermore, vacillations between psychological control and autonomy support are also possible.

Barber, Bean, and Erickson's (2002) preliminary findings also support the assertion that parental psychological control and autonomy support may be distinct constructs, suggesting that autonomy support is not correlated highly enough with psychological control ($r_s = -.61$ to $-.57$, $p < .01$) to imply that they are opposite ends of the same continuum. Also, the difference in the strength of the correlations between these two parenting variables and parental acceptance suggests that they are different phenomena (Barber, Bean, & Erickson, 2002). Results from a confirmatory factor analysis (CFA) conducted on the parenting items further revealed discrete factors for psychological control and autonomy support (Silk, Morris, Kanaya, & Steinberg, 2003). Finally, based on the examination of how autonomy support and psychological control relate to child self-processes and other outcome variables, Churchill Keating (2008) is reconceptualizing parental psychological control as distinct from autonomy-supportive parenting. The conclusion offered by Barber and collaborators (Barber, Bean, & Erickson, 2002) was that until these differences are further clarified, it seems advisable not to assume that an absence of autonomy support equates with the presence of controlling behaviors (vice versa).

In light of these theoretical considerations and preliminary findings, parental autonomy support and control were conceptualized as distinct dimensions in the present thesis. Moreover, the focus was further expanded to include different controlling dimensions, that is behavioral and psychological control.

Predominant Use of Adolescent Samples and Cross-Sectional Data

Research assessing parental behaviors has predominantly used samples of adolescents rather than younger children or young adults because of the substantial developmental changes that occur during adolescence – a period that begins at puberty (age 10-12) and ends when physical growth is completed (age 18-19). This focus on adolescents is also based on pragmatic concerns as adolescents are able to provide their own perspective on parenting and their own psychological functioning, which allows for an understanding of these issues from the youth's perspective (Robilia & Krishnakumar, 2006). However, there is ample theory, and growing empirical evidence, that highlights the importance of parental behaviors as critical elements of development during all phases of life, from childhood through adulthood (Barber, 2002; Barber, Olsen, & Shagle, 1994; Holmbeck, Shapera, & Hommeyer, 2002; Nelson & Crick, 2002; Olsen et al., 2002; Sheffield Morris et al., 2002). For instance, recent research has begun to explore the connexion between parental psychological control and indicators of well-being (e.g., self-esteem, personal efficacy, trait anxiety, satisfaction with life) in late adolescents and young adults (e.g., De Man, 1986; Essau & Coates, 1988; Leondari & Kiosseoglou, 2002; Seibel & Johnson, 2001). In an effort to broaden the general work on parental autonomy and control beyond the predominant focus on adolescent years, studies on the influence of parenting on young children, adolescents, and young adults will thus be introduced in the present thesis.

In most research on the associations of parenting dimension with child development and adjustment, concurrent (mainly cross-sectional; Shek, 2007) data has been used (Pettit & Laird, 2002). One difficulty with this research design is its inability to

tease out the direction of causal relationships among the found associations between the parenting dimensions and the child outcome variables (Patterson & Fisher, 2002). This gap in the research specifically refers to the dearth of longitudinal data examining the links between parental autonomy support, behavioral control, and psychological control and youth development over time (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). Support for causal relations among the variables of interest was thus examined in the present thesis using, in addition to cross-sectional studies, a laboratory experiment and a prospective design. The joint use of varied samples and rigorous designs and methodologies are hoped to contribute to a more diversified and thorough understanding of the associations between parental behaviors and child development and functioning.

Beyond the Parent-Child Dyad

Finally, because parents are children's primary socializing agents, the autonomy-supportive versus controlling environment that parents provide for their children has been the target of much research (Grolnick & Apostoleris, 2002). However, Barber and colleagues (Barber, Maughan, Olsen, & Thomas, 2002) were the first to apply the construct of control outside of the restricted realm of parent-child dyads by demonstrating its theoretical, conceptual, and empirical relevance to other relationship systems. These include sibling relationships (e.g., Conger, Conger, & Scaramella, 1997), and broader levels of family processes and functioning (e.g., Barber & Olsen, 1997; Eccles, Early, Frasier, Belansky, & McCarthy, 1997; Soucy & Larose, 2000).

Barber, Bean and, Erickson (2002) also discussed the relevance of (psychological) control to environments outside the family, including school, peer, community, and

occupational contexts, concluding that there is substantial evidence from a variety of life spheres that intrusion into an individual's psychological world is detrimental.

Accordingly, other interpersonal relationships (e.g., with teachers and coaches) may also be predictive of children's and adolescents' development and adjustment. In line with this view, several theorists (e.g., Darling, Hamilton, & Niego, 1994; Soucy & Larose, 2000; Talmi, 1997) emphasized that perceptions of autonomy support from nonparental adults with whom specific ties can also be established becomes increasingly important during adolescence, and significantly contributes to youth adaptation. Using the framework of CET, a wide variety of studies have also supported the importance of an autonomy-supportive interpersonal style in various interactions including those with teachers (Deci, Nezlek, & Sheinman, 1981), coaches (Scanlan & Lewthwaite, 1986), work supervisors (Deci, Connell, & Ryan, 1989), and physicians (Williams, Rodin, Ryan, Grolnick, & Deci, 1998).

In sum, it seems evident that the constructs of autonomy support, behavioral control and psychological control are not restricted to the parent-child relationships, but are also relevant to a variety of other interpersonal dyads. The present thesis was thus designed to go beyond the family realm (i.e., the parent-child dyad) by assessing how autonomy support, behavioral control, and psychological control are relevant to the dyads of teacher-students and coach-athletes.

THE PRESENT THESIS

Objectives

The central purpose of the present thesis was to integrate the construct of autonomy support postulated by CET and the existing literature on parental behavioral and psychological control. On the one hand, CET does not postulate different dimensions of control, often equates the construct of autonomy support to the absence of controlling strategies and has yet to explicitly test the relation between controlling parenting and children's controlled motivation. On the other hand, the parental control literature often equates the controlling dimension to the absence of (psychological) autonomy, rarely includes a measure of the autonomy support component, and does not often assess all three parenting dimensions simultaneously. Therefore, the present thesis aimed to synthesize and unify two previously distinct areas of children socialization research. This overarching goal was sought through two specific objectives.

The first specific objective was to demonstrate that autonomy support, behavioral control, and psychological control are distinct constructs. This goal was the focus of Study 1A and Study 1B. The second specific objective was to establish that parental autonomy support, behavioral control, and psychological control have unique associations (both concurrent and predictive) with youth self-processes, internalizing symptoms and externalized behaviors. Although the three parenting dimensions have been frequently linked to various outcome variables of child and adolescent development and adjustment, there is only a very limited body of research examining all three parenting dimensions simultaneously, thus making it difficult to evaluate distinct contribution to relevant variables. This goal was the focus of Study 2 and Study 3.

The present thesis thus aimed to broaden previous work conducted within the parental control literature and the framework of CET, by disaggregating the three parenting dimensions under study in order to obtain a more accurate and comprehensive picture of the ways in which parenting is linked to children and adolescent development and functioning. The present thesis thus expanded upon past research on children's socialization, by modeling unique associations between all three parenting dimensions and a theoretically justified set of outcome variables. From a methodological standpoint, the present thesis also extended past findings by considering a broader array of socialization domains (i.e., family, school, and sports), by using samples that cover the scope from childhood to adulthood, and by including diversified and complementary research designs.

Overview of Studies

Study 1

The central aim of Study 1 was to empirically test the proposition that autonomy support, behavioral control, and psychological control are distinct constructs. Study 1A and Study 1B were questionnaire studies in which undergraduate students ($N_s=342$ and 300) were asked to rate their parents' autonomy support and control behaviors. Study 1A was designed to evaluate whether autonomy support and control (as construed by CET) are best represented as opposite poles of a unique construct, or as two distinct dimensions. Study 1B was devised as a replication of Study 1A that extended to include all three parenting dimensions simultaneously (i.e., AS, BC, and PC).

In Study 1A and Study 1B, the dimensionality of parental behaviors was tested using CFA. It was hypothesized that autonomy support and control would be best represented as distinct constructs in Study 1A and that autonomy support, behavioral control, and psychological control would also be best represented as distinct constructs in Study 1B. In both Study 1A and Study 1B, correlations between parental behaviors and children motivation, an important self-process, were also examined in an exploratory fashion. It was hypothesized that autonomy support would be positively related to autonomous motivation and that control would be positively associated with controlled motivation. In Study 1B, it was also postulated that behavioral control would be positively linked to autonomous motivation and that psychological control would be positively linked to controlled motivation.

Study 2

Study 2 was designed to build on the correlational findings of Study 1, which provided some evidence that parental autonomy support and control are distinct constructs holding unique associations with children motivational orientation. The central aim of Study 2 was to further ascertain the unique contribution of parental behaviors on exogenous variables by performing an empirical test of the effects of the three interpersonal styles on youth self-processes, internalizing symptoms, and externalized behaviors. More specifically, Study 2 was designed to contrast, in an interaction-based laboratory experiment, the manipulated effects of the autonomy-supportive, behaviorally controlling and psychologically controlling styles on participants' ($N=138$) engagement and experiences in an interesting activity. The focus in this study was the experimenter-participants interactions, which were meant to reenact the teacher-students dyad.

It was predicted that autonomy support would result in participants' engagement and well-being, whereas participants' impoverished intrinsic motivation and laboratory experiences were the expected results of feeling controlled. More precisely, it was expected that, in comparison to the two controlling interpersonal styles, autonomy support would result in highest engagement time, positive affect, and future intentions. On the contrary, in comparison to the autonomy-supportive and behaviorally controlling conditions, participants taking part in the psychologically controlling condition were predicted to engage the least during the free-choice period, and report the highest levels of negative feelings and internalizing symptoms, as well as the least desire to work with the experimenter in the future.

Finally, in accordance with CET's belief of control as a negative interpersonal style, it could be argued that, in comparison to the autonomy-supportive condition, the behaviorally controlling condition would result in similar effects than the psychologically controlling condition, that is diminished motivational state and overall experiences. However, according to the parenting literature on behavioral and psychological control, it could be argued that, in comparison to the other two interpersonal styles, behavioral control would a) lead to pressures to comply (consistent with CET); but b) would also entail some positive affective and behavioral outcome variables. Based on these two contrasting hypotheses, it was postulated that in the behaviorally controlling condition, participants' experiences would not be as positive as in the autonomy-supportive condition, nor as negative as in the psychologically controlling condition. Consequently, in comparison to the two other conditions, participants in the behaviorally controlling

condition were expected to exhibit moderate engaging time, as well as to report moderate levels of affect, internalizing symptoms and future intentions.

Hypotheses were assessed by means of subgroup analyses in which mean differences between the three experimental conditions were contrasted using multivariate analyses of variance on all dependent measures.

Study 3

The central aim of Study 3 was to ascertain the directions of the relationships between the interpersonal styles and youth development and functioning by means of a prospective field study. More explicitly, specific contribution of autonomy support, behavioral control, and psychological control to self-processes, internalizing symptoms and externalized behaviors were assessed. This was accomplished by testing a mediation model describing a prospective sequence between athletes' ($N=239$) perceptions of coaches' interpersonal styles, and athletes' motivation, adjustment and persistence over an 8-month period in the context of a competitive physical activity.

Based on the theoretical framework of Self-Determination Theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2002) and the findings of both Study 1 and Study 2, coaches' autonomy support was predicted to be an important antecedent of athletes' autonomous motivation and other self-processes (i.e., positive affect and sport satisfaction), as well as lower levels of internalizing symptoms (i.e., manifest anxiety and impaired concentration) and externalized behaviors (i.e., dropout intentions). Coaches' psychological control was expected to predict athletes' controlled motivation and negative affect, as well as higher levels of manifest anxiety, impaired concentration and dropout intentions. Coaches' behavioral control was also hypothesized to predict athletes'

autonomous motivation, and other self-processes, as well as lower levels of internalizing symptoms and externalized behaviors.

To summarize, the variables under study were expected to display a pattern of relationship configured as a mediational model, wherein the relations between coaches' interpersonal styles and athletes' self-processes, internalizing symptoms and externalized behaviors would be mediated by athletes' sport motivation (see Figure 4 for a visual representation of the hypothesized relationships). All analyses were performed using structural equations modeling (SEM).

CHAPTER 2

STUDY 1

The main objective of Study 1 was to demonstrate that autonomy support, behavioral control, and psychological control are distinct constructs. This goal intended to remedy two conceptual problems that were frequently encountered in the literature. First, it has been argued that an important clarification is still necessary between parental autonomy support and parental control given the different approaches and the various coding techniques offered in the literature on children's socialization. In some instances, control is viewed as the polar opposite of autonomy support (e.g., assessing AS and reverse coding it to purportedly measure control). In other instances, autonomy support is assessed by reversing the coding of controlling items. These coding techniques are certainly useful, but may be misleading when the goal is to actually distinguish between the different parenting dimensions by measuring autonomy support and control from absent to present (to varying-degrees; see Barber, Bean, & Erickson, 2002, for a fuller discussion). Moreover, the few empirical studies that has measured both autonomy support and control simultaneously found low correlations between the two constructs (see Silk, Morris, Kanaya, & Steinberg, 2003, for empirical evidence of the distinction between AS and control). Consequently, Study 1A was designed to evaluate whether autonomy support and control are best represented as opposite poles of a unique construct (as construed by CET), or as two distinct dimensions. To this end, a sample of undergraduate students ($N=342$) completed questionnaires pertaining to their parents' autonomy support and control behaviors. The dimensionality of parental behaviors was tested using CFA. It was hypothesized that autonomy support and control would be best

modeled as two separate factors. Correlations between parental behaviors, and children motivation, an important self-process, were also examined as a complementary endeavour. It was hypothesized that autonomy support would be positively related to autonomous motivation and that control would be positively associated with controlled motivation.

Second, it has also been argued in the general introduction, that the limited focus on one or two parenting dimensions that prevails in the extant literature constitutes a conceptual impairment. From a theoretical viewpoint, this common practice depicts an incomplete representation of the parental behaviors which can be rather misleading. Also, disentangling the structure of parenting dimensions is believed to be a fundamental prerequisite to the identification of their unique effects on children development and functioning. Consequently, Study 1B was devised as a replication of Study 1A that extended to include all three parenting dimension (i.e., AS, BC, and PC). As in Study 1A, a sample of undergraduate students ($N=300$) was asked to rate their parents' behaviors in the context of questionnaires. The dimensionality of parental behaviors was also tested using CFA. It was postulated that autonomy support, behavioral control, and psychological control would be best modeled as three distinct factors.

As in Study 1A, correlations between parenting dimensions and children motivation were also obtained as complementary information. In addition to the replication of the findings of Study 1A, it was also postulated that behavioral control would be positively linked to autonomous motivation and that psychological control would be positively related to controlled motivation. That is, communicating clear expectations about appropriate behaviors and monitoring children's behaviors related to

those expectations by enforced rules, regulations and setting limits (Barber et al., 2005; Grolnick, 2003), should be associated to children's autonomous motivation (via the satisfaction of the psychological need for competence; Connell & Wellborn, 1991; Grolnick & Ryan, 1989). On the contrary, intrusions into the child's psychological world (i.e., coercive, passive-aggressive, and intrusive controlling techniques; Grolnick, 2003), should not only be related to internalizing symptoms (as per past research; e.g., Doyle & Markiewicz, 2005; Loukas, Paulos, & Robinson, 2005), but also negative self-processes, such as controlled (behavior) regulation. In fact, Assor and colleagues (2004) have previously found significant positive correlations between psychological control and introjected internalization (a type of controlled motivation).

STUDY 1A

Methodology

Participants

Data was obtained from 342 undergraduate students (268 women, 47 men and 27 “no gender specified”) who were enrolled in a full-time (84.9%) Psychology program (70.5%) at the University of Ottawa (Canada). More than half of the sample reported English as their first language (57.7%) while the remaining were French (36.6%). Participants’ age ranged from 17 to 35 with a mean age of 20.70 years and the majority of them were single (82.4%). In addition, 76.6% of the participants indicated having to work in order to finance their post-secondary education.

Procedure

Participants were recruited using the School of Psychology’s integrated system of participation in research (ISPR) at the University of Ottawa. They were invited to take part in the study and were assured that their responses would be anonymous and kept confidential (see Appendix A). Interested participants were given access to an online questionnaire (see Appendix B). In exchange for participation, a small compensation was offered (i.e., 1% of their final grade). Overall, 342 questionnaires were accessed and completed online.

Measures

Parental Autonomy Support. The 4-item subscale of the Interpersonal Behavior Scale (IBS; Otis & Pelletier, 2004) was used to assess participants’ perceptions of the fundamental need for autonomy as supported by their parents (e.g., “My parents encourage me to be myself”, see Appendix C), using a Likert-type scale, ranging from (1)

never to (7) *always*. For the analyses for which aggregated scores were required (i.e., descriptive statistics, correlations), participants' ratings were averaged. Cronbach alpha coefficient was deemed satisfactory ($\alpha = .79$)

Parental Control. In order to assess parental control, two different coding techniques were used. For the first coding technique, participants rated a second version of the 4-item subscale of the IBS, that is negative formulations of autonomy-supportive items (e.g., "My parents discourage me to be myself"; "CET-control" variable, see Appendix C), using a Likert-type scale, ranging from (1) *never* to (7) *always*. The second coding technique consisted of reverse-coding the autonomy-supportive items as obtained using the autonomy support subscale of the IBS ("AUT-recodes" variable). For each coding technique, items were simply averaged when aggregate scores were needed. Cronbach alpha coefficients for both control codifications were deemed satisfactory (AUT-recodes: $\alpha = .79$; CET-control: $\alpha = .72$).

Dispositional Motivational Orientation. Participants' dispositional levels of autonomous motivation and controlled motivation were assessed using the General Self-Determination Scale (GSDS; Pelletier, Sharp, Blanchard, Otis, Lévesque, & Amiot, 2005). The GSDS is comprised of six 3-item subscales that represent the six styles of behavior regulation proposed by Deci and Ryan (1985, 2002). Participants rated the extent to which each item corresponded to their reasons as to "Why they do things in general". Responses were rated on a Likert-type scale, ranging from (1) *does not correspond to me at all* to (7) *strongly corresponds to me*. From the most autonomous to the most controlled style of behavior regulation, examples of items include: "in order to feel pleasant emotions" (intrinsic regulation), "because they reflect the essence of who I

am” (integrated regulation), “because I chose them as means to attain my objectives” (identified regulation), “because otherwise I would feel guilty for not doing them” (introjected regulation), “because I want to be viewed more positively by certain people” (external regulation), and “although I do not see the benefit in what I am doing” (non-regulation). The reliability and validity of this scale have been supported in five independent studies (see Sharp, Pelletier, Blanchard, & Lévesque, 2003).

Because the interest was mainly on measuring each participant’s dispositional motivational orientation (i.e., autonomous versus controlled motivation) and linking these orientations with parental autonomy support (which should be related to autonomous motivation) and parental control (which should be related to controlled motivation; Deci, 1975; Deci & Ryan, 1980), scores from each subscale were averaged across their respective three items (as opposed to the calculation of a self-determination index or the use of the various subtypes of motivation; Deci & Ryan, 1985; Ryan & Connell, 1989; Vallerand, 1997). For the analyses for which aggregated scores were required, two separate scores were calculated by averaging the three autonomous subscales (i.e., intrinsic motivation, integrated and identified regulation together) and the three controlled subscales (i.e., introjected, external and non-regulation together). Cronbach alpha coefficients for these autonomous motivation and controlled motivation variables were deemed satisfactory (α s = .89 and .85, respectively).

Analytic Procedures

Confirmatory Factor Analysis. As a first analytic procedure, a CFA (using maximum likelihood (ML) estimation procedure; EQS 6.1, Bentler, 2005) was used to test two nested measurement models: the hypothesized 2-factor model and the alternative

1-factor model. The first model postulated a two-factor structure with items loading separately on distinct latent constructs of parental lack of autonomy support (“AUT-recodes”) and parental control (“CET-control”). The second model postulated a single-factor structure, with the “AUT-recodes” and the “CET-control” items loading on a single latent construct of parental controlling strategies.

Assessment of Model Fit. Model plausibility was assessed by comparing the data structure imposed by each model with the obtained data. Model adjustment was evaluated using four fit indices¹. Because the chi-square (χ^2) statistic is often significant for well-fitting models using large samples (Bollen, 1989), alternative fit measures were evaluated: the Satorra-Bentler χ^2 (S-B χ^2 ; Satorra & Bentler, 1988), the Comparative Fit Index (CFI; Bentler, 1988, 1990; Bentler & Chou, 1987), the Standardized Root Mean Square Residual (SRMR; Jöreskog & Sörbom, 1996), and the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993) and its associated confidence interval. It should be noted that the significance of the model to be tested was based on the results obtained for these last three fit indices (i.e., CFI, RMSEA, and SRMR) rather than those obtained for the χ^2 .

Chi-Square Statistic. The chi-square serves as an overall indicator of fit between the predicted population covariance matrix and the observed sample matrix (Ullman, 2000). A non-significant χ^2 is desirable, indicative of a non-significant difference between the hypothesized model and the data. However, when sample size is large, such as the one under study, trivial differences between sample and estimated population covariance matrices are often significant. While it is generally not valid to use the χ^2 to

¹ The (*) indicates the goodness-of-fit indices using the robust statistics correcting for non-normality.

test the null hypothesis of the overall fit (MacCallum, Browne, & Sugawara, 1996), the S-B χ^2 (Satorra & Bentler, 1988), which corrects for non-normality, was still reported here for sake of convention. This index adjusts for the value of the standardized χ^2 downward by a constant that reflects the degree of observed kurtosis (Kline, 1998). As well, the ratio of the χ^2 to the degrees of freedom (*df*) will also be calculated. Values of χ^2/df of less than 3 are considered favorable (Kline, 1998).

Comparative Fit Index. The CFI evaluates the relative improvement in fit of the hypothesized model compared to the null model, in which all covariances between variables are equal to zero (Byrne, 1994). The values of the CFI range from 0 to 1, with a CFI value greater than .90 serving as the conventional lower cut-off of acceptable fit of the model to the data (Kline, 2005; Hu & Bentler, 1999). The value of the CFI is calculated using the χ^2 . When requesting robust statistics, the CFI is computed using the S-B χ^2 , yielding a CFI corrected for non-normality (*CFI).

Root Mean Square Error of Approximation. The RMSEA assesses the estimated discrepancy, per degree of freedom, between the population covariance matrix and the hypothesized model. Whereas the RMSEA value would be of 0 if the fit of the model was perfect, values smaller than .05 indicate a good fit, and values smaller than .08 represent a reasonable fit (Hu & Bentler, 1995). Version 6.1 of the EQS program (Bentler, 2005) includes a RMSEA that adjust for non-normality (*RMSEA). The confidence interval for the adjusted RMSEA was also reported. Such a confidence interval allows capturing the degree of precision of the RMSEA. The smaller the RMSEA's confidence interval, the more the RMSEA is a precise indicator of the fit in the population (MacCallum, Browne, & Sugawara, 1996).

Standardized Root Mean Square Residual. The SRMR represents the average discrepancy between the sample covariance matrix and the population covariance matrix (Hu & Bentler, 1999). The SRMR also ranges from 0 to 1. A well-fitted model is evidenced by a SRMR smaller than .10 (Kline, 2005).

Model Modification. The Lagrange Multiplier test (L-M) test was used as a guide in identifying constrained parameters that could contribute to a significantly better model if freely estimated. Post hoc-model fitting was considered appropriate only when there was sound theoretical, statistical, and empirical justification to do so (Byrne, 1994). The Wald test (W-test) was also used to identify non-significant parameters.

Model Comparison. A chi-square test of difference ($\Delta\chi^2$), using the regular χ^2 (Satorra & Bentler, 2001) and a comparison of Akaike's Information Criterion (AIC; Akaike, 1987) were used to determine which model represents a statistically superior fit with the data. For the models presented, a significant $\Delta\chi^2$ greater than 5.99 (Jöreskog, 1993) and a lower AIC (Kline, 1998), were indications of a better adjustment.

Pearson Correlations. As a second analytic procedure, correlations between parental autonomy support and the two parental control codifications (i.e., "AUT-recodes" and "CET-control") with youth dispositional motivational orientation (i.e., autonomous and controlled motivation) were performed.

Results

Preliminary Analyses

Prior to the main analyses, following the procedures outlined in Tabachnick and Fidell (2001), all variables were examined for accuracy of data entry, univariate and

multivariate outliers, proportion of missing values, and fit between their distributions and assumptions of multivariate analyses. The standardized scores for the variables included in the study were first examined to identify univariate outliers. No participant was identified as univariate outlier. Using Mahalanobis distances as a decision tool for exclusion, six participants were identified as multivariate outliers and were excluded from the sample ($\chi^2(3) = 16.266, p < .001$). Thus, a total of 336 participants comprised the final sample. As well, no variables had a proportion of missing values higher than 5%.

With respect to normality, the summary statistics for the studied variables were examined. Skewness ranged from -0.68 to 0.80. Univariate values of skewness were generally considered adequate given that their magnitude was below 1.00. Departures from the assumptions of linearity and homoscedasticity were evaluated by examining a random selection of bivariate scatterplots, which revealed no indication of such problems. Multicollinearity was also not a problem in this study as no correlation higher than .80 was found (see Table 1). Descriptive statistics and correlations between the three parental variables are presented in Table 1.

 Insert Table 1 here

Descriptive Statistics. From a descriptive point of view, it is interesting to note that the level of parental autonomy support was moderately high, whereas levels of parental control (i.e., “AUT-recodes” and “CET-control”) were moderately low. Levels of children autonomous and controlled motivation were moderate.

Main Analyses

Confirmatory Factor Analysis: Control Codifications. The fit of the 1-factor model was unsatisfactory (S-B χ^2 ($df=19$; $N=336$) = 107.0028, $p < 0.001$); AIC = 116.7120; *CFI = .891; SRMR = .063; *RMSEA = .146, 90% CI RMSEA = .124, .167). The 2-factor model, however, fitted the data well, with fit indices falling in desirable ranges (S-B χ^2 ($df=17$; $N=336$) = 33.1281, $p < 0.001$); AIC = 69.0028; *CFI = .980; SRMR = .063; *RMSEA = .054, 90% CI RMSEA = .025, .081). Each item loaded significantly on the appropriate latent construct, suggesting that the variables were reliably assessed. As confirmed by the W-test, all estimated path coefficients were significant with t values over 1.96. The L-M test also revealed that no parameter could be added to improve the model.

Direct comparisons of the fit for both measurement models further supported the conclusion that the best-fitting model included two distinct factors. Along with a lower AIC, the $\Delta\chi^2$ (χ^2 ($df=19$; $N=336$) = 150.823, $p < 0.001$ and χ^2 ($df=17$; $N=336$) = 105.712, $p < 0.001$, respectively) showed that the 2-factor model provides a statistically superior fit to the data relative to the 1-factor model ($\Delta\chi^2 = 45.111$, $\Delta df = 2$, $p < 0.05$). In sum, the 2-factor measurement model contained a 4-item lack of autonomy support factor reflecting an absence of parental autonomy support, and a 4-item controlling factor reflecting parental control. Figure 1 presents the items and the standardized factor loadings associated with both latent constructs in this two-factor measurement model.

 Insert Figure 1 here

Pearson Correlations: Autonomy Support and Control Codifications. Parental autonomy support and the two codifications of parental control were differently associated with youth dispositional motivational orientation, an important self-process. Consequently, constructs were found to relate in a manner consistent with the hypotheses (see Table 1). Accordingly, whereas autonomy-supportive items and its reverse coding were both related to autonomous motivation (r s: autonomy = .14, and “AUT-recodes” = -.14, p s < .01, respectively), negative formulations of autonomy-supportive items were associated with controlled motivation (“CET-control”: $r = .15$, $p < .01$).

Mini-Discussion

The purpose of Study 1A was to explore the dimensionality of parental autonomy support and controlling behaviors. In order to support the distinction of the two parental control codifications used in past research (i.e., recodes and negative formulations of autonomy-supportive items), it was first anticipated that the items of both coding techniques would load on distinct factors when submitted to CFA. Associations between parental behaviors and children motivation, an important self-process were also examined in an exploratory fashion.

All hypotheses were supported. Globally, the claim for the distinction of the constructs was supported by the results from the CFA conducted on the control codifications (“AUT-recodes” and “CET-control”). In addition, whereas parental autonomy-supportive items (and its reverse coding) were related (positively and negatively, respectively) to youth autonomous motivation, negative formulations of autonomy-supportive items were positively associated with controlled motivation.

STUDY1B

Methodology

Participants

Data was obtained from 300 undergraduate students (215 women, 83 men and 2 “no gender specified”) enrolled in a Psychology program at the University of Ottawa (Canada). More than half of the sample reported English as their first language (61.4%) while the remaining were French (20.3%). Participants’ age ranged from 16 to 32 with a mean age of 19.35 years. In addition, 52.5% of the participants indicated living at home with their parents.

Procedure

Participants were recruited using the School of Psychology’s ISPR at the University of Ottawa. They were invited to take part in the study and were assured that their responses would be anonymous and kept confidential (see Appendix A). Interested participants were given access to an online questionnaire (see Appendix B). In exchange for participation, a small compensation was offered (i.e., 1% of their final grade). Overall, 300 questionnaires were accessed and completed online.

Measures

Parental Autonomy Support. Perceptions of participants’ parental autonomy support were assessed using the same scale employed and described in the Method section of Study 1A. Internal consistency estimate for this parental variable was deemed adequate ($\alpha = .84$).

Parental Control. Perceptions of participants’ control from their parents were assessed using the same codification techniques scale employed and described in the

Method section of Study 1A. Internal consistency estimates for both control codifications were deemed satisfactory (AUT-recodes: $\alpha = .84$; and CET-control: $\alpha = .76$).

Parental Behavioral and Psychological Control. For the purpose of Study 1B, an 18-item measure of parental controlling strategies² (see Appendix D for scale items and Appendix E for psychometric properties) was used to assess participants' perceptions of parental behavioral control (e.g., "Told me exactly what to do"; 5 items) and psychological control. Three subtypes of psychological control were assessed, including erratic behaviors (e.g., "Lost temper easily with me"; 3 items), suppression of verbal-emotional expression (e.g., "Did not approve when I expressed emotions"; 4 items) and control by self-derogation (e.g., "Let me know I was not as good as he (she) was"; 6 items).

Participants indicated the extent to which the aforementioned controlling behaviors were typical of their parents' behaviors (i.e., when they were younger or when living at home). Each item was rated on a Likert-type scale, ranging from (1) *not at all* to (7) *exactly*. Participants were also asked to indicate the parent to which they were referring to (i.e., mother or father) when completing the scale. Participants' ratings were then averaged to create a composite score of parental behavioral and psychological control (i.e., "CSI-control" variable).

The factorial structure of this measure assessing parental behaviorally controlling and psychologically controlling strategies was corroborated by exploratory factor

² The measure assessing parental behavioral and psychological controlling strategies is a scale comprised of items taken (or adapted) from existing measures of parenting (e.g., Child Puppet Interview: Parenting Scales (CPI-P; Sesséa, Avenevoli, Steinberg, & Morris, 2001); CRPBI (Schaefer, 1965a; Schludermann & Schludermann, 1988); Parental Psychological Control Measure (PPC; Hart & Robinson, 1995); Psychological Control Item Bank (Barber, 2003); and PSC-YSR (Barber, 1996)).

analysis (EFA) and CFA (please refer to Appendix E for a description of those psychometric procedures). Cronbach alpha coefficient for this amalgamated parental behavioral and psychological control measure was deemed satisfactory ($\alpha = .93$). As well, the internal consistency estimates of the aggregated scores for behavioral control and for psychological control (all 3 subtypes together) were adequate (α s = .91 and .78, respectively).

Dispositional Motivational Orientation. Participants' dispositional levels of autonomous motivation and controlled motivation were assessed using the same scale employed in Study 1A. The scale and its related two motivational indices are described in the Method section of Study 1A. Internal consistency estimates for autonomous and controlled motivation were adequate (α s = .84 and .77, respectively).

Analytic Procedures

Confirmatory Factor Analyses. A first series of analytic procedures was undertaken to replicate the results of Study 1A. As in Study 1A, a first CFA was used to test two nested measurement models: the hypothesized 2-factor model and the alternative 1-factor model. The first model postulated a 2-factor structure with items loading separately on distinct latent constructs of parental lack of autonomy support ("AUT-recodes") and parental control³ ("CET-control"). The second model postulated a single-factor structure, with the "AUT-recodes" and the "CET-control" items loading on a single latent construct of parental controlling strategies.

A second series of four analytic procedures was performed to further expand the examination of the conceptual distinctions between autonomy support and the control

³ Covariates among residuals of closely related items were included to account for measure-specific variance.

dimensions, using the autonomy-supportive items in combination with the 18-item assessment of parental controlling strategies. Four nested measurement models were tested: the hypothesized 3-factor model, as well as the alternative 1-factor, 2-factor and 5-factor models. The first model postulated a 3-factor structure with items loading separately on distinct latent constructs of parental autonomy support, parental behavioral control, and parental psychological control (all 3 subtypes together). The second model postulated a single-factor structure, with the autonomy-supportive items and all the controlling items (both BC and PC) loading on a single latent construct of parenting. The third model postulated a w-factor structure with items loading separately on distinct latent constructs of parental autonomy support and parental controlling strategies (all 4 subscales combined). The final model postulated a 5-factor structure with items loading separately on distinct latent constructs of parental autonomy support, parental behavioral control and parental psychological control (with 3 subfactors: erratic behaviors, suppression of verbo-emotional expression, and control by self-derogation). All CFA analyses were performed using ML estimation procedure (EQS 6.1; Bentler, 2005).

Assessment of Model Fit. Model plausibility was assessed by comparing the data structure imposed by each model with the obtained data. As in Study 1A, model adjustment was evaluated using four fit indices: the S-B χ^2 (Satorra & Bentler, 1988), the *CFI (Bentler, 1988, 1990; Bentler & Chou, 1987), the SRMR (Jöreskog & Sörbom, 1996), and the *RMSEA (Browne & Cudeck, 1993) with its associated confidence interval (see the analytic procedures section of Study 1A for the goodness-of-fit indices and their respective cutoffs).

Model Modification. As in Study 1A, the L-M and Wald tests were used as guide in identifying constrained parameters that could contribute to a significantly better model if freely estimated, as well as identifying non-significant parameters. Post hoc-model fitting was considered appropriate only when there was sound theoretical, statistical, and empirical justification to do so (Byrne, 1994).

Model Comparison. As in Study 1A, the relative merit of alternative models was assessed by means of a χ^2 test of difference (Satorra & Bentler, 2001) and of the AIC criterion (Akaike, 1987; Kline, 1998). For the first CFA, a $\Delta\chi^2$ greater than 5.99 (Jöreskog, 1993) would indicate statistical difference. A significant $\Delta\chi^2$ would also indicate a substantial improvement in model fit for the second CFA.

Partial Pearson Correlations. As a third analytic procedure, partial correlations, controlling for participants' responding according to their mother (or father) and living (or not living) at home with their parents, between parental autonomy support, the parental control codifications and conceptualizations (i.e., "AUT-recodes", "CET-control" and "CSI-control") and youth dispositional motivational orientation (i.e., autonomous and controlled motivation) were performed. Finally, partial correlations, controlling for the other two parenting dimensions, between parental autonomy support, behavioral control, and psychological control and both motivational orientations (i.e., autonomous and controlled motivation) were also performed.

Results

Preliminary Analyses

Prior to the main analyses, all variables were examined for accuracy of data entry, univariate and multivariate outliers, proportion of missing values, and fit between their distributions and assumptions of multivariate analyses (Tabachnick & Fidell, 2001). The standardized scores for the variables included in the study were first examined to identify univariate outliers. No participant was identified as univariate outlier. Using Mahalanobis distances as a decision tool for exclusion, five participants were identified as multivariate outliers and were removed from the sample ($\chi^2(4) = 86.467, p < .001$). Thus, a total of 295 participants comprised the final sample. As well, no variables had a proportion of missing values higher than 5%.

With respect to normality, the summary statistics for the studied variables were examined. Skewness ranged from -0.76 to 0.96. Univariate values of skewness were generally considered adequate given that their magnitude was below 1.00. Departures from the assumptions of linearity and homoscedasticity were evaluated by examining a random selection of bivariate scatterplots, which revealed no indication of such problems. Multicollinearity was also not a problem in this study as no correlation higher than .80 was found (see Table 2). Descriptive statistics are presented in Table 2.

Insert Table 2 here

Descriptive Statistics. From a descriptive point of view, it is noteworthy that the level of parental autonomy support was moderately high, whereas levels of parental

control (i.e., “AUT-recodes”, “CET-control”, “CSI-control”, BC, and PC) were moderately low. Levels of children autonomous and controlled motivation were moderate. These results are entirely congruent with those of Study 1A.

Main Analyses

Confirmatory Factor Analysis: Control Codifications. The fit of the 1-factor model was marginal (S-B χ^2 ($df=19$; $N=295$) = 100.4576, $p < 0.001$; AIC = 159.6146 *CFI = .895; SRMR = .079; *RMSEA = .121, 90% CI RMSEA = .098, .144). The 2-factor model, however, fitted the data well, with fit indices falling in desirable ranges (S-B χ^2 ($df=17$; $N=295$) = 32.1546, $p < 0.001$; AIC = 65.5392; *CFI = .980; SRMR = .055; *RMSEA = .055, 90% CI RMSEA = .024, .084). Each item loaded significantly on the appropriate latent construct, suggesting that the variables were reliably assessed. As confirmed by the W-test, all estimated path coefficients were significant with t values over 1.96. The L-M test also revealed that no parameter could be added to improve the model.

Direct comparisons of the fit for both measurement models further supported the conclusion that the best-fitting model included two distinct factors. Along with a lower AIC, the χ^2 difference test (χ^2 ($df=19$; $N=295$) = 197.615, $p < 0.001$ and χ^2 ($df=17$; $N=295$) = 99.539, $p < 0.001$, respectively) showed that the 2-factor model provided a statistically superior fit to the data relative to the one-factor model ($\Delta\chi^2 = 98.076$, $\Delta df = 2$, $p < 0.05$). In sum, the 2-factor measurement model contained a 4-item lack of autonomy support factor reflecting an absence of parental autonomy support, and a 4-item controlling factor reflecting parental control. Figure 2 presents the items and the

standardized factor loadings associated with both latent constructs in this 2-factor measurement model.

 Insert Figure 2 here

Partial Pearson Correlations: Autonomy Support and Control Codifications.

When controlling for participants' responding according to their mother (or father) and living (or not living) at home with their parents, parental autonomy support and the two codifications of parental control were still differently associated with youth dispositional motivational orientation, an important self-process (see Table 2). Consistent with the findings of Study 1A, autonomy-supportive items and its reverse coding were related to autonomous motivation (partial r s: autonomy = .15 and "AUT-recodes" = -.15, p s < .01, respectively) and negative formulations of autonomy-supportive items were associated with controlled motivation ("CET-control": partial r = .16, p < .01). Furthermore, the composite measure assessing parental behavioral and psychological controlling strategies revealed the same pattern of associations to children's controlled motivation ("CSI-control": partial r = .17, p < .01) than negative formulations of autonomy-supportive items ("CET-control": partial r = .16, p < .01).

On a more exploratory note, controlling for the other two controlling dimensions, parental behavioral control and psychological control were highly correlated to one another (partial r = .77, p < .01) and were both negatively associated with parental autonomy support (partial r s = -.43 and -.60, p s < .01, respectively), as well as positively

related to both control codifications (AUT-recodes: partial $r_s = .43$ and $.60$, $p_s < .01$, respectively; CET-control: partial $r_s = .65$ and $.80$, $p_s < .01$, respectively).

Confirmatory Factor Analysis: Parenting Dimensions. The fit of the 1-factor model and the 2-factor model were unsatisfactory (one-factor model: S-B χ^2 ($df=208$; $N=295$) = 830.6263, $p < 0.001$); AIC = 694.4319; *CFI = .764; SRMR = .082; *RMSEA = .101, 90% CI RMSEA = .094, .108; 2-factor model: S-B χ^2 ($df=206$; $N=295$) = 677.4242, $p < 0.001$); AIC = 485.0130; *CFI = .822; SRMR = .073; *RMSEA = .088, 90% CI RMSEA = .081, .095). Although the 3-factor model fitted the data slightly better (S-B χ^2 ($df=203$; $N=295$) = 602.5947, $p < 0.001$); AIC = 462.9344; *CFI = .849; SRMR = .072; *RMSEA = .082, 90% CI RMSEA = .074, .089), it is the 5-factor model that fitet the data best, with fit indices falling in desirable ranges (S-B χ^2 ($df=194$; $N=295$) = 424.7587, $p < 0.001$); AIC = 317.8198; *CFI = .913; SRMR = .069; *RMSEA = .064, 90% CI RMSEA = .055, .072). Each item loaded significantly on the appropriate latent construct, suggesting that the variables were reliably assessed. As confirmed by the W-test, all estimated path coefficients were significant with t values over 1.96. The L-M test also revealed that no parameter could be added to improve the model.

Direct comparisons of the fit for the measurement models further supported the conclusion that the best-fitting model included five distinct factors. Along with a lower AIC, the χ^2 difference test comparing the 3-factor model and the 5-factor model (χ^2 ($df=203$; $N=295$) = 868.934, $p < 0.001$ and χ^2 ($df=194$; $N=295$) = 705.820, $p < 0.001$, respectively), showed that the latter provided a statistically superior fit to the data ($\Delta\chi^2 = 163.114$, $\Delta df = 9$, $p < 0.05$). Figure 3 presents the items and the standardized factor loadings associated with the latent constructs in this 5-factor measurement model.

Insert Figure 3 here

Overall, consistent with the factorial structure of the scale's preliminary version, the 5-factor measurement model contains a 4-item parental autonomy support factor, a 5-item parental behavioral control factor, and a 13-item parental psychological control factor (comprised of a 3-item erratic behavior subfactor, a 4-item suppression of verbo-emotional expression subfactor, and a 6-item subfactor of control by self-derogation). However, for analytic purposes, as well as for concern of parsimony, the three highly correlated psychologically controlling subdimensions were collapsed for the main analyses of Study 1B, Study 2 and Study 3.

Partial Pearson Correlations: Parenting Dimensions. Descriptive statistics and partial correlations between the three parenting dimensions (i.e., AS, BC and PC) and youth motivational orientations (i.e., autonomous and controlled motivation) are presented in Table 3.

Insert Table 3 here

Consistent with the hypotheses, when controlling for the other two parenting dimensions, autonomy support and behavioral control were positively associated with autonomous motivation (partial $r_s = .14, p_s < .01$). As well, psychological control was positively related to controlled motivation (partial $r = .13, p < .01$).

Mini-Discussion

The purpose of Study 1B was to further explore the dimensionality of parental autonomy support and controlling behaviors. A measure assessing parental behavioral and psychological controlling strategies was thus added. Methodologically, Study 1B was designed so that the results of Study 1A would be replicated and so that the three parenting dimensions would be investigated simultaneously. In order to support their differentiation, it was first anticipated that the items of both the Interpersonal Behavior Scale and the measure assessing parental behavioral and psychological controlling strategies would load on distinct factors when submitted to CFA. As in Study 1A, associations between parental behaviors and children motivation, an important self-process, were also examined in an exploratory fashion.

All hypotheses were supported. Globally, as in Study 1A, the claim for the distinction of the constructs was supported by the results from CFA conducted on the parental control codifications (“AUT-recodes” and “CET-control”), the parental controlling operationalizations (“CET-control” and “CSI-control”) and the parenting dimensions (i.e., AS, BC and PC). In addition to the replication of the correlational findings of Study 1A, parental behavioral control was positively associated with youth autonomous motivation, whereas parental psychological control was positively related to youth controlled motivation. This last finding strengthens the recent contention that behavioral control and psychological control are also not simply two ends of a single continuum of controlling strategies (Barber & Harmon, 2002; Barber, Olsen, & Shagle, 1994; Steinberg, 1990).

Discussion and Limitations

The central aim of Study 1 was to empirically test the proposition that autonomy support, behavioral control, and psychological control are distinct constructs.

Methodologically, Study 1 was designed to capture the parent-children dyad by exploring the relationships between parental autonomy support, behavioral control, and psychological control and indicators of youth dispositional motivational orientation.

Hypotheses were generally supported. In addition to their theoretical/conceptual implications, the particular findings obtained in both Study 1A and Study 1B give further support for the simultaneous use of measures distinguishing between autonomy support and control (both behavioral and psychological), when conducting research with reference to youth socialization. In fact, this claim is based on the results that parental autonomy support, behavioral control, and psychological control are distinct constructs holding unique associations with children's motivational orientation. Accordingly, this methodological consideration appears to be both theoretically justified (as argued in past research) and empirically founded (as presented here).

Nonetheless, Study 1 presents some methodological limitations that need to be taken into account when interpreting the findings. First, like most other research on youth development and functioning, this study relied upon self-reports. This procedure may subject the results to recall bias and impression management and increases the likelihood that the relationships between the parenting dimensions and children's motivational orientation are a mere reflection of shared-method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). As well, because the measure assessing parental behavioral and psychological controlling strategies referred to events that occurred during childhood,

many of the items required retrospective responding. As nearly half of the participants were living by themselves or with friends at the time of data collection, parental control may possibly have had a different meaning for them. There is also the possibility that remembered experiences may have been influenced by factors that have happened in recent years. However, in Study 1B, there was no significant difference in perceived parental autonomy support and control between those who were still living at home and the ones who were not. That being said, because parental strategies may vary across contexts or situations, self-reports are still believed to likely reflect the full repertoire of parental behaviors, unlike reports by others, which may very well be limited to those behaviors specific to a particular context (e.g., Phares, Compas, & Howell, 1989).

In order to remediate to some of these limitations, Study 2 was designed to build on the correlational findings of Study 1, and investigated, by means of a laboratory experiment, the manipulated effects of the autonomy-supportive, behaviorally controlling and psychologically controlling styles on youth self-processes, internalizing symptoms and externalized behaviors.

CHAPTER 3

STUDY 2

Study 2 was designed to build on the correlational findings of Study 1, which provided evidence that autonomy support, behavioral control, and psychological control are distinct constructs. Preliminary associations between parental behaviors and children's motivational orientation, an important self-process were also obtained. The central aim of Study 2 was to further ascertain the unique contribution of parental behaviors on exogenous variables by performing an empirical test of the effects of the three interpersonal styles on youth self-processes, internalizing symptoms, and externalized behaviors. More specifically, Study 2 was designed to contrast, in an interaction-based laboratory experiment, the manipulated effects of the autonomy-supportive, behaviorally controlling and psychologically controlling styles on participants' ($N=138$) engagement and experiences in an interesting activity. The focus in this study was the experimenter-participants interactions, which were meant to the reenact teacher-students dyad.

It was predicted that autonomy support would result in participants' engagement and well-being, whereas participants' impoverished intrinsic motivation and laboratory experiences were the expected results of feeling controlled. More precisely, it was expected that, in comparison to the two controlling interpersonal styles, autonomy support would result in highest engagement time, positive affect, and future intentions. On the contrary, in comparison to the autonomy-supportive and behaviorally controlling conditions, participants taking part in the psychologically controlling condition were predicted to engage the least during the free-choice period, and report the highest levels

of negative feelings and internalizing symptoms, as well as the least desire to work with the experimenter in the future.

Finally, in accordance with CET's belief of control as a negative interpersonal style, it could be argued that, in comparison to the autonomy-supportive condition, the behaviorally controlling condition would result in similar effects than the psychologically controlling condition, that is diminished motivational state and overall experiences. However, according to the parenting literature on behavioral and psychological control, it could be argued that, in comparison to the other two interpersonal styles, behavioral control would a) lead to pressures to comply (consistent with CET); but b) would also entail some positive affective and behavioral outcome variables. Based on these two contrasting hypotheses, it was postulated that in the behaviorally controlling condition, participants' experiences would not be as positive as in the autonomy-supportive condition, nor as negative as in the psychologically controlling condition. Consequently, in comparison to the two other conditions, participants in the behaviorally controlling condition were expected to exhibit moderate engaging time, as well as to report moderate levels of affect, internalizing symptoms and future intentions.

Hypotheses were assessed by means of subgroup analyses in which mean differences between the three experimental conditions were contrasted using multivariate analyses of variance on all dependent measures.

Methodology

Participants

Data was obtained from 151 undergraduate students (118 women and 33 men) who were enrolled in a psychology program (58.8%) at the University of Ottawa (Canada). Half of the sample reported English as their first language (50.7%) while the remaining were French (34.5%). Participants' age ranged from 17 to 28 with a mean age of 22.64 years and the majority was single (94.6%). Participants were recruited using the School of Psychology's ISPR at the University of Ottawa. Overall, 166 participants signed up using the ISPR and 148 actually showed up for the laboratory experiment, for a participation rate of 91%.

Procedure

Testing was done using six combinations of two female undergraduate research assistants (RA): three RAs acted as the “*interviewers*” (i.e., greeting of the participant, signature of the consent form, introduction of the questionnaire, evaluation of suspicions, and debriefing) and six other RAs acted as the teacher-like “*experimenters*” (i.e., two per experimental condition; giving instructions regarding the experimental task and introducing the free-choice period). These combinations of RAs were alternated randomly to ensure that each of the three interviewers were blind to participants' experimental condition. In addition, all nine RAs wore lab coats and were identified with nametags.

Prior to the experiment, participants were randomly assigned to one of the three experimental conditions: *autonomy-supportive* (AS), *behaviorally controlling* (BC), *psychologically controlling* (PC). Participants' assignment (i.e., 46 participants in each

experimental condition) was done through the ISPR as a result of their signing to one of the available time slots for the lab session.

The general procedure (described below) was invariant across conditions and participants were individually tested for approximately 40 minutes. Upon arrival in the experimental room, the interviewer engaged in a casual chit-chat with the participant and presented him/her with the consent form (see Appendix F). The interviewer then introduced the participant to the experimenter before leaving the room. The interviewer's script was formulated in a neutral and friendly manner. Only the experimenter's instructions (and general attitude) were manipulated and varied according to participants' experimental condition (see Appendix G for experimental scripts).

The instructions regarding the experimental task were provided to participants in an autonomy-supportive or controlling (either BC or PC) manner. These instructions (and procedures) were adapted from the experimental scripts of Deci and colleagues (1994), as well as Joussemet and collaborators (2004). First, the language (and overall attitude) used (displayed) by the experimenters distinguished the different interpersonal styles. While choice was conveyed in the AS condition (e.g., "The proposed activity involves", "If you choose to continue", "Don't worry, simply do the best you can", and "Do you mind waiting here?"), more directive expressions such as "will have to", "will be", and "pay attention", were included in the BC condition. In the PC condition, language such as "Hope you meet our expectations", "I'm sure you may feel that 10 minutes is not long. Am I right? Anyways, it doesn't really matter since you only have ten minutes no matter what", "Do you have any questions? Yes? (sigh and rolling of the eyes) No? Good! There is no time to waste", "Come on! I could do way better", "This is a bit disappointing; the

drawing you got was the easiest” and “I’m sure you don’t mind waiting” were used (see Appendix G for experimental scripts). As can be noted, the experimental script portraying the psychologically controlling interpersonal style was really aiming at creating a climate detrimental to participant’s psychological and emotional world.

In addition to conveying choice, the autonomy-supportive instructions involved offering a rationale for the computer task (“This drawing may eventually be incorporated in a Visio training session for professionals and we would like it to be suitable for beginners. Participants who have done it so far said they were able to rate their own Microsoft skills and really improve them”). In the AS condition, participants’ feelings were also acknowledged (“You may feel that 10 minutes is not long and I can perfectly understand and accept your feelings”). On the other hand, the two controlling conditions did not include such rationale nor empathy statement. It is important to note that the “created” experimenters’ instructions (and general attitude) in the two controlling conditions were intended to reflect items of the measure assessing parental behavioral and psychological controlling strategies (see Appendix D for scale items).

After receiving instructions, participants worked on the target activity (i.e., the reproduction of a Visio drawing) while the experimenter was reading nearby and using a chronometer to time the required 10 minutes. Following the experimental task, participants were told that the first part was over and that the only remaining task would be the completion of a short questionnaire. The experimenter also told participants that she would have to go get the interviewer for that second part. This was included in order to provide a reason for the experimenter to leave the participant alone in the room for the free-time activity period. Before leaving, the experimenter added very casually: “It may

take a few minutes because she is preparing another participant. By the way, if you would like to read some magazines or work on the figure some more, you're welcome to do so". Accordingly, if desired, participants could continue working on the experimental task or read some magazines, which were left on the table next to the computer in order to provide a compensatory interesting activity. Participants were then left alone for a free-choice period of five minutes. Engagement time (i.e., number of seconds/minutes participants spent on the task when alone) served as the dependent behavioral measure of intrinsic motivation.

When the free-choice period was over, the interviewer came back in the room to administer the questionnaire (see Appendix H). Before leaving the laboratory session, the interviewer also evaluated participants for suspicions as to the real purpose of the study, properly debriefed them (see Appendix I) and thanked them for their participation.

Experimental Task. Visio (Microsoft, 2003) is a program designed to help professionals create technical diagrams, as well as documenting and organizing complex ideas, processes, and/or systems. Using Visio, the reproduction of a pre-determined drawing (see Appendix J for Visio figures) was performed on a desktop computer and participants were given a timeframe of 10 minutes to achieve the given task. However, in order to ascertain that each participant would have the option of continuing the drawing as a possible activity during the free-choice period, the Visio figures were designed so that it would be impossible to complete them in less than 25 minutes. This experimental task was previously found to be involving, interesting, and challenging for laboratory participants who had no prior knowledge of the Visio program (Amiot, 2005).

Manipulation Checks

Experimenters' Autonomy Support. Perceptions of participants' support of autonomy from the experimenter were assessed using the same scale employed and described in the Method section of Study 1A (with the addition of one item: "She made me feel free to do things my own way"). Internal consistency estimate for this autonomy support variable was deemed adequate ($\alpha = .76$).

Experimenters' Behavioral and Psychological Control. Perceptions of participants' behavioral control and psychological control from the experimenter were assessed using the same scale employed in Study 1B. The scale and its underlying two controlling dimensions are described in the Method section of Study 1B. Internal consistency estimates for these controlling variables were deemed satisfactory (BC: $\alpha = .70$; PC: $\alpha = .92$).

A total of four other questions were also asked in order to assure that the experimenter's interpersonal style did in fact have the desired impact. Each question was rated on a Likert-type scale, ranging from (1) *not at all* to (7) *exactly*. Sample manipulation checks included: "I felt pressured by the experimenter" and "I found the experimenter quite controlling". Participants were also asked to describe their relationships with the experimenter and to rate her as being (or not) able to motivate them. Finally, two additional questions were added in order to test the premise that the experimental task would be perceived as an interesting and enjoyable activity.

Dependent Measures

Situational Intrinsic Motivation. Duration of participation during the free-choice period was electronically recorded and served as a situational behavioral measure of

intrinsic motivation. This dependent measure was obtained using the Visio properties specifications (see Appendix K), which include the date (e.g., dd/mm/yy) and exact time (e.g. 00:00:00) a document is created, accessed and/or modified. During the free-choice period, if participants decided to continue working on the figure, they were required to re-open their Visio document (“accessed”) and save their drawing (“modified”) before closing the program. Therefore, the subtraction of the “accessed” time to the “modified” time provided an objective indication of their persistence to perform.

Positive and Negative Affect. The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1989) was used as an indicator of participants’ feelings and emotions while completing the experimental task. Sample adjectives included: “attentive”, interested”, and “determined” (positive affect; 9 items), as well as “irritable”, panicked”, and “distressed” (negative affect; 9 items). Each item was rated on a Likert-type scale, ranging from (1) *not at all* to (7) *exactly*. Scores from each subscale were averaged across their respective items and showed adequate internal consistency (α = .87 and .92, respectively).

Manifest Anxiety. Participants were asked to indicate if they “found the presence of the experimenter stressful”. To this single item was also combined participants’ feelings of being “nervous” and “worried”, as measured by the PANAS⁴ (Watson, Clark, & Tellegen, 1989). All three anxiety items used a Likert-type scale, ranging from (1) *not at all* to (7) *exactly*. Scores were then averaged to create the manifest anxiety variable. Cronbach alpha coefficient was deemed satisfactory (α = .76).

⁴ These two adjectives were excluded from the computation of the negative affect measure.

Impaired Concentration. The single item “I could not concentrate on the task at hand” was used to capture participants’ concentration difficulty while engaging in the task, using a Likert-type scale, ranging from (1) *not at all* to (7) *exactly*.

Future Intentions. The single item “If you had the opportunity to work once more with the experimenter, would you be willing to be under her guidance again?” was used to capture participants’ future intentions, using a Likert-type scale, ranging from (1) *not at all* to (7) *for sure*.

Other Measures

For research purposes, as well as to preserve the “cover story” of Study 2, additional items were also incorporated throughout the questionnaire. For the most part, these questions referred to the use of computers (e.g., “To which extent do you use the following computer programs in your life”) and the Visio program (e.g., “What would be the best three descriptors for the Visio program”, “Would you recommend Visio as a good alternative to Word for creation of business and technical diagrams”). These additional items were in the open-question format.

Pilot Study

A pilot study was first conducted to ascertain that the autonomy-supportive and controlling manipulations were 1) endorsed by participants and 2) influenced their respective engagement time, self-processes, internalizing symptoms and externalized behaviors. To reach that goal, the same experimental scripts that were used for the actual experimental phase of Study 2 were previously tested on a group of 13 undergraduate students who were invited to the lab for a “run through” of the experiment.

On the whole, the three interpersonal styles were endorsed by participants as displayed by higher levels of reported autonomy support in the AS condition ($M = 3.80$ vs. 2.90), behavioral control in the BC condition ($M = 2.80$ vs. 2.23) and psychological control in the PC condition ($M = 2.67$ vs. 1.27). As well, participants in the AS condition reported the most harmonious relations with the experimenter ($M = 5.40$ vs. 4.00) and found her to be the best motivator ($M = 3.34$ vs. 3.00). Moreover, feelings of being more controlled ($M = 3.17$ vs. 2.00) and pressured ($M = 4.09$ vs. 1.40) by the experimenter were reported by participants in the two controlling conditions.

In addition, the lowest engaging time ($M = 3.33$ vs. 5.00) and future intentions ($M = 4.42$ vs. 6.60), as well as the highest levels of negative affect ($M = 2.26$ vs. 1.49), manifest anxiety ($M = 2.94$ vs. 2.20) and impaired concentration ($M = 1.92$ vs. 1.00) were also displayed by participants in the two controlling conditions. Finally, regardless of their respective experimental condition, participants enjoyed the activity ($M = 4.69$) and found it interesting ($M = 5.23$). Based on the conclusive results of this pilot testing, it was concluded that the manipulations had the desired influences on participants' engagement and laboratory experiences and that it was therefore deemed appropriate to proceed with the experiment.

Experimenters' Equivalence

In order to test the equivalence of the six experimenters, two tests were conducted. The goal of the first test of equivalence was to verify the premise that all six experimenters (across conditions) were to be perceived similarly on variables other than the ones manipulated and/or measured in Study 2, that is on a number of personality traits. Data was obtained from 30 undergraduate students (20 women and 10 men) who

were enrolled in a psychology program at the University of Ottawa (Canada).

Participants' age ranged from 19 to 29 with a mean age of 21.27. Participants were invited to look at a picture of each of the six experimenters and to rate, on a Likert-type scale, ranging from (1) *not at all* to (7) *extremely*, the extent to which each experimenter seemed "nice", "attractive", "controlling", "professional", "friendly", "confident", "good-looking", and "stressful" (see Appendix L for experimenters' equivalence procedure). A multivariate analysis of variance (MANOVA) was then performed including all eight personality traits. No significant main effect was obtained on the personality traits (multivariate $F(8,30) = 1.262, p = .132$).

The goal of the second test of equivalence was to verify the premise that all pairs of experimenters (within condition) were to be perceived similarly on the manipulated variable portraying the interpersonal styles and that participants' laboratory experiences (within condition) would also be comparable on all six Study 2 dependent measures. Using data from participants of Study 2, a series of three MANOVAs were performed which included the interpersonal styles (i.e., AS, BC and PC) and all six dependent variables (i.e., intrinsic motivation, positive and negative affect, manifest anxiety, impaired concentration and future intentions). No significant main effect was obtained on the interpersonal styles nor on the dependent variables (AS: multivariate $F(7,135) = 0.675, p = .726$; BC: multivariate $F(7,135) = 0.582, p = .803$; PC: multivariate $F(7,135) = 1.055, p = .415$).

Based on the results of these two tests of experimenters' equivalence, it was concluded that the six experimenters (across conditions) were equivalent on a number of personality traits, and that the three pairs of experimenters (within condition) did not

affect participants' laboratory experiences differently when under the influence of a particular interpersonal style. Therefore, the differences that may arise from the subsequent subgroup analyses can be interpreted as being the result of the experimental manipulations (i.e., the experimenters' interpersonal style) and not as a function of interpersonal differences that may reside in the experimenter themselves.

Analytic Procedures

Multivariate Analyses of Variance. As a first analytic procedure, two-way between-subjects MANOVAs were first performed on both the manipulation checks and the dependent variables, followed by univariate analyses of variance (ANOVAs) and by Tukey HDS multiple comparisons.

Regarding the multiple comparisons, it is of note that the two sets of comparisons (21 and 18, respectively) were all expected, a priori, to be differentiated. That is, all cells for both the manipulation checks and the dependent variables were hypothesized to be statistically different. Also, in order to conduct the 13 ANOVAs (i.e., seven manipulation checks and six dependent variables), as well as the 39 multiple comparisons (i.e., manipulation checks: 3 X 3 styles and 3 styles X 4 manipulations; dependent variables: 3 styles X 6 dependent variables), and still protect against making Type 1 errors, each testwise alpha level was first controlled to produce an overall experimentwise alpha level of .05. Based on Hays' (1994) formula: ($\alpha = 1 - (1 - .05)^{\text{number of tests}}$), the result yielded inflated experimentwise alphas of .30 and .26 for the ANOVAs and of .60 for the two sets of multiple comparisons. So, to readjust the inflated experimentwise alphas level back down at .05, separate testwise alpha thresholds were computed for each test, based on Hays' formula: ($\alpha/\text{number of tests}$). The alpha values used in Study 2 were then .007

and .008 for the ANOVAs associated with the manipulation checks and the dependent variables, and .003 for the two sets of multiple comparisons.

Partial Pearson Correlations. As a second analytic procedure, partial correlations (controlling for the other two interpersonal styles) between the experimenters' autonomy-support, behavioral control, and psychological control and participants' self-processes, internalizing symptoms and externalized behaviors were performed.

Results

Preliminary Analyses

Prior to the main analyses, all variables were examined for accuracy of data entry, univariate and multivariate outliers, proportion of missing values, and fit between their distributions and assumptions of multivariate analyses (Tabachnick & Fidell, 2001). The standardized scores for the variables included in the study were first examined to identify univariate outliers. No participant was identified as univariate outlier. Using Mahalanobis distances as a decision tool for exclusion, three participants were identified as multivariate outliers and were removed from the sample ($\chi^2(8) = 26.125, p < .001$). Thus, a total of 135 participants comprised the final sample. As well, no variables had proportion of missing values higher than 5%.

With respect to normality, the summary statistics for the studied dependent variables were examined (see descriptive statistics for the entire sample in Table 5). Skewness ranged from -0.24 to 1.59. Despite a few high values (i.e., the two controlling dimensions, negative affect, and impaired concentration), univariate values of skewness were generally considered adequate given that mean skewness ($M = 0.64$) was below

1.00. Departures from the assumptions of linearity and homoscedasticity were also evaluated by examining a random selection of bivariate scatterplots, which revealed no such problems. Multicollinearity was also not a problem in this study as no correlation higher than .80 was found (see partial correlations between the manipulations and the dependent variables for the entire sample in Table 5).

Multivariate Analyses of Variance: Manipulation Checks. The premise that the experimental task was to be perceived as interesting and enjoyable in all three experimental conditions was first tested. As can be seen in Table 5, no differences in interest and enjoyment were identified between conditions, and mean levels were moderately high. These results indicate that the Visio trial was indeed considered, to some extent, an interesting task and that participants did enjoy, to some degree, the drawing activity.

As part of the manipulation checks, a first MANOVA was performed in order to assess the extent to which the experimental manipulations had an impact on participants' perceptions of experimenters' autonomy support, behavioral control, and psychological control, as well as on their feelings of being pressured and controlled by the experimenter. This MANOVA also tested the hypotheses that, as a function of their assignation, participants would perceived differently the experimenter as motivating them ("motivator"), and that the nature of the experimenter-participants relations would also differ across conditions ("harmony"). All cell means and standard deviations are reported in Table 4.

Insert Table 4 here

As a result of this first MANOVA, significant main effects were obtained on all seven manipulation checks (multivariate $F(7,135) = 30.611, p < .001$, observed power 1.0): AS (univariate $F(2,135) = 22.771, p < .007$, observed power 1.0), BC (univariate $F(2,135) = 20.057, p < .007$, observed power 1.0), PC (univariate $F(2,135) = 102.436, p < .007$, observed power 1.0), *pressed* (univariate $F(2,135) = 17.871, p < .007$, observed power 1.0), *controlled* (univariate $F(2,135) = 25.875, p < .007$, observed power 1.0), *motivator* (univariate $F(2,135) = 23.299, p < .007$, observed power 1.0) and *harmony* (univariate $F(2,135) = 22.054, p < .007$, observed power 1.0).

Multiple Comparisons: Manipulation Checks. To the exception of the comparison between the two controlling conditions regarding experimenters' behavioral control, all 20 other Tukey HSD multiple comparisons were significant at $p < .05$, that is, on the other two interpersonal styles, negative feelings resulting from the interaction with the experimenter, the nature of the interaction and the ability of the experimenter to be a good motivator. Thus, the distinction between the AS and the BC conditions on feeling controlled and motivated by the experimenter were higher than the .008 cutoff ($ps < .008$ and .005, respectively). As well, the comparison between the two controlling conditions on feeling pressured by, and in harmony with, the experimenter were also higher ($ps < .05$ and .02, respectively). Finally, the comparison between the BC and the PC conditions regarding behavioral control revealed no effect approaching significance, indicating that participants' feelings of being behaviorally controlled by the experimenter was approximately equal in the two controlling conditions.

Partial Pearson Correlations. Partial correlations (controlling for the other two interpersonal styles) between experimenters' interpersonal styles and participants' self-processes, internalizing symptoms and future intentions were also examined and are presented in Table 5.

 Insert Table 5 here

First, experimenters' autonomy support was negatively related to behavioral control ($r = -.30, p < .01$) and psychological control ($r = -.38, p < .01$), and both controlling dimensions were positively associated with one another ($r = .53, p < .01$). Second, all dependent variables were related to the experimenters' interpersonal styles in a manner consistent with the hypotheses. More specifically, when controlling for the other two interpersonal styles, the autonomy-supportive style was positively related to participants' intrinsic motivation (partial $r = .13, p < .05$), positive affect (partial $r = .26, p < .01$) and future intentions (partial $r = .29, p < .01$). The psychological controlling style was positively associated with participants' negative affect, manifest anxiety (partial $r_s = .23, p_s < .01$, respectively) and impaired concentration (partial $r = .27, p < .01$), and negatively associated with participants' intrinsic motivation (partial $r = -.29, p < .01$) and future intentions (partial $r = -.52, p < .01$).

The behaviorally controlling style displayed the same pattern of relationships than the psychological controlling style, with overall weaker relations. More precisely, the behaviorally controlling style was negatively related to participants' intrinsic motivation (partial $r = -.12, p < .05$) and future intentions (partial $r = -.14, p < .05$), and positively

related to participants' negative affect (partial $r = .21, p < .01$), manifest anxiety (partial $r = .19, p < .05$) and impaired concentration (partial $r = .17, p < .05$). That being said, it is interesting to note that the correlations between the psychologically controlling style and the dependent measures were stronger than those of the behaviorally controlling style. Also, no significant relation was found between the two controlling styles and participants' positive affect, nor between the autonomy-supportive style and participants' negative affect, manifest anxiety and impaired concentration.

Main Analyses

Multivariate Analyses of Variance: Dependent Variables. A subsequent MANOVA with the experimental conditions as between subjects factors was performed on the six dependent variables, that is, free-choice duration ("intrinsic motivation"), positive and negative affect, manifest anxiety, impaired concentration, and future intentions. All cell means and standard deviations are reported in Table 6.

Insert Table 6 here

As a result of this second MANOVA, significant main effects were obtained on all six dependent variables (multivariate $F(6,135) = 22.417, p < .001$, observed power 1.0): *intrinsic motivation* (univariate $F(2,135) = 20.942, p < .008$, observed power 1.0), *positive affect* (univariate $F(2,135) = 5.234, p < .008$, observed power .82), *negative affect* (univariate $F(2,135) = 11.559, p < .008$, observed power .99), *manifest anxiety* (univariate $F(2,135) = 10.553, p < .008$, observed power .99), *impaired concentration*

(univariate $F(2,135) = 16.143, p < .008$, observed power 1.0) and *future intentions* (univariate $F(2,135) = 27.397, p < .008$, observed power 1.0).

Multiple Comparisons: Dependent Variables. To the exception of the comparison between the two controlling conditions regarding (positive and negative) affect, all 16 other Tukey HSD multiple comparisons were significant at $p < .05$, that is, on the duration of free-choice, affect while performing the task, the anxiety measure, participants' concentration difficulty, and future intentions. Thus, the distinction between the AS and the BC conditions on positive and negative affect, manifest anxiety, impaired concentration and future intentions were higher than the .008 cutoff (ps between .01 and .05). The comparison between the two controlling conditions on intrinsic motivation and manifest anxiety were also higher ($ps < .006$ and .05, respectively). As well, the significance level of the distinction between the AS and the PC conditions on positive affect was equal to .02. Finally, although in the predicted direction, the comparison between the two controlling conditions regarding positive and negative feelings revealed no effect approaching significance, indicating that participants' affect was approximately equal in BC and the PC conditions.

Discussion and Limitations

The central aim of Study 2 was to empirically test the unique contribution of socializing agents' autonomy support, behavioral control and psychological control on youth self-processes, internalizing symptoms, and externalized behaviors. Methodologically, Study 2 was designed to contrast, in an interaction-based laboratory

experiment, the manipulated effects of experimenters' interpersonal styles on participants' engagement and experiences in an interesting activity.

In terms of group differences, in comparison to the two controlling conditions, experimenters' autonomy-supportive style was expected to result in participants' highest engagement time, positive affect, and future intentions. By contrast to the other two conditions, experimenters' psychologically controlling style was expected to cause participants to engage the least during the free-choice period, to report the highest levels of negative feelings, manifest anxiety, and impaired concentration, as well as the lowest future intentions. The group differences results were generally supportive of those hypotheses.

Regarding behavioral control, two sets of hypotheses were put forward. That is, in comparison to the other two conditions, experimenters' behaviorally controlling style was expected to result in participants' diminished motivational state and well-being (in line with CET), or in participants' feeling pressured to comply, yet having some positive affective and behavioral influences (in line with the literature on parental BC and PC). That being said, laboratory experiences for those participants were not anticipated to be as positive as in the autonomy-supportive condition, nor as negative as in the psychologically controlling condition. Here again, the group differences results were generally supportive of those hypotheses.

In sum, significant and unique effects were obtained for autonomy support, behavioral control, and psychological control. As expected, participants in the autonomy-supportive condition engaged the longest during the free-choice period and reported the highest levels of positive affect. They also reported the lowest levels of negative effect,

manifest anxiety, impaired concentration, and dropout intentions. Participants in the psychologically controlling condition had the lowest engaging time and future intentions, and reported the highest levels of negative effect, manifest anxiety and impaired concentration.

However, although the psychologically controlling style seemed to have the most negative impact, participants in both controlling conditions displayed similar levels of positive and negative affect. It is also unclear, based on the correlation matrix, why the behaviorally controlling style was linked to higher levels of internalizing symptoms (i.e., manifest anxiety and impaired concentration)⁵. Perhaps having an authority-figure reminding someone about the consequences of not performing up to standards could be perceived as purely controlling and could have had a negative influence on participants' capacity to remain calm and focused while performing the experiment task. This could well be one of the possible downsides of adopting a behaviorally controlling approach. Nonetheless, on the whole, the findings pertaining to the behaviorally controlling style are consistent with both theoretical frameworks in that it seemed to be perceived somewhat negatively, yet it hold both positive and negative effects.

Together with the findings of Study 1, the results of Study 2 give further support to the differential impact of each three interpersonal styles. That is, socializing agents' autonomy support, behavioral control, and psychological control have unique contribution to youth self-processes, internalizing symptoms, and externalized behaviors.

⁵ It is important to keep in mind that the correlational analyses of Study 2 were conducted using all participants, regardless of their experimental condition. This amalgamation procedure may have had an impact on the obtained results.

Although these findings are promising, the methodology employed in Study 2 places some limitations on the strength of the specific conclusions that can be drawn from this work. A first methodological limitation applies to the experimental design of this study. Indeed, the laboratory paradigm may have introduced some artificiality and may have made participants feel somewhat evaluated. The use of an experimental task might also have limited its ecological validity. However, similar counterproductive effects of controlling practices on motivational variables have also been identified in studies looking at real-life tasks (e.g., Fabes, Eisenberg, Fultz, & Miller, 1998). The validity of the results is also bolstered by their convergence with the self-report data of Study 1.

Another issue is the length of the interaction between the experimenter and the participants. In this study, the interactions lasted for a period of approximately 15 minutes. On the one hand, it is interesting to note that the effects of the interpersonal styles did occur in such a short period of time. On the other hand, it is also important to consider that interactions between parents and children, as well as between any socializing agents and youth, usually last longer.

Moreover, because the present thesis intended to study the detrimental effects of controlling strategies on youth outcome variables, such as autonomous motivation, the data of Study 2 were obtained in the context of a fairly interesting activity (i.e., drawing; as will also be the case for Study 3, which will be set up in artistic gymnastics). Fortunately, other researchers have shown that the motivational dynamics related to autonomous motivation during interesting activities (Deci, Spiegel, Ryan, Koestner, & Kauffman, 1982; Flink, Boggiano, & Barrett, 1990; Reeve, Bolt, & Cai, 1999) also apply to autonomous motivation during uninteresting activities (Deci, Eghrari, Patrick, &

Leone, 1994; Ryan, Connell, & Deci, 1985). Still, it would remain necessary and worthwhile to investigate experiences of autonomous motivation during all kinds of activities, not just during interesting ones (Reeve, Nix, & Hamm, 2003).

Finally, because the data collected in Study 1 and Study 2 were mainly concurrent in nature, one may still question if the results would hold in a real life setting and, most importantly, over time. Consequently, Study 3 was devised to address this limitation and consisted of a meditational prospective 2-wave measurement field study capturing the coach-athletes interactions over the course of an 8-month period.

CHAPTER 4

STUDY 3

Study 1A and Study 1B examined the structure of the parenting dimensions, and provided exploratory results pertaining to the associations between those parental behaviors and children motivational orientation, an important self-process. Study 2 consisted of a laboratory experiment that focused on the manipulated effects of the interpersonal styles on youth self-processes, internalizing symptoms, and externalized behaviors. Study 3 was devised to complement those previous studies. That is, the central aim of Study 3 was to ascertain the directions of the relationships between autonomy support, behavioral control, and psychological control and their outcome variables using a prospective field study. More explicitly, the unique contribution of the three interpersonal styles to youth self-processes, internalizing symptoms, and externalized behaviors were assessed. This was accomplished using data from a study designed to capture the coach-athletes interactions, which assessed athletes ($N=239$) twice across an 8-month period.

Theoretically speaking, the effects of autonomy support and control in Study 3 were mainly expected to conform to Self-Determination Theory (Deci & Ryan, 1985, Ryan & Deci, 2002). A key postulate of this theory is that parents' (or any socialization agents') use of autonomy-supportive and controlling strategies shape children's development via the satisfaction of the fundamental psychological needs of competence, relatedness, and autonomy. Accordingly, when the social context is autonomy-supportive, youth are motivated to internalize the regulation of important activities (i.e., extrinsically motivated behaviors can become self-determined through the process of

internalization; Reeve, Jang, Hardre, & Omura, 2002), whereas when the context is controlling, autonomous motivation is undermined (Pelletier, Fortier, Vallerand, & Brière, 2001). In other words, an autonomy-supportive climate may facilitate autonomous motivation, which in turn may engender adaptive patterns (e.g., Boggiano, 1998; Guay, Boggiano, & Vallerand, 2001). Conversely, in a controlling environment, youth may develop controlled motivation and may tend to regulate their behaviors according to pressures, perceived expectations, and other contingencies (Trouilloud, Sarrazin, Bressoux, & Bois, 2006). Autonomous and controlled motivation are said, in turn, to predict a number of cognitive, affective, and behavioral outcome variables (Vallerand, 1997).

In fact, studies in several domains have documented that the effects of autonomy-supportive versus controlling social contexts on youth adjustment and well-being is (partially and fully) mediated by children's autonomous motivation (e.g., Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams, Gagné, Ryan, & Deci, 2002). For example, the results of Ntoumanis' (2005) SDT-based motivational model showed that teachers' support of students' psychological need for autonomy predicted greater autonomous motivation which, in turn, was linked to positive affective, as well as to cognitive and behavioral indices, such as student levels of concentration and effort in class. Results from Vansteenkiste and colleagues (2005) also revealed that teachers' autonomy support (vs. PC) was related to more adaptive learning strategies and greater well-being and that these effects were mediated by students' motivation for studying. More specifically, when the overall measure of motivation was broken down into its two primary subcomponents, that is school autonomous and controlled motivation, it was

found that the former positively predicted adaptive learning and academic success (i.e., higher concentration when studying, more thoughtful processing of study material, less anxiety in a testing situation, and better test scores), whereas the latter forestalled optimal learning processes and increased the likelihood of depressive symptomatology and dropout. Further analysis revealed that students' school autonomous motivation fully mediated the direct effect of teachers' autonomy support (vs. PC) on composite measures of youth learning attitudes and adjustment.

In replicating the prospective design used by Vallerand and collaborators (1997), Pelletier and colleagues (Pelletier, Fortier, Vallerand, & Brière, 2001) conducted a prospective 2-year study to examine persistence in competitive swimming. The results of SEM analyses showed that swimmers' perceptions of coaches' autonomy support positively predicted autonomous motivation (i.e., intrinsic motivation and identified regulation). In contrast, swimmers' perceptions of coaches' controlling behaviors predicted swimmers' controlled motivation (i.e., non-regulation, external, and introjected regulation). Finally, studies in the health domain have also shown that practitioners' autonomy support affects patients' (children and adults) health motivation and behaviors, including medication adherence (Williams, Rodin, Ryan, Grolnick, & Deci, 1998) and weight loss (Williams, Grow, Freedman, Ryan, & Deci, 1996).

The results of these studies support SDT's contention that when individuals act out of personal interest and personal conviction, they are more fully engaged in the behavior, they more fully understand, and are more flexible in utilizing the newly acquired information (Reeve, Deci, & Ryan, 2004). Also consistent with SDT's claims, these results indicate that feeling pressured and controlled disrupts one's ability to

concentrate, provokes negative attitudes, and enhances feelings of stress and performance anxiety. More importantly, these findings are interesting because, in attempting to grasp a more comprehensive understanding of how intrapersonal and environmental factors affect individuals' motivational experiences and adjustment, they clearly show the importance of both the autonomy-supportive and controlling styles in predicting various attitudinal variables, and not only intentions and/or behaviors.

With the use of a prospective design, Study 3 intended to expand upon these past findings by examining the unique effects of the autonomy-supportive, behaviorally controlling, and psychologically controlling style on various youth outcome variables via the mediating properties of children motivational orientation. Consequently, Study 3 was designed to test a mediation model describing a prospective sequence including athletes' perceptions of coaches' interpersonal styles, as well as athletes' sport motivation, adjustment, and persistence over a competitive season. As a further attempt to clarify the distinct nature and the unique effects of these three dimensions, hypotheses were tested using SEM analyses. It was first hypothesized that the three interpersonal styles would be moderately correlated to each other. More precisely, coaches' autonomy support was expected to be negatively associated with behavioral and psychological control, and both control dimensions were expected to be positively associated with one another.

On the one hand, coaches' autonomy supportive (assessed at T1) was predicted to be an important antecedent of athletes' autonomous motivation and other self-processes (i.e., positive affect and sport satisfaction), as well as lower levels of internalizing symptoms (i.e., manifest anxiety and impaired concentration) and externalized behaviors (i.e., dropout intentions; assessed at T2). On the other hand, coaches' psychological

control (assessed at T1) was expected to predict athletes' controlled motivation and negative affect, as well as higher levels of manifest anxiety, impaired concentration and dropout intentions (assessed at T2). Coaches' behavioral control (assessed at T1) was also hypothesized to predict athletes' autonomous motivation, and other self-processes, internalizing symptoms and externalized behaviors (assessed at T2).

To summarize, the variables under study were expected to display a pattern of relationship configured as a mediational model, wherein the relations between coaches' interpersonal styles and athletes' self-processes, internalizing symptoms and externalized behaviors would be mediated by athletes' sport motivation (see Figure 4 for a visual representation of the hypothesized relationships).

 Insert Figure 4 here

Methodology

Participants

At T1, participants were 249 young athletes (228 girls, 15 boys and 6 "no gender specified") from 5 gymnastics clubs in the province of Québec (Canada). Participants' age ranged from 9 to 18 with a mean age of 13.25 years. Athletes' were training on average 14.35 hours per week (ranging from 4 to 32 hours), they have been involved in their sports for an average of 6.05 years (ranging from 1 to 15 years), and 76.6% of them competed at the provincial level. Finally, participants' coaches were mainly women (86.9%). Athletes who continued to participate at T2 ($N=239$) and those who dropped out

($N=10$) did not differ significantly on T1 measures of coaches' autonomy support, behavioral control, and psychological control ($F(3,248) = 1.199, p = .311$). As well, boys and girls did not differ significantly on T1 measures of coaches' autonomy support, behavioral control, and psychological control, nor on T2 measures of motivational orientation, self-processes, internalizing symptoms, and externalized behaviors ($F(11,221) = 0.756, p = .684$).

Procedure

Prior to the first wave of measurement, information letters were mailed to each of the clubs and were distributed to the participants by the club's head-coach (see Appendix M and Appendix N). Written consent for participation, required from both parents (see Appendix O) and athletes (see Appendix P), was 88.9% (refusal 2.1% and no response 9%). Attrition from T1 to T2 was 4%. Following parental permission, participants were invited to voluntarily take part in the 8-month prospective field study and were assured that their responses would be anonymous and kept confidential (see Appendix N). At both T1 (October) and T2 (June), participating athletes completed questionnaires on the reasons why kids engage in sports, the emotions they experience in practice, as well as the role of their coaches in their sport development (see Appendix Q). Three versions of the questionnaire (i.e., different order of scale arrangement) were randomly presented to the participants.

Questionnaire completion took approximately 30 to 45 minutes. The athletes completed the questionnaire during practice in groups of about 10, either at their gymnasium (if numbers warranted) or in separate rooms. In these group-administered sessions, all instructions and sample items from each measure were read to the

participants. Individual assistance was also provided as needed. At T1, coaches' autonomy support, behavioral control, and psychological control, as well as athletes' demographics, were assessed during a practice. At T2, questionnaires assessing athletes' contextual motivational orientation, as well as other self-processes (i.e., affect and sport satisfaction), internalizing symptoms (i.e., manifest anxiety and impaired concentration), and externalized behaviors (i.e., dropout intentions) were completed during a second practice. No compensation was offered in exchange for participation. However, the drawing of an iPod was conducted among the participants of this study. To the exception of the measures assessing parental behavioral and psychological controlling strategies and youth sport motivation, all measures used in this study had been translated using a back-translation procedure (Vallerand, 1989).

Athletes' Perceptions of Coaches (T1)

Coaches' Autonomy Support. Perceptions of participants' autonomy support from their coach were assessed using the same scale employed and described in the Method section of Study 1A. Each item was rated on a Likert-type scale, ranging from (1) *not at all* to (5) *exactly*. The internal consistency estimate for this variable was deemed adequate ($\alpha = .69$).

Coaches' Behavioral and Psychological Control. Perceptions of participants' behavioral control and psychological control from their coach were assessed using the same scale employed in Study 1B⁶. The scale and its two controlling dimensions are described in the Method section of Study 1B. Each item was rated on a Likert-type scale,

⁶ A CFA was conducted using the sample of Study 3 and rendered a marginal goodness-of-fit: S-B χ^2 ($df=125$, $N=249$) = 330.406, $p<.001$ (χ^2/df ratio = 2.64); *CFI = .871; SRMR = .070; *RMSEA = .083, 90% CI RMSEA = .072, .094).

ranging from (1) *never* to (5) *often*. Internal consistency estimates for these controlling variables were deemed satisfactory (BC: $\alpha = .76$; PC: $\alpha = .79$).

Athletes' Measures (T2)

*Contextual Motivational Orientation*⁷. For the purpose of this study, the 18-item measure assessing youth sport motivation⁸ (see Appendix R for scale items and Appendix S for psychometric properties) was used to assess participants' contextual motivational orientation. Two motivational orientations were measured, that is, autonomous motivation (e.g., "Parce que j'ai du plaisir à faire de la gymnastique", "Parce que la gymnastique apporte quelque chose de bien à ma vie", "Parce que je veux toujours m'améliorer et me dépasser"; 8 items), and controlled motivation (e.g., "Parce que je dois être le(la) meilleur(e) gymnaste", "Pour gagner des rubans et des médailles lors des compétitions"; 7 items; also including non-regulation: "Je ne le sais pas, j'ai vraiment l'impression de perdre mon temps"; 3 items). Participants indicated the extent to which each mentioned reason was typical of the reasons why they do gymnastics. Each item was rated on a Likert-type scale, ranging from (1) *not at all* to (5) *exactly*. Participants' ratings for each orientation were then averaged across their respective items. Because of the preliminary nature of the measure assessing youth sport motivation, psychometric tests using exploratory factor analysis (EFA) and CFA were first conducted and provided

⁷ Because the interpersonal styles were modeled in the present thesis as predictors of youth development and functioning, the motivational variables were assessed at T2 along the other self-processes, internalizing symptoms and externalized behaviors.

⁸ The measure assessing youth sport motivation is comprised of items that were adapted from existing SDT (Deci & Ryan, 1985, 2002) measures of sports motivation (e.g., Sport Motivation Scale: Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995; Exercise Self-Regulation Questionnaire: adapted from Ryan, & Connell's (1989) standard version) and of adaptations to younger populations (i.e., Children Academic Motivation Scale adapted from the Academic Motivation Scale; Vallerand, Blais, Brière, & Pelletier, 1989)).

some initial support for the psychometric properties of the scale (please refer to Appendix S for a description of those psychometric properties). Cronbach alpha coefficient for motivational orientations were deemed satisfactory (autonomous motivation: $\alpha = .89$; controlled motivation: $\alpha = .66$).

Positive and Negative Affect. Participants' feelings and emotions in practice were assessed using the same scale employed and described in the Method section of Study 2. Sample adjectives include: "positive", "proud", and "determined" (positive affect; 4 items), as well as "panicked", "worried", and "nervous" (negative affect; 8 items). Each item was rated on a Likert-type scale, ranging from (1) *never* to (5) *often*. Scores from each subscale were averaged across their respective items. The French version of the PANAS was found to have good validity and reliability in both competitive sports and academic settings (Gaudreau, Sanchez, & Blondin, 2006; Sanchez, Gaudreau, & Blondin, 2001). Internal consistency estimates were adequate ($\alpha s = .75$ and $.70$, respectively).

Sport Satisfaction. A 3-item adaptation of the Satisfaction With Life Scale (Diener, Emmons, Larson, & Griffin, 1985) was used to assess participants' satisfaction with their sports, using a Likert-type scale, ranging from (1) *not at all* to (5) *exactly*. Participants' ratings were then averaged to create the sport satisfaction variable (e.g., "I am satisfied with my life in gymnastics"). Cronbach alpha coefficient was deemed satisfactory ($\alpha = .66$).

Manifest Anxiety. The worry and physiological reactivity subscales of the Revised Children's Manifest Anxiety Scale (RCMAS-C; Cyr, 2003; Reynolds & Richmond, 1978) was used to assess the frequency and severity of participants' anxiety symptoms. Samples of items were: "I worry a lot of time", "I worry about what other people think

about me” (worrying; 5 items) and “I feel sick to my stomach”, “My hands are sweaty” (physiological reactivity; 4 items). Participants were asked to indicate how frequently they were experiencing these symptoms, using a Likert-type scale, ranging from (1) *never* to (5) *often*. Scores were then averaged to create the manifest anxiety variable. The RCMAS-C was previously found readable and reliable among children as young as 8 to 9 years old, and was significantly correlated with other self-reports and diagnostic measures of anxiety (Reynolds & Richmond, 1978). Cronbach alpha coefficient for the entire scale was deemed adequate ($\alpha = .85$).

Impaired Concentration. The concentration problems subscale of the RCMAS-C (Reynolds & Richmond, 1978) was used to measure participants’ impaired concentration in training (e.g., “I sometimes catch myself thinking of other things”; 3 items). Participants were asked to indicate how frequently they were experiencing these behaviors, using a Likert-type scale, ranging from (1) *never* to (5) *often*. Scores were then averaged to create the impaired concentration variable and showed adequate internal consistency ($\alpha = .63$).

Future Intentions. The single item “How likely are you to return to gymnastics next season?” was used to capture participants’ intentions to pursue, using a Likert-type scale, ranging from (0%) *not at all likely* to (100%) *very likely*. This one-item assessment, adapted from Bentler and Speckart (1981), has been previously used to measure female athletes’ intentions to return to their sports for another season (Spink, 1995). For the purpose of Study 3, future intentions were referred as “dropout intentions” in order to be consistent with the label “externalized behaviors” found in the literature on parental

behavioral and psychological control and used in both Study 1 and Study 2. This single item was thus reverse-coded.

Analytic Procedures

Partial Pearson Correlations. As a first analytic procedure, partial correlations (controlling for the other two coaches dimensions) between coaches' interpersonal styles and athletes' self-processes, internalizing symptoms and externalized behaviors, as well as correlations between the outcome variables, that is athletes' motivational orientation, self-processes, internalizing symptoms, and externalized behaviors were performed.

Path Analyses: Structural Equations Modeling. As a second analytic procedure, path analyses using SEM were conducted, which offer distinct advantages over conducting several ordinary least squares regressions. First, SEM enables the simultaneous statistical testing of an entire system of observed (manifest) variables and their hypothesized relationships rather than individual path coefficients. Second, several goodness-of-fit indices (Bollen & Long, 1993; Hoyle & Panter, 1995; Kline, 2005) are used to evaluate the degree of correspondence between the postulated *a priori* model and the obtained data. Finally, in the event that the initial postulated model does not adequately fit the data, modification indices (i.e., L-M test and W-test) are produced. Results from these tests may suggest that a better-fitting model could be achieved, for example, by allowing certain parameters to be freely estimated rather than fixed. However, decisions regarding post-hoc model fitting should be taken judiciously, and model re-specification should make sense both theoretically and statistically (Byrne, 1994).

Estimation Technique. The ML estimation procedure was used to estimate model fit. Although this estimation method assumes the normality of the data, it is still the most recommended estimation method to deal with non-normality given that the robustness of ML is fairly good even when data is non-normal. While the univariate indices for the (transformed) observed variables to be used in the hypothesized model were satisfactory (see Table 7), the normalized estimate of multivariate kurtosis was 23.80. Given this level of multivariate non-normality, and because non-normal multivariate kurtosis has a particularly damaging impact on the estimates obtained in the context of SEM, fit indices that adjust for non-normality were also reported.

Assessment of Model Fit. Given the diversity of the fit indices available, and in view of the controversies concerning measures of overall goodness-of-fit (Byrne, 1994), several fit indices were reported, namely, the χ^2 statistic, the *CFI (Bentler, 1988, 1990; Bentler & Chou, 1987), as well as the *RMSEA (Browne & Cudeck, 1993) and its associated confidence interval, the SRMSR (Jöreskog & Sörbom, 1996). Each of the above-mentioned goodness-of-fit indices and their respective cutoffs are presented in the analytic procedures section of Study 1A.

Model Modification. The L-M test was used as a guide in identifying constrained parameters that could contribute to a significantly better model if freely estimated. Post hoc-model fitting was considered appropriate only when there was sound theoretical, statistical, and empirical justification to do so (Byrne, 1994). Finally, the W-test was also used to identify non-significant parameters.

Model Comparison. Several indices have also been developed that take into account the degree of parsimony in a model. One of the methods for assessing the

difference between nonhierarchical models is the Akaike Information Criterion (AIC; Akaike, 1987). The AIC is a modification of the standard goodness-of-fit χ^2 statistic accounting for the number of parameters. Models with fewer degrees of freedom (more complex ones) get larger reduction in their χ^2 values. Given two nonhierarchical models, the one with the lowest AIC is preferred (Kline, 1998), with small values indicating a good-fitting, parsimonious model. Additionally, to assess the extent to which a respecified model represents an improvement in fit, a $\Delta\chi^2$ (with *dfs* equal to the difference in *dfs* of the two models) was also used to compare models. A significant $\Delta\chi^2$ would indicate a substantial improvement in model fit.

Mediation Test. As a final analytic procedure, the MacKinnon and Lockwood's (2001) asymmetric distribution of products method was used to test the statistical significance of the mediation properties of athletes' contextual autonomous motivation between coaches' autonomy-supportive and behaviorally controlling styles and athletes' positive self-processes, internalizing symptoms, and externalized behaviors. The mediation properties of athletes' contextual controlled motivation between coaches' psychologically controlling styles and athletes' negative self-processes, internalizing symptoms, and externalized behaviors was tested as well. For the mediation of athletes' autonomous and controlled motivation to be considered as "complete", the correlations between coaches' interpersonal styles and athletes' outcome variables would have to become non-significant when the mediating variable was entered in the model. In contrast, for the mediation of athletes' autonomous and controlled motivation to be considered as "partial", significant direct effects would have to be found between

coaches' interpersonal styles and athletes' outcome variables in addition to the model's initial meditational associations.

Results

Preliminary Analyses

Prior to the main analyses, all variables were examined for accuracy of data entry, univariate and multivariate outliers, proportion of missing values, and fit between their distributions and assumptions of multivariate analyses (Tabachnick & Fidell, 2001). The standardized scores for the variables included in the model were first examined to identify univariate and multivariate outliers. No participant was identified as univariate outlier. Using Mahalanobis distances as a decision tool for exclusion, one participant was identified as multivariate outlier and was removed from the sample ($\chi^2(5) = 20.515, p < .001$). Thus, a total of 238 participants comprised the final sample. This sample size is slightly superior to the minimum of 200 participants required for SEM analyses (Ullman, 2000). As well, no variables had proportion of missing values higher than 5%.

With respect to normality, the summary statistics for the variables included in the model were examined. Descriptive statistics for the three coaches' variables (i.e., AS, BC and PC), as well as athletes' self-processes, internalizing symptoms and externalized behaviors are presented in Table 7. Skewness ranged from -3.95 to 1.49. Despite a few high values (i.e., PC, controlled motivation, manifest anxiety and dropout intentions), univariate values of skewness were generally considered adequate given that mean skewness ($M = 0.006$) was below 1.00. For the purpose of Study 3, that is, testing a mediational path analysis, psychological control, controlled motivation, manifest anxiety,

and dropout intentions were subsequently transformed (i.e., logarithm). Departures from the assumptions of linearity and homoscedasticity were also evaluated by examining a random selection of bivariate scatterplots, which revealed no deviations from those assumptions. Finally, multicollinearity was not a problem in this study as no correlation higher than .80 was found (see Table 7 and Table 8).

Partial Pearson Correlations. Partial correlations (controlling for the other two interpersonal styles) between the three coaches' interpersonal styles are presented in Table 7. Consistent with hypotheses, when controlling for the other two coaches' dimensions, coaches' autonomy support was negatively related to behavioral control ($r = -.22, p < .01$) and psychological control ($r = -.30, p < .01$). As well, both controlling dimensions were positively associated with one another ($r = .54, p < .01$).

Insert Table 7 here

Partial correlations (controlling for the other two interpersonal styles) between coaches' interpersonal styles and athletes' self-processes, internalizing symptoms, and externalized behaviors are presented in Table 8. Consistent with hypotheses, when controlling for the other two coaches' dimensions, coaches' autonomy support was positively associated with athletes' autonomous motivation (partial $r = .23, p < .01$) and positive affect (partial $r = .15, p < .05$), as well as negatively associated with athletes' impaired concentration (partial $r = -.18, p < .01$). Although marginally significant, relations in the hypothesized directions were also found between coaches' autonomy support and athletes' sport satisfaction and manifest anxiety (partial r s = .11 and -.11,

n.s., respectively). The postulated link between coaches' autonomy support and athletes' dropout intentions did not reach significance. A significant negative relation was also found between coaches' autonomy support and athletes' negative affect (partial $r = -.15$, $p < .05$).

Second, coaches' psychological control was positively associated with athletes' controlled motivation (partial $r = .22$, $p < .01$), negative affect (partial $r = .17$, $p < .01$), and impaired concentration (partial $r = .28$, $p < .01$), as well as negatively linked to athletes' sport satisfaction (partial $r = -.28$, $p < .01$). Although marginally significant, a relation in the hypothesized direction was also found between coaches' psychological control and athletes' dropout intentions (partial $r = .10$, *n.s.*). The postulated link between coaches' psychological control and athletes' manifest anxiety did not reach significance. Significant negative relations were also found between coaches' psychological control and athletes' autonomous motivation (partial $r = -.29$, $p < .01$) and positive affect (partial $r = -.23$, $p < .01$).

Third, coaches' behavioral control was positively related to athletes' autonomous motivation (partial $r = .17$, $p < .01$) and sport satisfaction (partial $r = .12$, $p < .05$), as well as negatively related to athletes' manifest anxiety (partial $r = -.25$, $p < .01$), impaired concentration ($r = -.21$, $p < .01$) and dropout intentions (partial $r = -.15$, $p < .01$). The postulated link between coaches' behavioral control and athletes' positive affect did not reach significance.

Insert Table 8 here

Correlations between athletes' motivational orientation, other self-processes, internalizing symptoms, and externalized behaviors are also presented in Table 8. In accordance with the mediation proposal of Study 3, athletes' autonomous motivation was positively related to positive affect ($r = .54, p < .01$), and sport satisfaction ($r = .35, p < .01$), and negatively associated with manifest anxiety ($r = -.28, p < .01$) and impaired concentration ($r = -.19, p < .01$). A significant negative relation was also found between athletes' autonomous motivation and negative affect ($r = -.13, p < .05$). The postulated link between athletes' autonomous motivation and dropout intentions did not reach significance.

In addition, athletes' controlled motivation was positively associated with negative affect, manifest anxiety ($r_s = .31, p_s < .01$, respectively), impaired concentration ($r = .35, p < .01$) and dropout intentions ($r = .21, p < .01$), and negatively related to sport satisfaction ($r = -.33, p < .01$). A significant negative relation was also found between athletes' controlled motivation and positive affect ($r = -.31, p < .01$). Finally, both motivational orientation were negatively linked ($r = -.28, p < .01$).

Main Analyses

Path Analysis: Structural Equations Modeling. Relations among variables were tested in a mediational path analysis model (see Figure 4) using SEM conducted in EQS 6.1 (Bentler, 2005). For the purpose of Study 3, the analyses were performed on the covariance matrix of the manifest variables comprised of the three coaches' interpersonal styles (assessed at T1), the two athletes' contextual motivational orientation (as mediators; assessed at T2), as well as negative self-processes (NSP: negative affect) and externalized behaviors (EB: dropout intentions), along with the composite variables of

athletes' positive self-processes (PSP: positive affect and sport satisfaction; $r = .28, p < .01$) and internalizing symptoms (IS: manifest anxiety and impaired concentration; $r = .44, p < .01$; also assessed at T2). Both composite variables were deemed normally distributed. They also displayed similar correlations with the mediators (PSP: r s between $-.33$ and $.54, ps < .01$; IS: r s between $-.19$ and $.35, ps < .01$) and the antecedents (PSP: r s between $-.31$ and $.23, ps < .01$; IS: r s between $.15$ and $.31, ps < .01$). Correlations between coaches' interpersonal styles and athletes' motivational orientation, positive and negative self-processes, internalizing symptoms and externalized behaviors are presented in Table 9.

 Insert Table 9 here

Standardized parameters were estimated using the ML estimation method. Results from this initial solution were indicative of a poor-fitting model: $\chi^2 (df=24; N=238) = 150.8380, p < 0.001$ (S-B $\chi^2 (df=24; N=238) = 153.6095, p < 0.001$); *AIC = 105.6095; CFI = .691 (*CFI = .674); SRMR = .137; RMSEA = .149, 90% CI RMSEA = .126, .172 (*RMSEA = .151, 90% CI RMSEA = .128, .173).

An examination of the largest standardized residuals, as well as results from the W-test and the L-M test, suggested that an improvement in the overall fit of this first model would be achieved if two non-significant parameters were dropped and if six parameters were set free for estimation. Accordingly, the paths linking athletes' autonomous motivation to internalizing symptoms and externalized behaviors (assessed at T2) were dropped. The first set of parameters to be added were the paths linking

coaches' psychological control (assessed at T1) to athletes' autonomous motivation, positive and negative self-processes, and internalizing symptoms (assessed at T2). Another parameter was the relation between coaches' autonomy support (assessed at T1) and athletes' negative self-processes (assessed at T2). The last parameter was the path linking coaches' behavioral control assessed at T1 to athletes' externalized behaviors (assessed at T2). The addition of these six parameters made sense both theoretically and statistically (Byrne, 1994). For example, direct paths linking coaches' behavioral control to athletes' externalized behaviors and coaches' psychological control to athletes' negative self-processes and internalizing symptoms are consistent with the findings presented in the general introduction pertaining to the literature on parental behavioral and psychological control. A significant negative relationship between coaches' psychological control and athletes' autonomous motivation was also found in the current sample (see Table 8). As well, moderate negative associations were also obtained between coaches' psychological control and athletes' positive affect and sport satisfaction, as well as between coaches' autonomy support and athletes' negative affect (see Table 8). Results from this second solution were indicative of a marginal-fitting model: $\chi^2 (df=20; N=238) = 81.5950, p < 0.001$ (S-B $\chi^2 (df=20; N=238) = 83.0796, p < 0.001$); *AIC = 43.0796; CFI = .850 (*CFI = .841); SRMR = .077; RMSEA = .114, 90% CI RMSEA = .088, .129 (*RMSEA = .115, 90% CI RMSEA = .90, .141).

A second examination of the largest standardized residuals, as well as results from the L-M test, suggested that an improvement in the overall fit of this second model would be achieved if another parameter was set free for estimation. This parameter was the path linking coaches' autonomy support (assessed at T1) to athletes' internalizing symptoms

(assessed at T2). The addition of this parameter also made theoretical sense (Byrne, 1994) in that it is possible that coaches' autonomy support would be related to lower levels of athletes' internalizing symptoms. The disturbances of the two mediators were also specified to covary (i.e., disturbance correlation), reflecting the hypothesis that autonomous and controlled motivation may possibly have common omitted causes. The overall fit of this third solution was evaluated and was deemed satisfactory: χ^2 ($df=18$; $N=238$) = 59.6910, $p < 0.001$ (S-B χ^2 ($df=18$; $N=238$) = 61.2984, $p < 0.001$); *AIC = 25.9284; CFI = .899 (*CFI = .889); SRMR = .061; RMSEA = .099, 90% CI RMSEA = .071, .127 (*RMSEA = .101, 90% CI RMSEA = .074, .129). As confirmed by the W-test, all estimated path coefficients were significant with t values over 1.96. The L-M test also revealed that no parameter could be added to improve the model. In comparison to the two previous models, statistical difference for this third mediation model was indicated by a lower AIC (23.691 vs. 102.838 and 41.595), as well as significant $\Delta\chi^2$ s (final model: χ^2 ($df=18$; $N=238$) = 59.691, $p < 0.001$ vs. 1st model: χ^2 ($df=24$; $N=238$) = 150.838, $p < 0.001$ vs. 2nd model: χ^2 ($df=20$; $N=238$) = 81.595, $p < 0.001$; $\Delta\chi^2$ s = 91.147, $\Delta df = 6$, $p < 0.05$ and 21.904, $\Delta df = 2$, $p < 0.05$, respectively; Jöreskog, 1993). Results from this mediational path analysis model are presented in Table 10.

 Insert Table 10 here

In line with hypotheses, the parameters of the mediation model supported the effects of coaches' autonomy support and behavioral control on athletes' autonomous motivation (assessed at T2; β s = .28 and .17, $ps < .05$ respectively), as well as coaches'

psychological control on athletes' controlled motivation (assessed at T2; $\beta = .30, p < .05$).

Negative effects of coaches' psychological control on athletes' autonomous motivation (assessed at T2) were also significant ($\beta = -.35, p < .05$).

Athletes' autonomous motivation and positive self-processes were positively linked ($\beta = .48, p < .05$). The paths linking athletes' autonomous motivation, internalizing symptoms and externalized behaviors did not reach significance. In addition, athletes' controlled motivation was positively associated with negative self-processes ($\beta = .25, p < .05$), internalizing symptoms and externalized behaviors (β s = .32 and .25, $ps < .05$, respectively).

Along with the mediational links, direct effects were also found. That is, coaches' autonomy support (assessed at T1) led to athletes' negative self-processes and internalizing behaviors (β s = -.16, $ps < .05$, respectively; assessed at T2). Coaches' behavioral control (assessed at T1) also led to athletes' externalized behaviors ($\beta = .17, p < .05$; assessed at T2). Finally, coaches' psychological control (assessed at T1) led to athletes' positive and negative self-processes (β s = -.24 and .16, $ps < .05$, respectively) and internalizing symptoms ($\beta = .23, p < .05$; assessed at T2). Also, please note that the correlations among the three coaches' interpersonal styles were moderate (AS-BC: $r = -.22, p < .01$; AS-PC: $r = -.30, p < .01$; BC-PC: $r = .54, p < .01$). The final mediation model showing influences of coaches' interpersonal styles on athletes' contextual motivational orientation, other self-processes, internalizing symptoms and externalized behaviors is presented in Figure 5.

Insert Figure 5 here

Mediation Test. To test the statistical significance of the mediation properties of athletes' contextual autonomous motivation, the MacKinnon and Lockwood's (2001) asymmetric distribution of products method was used $\left[\alpha\beta \pm CL\sqrt{\alpha^2\sigma_\beta^2 + \beta^2\sigma_\alpha^2} \right]$. Based on the correlations between coaches' autonomy support and athletes' positive self-processes (r_{1A} : AS-PSP = .24, $p < .01$), internalizing symptoms and externalized behaviors (r_{2A} : AS-IS = *n.s.* and r_{3A} : AS-EB = *n.s.*), as well as the correlations between coaches' behavioral control and athletes' positive self-processes (r_{1B} : BC-PSP = -.13, $p < .05$), internalizing symptoms and externalized behaviors (r_{2B} : BC-IS = .24, $p < .01$ and r_{3B} : BC-EB = .11, *n.s.*), the mediation role of athletes' autonomous motivation on each of these relationships was calculated through their respective confidence interval (AS: r_{1A} = (0.007; 0.092); r_{2A} = (-0.008; 0.030); r_{3A} = (-0.026; 0.006); BC: r_{1B} = (0.035; 0.138); r_{2B} = (-0.011; 0.050); r_{3B} = (-0.044; 0.008)). Given that two of these six confidence intervals do not include the value of zero (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), athletes' autonomous motivation was thus a complete mediator between coaches' autonomy support (assessed at T1) and athletes' positive self-processes (assessed at T2), as well as between coaches' behavioral control (assessed at T1) and athletes' positive self-processes (assessed at T2).

To test the statistical significance of the mediation properties of athletes' contextual controlled motivation, the MacKinnon and Lockwood's (2001) asymmetric distribution of products method was also used $\left[\alpha\beta \pm CL\sqrt{\alpha^2\sigma_\beta^2 + \beta^2\sigma_\alpha^2} \right]$. Based on the

correlations between coaches' psychological control and athletes' negative self-processes (r_1 : PC–NSP = .28, $p < .01$), internalizing symptoms (r_2 : PC–IS = .28, $p < .01$) and externalized behaviors (r_3 : PC–EB = .11, *n.s.*), the mediation role of athletes' controlled motivation on each of these relationships was also calculated through their respective confidence interval ($r_1 = (0.030; 0.275)$; $r_2 = (0.072; 0.399)$; $r_3 = (0.047; 0.318)$). Given that these three confidence intervals do not include the value of zero (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), athletes' controlled motivation was thus a complete mediator between coaches' psychological control (assessed at T1) and athletes' externalized behaviors (assessed at T2), as well as a partial mediator between coaches' psychological control (assessed at T1) and athletes' negative self-processes and internalizing symptoms (assessed at T2).

Discussion and Limitations

The central aim of Study 3 was to ascertain the directions of the relationships between the interpersonal styles and youth development and adjustment by means of a prospective 2-wave measurement field study designed to capture the coach-athletes interactions using a mediational framework. More explicitly, specific contribution of coaches' autonomy support, behavioral control, and psychological control to athletes' contextual motivational orientation, other self-processes, internalizing symptoms and externalized behaviors were assessed at two separate times across an 8-month period.

Based on the theoretical framework of SDT (Deci & Ryan, 1985; Ryan & Deci, 2002) and the findings of both Study 1 and Study 2, coaches' interpersonal styles, athletes' contextual motivational orientation, positive and negative self-processes,

internalizing symptoms and externalized behaviors, were also expected to relate to one another according to a mediation model wherein the relations between coaches' interpersonal styles and athletes' outcome variables would be mediated by athletes' contextual motivation. Overall, the findings of this prospective mediational field study further corroborate the results of Study 1 and Study 2 that pertain to the unique contribution of socializing agents' autonomy support, behavioral control, and psychological control to youth self-processes, internalizing symptoms, and externalized behaviors.

More precisely, T1 assessment of autonomy support was found to be significantly and positively associated with T2 positive self-processes, through the mediation effect of youth autonomous motivation. Direct (negative) links were also found between T1 assessment of autonomy support and T2 internalizing symptoms and negative affect. Based on past work (e.g., Pelletier, Fortier, Vallerand, & Brière, 2001; Vallerand, Fortier, & Guay, 1997), it is somewhat surprising, however, that autonomy support was not a (negative) significant predictor of dropout intentions. This issue will be further addressed in the general discussion

Secondly, T1 assessment of psychological control was found to be significantly and positively associated with T2 dropout intentions, through the mediation effect of youth controlled motivation. Youth controlled motivation was also a partial mediator of the links between T1 assessment of psychological control and both T2 internalizing symptoms and negative affect. Direct (positive) links were also found between T1 assessment of psychological control and T2 dropout intentions. It is unclear, however, why only one indicator of youth internalizing symptoms (i.e., impaired concentration)

was link to T1 assessment of psychological control. One possible explanation for this lack of relationship is that, as opposed to the controlled setting of a laboratory experiment (Study 2), psychological control may be displayed in the context of sports in a more covert (implicit and “sneaky”) fashion, thereby more difficult to be recognized by athletes. Alternatively, the scale used to measure internalizing symptoms may have been too narrow in focus to detect the effects of psychological control in this particular context. As well, although the measure assessing parental behavioral and psychological controlling strategies showed acceptable psychometric properties (see Appendix E), this lack of evidence may have also been due to measurement issues.

Thirdly, T1 assessment of behavioral control was found to be significantly and positively associated with T2 positive self-processes, through the mediation effect of youth autonomous motivation. A direct (negative) link was also found between T1 assessment of behavioral control and T2 dropout intentions. Based on the findings of Study 2, it is unclear, however, why T1 assessment of behavioral control was linked to lower, as opposed to higher, levels of impaired concentration. Future studies are required to further investigate the inconsistency of this particular finding, which will also be further addressed in the general discussion.

Study 2, although innovative, is not without its limitations. Despite its prospective mediational design, this study cannot establish strong causal influences between interpersonal styles and youth outcome variables because the data came from a field study rather than an experimental design (i.e., the variables were not manipulated). The validity of the presented results is nonetheless bolstered by the results’ convergence with those of Study 1 (correlational) and Study 2 (experimental).

Also, the period over which the athletes and their coaches were followed was relatively short: an 8-months one competitive term. It is thus possible that the effects that a particular coaching style may have on athletes may take a longer time to emerge. However the athletes reported training with their current coaches for an average of two and a half years. It is also important to point out that it was athletes' perceptions of their coaches' behaviors that were being assessed (i.e., T1) and that athletes' autonomous and controlled motivation were measured at the same time than the outcome variables were assessed (i.e., T2). It would thus be preferable, in future research, to use a measure of athletes' contextual motivation assessed in the middle of the term (i.e., between T1 and T2), rather than along the dependent measures at the end of the competitive season.

A further limitation of this study is that the analyses did not take into consideration the nested structure of the data (i.e., athletes are nested within groups that are nested within clubs). Unfortunately, no information on athletes' groups was obtained. Although clubs could have also been used as a contextual variable, such analysis would have produced an inaccurate estimate of the variation at the contextual level, given the very small number of clubs who participated in the study (i.e., less than 10; see Heck & Thomas, 2000). Future research aimed at examining the hypothesized mediational links at both the between- and within-group levels are advised to employ multilevel SEM analyses with larger numbers of contextual units.

Fourthly, although the assessment of perceived autonomy support, behavioral control, and psychological control in the context of the coach-athlete relationships was one of the innovative features of Study 3, it was necessary to adapt scales that had been originally developed in the context of the parent-child relationships. In addition, the

scales that were used to assess coaches' behavioral and psychological control, as well as athletes' sport motivation, were designed for the purpose of the present thesis. Although the performed reliability and validity analyses of these two measures reached satisfactory results (see Appendix E and Appendix S), future research is needed in the context of sports to more fully examine their internal structure, validity, and generalizability across different age groups. To this effect, some researchers argue, that youth have less extensive experiences with other socializing agents than with parents (e.g., Soucy & Larose, 2000), which may explain the lower reliability indexes for some subscales when referring to coaches (i.e., interpersonal styles), as opposed to parents (i.e., parenting dimensions). Those differences in reliability could perhaps explain the absence of significant relationships between some of the measured variables (e.g., AS and dropout intentions, BC and affect, PC and manifest anxiety). Additional research will be necessary to explore this further.

The last limitation of this study involves the omitted variable problem (Judd & McClelland, 1989). That is, the possibility that a relevant predictor was omitted from the analyses. This happens when an unmeasured variable is responsible for "changes" in both the predictor and the outcome variable. Consequently, other elements such as coaches' expectations and/or parents own interpersonal styles and/or ego-involvement in sports may have affected athletes' sport motivation and training experiences and need to be assessed in future research.

Despite some of the relative weaknesses of the results pertaining to the meditation model of Study 3 (in terms of Pearson correlations, standardized coefficients, and overall goodness-of-fit of the solution), the results of Study 3 should not be misinterpreted as

trivial or insignificant because importance and effect size are not identical issues. Some researchers (e.g., Aguinis & Stone-Romero, 1997) have explained that naturalistic designs may generate several artefacts (e.g., measurement error, multicollinearity, and residual variance heterogeneity) likely to bias moderation/mediation effects in a downward direction. Thus, because of the relevance of the obtained results to social issues (such as the construction of youth social reality and the contribution to youth motivational orientation and overall functioning) and theoretical issues (such as the conceptual distinction between the parenting dimensions), such results are still believed to be of critical value and fundamental importance.

Even after taking into considerations these limitations, Study 3 is still believed to have helped validating the perceived conceptual differences and unique associations found in Study 1 and Study 2, in showing that they hold in the real life setting of sports. It also gave further support to the usefulness of the autonomy-supportive and (behaviorally and psychologically) controlling styles as basic functional dimensions valuable when aiming to grasp a better understanding of how socializing agents' – whoever they may be – interpersonal styles have (concurrent, as well as prospective) implications for youth motivational and developmental functioning.

CHAPTER 5

GENERAL DISCUSSION

Integration of Two Literatures on Children's Socialization: CET and Parental Control

The central purpose of the present thesis was to integrate the existing literature on parental behavioral and psychological control and the construct of autonomy support as conceptualized by Cognitive Evaluation Theory (Deci & Ryan, 1985, 2002).

Consequently, in the present thesis was mainly drawn from the parental control literature in which the controlling component was often equated to the absence of (psychological) autonomy and lacked simultaneous assessments of all three parenting dimensions. The present thesis was also guided by CET in which the construct of autonomy support was often equated to the "relative" absence of control and in which the controlling component was believed to be a unidimensional construct.

The present thesis thus represented a first attempt to explicitly document how different bodies of research have defined, operationalized and studied the three parenting dimensions. By this endeavour, the theoretical constructs of socializing agents' autonomy support (in which parents take children's perspective, allow them to solve problems on their own, and encourage initiatives), behavioral control (in which parents regulate children's behaviors) and psychological control (in which parents exercise control over the children's psychological and emotional world) were depicted as a comprehensive set of distinct constructs holding unique associations with youth outcome variables.

In sum, the present thesis sought to synthesize and unify these two distinct areas of research on children socialization. This overarching objective was pursued through two specific goals. The first specific goal was to demonstrate that autonomy support,

behavioral control, and psychological control are distinct constructs. This aim was the focus of Study 1A and Study 1B. The second specific goal was to establish that those three interpersonal styles have unique associations (both concurrent and prospective) with youth self-processes, internalizing symptoms, and externalized behaviors. This aim was the focus of Study 2 and Study 3. By integrating some propositions from CET into the literature on parental behavioral and psychological control, the work presented herein brings some significant contributions towards a better understanding of this socialization-related phenomenon and yields a number of important theoretical and applied implications.

Key Findings: Dimensionality of Parental Behaviors

Because past research from CET and parental control traditions is fraught with inconsistencies pertaining to the two dimensions of parental behaviors, their dimensionality was thoroughly examined in the present thesis in the hopes of shedding some light into the disaggregation of parenting dimensions into clear distinct constructs. Consequently, the present thesis provides further empirical support for the claim that parental autonomy support, behavioral control, and psychological control are best conceptualized as distinct constructs (e.g., Churchill Keating, 2008; Silk, Morris, Kanaya, & Steinberg, 2003). Despite prevalent assumptions – such as the common belief that autonomy support and control constitute opposite ends of a continuum (e.g., Gurland & Grolnick, 2005), the confounding of autonomy support and the absence of control in the CET literature (e.g., Grolnick, Gurland, DeCoursey, & Jacob, 2002) and the equating of control with the absence (psychological) autonomy in the parental control literature (e.g.,

Barber, Bean, & Erickson, 2002) – the work presented here suggests that parental control appears to be more than the absence of autonomy support, as well as that all three parenting dimensions are indeed distinct constructs. These claims were supported by the CFA of Study 1, the manipulated effects of Study 2, as well as the notably moderate correlations between the dimensions and their differential relationships to youth self-processes, internalizing symptoms and externalized behaviors (all three studies).

Results from CFA on both the control codifications (i.e., recodes and negative formulations of autonomy-supportive items) and the parenting dimensions (i.e., AS, BC and PC) revealed a) that both control codifications do not assess the same construct; and b) three (correlated) discrete parenting factors that can easily be distinguished from one another: autonomy support, behavioral control, and psychological control. The present findings can thus be regarded as valuable additions to the results of Silk and colleagues (2003), which also found discrete factors for two of the three parenting dimensions, namely autonomy support and psychological control, as well as the to the results of Churchill Keating (2008), who reconceptualized parental psychological control as distinct from autonomy-supportive parenting.

Furthermore, these findings also validate the theoretical distinction between behavioral and psychological control, in that they support the recent claim that these two components are not simply two ends of a single continuum of controlling behaviors (Barber & Harmon, 2002; Barber, Olsen, & Shagle, 1994; Steinberg, 1990). The results obtained herein rather suggest that psychological control, when defined as parents' guilt-inducing behaviors and attitudes, is a construct distinct – conceptually and statistically –

from both behavioral control and autonomy support (see also Aunola & Nurmi, 2004; Barber, 2002; Churchill Keating, 2008; Silk, Morris, Kanaya, & Steinberg, 2003).

In addition, the associations between youth perceptions of parental autonomy support and both dimensions of control were also significant but moderately negative in all three studies. This finding is consistent with preliminary evidence presented by Barber and colleagues (2002) and by Silk and collaborators (2003) who were the first to suggest that the correlations between autonomy support and (psychological) control are not high enough to imply a bipolar model of the parent-adolescent relationships (i.e., a continuum of parental AS to controlling behaviors). As Pelletier and collaborators (2001) previously suggested, this finding implies that perceptions of autonomy support and control may not be the exact opposite of each other, but rather distinct constructs with different consequences.

The findings of the laboratory experiment (Study 2) also provided further evidence of the conceptual differentiation of the three parenting dimensions (or interpersonal styles in this case) previously hypothesized by Barber, Bean, and Erickson (2002). In sum, the manipulated autonomy-supportive interpersonal style differed from the behaviorally and psychologically controlling styles on all dependent variables, with youth in the autonomy-supportive condition engaging the most during the free-choice period and reporting the highest levels of positive laboratory experiences. The two controlling interpersonal styles also differed, with youth in the psychologically controlling condition engaging the least and reporting the highest levels of negative affect, internalizing symptoms, and externalized behaviors.

A closer examination of the relationships between socializing agents' interpersonal styles and youth motivation, an important self-process is also quite revealing. For instance, in Study 1, whereas autonomy-supportive items (and its reverse coding) were related to autonomous motivation, negative formulations of autonomy-supportive items were associated with controlled motivation⁹. Furthermore, the measure assessing parental behavioral and psychological control revealed the same pattern of relations to youth controlled motivation than negative formulations of autonomy-supportive items. Similarly, in a study by Pelletier and colleagues (2001), perceptions of autonomy support (and the absence of control) were positively associated with autonomous motivation, whereas perceptions of control (and the absence of AS) were positively linked to controlled motivation. These observations support Deci and Ryan's (2000) proposition that the experience of autonomy support facilitates the internalization process and that the experience of control yields less overall internalization. In sum, the present findings imply rather strongly that the support of autonomy and the control of behavior represent something different than two sides of the same coin.

More importantly, although all three parenting dimensions are helpful in understanding the development of motivation among youth, the present findings suggest that some other specific relations are also noteworthy. For example, other important self-processes, such as indicators of affect and satisfaction may be more related to parental autonomy support and psychological control, whereas the development of internalizing symptoms and externalized behaviors may be more associated with parental (behavioral and psychological) control than with parental autonomy support. Consistent with

⁹ Although significant, these rather low associations may have been the result of the use of a global measure of motivation in contrast to a more contextual and specific approach.

previous literature (e.g., Barber, 1997; Gray & Steinberg, 1999), the finding that these three dimensions of parenting differentially predict youth outcome variables will be further detailed in the next section and provides further impetus for disentangling these constructs in future work on the relations between not only children and their parents, but other socializing agents as well. In sum, by examining all three parenting dimensions jointly and by performing an all encompassing test of their factorial structure and unique associations with relevant outcome variables, a comprehensive set of distinct constructs was obtained. It is thus believed that the findings provide a more accurate and more complete picture of the key constituents of parental behaviors.

Key Findings: Unique Associations with Youth Self-Processes, Internalizing Symptoms, and Externalized Behaviors

Numerous studies and review articles have provided evidence for the relations between parental autonomy support, parental (behavioral and psychological) control and youth cognitive, social, emotional, and behavioral development (e.g., Barber, 1997; Lamborn & Felbab, 2003; Steinberg, Dornbusch, & Brown, 1992). The present thesis further extends these previous findings as it offers a thorough examination of specific links between socializing agents' autonomy-supportive, behaviorally and psychologically controlling styles, and youth outcome variables using a broader array of socialization domains (i.e., family, school, and sports) and samples (i.e., childhood to early adulthood), as well as a variety of designs and methodologies (i.e., self-reports, laboratory experiment, and prospective field study). These specific relationships are discussed in more details in the following sections.

Autonomy Support

As a key dimension of parenting, autonomy support was first linked to the development of positive self-processes. Indeed, autonomy support was found to be positively and significantly related to autonomous motivation in all three studies. Autonomy support was also found to be significantly and positively associated with affect (Study 2 and Study 3) and sport satisfaction (Study 3). In support of these findings, autonomy-supportive parenting has previously been associated with higher levels of youth autonomous motivation (e.g., Assor, Roth, & Deci, 2004; Chirkov & Ryan, 2001), as well as with children's well-being indicators and general satisfaction (e.g., Ntoumanis, 2005; Barber, Maughan, Olsen, & Thomas, 2002). More specific to Study 2, participants in the autonomy-supportive condition engaged more during the free-time episode than did participants in the controlling conditions (both BC and PC). This particular finding can be interpreted as a confirmation that participants used the time allocated to them by autonomy-supportive individuals in ways that were productive (i.e., they learned about the program and were intrinsically motivated to apply their newly acquired knowledge in order to complete the task). As such, Study 2 can be regarded as a constructive replication of Reeve, Bolt, and Cai's (1999) work in that not only experimenters' interpersonal styles were examined as a disposition to control participants or support their autonomy, but the study was also designed to distinguish between two types of controlling strategies, namely behavioral control and psychological control.

Autonomy support was also significantly and negatively related to internalizing symptoms (Study 3) and externalized behaviors (Study 2), namely manifest anxiety, impaired concentration, and dropout intentions. In support of these findings, other cross-

sectional and longitudinal studies have also noted an association between parental autonomy support and children's lower levels of internal symptomatology (e.g., Barber, 1996; Gray & Steinberg, 1999), and decreased behavioral problems over time (e.g., Grolnick, Kurowski, Dunlap, & Hevey, 2000).

Nonetheless, it is somewhat surprising that, in the correlation matrices, autonomy support was not significantly linked to neither one of the indicators of internalizing symptoms (Study 2), nor of externalized behaviors (Study 3). This absence of autonomy support effects might be attributable to the (negative) nature of these dependent measures. That is, parental autonomy support has been linked most consistently with measures of youth psychosocial well-being, as well as children's competence and academic achievement (e.g., Barber, Maughan, Olsen, & Thomas, 2002; Eccles, Early, Frasier, Belansky, & McCarthy, 1997; Gray & Steinberg, 1999; Herman, Dornbusch, Herron, & Herting, 1997), which are all indicators of positive adjustment. Specific to Study 2, this may also be due to the amalgamation of the participants (between-conditions) for the purpose of the correlational analyses. The finding that autonomy support paled in comparison with behavioral control in the prediction of externalized behaviors (Study 3) is nonetheless consistent with other findings (e.g., Herman, Dornbusch, Herron, & Herting, 1997). Consequently, autonomy support may contribute to enhance psychological and social well-being, but when it comes to limiting troublesome behavior, behavioral control may be a much more effective interpersonal style (Galambos, Baker, & Almeida, 2003).

In sum, the findings of the work presented here pertaining to autonomy support are in line with past research which has shown autonomy-supportive parenting to be a

primary predictor of youth autonomous motivation (e.g., Assor, Roth, & Deci, 2004; Joussemet, Koestner, Lekes, & Houliort, 2004) and indicators of adjustment, facilitating youth feelings of psychological well-being (e.g., Barber, Maughan, Olsen, & Thomas, 2002).

Psychological Control

Recent studies which assessed parental psychological control (Loukas, Paulos, & Robinson, 2005; Rogers, Buchanan, & Winchell, 2003) suggest that this interpersonal style contributes to the development of a range of youth developmental difficulties, such as anxiety and depression (e.g., Barber, 1996; Doyle & Markiewicz, 2005; Gray & Steinberg, 1999; Pettit, Laird, Dodge, Bates, & Criss, 2001; Soenens, Vansteenkiste, Luyten, Duriez, & Goossens, 2005), because parents are intruding their child's sense of self by inducing feelings of shame and guilt (Barber, Bean, & Erickson, 2002).

Additional findings from the present thesis thus provide empirical support to the increasing number of studies demonstrating the detrimental impact of socializing agents' psychological control on youth development and adjustment (see Barber & Harmon, 2002).

Interestingly, the present findings are consistent with recently accumulating research on the concept of psychological control, which have shown that socially anxious children have parents who are over controlling and less autonomy-supportive (see Kashdan & Herbert, 2001 for a review). More specifically, the results obtained herein offer further support for the strong relationship between psychological control and internalizing symptoms. That is, psychological control was associated with higher levels of manifest anxiety (Study 2) and impaired concentration (Study 2 and Study 3).

Although the results for internalizing symptoms are congruent with an extensive literature (summarized by Barber & Harmon, 2002), the work presented here extends those findings, which focused almost exclusively on concurrent associations (e.g., Conger, Conger, & Scaramella, 1997; Pettit, Laird, Dodge, Bates, & Criss, 2001).

One explanation for the lack of relationship between psychological control and manifest anxiety in Study 3 (although associated with impaired concentration) is that, as opposed to the controlled setting of a laboratory experiment (Study 2), psychological control may be displayed in the context of sports in a more covert (implicit) fashion, being especially difficult for athletes to recognize. In contrast, autonomy support and behavioral control may be more characterized as overt (explicit) behaviors (see Bögels & van Melick, 2004). Accordingly, the scale used to measure internalizing symptoms may have been too narrow in focus to detect the effects of psychological control in this particular context. As well, although the measure assessing parental behavioral and psychological controlling strategies showed acceptable psychometric properties (see Appendix E), this lack of evidence may also have been due to a measurement issue (e.g., internal consistency and factorial structure). In light of these considerations and the body of research linking parental psychological control with youth internalizing symptoms (e.g., Barber, Olsen, & Shagle, 1994; Gray & Steinberg, 1999), continued research on the subject is certainly called for.

Finally, the findings of the present thesis are also in line with research that has shown that parental psychological control is associated with youth self-processes and externalized behaviors (e.g., Bernier, Larose, Boivin, & Soucy, 2004; Bradford et al., 2003). Consequently, psychological control was significantly related to controlled

motivation (Study 1 and Study 3), as well as to lower levels of autonomous motivation (Study 2 and Study 3). This particular finding suggest that not only psychological control is related to the development of a motivational orientation that is more controlled in nature, but that this controlling approach also has detrimental effects on autonomous motivation. Consistent with previous studies (e.g., Assor, Roth, & Deci, 2004; Galambos, Barker, & Almeida, 2003; Seibel & Johnson, 2001; Vansteenkiste, Zhou, Lens, & Soenens, 2005) psychological control was also significantly and negatively associated with indicators of well-being, namely affect (Study 2 and Study 3) and sport satisfaction (Study 3), as well as significantly and positively related to dropout intentions (Study 1 and Study 2).

In sum, the present findings imply rather strongly that socializing agents' use of psychological control has significant negative repercussions on youth development and functioning (e.g., controlled motivation, higher levels of internalizing symptoms and externalized behaviors). More importantly, the findings further suggest that socializing agents' psychologically controlling style is related to more internal and external "problems" in comparison to the behaviorally controlling style. That particular finding is highly consistent with Barber and Harmon's (2002) original conceptualization and basic definition of the construct and is certainly one of the most central issues of the present thesis.

Behavioral Control

Behavioral control is often negatively associated with antisocial behavior of an externalized nature, such as lower levels of delinquency and substance abuse (e.g., Barber, 1997; Bean, Barber, & Crane, 2001). It is therefore not surprising to find, in

Study 2 and Study 3, that behavioral control was significantly and negatively related to dropout intentions, and that this interpersonal style was less associated with processes that are internalized in nature, such as affect and satisfaction (Study 2 and Study 3).

That being said, behavioral control was consistently and significantly related (in all three studies) to autonomous motivation. This finding is somewhat inconsistent with CET's belief that, as a negative interpersonal style, control (often defined as the absence of autonomy support) should result in a diminished motivational state. However, the findings are not exactly congruent with the parental control literature either, in that although resulting in some positive ramifications, behavioral control is not without its negative effects induced by the pressure to comply. Indeed, youth who reported firm behavioral control also reported higher levels of internalizing symptoms, namely manifest anxiety (Study 2 and Study 3) and impaired concentration (Study 2).

It is unclear, however, why behavioral control was linked to higher levels of impaired concentration in Study 2 and to lower levels of impaired concentration in Study 3. This discrepancy between the findings may suggest that there may be different mechanisms by which socializing agents (i.e., teachers and coaches) affect youth in different contexts or may simply be a matter of the change in methodology from one study to the next (i.e., laboratory experiment to prospective field study). The fact that impaired concentration is usually an outcome variable of psychological (not behavioral) control is also to be kept in mind in interpreting this particular result. That being said, although parental psychological control is generally more strongly linked to youth internalizing symptoms than is parental behavioral control, associations between

behavioral control and internalizing symptoms have still been reported in past research (e.g., Barber, 1996; Galambos, Baker, & Almeida, 2003; Kurkek & Fine, 1994).

These results for behavioral control converge with earlier research showing that, on the whole, socializing agents' firm discipline and limit setting may be key in preventing or reducing youth externalized problems (e.g., Barber, Olsen, & Shagle, 1994; Mason, Cauce, Gonzales, & Hiraga, 1996; Miller, McCoy, Olson, & Wallace, 1986). Youth may thus actually benefit from behavioral control even if it does limit their behavior and activity at times. That being said, the findings also indicate that, although beneficial, behavioral control has nonetheless a negative influence on internalizing symptomatology. By definition, behavioral control can mainly be characterized as being the "what, how and when of behavior". That is, by adopting a behaviorally controlling style, the socializing agent is dictating what to do, how to do it and when to take action. The question, then, is how to provide these behavioral "structures" in a context that supports the youth perspective and encourages self-initiation and personal responsibility. These findings may have, for any individual in a position of authority, important practical implications and certainly deserve careful scrutiny in future research.

Summary of Key Findings

Taken together, the findings of the three studies presented here in which the hypotheses were tested by different means, and using a diversity of samples and methodologies, provide support for the importance of autonomy support and control as basic functional dimensions useful to an understanding of the impact of socializing agents' interpersonal styles on youth development and functioning. More importantly,

these findings first argue for the need to further clarify the labelling of scales and constructs designed to measure parental autonomy support and control. For instance, despite some prevalent assumptions in part research, it was found that autonomy support, behavioral control, and psychological control were best modeled as distinct constructs in the present thesis. This particular finding is consistent with those of other authors who have called for a reconceptualization of controlling behaviors as distinct from autonomy-supportive parenting (Churchill Keating, 2008; Silk, Morris, Kanaya, & Steinberg, 2003), as well as those who have argued the theoretical distinction between behavioral control and psychological control (Barber & Harmon, 2002; Barber, Olsen & Shagle, 1994; Steinberg, 1990).

These findings also point to the potential benefits of continuing to disaggregate parenting typologies in an attempt to uncover the unique effects of specific parenting dimensions. For instance, as compared to internalizing symptoms and externalized behaviors, positive outcome variables, such as affect and satisfaction, seem to be related more highly with autonomy support. In addition, whereas autonomy support and behavioral control were found to be associated with autonomous motivation, psychological control was associated with controlled motivation. Finally, although both forms of control were positively associated with one another, psychological control was found to be positively related to impaired concentration and dropout intentions, whereas behavioral control was negatively associated with those two outcome variables. These particular findings are also consistent with those of other authors who have reported behavioral control to be mainly negatively related to problem behaviors and psychological control to be mainly positively related to problem behaviors (e.g.,

Krishnakumar, Buehler, & Barber, 2003; Pettit, Laird, Dodge, Bates, & Criss, 2001; Walker-Barnes & Mason, 2004).

From a conceptual standpoint, these results support Barber, Olsen, and Shagle's (1994) initial suggestion that the impact of control varies according to whether the nature of the control is behavioral or psychological. On the one hand, behavioral control facilitates adjustment because it sets the limits of acceptable behaviors without affecting (as much) one's personal world. Psychological control, on the other hand, may aggravate problems because it sends ambiguous messages about personal worth. Any individual in a position of authority that has the best interest of youth at heart should then seek to promote a climate oriented towards autonomy support.

Based on the nature of the autonomy support concept, adopting an autonomy-supportive style requires being clear and consistent when setting limits (Deci & Flaste, 1995). It also requires doing so in an understanding, empathic manner and providing high levels of involvement. If not, the socializing agent may be perceived as purely restrictive (i.e., BC) or intrusive (i.e., PC) and not as autonomy-supportive per se (Grolnick; 2003). Yet, as youth become more autonomous – as when they become older or as when the environment becomes autonomy-supportive – they may try to understand more clearly why they behave as they do. At this point, their behaviors may then become more chosen and less pressured. The direction that they will take depends largely on the type of support they receive from the important people in their respective social environments (e.g., parents, teachers, coaches). Ideally, individuals in positions of authority would adopt an autonomy-supportive approach by suppressing altogether their use of psychological control (Assor, Kaplan, & Roth, 2002), while maintaining the

implementation of structures and limits (i.e., BC) based on their best judgment of youth socialization status and behavior history.

The extent to which socializing agents are successful in meeting the challenge of alleviating controlling behaviors, and remaining supportive during the sensitive transition period of adolescence years, seems to greatly influence how well youth adjust to the many changes they are (and will be) experiencing. For that matter, it is believed that the work presented here provides initial impetus for a continued re-evaluation of the ways parental autonomy support, behavioral control, and psychological control are conceptualized, operationalized, and assessed in future work in both lines of research conducted under the frameworks of parental control and CET.

Specific Features Intrinsic to the Present Thesis

In the following sections, the specific features of the present thesis will be highlighted in line with the conceptual and methodological issues relating to autonomy support, behavioral control, and psychological control as previously brought forward and discussed in the general introduction. More explicitly, the specific features of a) disaggregating the typological approaches; b) non restriction to the use of adolescent samples and cross-sectional data; c) expansion of the parent-child dyad; and d) analysis at three distinct hierarchical levels, will be addressed.

Disaggregating the Typological Approaches

The first noteworthy feature of the present thesis is that it represents a distinctive departure from the traditional methodology of aggregating the parenting dimensions to form an overall parenting style. Consequently, it extends the current literature on parent-

adolescent relationships by testing a disaggregated model of parenting and common measures of youth development and functioning. One of the clear advantages of this approach – as opposed to both the dimensional and the typological approach in which the influence of various aspects of parenting are examined in isolation or explored in terms of patterns of characteristics – is that it allows for a more accurate estimation of the associations between specific parenting dimensions and specific youth-related outcome variables (Bean, Bush, McKenry, & Wilson, 2003). That is, the methodological approach used in the work presented here is useful in identifying instances in which one could otherwise conclude that all three parenting dimensions are related to particular indicators of youth development and adjustment (Bean, Barber, & Crane, 2006).

Indeed, the disaggregating is important because, as a consequence of the implicit assumption in typology-based studies of parenting, rarely did all three parenting dimensions contribute significantly to any of the youth outcome measures. On the contrary, studies that have simultaneously examined two or three of the parenting dimensions revealed interesting differential associations (e.g., AS and feelings of psychological well-being: Barber, Maughan, Olsen, & Thomas, 2002; PC and internalizing symptoms: Gray & Steinberg, 1999; BC and externalized behaviors: Pettit, Laird, Dodge, Bates, & Criss, 2001). This suggests that it may not be all three parenting dimensions, in combination, that influence youth behaviors; rather, each one appears to be related to youth development and adjustment in unique and specific ways.

In fact, based on the findings obtained here (in which all three parenting dimensions have been simultaneously assessed and differentiated), it appeared that youth self-processes were more related to parental autonomy support and psychological control,

whereas the development of internalizing symptoms and externalized behaviors were more associated with the parental control dimensions than with parental autonomy support. As far as motivational orientation goes, based on the reported results, socializing agents' autonomy support and behavioral control had a positive effect on youth autonomous motivation, whereas socializing agents' psychological control was leading to youth controlled motivation. Taken together, these results cast further doubt on the validity of the parenting typologies and are in line with Barber's (1997) suggestion that it is crucial to carry on investigations of the separate dimensions of parental behaviors. Further research should thus continue studying all three parenting dimensions simultaneously, rather than in isolation.

Predominant use of Adolescent Samples and Cross-Sectional Data

The third noteworthy feature of the present thesis pertains to the use of a wider range of youth sampled, as well as a broader array of research designs. Indeed, one of its strength resides in that participants were in their childhood through early adulthood years at the time of data collection, which expands the somewhat limited age-span previously researched (Robilia & Krishnakumar, 2006; Gray & Steinberg, 1999). More specifically, the findings of the three studies presented here suggest that the adverse effects of psychological control practices can be found in a wide age-span and are not unique to a specific life period (e.g., adolescence; Glasgow, Dornbush, Troyer, Steinberg, & Ritter, 1997). Moreover, the results also suggest that the need for autonomy support is also pertinent in younger children and is not unique to adolescents (e.g., Assor, Kaplan, & Roth, 2002).

Accordingly, as the boundaries of children's personal domains increase, as they

gain increased autonomy and independence from their parents and other socializing agents, and as the role of peers becomes more and more important, the definition of what is seen as a controlling behavior may shift as a function of age (Smetana & Daddis, 2002). It is possible, for example, that during adolescence parents' behavioral control plays a more significant role than it does during childhood (Aunola & Nurmi, 2004). As they get older, some adolescents may find parental monitoring and constraints psychologically intrusive (Loukas, Paulos, & Robinson, 2005; Smetana & Daddis, 2002). This highlights the challenges of being part of the socialization of youth and demonstrates the delicate balance that any individual in a position of authority must strike on a day-to-day basis, between providing sufficient control to keep youth safe (i.e., BC) and exercising too much control over personal issues, which may be perceived as psychologically intrusive and coercive (i.e., PC). The key message here is that it all depends on the way the socializing agent-youth interactions unfold. That is, generally speaking, autonomy-supportive individuals are more inclined to adopt a flexible, youth-centered approach, whereas controlling ones seek compliance by introducing constraints and other psychologically controlling strategies (e.g., Reeve, Bolt, & Cai, 1999).

A final remark concerns the attempt to provide support for the prospective relations of the variables of interest with the use of a typical cross-sectional study, a laboratory experiment (in which the interpersonal styles were manipulated), as well as a prospective field design consisting of two waves of measurement, which allow for a careful test of the hypotheses concerning how autonomy-supportive and controlling interpersonal styles affect youth self-processes, internalizing symptoms, and externalized behaviors. Although the establishment of strong causal influences may not be completely

possible given the present research designs, the results convergence of both the naturalistic and the experimental study undeniably bolsters findings of previous research based solely on cross-sectional data (e.g., Shek, 2007; Pettit & Laird, 2002).

Beyond the Parent-Child Dyad

The next noteworthy feature specific to the present thesis refers to the assessment of how autonomy support, behavioral control, and psychological control had influences beyond the traditionally-researched family realm, that is, to children, as well as students and athletes in the socialization domains of family, education, and sports. Autonomy support and control behaviors are not restricted to herein parent-child relationships, and were shown to be featured in a variety of different interpersonal dyads. Accordingly, the results of Study 2 and Study 3 gave initial support for the relevance of socializing agents' autonomy support, behavioral control, and psychological control in the contexts of education and sports. This thesis thereby expands upon previous research conducted within the parental control literature and within the CET tradition by extending both dyads and contexts previously documented. These include relationships outside the core of traditional family, such as siblings, school teachers and monitors, coaches, supervisors and physicians (e.g., Conger, Conger, & Scaramella, 1997; Deci, Connell, & Ryan, 1989; Soucy & Larose, 2000; Williams, Rodin, Ryan, Grolnick, & Deci, 1998), as well as outside the family environment, including school, peers, community, and occupational contexts (e.g., Darling, Hamilton, & Niego, 1994; Talmi, 1997). Replication of the present pattern of results is definitely called for prior to drawing any firm conclusions. Nevertheless, the theoretical and practical implications that these findings hold certainly deserve attention.

Three Distinct Hierarchical Levels of Analyses

The last noteworthy feature of the present thesis is related to the fact that the findings can be readily interpreted in line with the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997). According to this theoretical model, the autonomous and controlled motivational orientations exist at three hierarchical levels of generality. These levels of analysis – which are reflected in the three studies presented here – are the global (or personality), contextual (or life domain), and situational (or state), and are believed to allow for a more precise and refined consideration of youth motivation.

Indeed, Study 1 captured the relationships between parents and their children at the global level of analysis (i.e., general motivation). Study 2 contrasted, in an interaction-based laboratory experiment, the impact of the three interpersonal styles on participants' engagement in an interesting activity at the situational level of analysis (i.e., task motivation). Finally, Study 3 captured, prospectively, the coach-athletes interactions during the course of a competitive year, at the contextual level of analysis (i.e., sport motivation). The associations between the three interpersonal styles and youth development and functioning were held at each level of analysis. It can be drawn that the obtained findings are thus highly consistent and thus likely generalizable, are of primary importance and have implications for theory, assessment, and practice.

The present thesis was based on the theoretical foundations speculating that autonomy support would be associated to an internal motivational orientation (e.g., Assor, Roth, & Deci, 2004; Black & Deci, 2000) and that the controlling dimensions would be related to an external motivational orientation (e.g., Grolnick, Ryan & Deci,

1991). However, to further develop amongst the line of the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997) and Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2002), it could also be interesting to explore, in the context of future research, the links between the three interpersonal styles and the various subtypes of motivation. For instance, past research revealed the usefulness of different ways of computing the various types of motivation (e.g., self-determination index, autonomous motivation vs. controlled motivation; Deci & Ryan, 2002; Green-Demers, Pelletier, & Ménard, 1997; Pelletier, Dion, Slovinec-D'Angelo, & Reid, 2004; Vallerand, 1997). Researchers may use either indices depending on their research needs. However, the use of a single score (i.e., self-determination index) or a binary one (i.e., autonomous vs. controlled motivation) may at times lead to incomplete information. For example, they may not indicate which particular type of motivation (e.g., intrinsic motivation vs. introjected regulation vs. external regulation) is best associated to key correlates. Furthermore, they may fail to inform on changes occurring over time with respect to 1) the potential impact of different environmental factors (e.g., parental behaviors) on the various types of motivation and; 2) the potential impact of the various types of motivation on specific outcome variables. For that reason, one might still want to consider motivation as a multidimensional concept, with different types of motivation lying along a self-determination continuum (Deci & Ryan, 1985). As a matter of fact, this SDT original view may be partially supported by the results of the present thesis, with the three interpersonal styles being associated differently with specific types of youth motivation.

On the one hand, it could be argued, as previously mentioned, that an association could be found between parental autonomy support and youth intrinsic motivation and identified regulation, which are both types of autonomous motivation (Chirkov & Ryan, 2001; Grolnick, Ryan, & Deci, 1991). It could also be argued, based on past research linking parental behavioral control to youth externalized behaviors (e.g., Soenens, Vansteenkiste, Luyckx, & Goossens, 2006; Vansteenkiste, Zhou, Lens, & Soenens, 2005), that an association could be hypothesized between parental behavioral control and youth external regulation (e.g., external contingencies such as performance and social affiliation, such as “friends” and “parents”). On the other end, derived from previous findings linking parental psychological control and youth internalizing symptoms (e.g., Doyle & Markiewicz, 2005; Loukas, Paulos, & Robinson, 2005), an association between psychological control and introjected regulation (e.g., feelings of obligations, such as needing to and/or having to) could be expected. In fact, significant positive correlations have been previously found between parental psychological control and children’s introjected internalization (Assor, Roth, & Deci, 2004).

On an exploratory note, complementary analyses were conducted in order to examine these relationships. Results revealed that socializing agents’ autonomy support was positively associated to youth intrinsic motivation and identified regulation (Study 1A: $r_s = .10$, *n.s.* and $.17$, $p < .01$; Study 3: $r_s = .15$ and $.14$, $p < .01$). Additional (negative) links were also found between autonomy support, introjected regulation (Study 1A: $r = -.10$, *n.s.*) and non-regulation (Study 3: $r = -.13$, $p < .01$). Also, socializing agents’ psychological control was positively related to youth introjected regulation ($r_s = .10$ and $.16$, $p_s < .01$, respectively) in both Study 1B and Study 3. Additional associations

were also found between psychological control, intrinsic motivation (Study 3: $r = -.17$, $p < .01$), and non-regulation (Study 1B: $r = .16$; Study 3: $r = -.16$, $ps < .01$, respectively). Finally, socializing agents' behavioral control was positively linked to youth external regulation ($rs = .11$ and $.14$, $ps < .01$, respectively). Additional relations were also found between behavioral control and non-regulation (Study 3: $r = .28$, $p < .01$). Although these complementary results are quite interesting and promising, further research could certainly shed some light into those preliminary trends.

Limitations and Directions for Future Research

Although innovative in many ways, the present thesis is not without its limitations. Indeed, even if the obtained results and their underlying interpretations are encouraging and largely consistent with predictions from existing research, the methodology attached to the three studies presented here nevertheless place some limitations on the strength of the specific conclusions that can be drawn.

Self-Reports

The first limitation that should be considered in any attempt to generalize the findings of the present thesis resides in the fact that the analyses conducted on all three studies relied exclusively on youth self-reports. Thus, it can only be concluded that there are differences in socializing agents' autonomy support, behavioral control, and psychological control as perceived and felt by youth. Although other researchers believe that perceptions of parents' behaviors are of primary importance in understanding the links between parenting and youth development and functioning (e.g., Boyce, Frank, Jensen, Kessler, Nelson, & Steinberg, 1998; Silk, Morris, Kanaya, & Steinberg, 2003), it

would still be valuable to replicate these findings using reports by parents and/or observational measures. This absence of external confirmation of youth reports may raise some question about the accuracy of their self-assessments and/or perceptions of the individuals in positions of authority, which also increases the possibility that some of the obtained relationships may be inflated through shared-method variance. In order to remediate to these issues, Bögels and van Melick (2004) propose that multiple-informant aggregate scores greatly tend to reduce rater bias in assessing parental rearing behaviors. The use of both social desirability responding and initial level of adjustments as control variables would also help ameliorate this limitation in future research.

Although youth's point of view provides a meaningful and useful "insiders" perspective (Olson, 1977), further use of multiple informants may provide additional information, strengthen the design of the studies, as well as improve the reliability (homogeneity and generalizability) of reported rearing and minimize the biases in the estimation of path coefficients (Bank, Dishon, Skinner, & Patterson, 1990). Related to this, the research literature even suggests that using different methods might well yield different findings (Leondari & Kiosseoglou, 2002). For example, Pettit and colleagues' (2001) data suggest that interpersonal style patterns differ somewhat as a function of which family member (parent or teen) provides the information. Parents have also been shown to give a more favourable impression about their own rearing than children (e.g., Schwartz, Barton-Henry, & Pruzinsky, 1985). Generally speaking, low to moderate associations have been found between parents' and youth reports of parenting (e.g., Cook & Goldstein, 1993; Gonzales, Cauce, & Mason, 1996), and, in particular, very modest associations have been found between parent- and adolescents-reported psychological

control (e.g., Pettit, Laird, Dodge, Bates, & Criss, 2001). This particular finding may, however, be somewhat expected, given the presumably more subjective nature of this parenting dimension.

That being said, using parental, peer, or observer reports of the constructs included in the present thesis would not be without its limitations. In fact, youth may be the best informants because of the internal, personal, and covert nature of the constructs of interest (e.g. Barber & Harmon, 2002; La Greca, 2001; Loukas, Paulos, & Robinson, 2005). More importantly, research on psychological control clearly emphasizes the importance of adolescents' perceptions of parental behaviors in influencing developmental outcome variables and discusses psychological control as "in the eye of the controlled" (Barber & Harmon, 2002; Pettit, Laird, Dodge, Bates, & Criss, 2001). The present findings thus further provide empirical support for the claim that youth perceptions of socializing agents' controlling strategies are related to how they view them as responding to the autonomy-related developmental phase of adolescence (Barber & Harmon, 2002; Steinberg, 1990). Moreover, specific to Study 1, because parental strategies may vary across contexts or situations, self-reports are believed to reflect the full repertoire of behaviors, unlike reports by others which may very well be limited to the ones specific to a particular context (e.g., Phares, Compas, & Howell, 1989). It should also be noted that previous studies (e.g., Demo, Small, & Savin-Williams, 1987; Gecas & Schwalbe, 1986) have suggested that youth outcome variables are generally more strongly related to youth "perceptions" of parental behaviors than to parents' "actual" behavior. Although future studies would undoubtedly benefit from the incorporation of data from multiple assessments (such as parents, teachers, and coaches) of both youth

variables and parenting, it remains appealing to believe that self-reports from youth may remain the most valid route to measure concepts such as psychological control, since feeling controlled, devalued, manipulated, and/or criticized is very much a subjective and personal experience.

A more comprehensive understanding of the effects of parenting control would also be possible if means were discovered to measure behavioral and psychological control objectively and if it was possible to distinguish between perceptions and reality with respect to these parenting approaches. Although self-reports provide information about socializing agents' behaviors, there is an evident need to investigate, by using observational methods, how they actually behave in interaction situations and how these behaviors contribute to youth development and functioning. For example, it would be of interest to tie indices of the interpersonal styles to observable variables such as verbal expressions (e.g., fostering relevance, allowing criticism; Assor, Kaplan, & Roth, 2002) or behavioral manifestations (e.g., providing choice; introducing meaning and rationale; Assor, Kaplan, & Roth, 2002). However, from a theoretical point of view, self-reports may still be viewed as more appropriate given that, for instance, youth perceptions of significant others' autonomy support was found to be a more important determinant of their motivational experiences compared with more "objective" measures of autonomy support (Ntoumanis, 2005). However, in terms of youth behaviors, some less subjective measures (e.g., parents, teachers, and/or coaches ratings) could be very well incorporated.

Generally speaking, future research would do well to include multiple informants, as well as observational measures of the interpersonal style constructs in addition to the youth reports used herein. Such studies would be very helpful in confirming the present

findings by providing a more “objective reality” of the youth socialization (Olson, 1977).

Measurement of numerous viewpoints and observations of parent-adolescents

interactions to assess youth development and adjustment thus constitute important

methodological avenues for future research.

Longitudinal Designs: Bidirectional Relationships

The correlational nature of the research design, along with the exclusive use of youth self-report measures to evaluate the interpersonal styles, also weakens the possibility of inferring causality between the behavior of individuals in positions of authority and youth development and functioning. That is, most of the analyses in the three studies presented here were based on correlations among cross-sectional self-reports. This is somewhat problematic in that it raises the possibility that the relations are in part a function of shared method variance, it limits the ability to determine temporal precedence, and it does not allow causal interpretations. Caution should thus be exercised when applying these correlational and cross-sectional findings because, as complementary to the prospective data of Study 3, longitudinal studies are still needed to more fully assess the developmental nature of the relationships between these key dimensions and youth outcome variables. For example, longitudinal research are called for to establish whether socializing agents’ use of psychological control actually influences youth psychological adjustment, or whether youth who are better adjusted give rise to less controlling strategies from socializing agents.

Future research could benefit from multiwave longitudinal investigations that would follow socializing agents and youth across childhood, adolescence, and early adulthood to determine how the interpersonal styles contribute to changes in youth

development and adjustment, and also how youth early behaviors shape the interpersonal styles portrayed by the individuals surrounding them. In accordance with family system perspectives and the notion that child characteristics may influence parenting (Bell, 1968; Harris, 1995, 2000), it has been suggested that both views are valid and that parenting and youth behaviors exert a mutual influence and are reciprocal in nature. This indicates that youth may also be important agents in influencing their socializing agents' interpersonal styles (e.g., Kerr, Stattin, Biesecker, & Ferrer-Wreder, 2003; Maccoby, 2000). The fact that parenting dimensions were only assessed at the start of each study (i.e., conceptualized as antecedents) prevents the examination of a possible reciprocal relationships between the interpersonal styles and youth outcome variables. Such reciprocity may reduce the magnitude of the findings and may also introduce patterns of effect that complicate their interpretation.

For example, the findings of Pettit and collaborators (2001) suggest that as girls increasingly show signs of behavior problems, their mothers' use of psychological control escalates, which in turn encourages the development of more externalized behaviors. In the same vein, Rogers, Buchanan, and Winchell (2003) indicated that psychological control may be more of a reaction to, rather than a predictor of, internalizing symptoms. Their findings indicate that in fact, psychological control promotes externalized behaviors but that the link between psychological control and internalizing symptoms is more likely to reflect a reaction of parents to the history of adolescents' behaviors. In contrast, recent findings from a longitudinal study by Doyle and Markiewicz (2005) suggest that psychological control, and to a lesser extent behavioral control, contribute to changes in adolescent adjustment over time. However,

there is no evidence of the reverse; that adolescent adjustment contributes to changes in parental psychological or behavioral control over time. Finally, within the framework of CET, findings from a study by Pelletier and Vallerand (1996) showed that supervisors who were led to believe that subordinates were autonomously motivated were more supportive of their autonomy and less controlling. The overall pattern of their results supports the hypothesis that individuals may choose to support the autonomy of others when they want to promote or maintain interest in autonomously motivated individuals but may choose to adopt controlling strategies with individuals who are perceived as requiring control.

As such, the present data do not allow for firm conclusions about the direction of effects and should be considered as preliminary. On the basis of previous research (e.g., Kerr & Stattin, 2003; Laid, Petit, Dodge, & Bates, 2003), it is deemed likely that the relationships in the models are reciprocal. For instance, although the interpersonal styles were modeled as predictors of youth development and functioning, their own behaviors probably have an influence on their socializing agents' rearing styles. Accordingly, parents, teachers, and coaches may communicate and behave in a less responsive fashion and increase their use of coercive and intrusive control attempts. Unfortunately, the cross-sectional design of the current thesis does not allow for a firm determination of the direction of these effects. Future experimental longitudinal research would be ideally suited to shed some light on such reciprocal causal relations.

Men versus Women

The predominance of females (i.e., girls/ladies, mothers, and coaches) in the current samples is another element that merits consideration in generalizing the results to

the larger population. In inspecting the contribution of mothers versus fathers in children's socialization (e.g., Chen, Liu, & Li, 2000), recent research has shown that mothers' encouragement of autonomy may play a more important role than that of fathers' (e.g., Bögels & van Melick, 2004). Interestingly, other studies (e.g., Allen, Hauser, Bell, & O'Connor, 1994; Parke, 1995) suggest that fathers may play a greater role in the autonomy process than mothers. Similarly, Shek's (2007) findings suggest that adolescents consistently perceived paternal control to be weaker than maternal control on different dimensions, including behavioral and psychological control, whereas the level of adolescent-perceived psychological control was found to be the same for mothers and for fathers in a study by Rogers, Buchanan, and Winchell (2003). Obviously, based on these conflicting findings, more research is needed to further explore the relative roles of men and women in relations to autonomy-supportive and controlling strategies, especially in light of existing evidence indicating that these effects may also vary across dyads (e.g., mother-daughter, father-daughter; Barber, 1996; Nelson & Crick, 2002).

Cultural Differences

There is a final limitation that needs to be taken into account when interpreting the findings. That is, the present thesis was carried out in a particular culture, and did not use a national representative sample – predominantly Caucasian youth and their middle-class socializing agents. Thus, the small and selective nature of the sample limits the extent to which the results may be broadly generalized to groups or cultures with different economic or social situations and need to be interpreted with caution. Because the way in which individuals in positions of authority interact with youth may vary across cultures, it is possible that the interpersonal styles, as well as their relationships with

youth outcome variables, might have shown up differently in other socio-cultural environments. Indeed, the individuals under study may have functioned better on average than those in a more representative sample.

This criticism has been made of the work on parenting in general, which has mainly been conducted with European American families. Although the work with diverse samples has generally found negative effects of controlling styles on youth motivation and adjustment (e.g., Barber, Stolz, & Olsen, 2006; Hill, Bush, & Roosa, 2003), somewhat less consistent findings have been reported with Asian American populations (e.g., Chao, 2001; Leung, Lau, & Lam, 1998). Further research is thus necessary to determine whether such discrepancies might be understood as differences in the way parental behaviors might be perceived in different cultures. Nevertheless, although the value of disaggregating interpersonal styles has been demonstrated in other populations (e.g., Barber, 1998; Garber, Robinson, & Valentiner, 1997; Herman, Dornbusch, Herron, & Herting, 1997), findings reflect growing evidence that this methodological approach can be useful and relevant for Canadians as well.

Practical Implications

Although the designs of the present studies may have some limitations, they also have some strengths, such as the ecological validity of the data, the temporal order in which the data were collected and the theoretically consistent findings. It is thus believed that the present thesis extends previous research conducted within the CET framework and within the parental behavioral and psychological control tradition and yields a number of important conceptual and applied implications.

Why are Socializing Agents Controlling

The findings of the work presented here have implications for practitioners with the pressing question: How can I support and motivate others? The tendency toward a controlling style is an unfortunate state of affairs in light of CET's research showing that an autonomy-supportive style is more strongly associated with positive outcome variables than is a controlling one (Ryan & Deci, 2000, 2002). Nevertheless, in the effort to motivate others, the current Zeitgeist is that controlling approaches are more familiar, more endorsed, and more frequently used. This Zeitgeist notwithstanding, the present findings substantiate the benefits that are gained when socializing agents internalize a more autonomy-supportive approach. Few would disagree with the goals of supporting other people's interests, developing their competencies, and promoting autonomous motivation. Instead, the difficult part of putting an autonomy-supportive style into practice is the question of how one might go about doing it. To date, the how-to component of autonomy support has still remained a bit of a mystery for practitioners.

Although empirical findings clearly warn against the use of controlling strategies, especially the use of psychological control, many factors may lead individuals in positions of authority to use them. One reason might be that behavioral control is commonly believed to increase performance (Joussemet, Koestner, Lekes, & Houliort, 2004). To that effect, a recent review by Mageau and Vallerand (2003) has identified important obstacles to adopting an autonomy-supportive style: (1) there are false beliefs about the efficacy of controlling strategies; (2) controlling behaviors, although detrimental to others, are not unpleasant for the individual emitting them; (3) people are not necessarily aware of their own controlling strategies; and (4) youth who are the most

vulnerable to the detrimental effects of being controlled (e.g., displaying initial levels of controlled motivation) are also the ones who will most likely elicit such strategies later in life. These important obstacles are further described below.

First, many individuals adopt a behaviorally controlling interpersonal style because they believe, falsely, that it will bring about better results. Indeed, Western culture has been highly influenced by the past proliferation of research on behavior modification techniques, which advocates rewards and punishments as the most efficient motivational strategies and encourage socializing agents to embrace these practices, such as the token economy, as an optimal way to motivate children and adolescents. The popularity of such research explains much of the reasons why the use of (behaviorally) controlling instructional strategies permeates classrooms worldwide (Kazdin & Bootzin, 1972; Kazdin & Wilson, 1978). In addition, both parents and students (e.g., Boggiano, Flink, Shields, Seelbach, & Barrett, 1993) subscribe to the idea that extrinsic incentives are not only favourable, but are also optimal motivators (i.e., the larger the incentive, the more highly motivated the child will be; Boggiano, Barrett, Weiher, McClelland, & Lusk, 1987). Such beliefs are erroneous. This statement is partly based on the fact that the use of an autonomy-supportive approach seems to be a legitimate alternative to rewards (Joussemet, Koestner, Lekes, & Houliort, 2004), and that once informed (or taught), teachers come to experience the effort of translating these autonomy-supportive strategies into their own classrooms as both straightforward and productive (Reeve, Jang, Carrell, Jeon, & Barch, 2004). These teachers finally come to the realization that the autonomy-support approach is a viable, alternative of how to motivate students

In the same vein, Joussemet and colleagues (2004) argue that for enjoyable activities, autonomy support means avoiding external reinforcements and simply letting intrinsic motivation flourish. For uninteresting but important tasks, three ingredients can operationalize autonomy support: empathy, choice, and rationale. Unfortunately, it is probably not uncommon for socializing agents to be in a position of encouraging youth to perform a simplistic and repetitive task/skill. In this particular case, the individual can echo the youth predicament in saying that the task sure does not seem valuable, but that, unfortunately, completing such tasks is part of his or her role. Another approach could be to encourage the youth to find a rationale him or herself, as a way to make the task personally meaningful (Joussemet, Koestner, Lekes, & Houliort, 2004). Unfortunately, the belief that controlling instructional strategies are superior to autonomy-supportive ones seems to persist in the minds of practitioners even after they are exposed to disconfirming evidence (Boggiano, Barrett, Weiher, McClelland, & Lusk, 1987). Clearly, interventions are needed in order to communicate the benefits (and superiority) of autonomy-supportive instructional strategies.

Second, empirical studies mainly conducted in the educational domain have shown that when pressured towards a certain outcome and when highly stressed, individuals have a tendency to emit controlling (both behaviorally and psychologically) behaviors (e.g., Grolnick, Price, Beiswenger, & Sauck, 2007; Pelletier, Fortier, Vallerand, & Brière, 2001). One of the things that appear to make teachers feel pressured and lead them to become more controlling is the fact that they are responsible for their students performing up to standards (Deci, Spiegel, Ryan, Kostner, & Kauffman, 1982). When this occurs, teachers tend to lecture more, they give children less choice and less

opportunity for autonomous learning, they use frequent praise and criticism, they state deadlines, and they generally create an atmosphere characterized by pressure (Reeve, Bolt, & Cai, 1999). This climate, then, is likely to have deleterious effects on the students' school motivation and overall classroom functioning.

Third, research has shown that individuals in positions of authority may have a tendency to be more controlling with youth who appear more "difficult" and "controlled" in their motivation. An autonomy-supportive style to socializing involves genuine attempts to take the youth perspective, acknowledging his or her feelings about the target attitudes or behaviors, and, when setting limits with respect to expected behaviors, providing a meaningful rationale and minimizing the use of controlling language and pressuring contingencies (Grolnick, Deci, & Ryan, 1997). The difficulty for socializing agents is most likely to occur when the youth behave in ways that are inconsistent with values and expectations. The challenge at those times is, then, to relate to the youth without implying that he or she is less worthy for not enacting the desired behaviors.

They may convey disappointment, but the important message to convey seems to be that they are disappointed with the actions (BC), not with him or her as an individual (PC) – that they still love him or her, though not the behaviors. It is important to focus on the behavior rather than its implications for the youth enduring characteristics and general worth (e.g., Kamins & Dweck, 1999). In this way, socializing agents can remain autonomy-supportive in addressing the problem at hand. At appropriate times, they can also demonstrate the value of the desired behaviors by directly modeling youth behavior through explanations (Assor, Roth, & Deci, 2004) and their own actions (Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). Throughout all of this, it is fundamental to

try to understand – to take genuine interest in – the youth perspective as the starting point of the problem solving.

Finally, although an autonomy-supportive environment may appear as a better alternative, for some reasons some individuals in positions of authority may behave otherwise because they have lay theories regarding ways of optimizing motivation and performance (Boggiano, Barret, Weiher, McClelland, & Lusk, 1987) or because they have beliefs about youth motivation that could induce them to support autonomy (or to be controlling). In turn, this may cause youth behaviors to confirm socializing agents' initial beliefs (e.g., self-fulfilling prophecies; Pelletier & Vallerand, 1996). Unfortunately, all of these above-mentioned scenarios may determine whether socializing agents create a climate that is primarily controlling or primarily oriented toward supporting autonomy.

An interesting question that arises concerning the use of control by socializing agents is the degree to which youth might in turn come to advocate and use controlling strategies in their own interpersonal relationships, especially in their eventual parenting. Indeed, past research guided by CET (Deci & Ryan, 1985, 2002) found that individuals who were relatively controlled in their own self-regulation (as opposed to being autonomous) tended to be controlling in their approach to motivating others. This suggests that children who experienced control from their parents (and perhaps other socializing agents), may become relatively controlled themselves and may in turn, tend to be controlling with others. Indeed, they might internalize the controlling interpersonal approach for which they themselves may have paid emotional costs during their early years.

Further, it seems that these negative consequences may also be passed along from generation to generation, as indicated by findings of Assor, Roth, and Deci (2004), suggesting that those mothers who perceived their parents as psychologically controlling were themselves perceived by their daughters to use the same socializing approach. One could thus expect that rigid, alienated functioning at the global level could result after years spent in controlling environments (Joussemet, Koestner, Lekes, & Houliort, 2004). Perhaps long-term exposure to controlling strategies could, for example, mold children's personality such that they develop a controlled orientation in general (Vallerand, 1997) and become controlling in their own interactions with others.

In the following section, applied perspectives will be discussed regarding what can be done to prevent this so-called "natural" tendency (or current Zeitgeist) of socializing agents to use controlling strategies. More specifically, insights regarding training and intervention programs, as well as actual autonomy-supportive behaviors will be presented and argued for in hope of demystifying how socializing agents become autonomy-supportive in moment-to-moment, person-to-person interactions.

What can be Done to Prevent it: Applied Perspectives

The findings that the relational qualities of the parent-child, teacher-student, and coach-athlete relationships provide additional pathways through which youth are protected against some internal symptomatology and problem behaviors is not only theoretically important but has also important implications for prevention and intervention programs. The results presented herein suggest that prevention programs might focus not only on teaching socializing agents to provide autonomy support and to apply appropriate levels of behavioral control, but also on developing trusting and non

psychology intrusive relationships. From an applied perspective, this interaction between the interpersonal styles and the contexts (either family, classroom or sports) provides some insight for designing optimal learning environments, suggesting that any individual in a position of authority should seek to promote a climate oriented towards autonomy support. That being said, the obtained findings point to two types of behaviors that they might need to pay special attention to if they want to encourage, among other things, positive feelings and engagement. The first type of behavior is fostering autonomy and the second type is suppressing psychological control. While socializing agents might want to engage in the first type of behavior frequently, research shows that they also need to minimize the occurrence of the second type (Assor, Kaplan, & Roth, 2002).

Consequently, the present thesis suggests that an interpersonal style high in psychological control and to some extent behavioral control is likely to be related to youth feeling bad, exhibiting problem behaviors, and possibly performing badly. In light of these results, it appears that shifts in approaches toward providing more support for autonomy may hold promising results pertaining to the enhancement of psychological development. To some extent, this can be accomplished by having parents, teachers, and coaches become more youth-oriented, more accessible to them, and more responsive to their needs and concerns as opposed to increasing behavioral control and the use of manipulative and guilt-inducing controlling strategies (i.e., PC). Supporting autonomy does seem to be an important facilitator of learning and adjustment (Black & Deci, 2000) while reducing rates of problem behavior among youth. More autonomy-supportive climate would likely be helpful in other contexts as well, whether that autonomy support

is actualized through individuals becoming more autonomy supportive, through the addition of workshops, or through a combination of the two.

Another practical implication derived from the work presented here is that it offers several potential intervention targets. For example, the findings speak to social policy and evaluation program specialists as they attempt to structure their certification programs to instil an autonomy-supportive motivating style within their individuals-in-training. While motivating styles are associated with individual characteristics that are relatively stable and enduring (i.e., causality orientations show high test-retest reliability; Deci & Ryan, 1985), they are nonetheless malleable, at least to the extent that training and new information offers the possibility for conceptual change (i.e., if training and information are perceived to be endorsed by experts; Reeve, 1998).

In fact, available research has already shown that the autonomy-supportive style can be taught (e.g., Pelletier, Blais, & Vallerand, 1986; Reeve, 1998). For example, as opposed to teachers in a delayed-treatment control group, trained teachers who perceived information and guidance consistent with SDT (Deci & Ryan, 1985, 2002) on how to support students' autonomy displayed significantly more autonomy-supportive behaviors, which, in turn, led to increased engagement of their students (Reeve, Jand, Carrell, Jeon, & Barch, 2004). As well, a recent study by Tremblay, Blanchard, and Proulx (2007), investigated the effects of a mental skills intervention on athletes' motivational orientation. Their intervention consisted on four sessions (i.e. goal setting, relaxation, concentration and cognitive framing, and mental imagery) being held in either an autonomy-supportive or controlling way. As a result of the mental skills intervention, it was found that athletes' autonomous motivation increased (and controlled motivation

decreased) for both experimental groups. Moreover, based on the trends of the follow-up analyses, athletes in the autonomy-supportive condition (as opposed to athletes in the controlling condition), maintained their use of the mental techniques, as well as their post-intervention levels of autonomous motivation four months later. These athletes also experienced a significant drop in their levels of controlled motivation. Autonomy-supportive interventions thus seem to be both teachable and beneficial for all individuals involved.

Such additional training would necessarily begin with the conceptualization, rationale for, and how-to of autonomy support, but it would also need to continue into onsite-specific efforts to practice supporting the autonomy of others. Extended training is advised partly because socializing agents are usually unfamiliar with autonomy support as a motivational strategy (Skinner & Belmont, 1993) and partly because they generally adopt only those strategies that they see as plausible and useful (Kazdin, 1981), as well as familiar and practiced (Kurita & Zarbatany, 1991). Like other skills developed within the context of instructions (see Ashton, 1996), supporting the autonomy of others requires first a conceptual understanding but also modeling, practice, as well as advice and constructive feedback.

As research grows in the area of the influences of interpersonal styles, the scientific community is now getting in a closer position to list what autonomy-supportive individuals say and do during moment-to-moment, person-to-person interactions (Reeve, Bolt, & Cai, 1999). But how does one become autonomy-supportive? Does it only consist of three elements: empathy, choice, and rationale? Along with other research, the present findings can certainly be used to offer concrete answers to questions about what can be

said and done if someone is interested in motivating others in an autonomy-supportive way. Conceivably, this information can be used either as a guiding benchmark or as a prescriptive advice as to what it means to support the autonomy of others. Using the current literature on the topic as a benchmark, a point of reference can be offered in order to diagnose any motivating style as relatively autonomy-supportive or controlling. Using the current literature on the topic as a prescriptive advice, what an individual can do (or not do) in the effort to develop an autonomy-supportive motivating style can also be illuminated. Assuming, of course, that the individual in question has an interest in doing so.

On the basis of the correlations reported by Reeve, Bolt and Cai (1999), it appears reasonable to advance each of the following behaviors as a possible candidate for explaining why youth benefit from autonomy-supportive socializing agents (see also Joussemet, Koestner, Lekes, & Houliort, 2004 and Mageau & Vallerand, 2003): providing opportunities for choices, emphasizing task relevance and promoting task value, explaining reasons underlying rules and limits (providing rationale), acknowledging youth feelings and perspective (time spent listening, frequency of questions about what youth wants and perspective-taking empathic statements), providing non-controlling competence feedback (frequency of directives, contingent responses to youth questions and number of solutions verbalized), avoiding using psychologically controlling strategies, and preventing ego-involvement in youth. What these various autonomy-supportive behaviors have in common is a flexible, youth-centered motivating approach and should be targeted in future interventions programs.

An interesting fact presented by Reeve, Bolt and Cai and collaborators (1999) states that in reality, autonomy-supportive and controlling individuals often engage in many of the same behaviors – gaining youth attention, asking questions, giving feedback, setting and enforcing limits, encouraging persistence, demonstrating procedures and skills, assessing learning, and so on. But autonomy-supportive individuals seek initiative in these endeavors by supporting autonomous motivation, whereas controlling individuals seek compliance in these endeavors by introducing verbal directive and strict consequences.

CONCLUSION

Despite its limitations, the present thesis significantly contributes to the literature on parental behavioral and psychological control, as well as to the framework of Cognitive Evaluation Theory, in that it is one of the first attempts to simultaneously investigate the specific influences of socializing agents' autonomy support, behavioral control and psychological control on youth self-processes, internalizing symptoms and externalized behaviors. Its contribution is for differing dyadic relationships (i.e., parents, teachers, and coaches) involving not only adolescents but also young children and young adults using cross-sectional, experimental, and prospective designs. Indeed, the results of the work presented here add to the previous literature on parenting by first suggesting that the interpersonal styles need to be treated as three distinct constructs with unique definitions and operationalizations. Secondly, the results suggest that youth can differentiate among these three interpersonal styles usually displayed by the socializing agents surrounding them. Thirdly, findings support the disaggregation of the parental behaviors and suggest that all three interpersonal styles are related to youth self-processes, internalizing symptoms and externalized behaviors in unique ways. It is thus believed that the present thesis provides initial impetus for a re-evaluation of the way socializing agents' autonomy support, behavioral control, and psychological control were previously conceptualized, operationalized, and assessed in past research on parenting and youth development and adjustment. Additional research is, of course, needed to replicate and to substantiate the findings that were found herein.

Together, the results strongly suggest that although the use of controlling strategies may be an alluring socialization approach, the negative consequences

associated with them (psychological control in particular) argue for the use of more autonomy-supportive approaches. Along with the literature and the empirical research reviewed here, results clearly show that autonomy support has a beneficial impact on autonomous motivation, an important self-process which in turn, leads to higher levels of well-being, functioning and persistence. The present findings thus highlight the need for individuals in positions of authority to adapt their own approaches towards the support of autonomy, to continue providing meaningful structure and setting clear limits, and to reduce their use of psychologically controlling techniques. It is hoped that the work presented here, and the socializing mediation model it proposed, will help socializing agents achieve that goal.

More ambitiously, past research showed that socializing agents' (and, specifically, control-oriented ones) ideas about how best to motivate youth are malleable (e.g., Reeve, Jand, Carrell, Jeon, & Barch, 2004). Extending this same line of thoughts, the present thesis provides initial empirical support that the autonomy-supportive style is not only intelligible, useful, fruitful, and credible but is also a superior alternative to the now-popular controlling strategies advocated in Western culture. It is hoped that these conceptual insights will contribute to a further exploration of important motivational dynamics that pertain to critical issues such as socialization agents' use of autonomy support and control.

Also guided by these findings, researchers ought to continue investigating the conceptual differences and the specific nature of the relationships between socializing agents and youth in order to discover how each interpersonal style functions to benefit (or not) youth and protect them from the development of internalizing symptoms and

externalized behaviors. Based on the findings of the three studies designed and conducted for the purpose of the present thesis, it is clear that socializing agents *do* matter, but it is still important to further explore *how*, *when*, and in *what* contexts their behaviors have the most influences. It is in part for that reason that the particular influences of socializing agents' autonomy support, behavioral control and psychological control on youth development and functioning merits continued investigation.

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TABLES

Table 1

Means, standard deviations, skewness and correlations between parenting dimensions and children's motivational orientation (Study 1A)

	<i>Parenting Dimensions</i>			<i>Self-Processes</i>			
	<i>M</i>	<i>SD</i>	<i>SK</i>	CET-control	Aut-recodes	Aut-M	Cont-M
AS	5.24	1.17	-0.68	-.76	-1.00	.14	-.08
CET-control	2.58	1.12	0.75	—	.76	-.04	.15
Aut-recodes	2.76	1.16	0.67		—	-.14	-.08
Aut-M	4.85	.87	-0.33			—	.12
Cont-M	3.14	.85	0.28				—

Note. Items were rated on a 7-point Likert-type scale. Correlations above .12 are significant at $p < .05$ and above .14 at $p < .01$. $N \leq 333$. AS: autonomy support; Aut-M: autonomous motivation; Cont-M: controlled motivation; CET: Cognitive Evaluation Theory.

Table 2

Means, standard deviations, skewness and partial correlations between parenting dimensions and children's motivational orientation (Study 1B)

				<i>Parenting Dimensions</i>			<i>Self-Processes</i>	
	<i>M</i>	<i>SD</i>	<i>SK</i>	CET-control	Aut-recodes	CSI-control	Aut-M	Cont-M
AS	5.22	1.20	-0.76	-.59	-1.00	-.58	.15	-.08
CET-control	2.28	1.09	0.94	—	.59	.80	-.03	.16
Aut-recodes	2.78	1.20	0.76		—	.58	-.15	.08
CSI-control	2.61	1.04	0.96			—	-.02	.17
BC	3.15	1.20	.61	.65	.43			
PC	2.41	1.06	1.05	.80	.60			
Aut-M	4.90	.80	-0.17				—	.21
Cont-M	3.89	.82	-0.12					—

Note. Items were rated on a 7-point Likert-type scale. Partial correlations above .14 are significant at $p < .05$ and above .16 at $p < .01$. $N \leq 294$. AS: autonomy support; Aut-M: autonomous motivation; BC: behavioral control; Cont-M: controlled motivation; CET:

Cognitive Evaluation Theory; CSI: Controlling strategies inventory; PC: psychological control.

Table 3

Means, standard deviations, skewness and partial correlations between parenting dimensions and children's motivational orientation (Study 1B)

	<i>Self-Processes</i>				
	<i>M</i>	<i>SD</i>	<i>SK</i>	Aut-M	Cont-M
AS	5.22	1.20	-0.76	.14	-.05
BC	3.15	1.20	.61	.14	.01
PC	2.41	1.06	1.05	-.05	.13

Note. Items were rated on a 7-point Likert-type scale. Partial correlations above .13 are significant at $p < .05$. $N \leq 294$. AS: autonomy support; Aut-M: autonomous motivation; BC: behavioral control; Cont-M: controlled motivation; PC: psychological control.

Table 4

Means and standard deviations for the manipulation checks (Study 2)

	<i>Experimental Conditions</i>			
	Entire Sample	AS ¹	BC ²	PC ³
AS	2.96 (1.34)	3.98 (1.33) ²³	2.73 (1.08) ¹³	2.33 (1.08) ¹²
BC	2.74 (1.09)	1.93 (0.51) ²³	2.97 (0.95) ¹	3.19 (1.23) ¹
PC	1.88 (1.18)	1.08 (0.18) ²³	1.32 (0.49) ¹³	3.14 (1.14) ¹²
Pressed	2.73 (1.89)	1.49 (1.07) ²³	2.85 (1.76) ¹³	3.67 (2.01) ¹²
Controlled	2.89 (1.92)	1.64 (1.12) ²³	2.68 (1.89) ¹³	4.17 (1.73) ¹²
Harmony	4.16 (1.68)	5.33 (1.58) ²³	4.11 (1.43) ¹³	3.22 (1.40) ¹²
Motivator	3.19 (1.70)	4.31 (1.49) ²³	3.30 (1.57) ¹³	2.13 (1.34) ¹²
Interesting Task	4.64 (1.54)	5.00 (1.47)	4.57 (1.56)	4.39 (1.57)
Enjoyable Task	3.94 (1.64)	4.74 (1.41)	3.72 (1.49)	3.48 (1.75)
n	135	45	45	45

Note. The possible range for the manipulation checks is 1 to 7, with higher numbers denoting heightened perceptions. (1)(2)(3): Tukey HSD significant multiple comparisons.

N = 135. AS: autonomy support; BC: behavioral control; PC: psychological control.

Table 5

Skewness and partial correlations between experimenters' interpersonal styles and participants' self-processes, internalizing symptoms and externalized behaviors for the entire sample (Study 2)

	<i>Interpersonal Styles</i>					
	<i>M</i>	<i>SD</i>	<i>SK</i>	AS	BC	PC
AS	2.96	1.34	0.63	—	-.30	-.38
BC	2.74	1.09	0.95		—	.53
PC	1.88	1.18	1.42			—
IM	2.39	2.34	0.06	.13	-.12	-.29
Affect P	4.30	1.08	-0.14	.26	-.06	.00
Affect N	2.11	1.07	1.59	-.01	.21	.23
Anxiety	2.85	1.41	0.73	-.07	.19	.23
Impaired C	2.11	1.37	1.06	-.08	.17	.27
Intentions	4.82	2.17	-0.52	.29	-.14	-.52

Note. Items were rated on a 7-point Likert-type scale. Partial correlations above .12 are significant at $p < .05$ and above .21 at $p < .01$. $N \leq 135$. AS: autonomy support; BC: behavioral control; Affect P: positive affect; Affect N: negative affect; IM: intrinsic

motivation; Impaired C: impaired concentration; PC: psychological control.

Table 6

Means and standard deviations for the dependent variables (Study 2)

	<i>Experimental Conditions</i>			
	Entire Sample	AS ¹	BC ²	PC ³
Intrinsic Motivation	2.39 (2.34)	3.95 (2.00) ²³	2.40 (2.30) ¹³	1.07 (1.79) ¹²
Positive Affect	4.30 (1.08)	4.76 (1.02) ²³	4.08 (1.07) ¹	4.14 (1.04) ¹
Negative Affect	2.11 (1.07)	1.53 (0.69) ²³	2.15 (1.03) ¹	2.57 (1.16) ¹
Anxiety	2.85 (1.41)	2.15 (1.16) ²³	2.83 (1.28) ¹³	3.47 (1.47) ¹²
Impaired C	2.11 (1.37)	1.36 (0.67) ²³	2.00 (1.18) ¹³	2.87 (1.60) ¹²
Future Intentions	4.82 (2.17)	6.23 (1.37) ²³	5.11 (1.81) ¹³	3.33 (2.17) ¹²
n	135	45	45	45

Note. Affect, anxiety, concentration, and intentions were rated on a 7-point Likert-type scale, with higher numbers denoting heightened affect and intentions. Free-choice activity was measured in minutes and ranged from 0 to 5 minutes. ⁽¹⁾⁽²⁾⁽³⁾: Tukey HSD significant multiple comparisons. *N* = 135. AS: autonomy support; BC: behavioral control; Impaired C: impaired concentration; PC: psychological control.

Table 7

Means, standard deviations and skewness of the studied variables and correlations between coaches' interpersonal styles and athletes' motivational orientation (Study 3)

	<i>Interpersonal Styles</i>				
	<i>M</i>	<i>SD</i>	<i>SK</i>	BC	PC
AS	3.72	0.69	-0.30	-.22	-.30
BC	1.99	0.60	0.49	—	.54
PC	1.38	0.40	1.49		—
Aut-M	4.08	0.46	-0.20		
Cont-M	1.40	0.47	1.43		
Affect P	3.96	0.52	-0.56		
Affect N	2.12	0.42	0.43		
Sports S	3.94	0.70	-0.46		
Anxiety	1.52	0.44	1.37		
Impaired C	2.36	0.72	0.33		
Dropout I	3.65	0.49	-3.95		

Note. Items were rated on a 5-point Likert-type scale. Correlations above .22 are significant at $p < .01$. $N \leq 238$. AS: autonomy support; BC: behavioral control; Affect P:

positive affect; Affect N: negative affect; Aut-M: autonomous motivation; Cont-M:

controlled motivation; Dropout I: dropout intentions; Impaired C: impaired concentration;

PC: psychological control; Sport S: sport satisfaction.

Table 8

Partial correlations between coaches' interpersonal styles and athletes' self-processes, internalizing symptoms and externalized behaviors and correlations between athletes' motivational orientation, self-processes, internalizing symptoms and externalized behaviors (Study 3)

	<i>Self-Processes</i>					<i>IS</i>	<i>EB</i>	
	Aut-M	Cont-M	Affect P	Affect N	Sports S	Anxiety	Impaired C	Dropout I
AS	.23	-.02	.15	-.15	.11	-.11	-.18	-.01
BC	.17	-.07	.01	.06	.12	.25	-.21	-.15
PC	-.29	.22	-.23	.17	-.28	.04	.28	.10
Aut-M	—	-.28	.54	-.13	.35	-.28	-.19	.02
Cont-M		—	-.34	.31	-.33	.31	.35	.21

Note. Items were rated on a 5-point Likert-type scale. Correlations above .12 are significant at $p < .05$ and above .17 are significant at $p < .01$. $N \leq 238$. AS: autonomy support; BC: behavioral control; Affect P: positive affect; Affect N: negative affect; Aut-M: autonomous motivation; Cont-M: controlled motivation; Dropout I: dropout intentions; EB: externalized behaviors; Impaired C: impaired concentration; IS:

internalizing symptoms; PC: psychological control; Sport S: sport satisfaction.

Table 9

Correlations between coaches' interpersonal styles and athletes' motivational orientation, positive and negative self-processes, internalizing symptoms and externalized behaviors (Study 3)

	<i>M</i>	<i>SD</i>	<i>SK</i>	Aut-M	Cont-M	P-SP	N-SP	IS	EB
AS	3.72	0.69	-0.30	.22	-.08	.24	-.23	.07	-.01
BC	1.99	0.60	0.49	.22	.04	-.13	.21	.24	-.11
PC	1.38	0.40	1.49	-.25	.30	-.36	.28	.28	.02
Aut-M	4.08	0.46	-0.20	—	-.28	.54	-.13	-.01	-.02
Cont-M	1.40	0.47	1.43		—	-.42	.31	.37	.21
P-SP	3.95	0.49	-0.12						
N-SP	2.12	0.42	0.43						
IS	1.94	0.49	0.49						
EB	3.65	0.49	-3.95						

Note. Items were rated on a 5-point Likert-type scale. Correlations above .13 are significant at $p < .05$ and above .21 are significant at $p < .01$. $N \leq 238$. AS: autonomy support; Aut-M: autonomous motivation; BC: behavioral control; Cont-M: controlled motivation; EB: externalized behaviors; IS: internalizing symptoms; N-SP: negative self-

processes; PC: psychological control; P-SP: positive self-processes.

Table 10

Standardized parameter estimates (β) and adjusted R-squared values for the proposed model (Study 3)

	Aut-M	Cont-M	P-SP	N-SP	IS	EB
AS	.28	—	—	-.16.	-.16	—
BC	.17	—	—	—	—	-.17
PC	-.35	.30	-.24	.16	.23	—
Aut-M			.48	—	—	—
Cont-M			—	.25	.32	.25
Adjusted R ²	.14	.09	.35	.16	.19	.08

Note. All estimated path coefficients were significant with t values over 1.96 ($p < .05$).

AS: autonomy support; Aut-M: autonomous motivation; BC: behavioral control; Cont-M: controlled motivation; EB: externalized behaviors; IS: internalizing symptoms; N-SP: negative self-processes; PC: psychological control; P-SP: positive self-processes.

FIGURES

Figure 1

Control codifications: Items and standardized factor loadings associated with autonomy support and control in the two-factor measurement model (Study 1A)

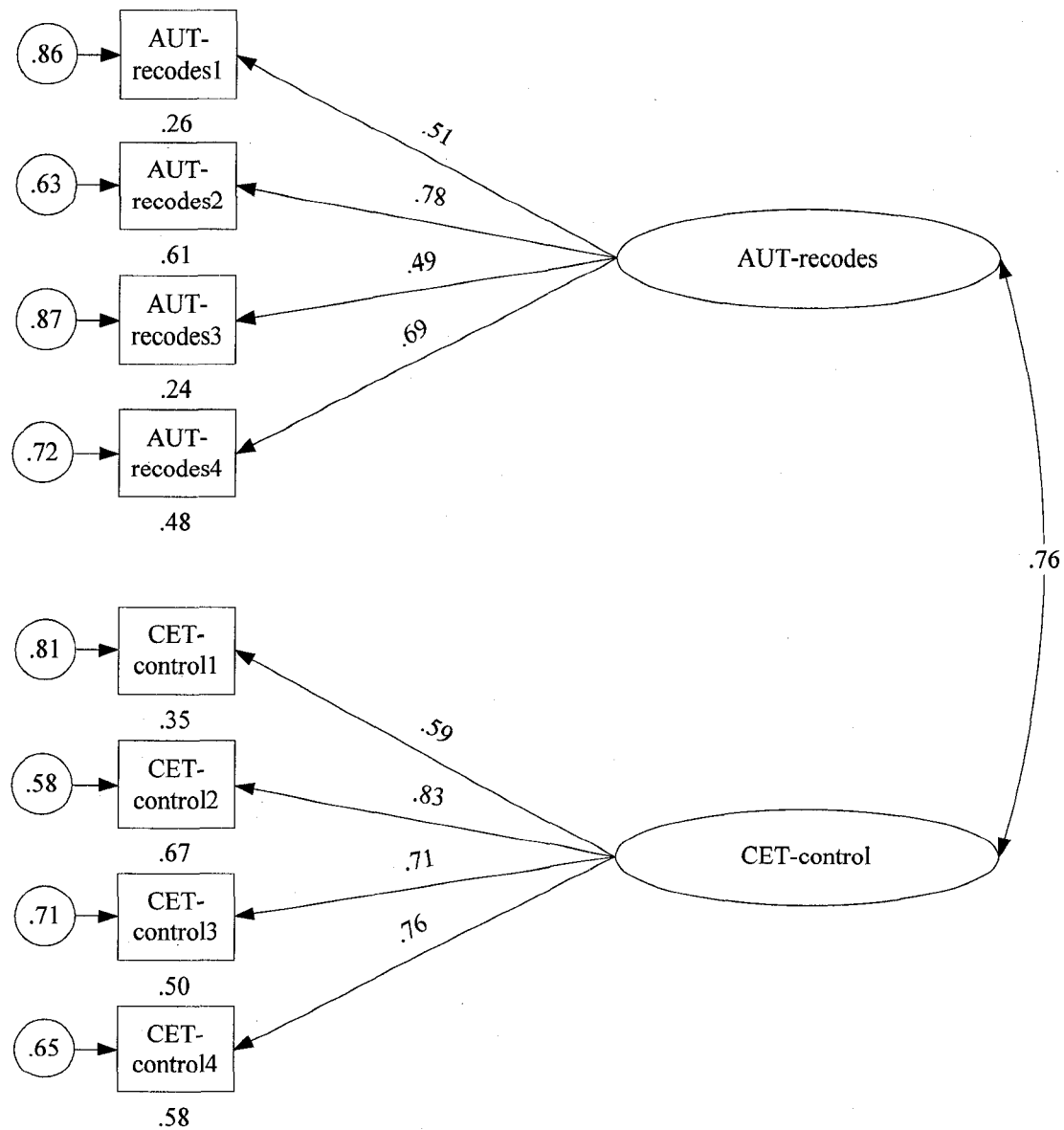


Figure 2

Control codifications: Items and standardized factor loadings associated with autonomy support and control in the two-factor measurement model (Study 1B)

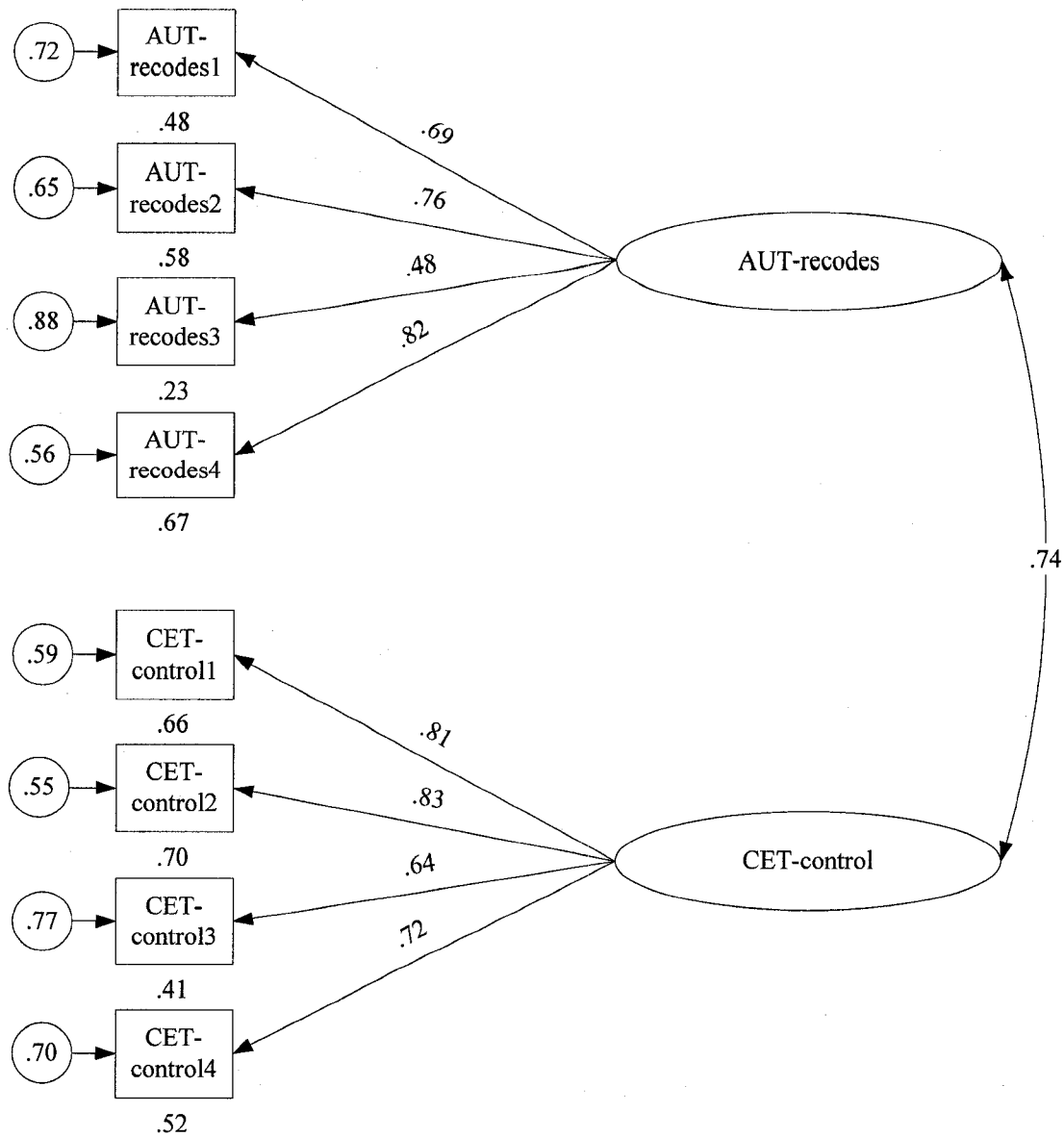
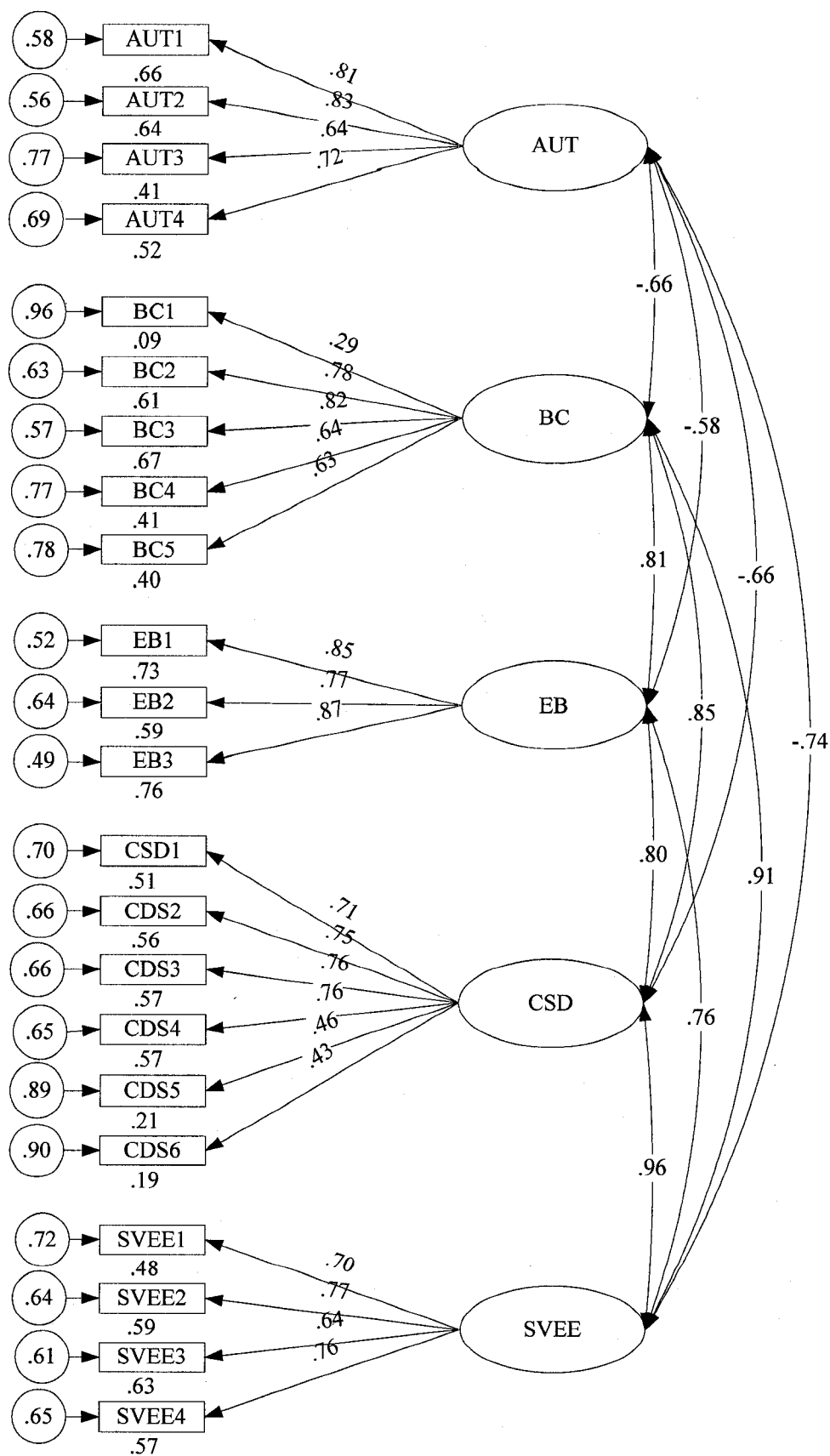
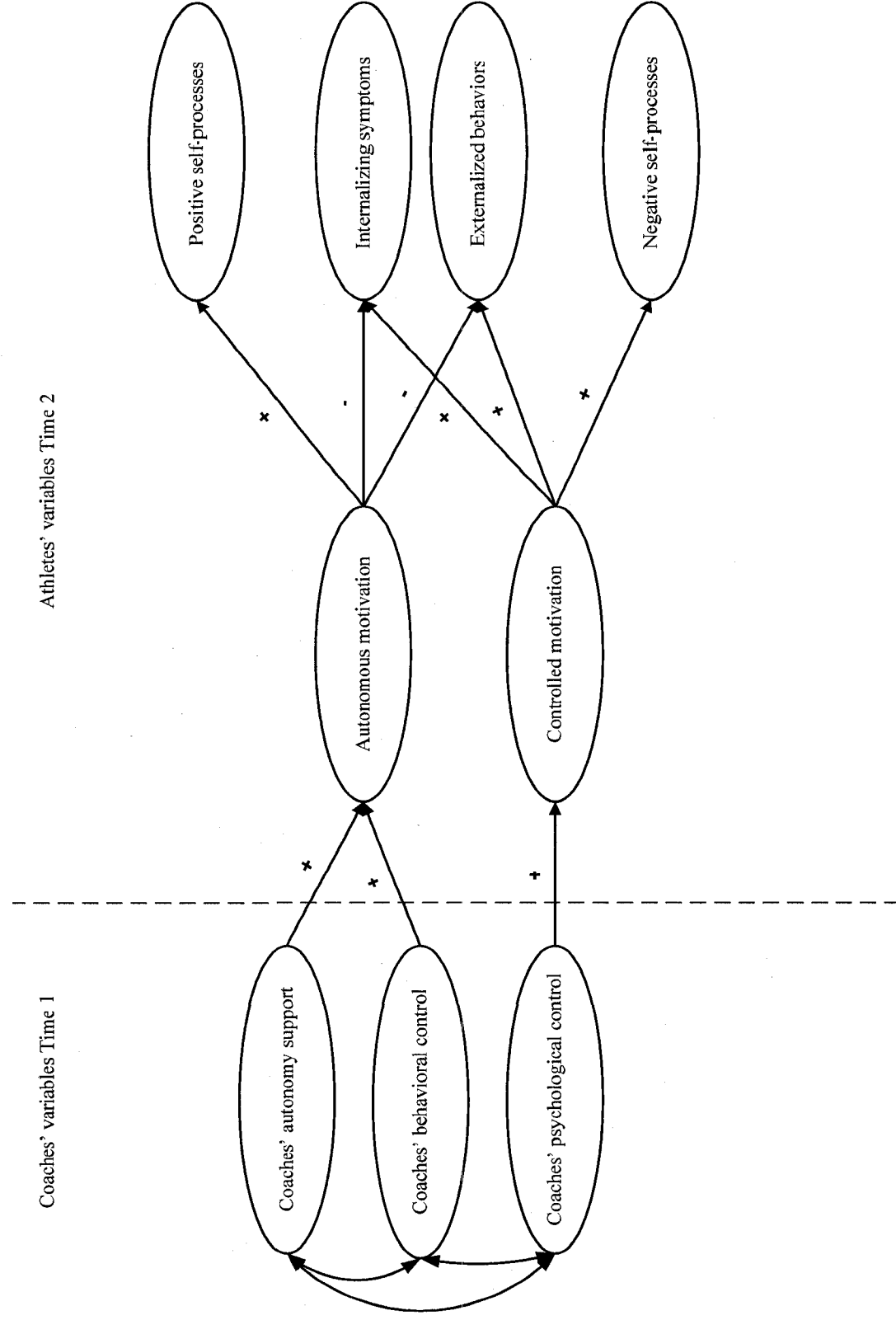


Figure 3 Parenting dimensions: Items and standardized factor loadings associated with autonomy support

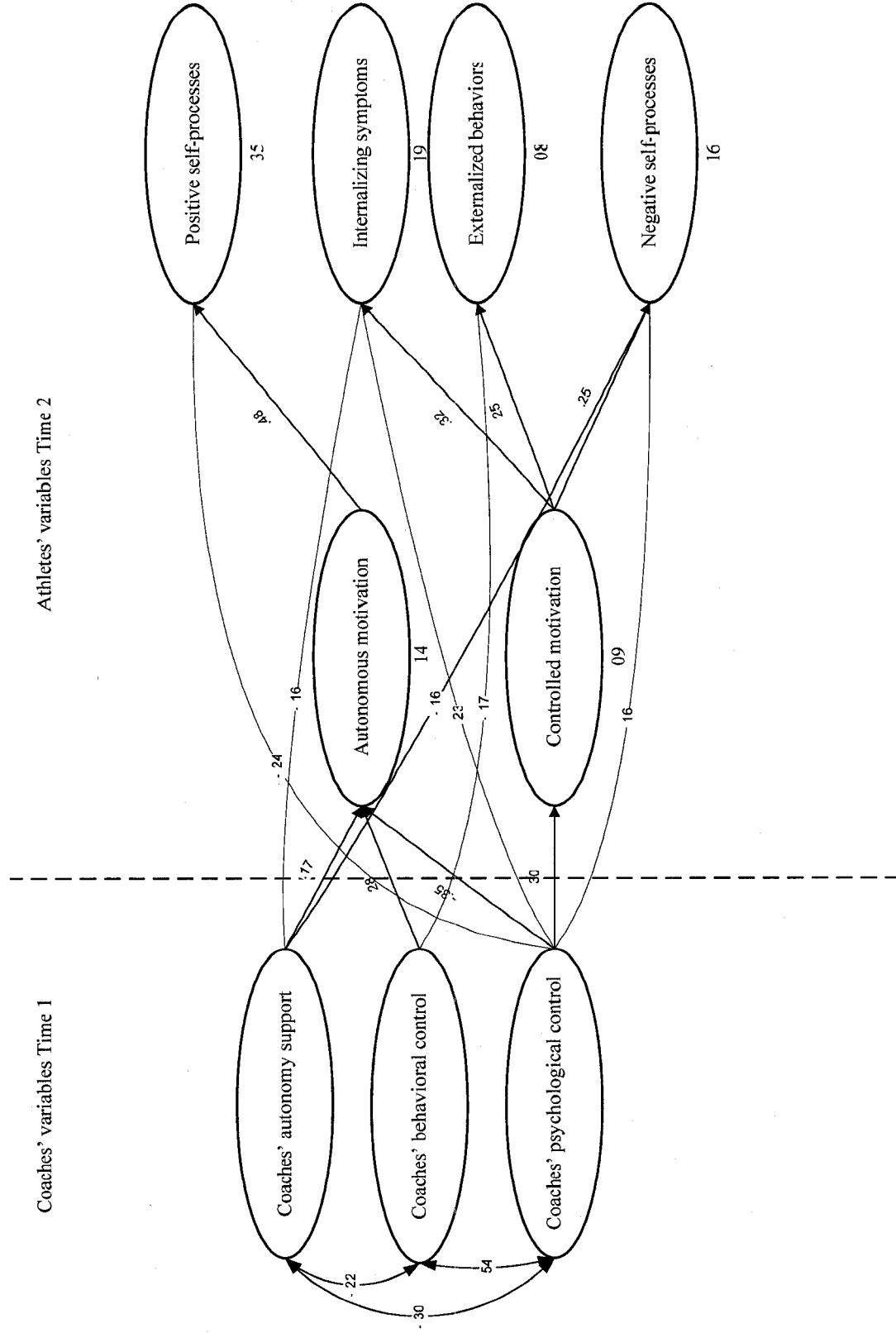
behavioral and psychological control in the five-factor measurement model (Study 1B)



Hypothesized multivariate mediation model showing influences of coaches' interpersonal styles on athletes' contextual motivational orientation, self-processes, internalizing symptoms and externalized behaviors (Study 3)



Final multivariate mediation model showing influences of coaches' interpersonal styles on athletes' contextual motivational orientation, self-processes, internalizing symptoms and externalized behaviors (Study 3)



APPENDICES

Appendix A

Control Consent Form

RESEARCH DESCRIPTION

PARENT-CHILD RELATIONSHIPS

A research study is currently being conducted at the University of Ottawa by Maxime Tremblay and Céline Blanchard, Ph.D from the School of Psychology. **The purpose of the study is to better understand relationships between parents and their adult-children.** The present research will help to expand theoretical as well as practical knowledge concerning an important, yet understudied topic: the impact of parental influence on children's motivational characteristics. That being said, your participation in this study would be very much appreciated. If you agree to participate, you will be invited to complete a short questionnaire that will be completed "online". In exchange for your participation in this study, you will be granted **one point (1%)** which will be added to your final grade for this course.

Completing the questionnaire should take approximately **30 minutes**. You will be asked questions about your relationships with your parents, as well as questions regarding general and specific ambiance at home. When answering the questions, we ask that you try to answer them as honestly and accurately as possible. It is important to remember that there is no right or wrong answer; we are simply interested in your honest opinions. Also, we encourage you not to leave any items unanswered, but instead pick the response that best describes your thoughts and feelings for each item. Of course, you are not obligated to answer any questions that you do not feel comfortable responding to. Your participation involves no risk. If some questions lead you to experience some psychological discomfort and you feel the need to discuss it, please feel free to contact the University of Ottawa's Psychological Services Centre at (613) 562-5289.

In addition, the researchers will make available to participants the research results in spring 2006. Feel free to reach us at this number for a copy of the results: **(613) 562-5800 extension 4902**. You can also use this number in order to obtain any additional information concerning this project. Results obtained from the data are for research purposes only and will be published in scientific journals in group format only. The data contained in the questionnaires will be kept in a locked laboratory at the University of Ottawa for a period up to five years after their publication and only the concerned researchers will have access to these data.

Participating in this research project is entirely voluntary. Be assured that your answers will be kept strictly confidential. This will be done by assigning a number code to the content of each subject's file so that number codes, rather than names, are used as the identifying labels for subjects. Finally, you are free to drop out of the study at any time. You may contact the University of Ottawa's ethics board members at (613) 562-5841, for any ethical concerns.

The present document is for you to keep.

Finally, your completion of the questionnaire will serve as consent to your participation in the present research project.

We thank you in advance for your help in our research.

Maxime Tremblay

Céline Blanchard, Ph. D.
Celine.Blanchard@uottawa.ca

Appendix B

Control Questionnaire

YOUR RELATIONSHIP WITH YOUR PARENTS

Please indicate how frequently your parents engage in the following behaviors.

Please answer according to one OR the other: Mother _____ Father _____

Never 1	2	3	Sometimes 4	5	6	Always 7	
1. When I ask my parents to help me with a problem, they ask me what I think before giving me their opinion	1	2	3	4	5	6	7
2. My parents encourage me to be myself	1	2	3	4	5	6	7
3. My parents provide me with lots of opportunities to make personal decisions in what I do	1	2	3	4	5	6	7
4. My parents openly acknowledge my thoughts and feelings although they may be different from theirs	1	2	3	4	5	6	7

PARENTAL RELATIONSHIPS

Please indicate how frequently your parents engage in the following behaviors.

Please answer according to one OR the other: Mother _____ Father _____

Never 1	2	3	Sometimes 4	5	6	Always 7	
1. My parents do not provide me with lots of opportunities to make personal decisions in what I do	1	2	3	4	5	6	7
2. My parents ignore my thoughts and feelings when they are different from theirs	1	2	3	4	5	6	7
3. When I ask my parents to help me with a problem, they give me their opinion before asking for mine	1	2	3	4	5	6	7
4. My parents discourage me to be myself	1	2	3	4	5	6	7

YOUR RELATIONSHIP WITH YOUR PARENTS

Educating children involves easy to difficult interactions. We are interested in better understanding the parent-child relationships. Please indicate to which extend the behaviors mentioned below were (or still are) typical of the behaviors of your parents (i.e., when you were younger or when living at home).

Please answer according to one OR the other: Mother _____ Father _____

Not at all 1	2	3	Moderately 4	5	6	Exactly 7
1. He/She lost temper easily with me.	1	2	3	4	5	6 7
2. He/She did not liked (or cared) to hear what I had to say.	1	2	3	4	5	6 7
3. He/She told me that I did not live up to expectations.	1	2	3	4	5	6 7
4. He/She made a lot of rules.	1	2	3	4	5	6 7
5. He/She did not approve when I expressed emotions.	1	2	3	4	5	6 7
6. He/She told me that my behavior was dumb or stupid.	1	2	3	4	5	6 7
7. He/She told me exactly what I had to do.	1	2	3	4	5	6 7
8. He/She yelled (or shouted) when he/she believed that I did something wrong.	1	2	3	4	5	6 7
9. He/She avoided looking at me when he/she was disappointed.	1	2	3	4	5	6 7
10. He/She took away some privileges.	1	2	3	4	5	6 7
11. He/She ignored my ideas and my opinions.	1	2	3	4	5	6 7
12. He/She easily exploded in anger towards me.	1	2	3	4	5	6 7
13. He/She wanted to control whatever I did.	1	2	3	4	5	6 7
14. He/She made me feel as though I was bordering him/her	1	2	3	4	5	6 7
15. He/She liked to tell me how I should feel.	1	2	3	4	5	6 7
16. He/She let me know when he/she was disappointed in me	1	2	3	4	5	6 7
17. He/She often reminded me that there were consequences to my actions.	1	2	3	4	5	6 7
18. He/She told me that I was not as good as him/her.	1	2	3	4	5	6 7

WHY ARE YOU DOING THINGS IN LIFE ?

Please indicate to which extent each of the following items corresponds to the reasons why you generally do things.

Not at all				Moderately				Exactly
1	2	3	4	5	6	7		
1. In order to help myself become the person I aim to be.	1	2	3	4	5	6	7	
2. Because I like making interesting discoveries.	1	2	3	4	5	6	7	
3. Because I want to be viewed more positively by certain people.	1	2	3	4	5	6	7	
4. Because I chose them as means to attain my objectives.	1	2	3	4	5	6	7	
5. For the pleasure of acquiring new knowledge.	1	2	3	4	5	6	7	
6. Because otherwise I would feel guilty for not doing them.	1	2	3	4	5	6	7	
7. Because by doing them I am living in line with my deepest principles	1	2	3	4	5	6	7	
8. Although it does not make a difference whether I do them or not.	1	2	3	4	5	6	7	
9. For the pleasant sensations I feel while I am doing them.	1	2	3	4	5	6	7	
10. In order to show others what I am capable of.	1	2	3	4	5	6	7	
11. Because I chose them in order to attain what I desire.	1	2	3	4	5	6	7	
12. Because I would beat myself up for not doing them.	1	2	3	4	5	6	7	
13. Even though I do not have good reasons for doing them.	1	2	3	4	5	6	7	
14. In order to attain prestige.	1	2	3	4	5	6	7	
15. Even though I believe they are not worth the trouble.	1	2	3	4	5	6	7	
16. Because I would feel bad if I do not do them.	1	2	3	4	5	6	7	
17. Because by doing them I am fully expressing my deepest values.	1	2	3	4	5	6	7	
18. Because they reflect what I value most in life.	1	2	3	4	5	6	7	

Appendix C

Interpersonal Behavior Scale

Autonomy Support

When I asked my parents to help me with a problem, they ask me what I think before giving me their opinion.

My parents encourage me to be myself.

My parents provide me with lots of opportunities to make personal decisions in what I do.

My parents openly acknowledge my thoughts and feelings although they may be different from theirs

CET- Control

When I ask my parents to help me with a problem, they give me their opinion before asking for mine.

My parents discourage me to be myself.

My parents do not provide me with lots of opportunities to make personal decisions in what I do.

My parents ignore my thoughts and feelings when they are different from theirs.

Appendix D

Assessment of Controlling Strategies Items by Subscale

Erratic Behavior

- Lost temper easily with me.
 - Yelled or shouted when I did something wrong.
 - Exploded in anger towards me.
-

Suppression of Verbo-Emotional Expression

- Would have liked to tell me how to feel about things.
 - Did not approve when I expressed emotions.
 - Did not like (or cared) to hear what I had to say.
 - Ignored my ideas and opinions.
-

Control by Self-Derogation

- Let me know I was not as good as he (she) was.
 - Told me that I could not live up to expectations.
 - Made me feel as though I was in the way.
 - Said my behaviors were stupid or dumb.
 - Avoided looking at me when he (she) was disappointed.
 - Let me know when I had disappointed him (her).
-

Behavioral Control

- Told me exactly what to do.
- Made a lot of rules and regulations for me.
- Wanted to control whatever I did.
- Took away some privileges.
- Reminded me that there are always consequences to my actions.

Appendix E

Preliminary Psychometric Properties of the Scale Assessing Controlling Strategies

Preliminary Items. Thirty-two preliminary controlling items were taken (or adapted) from existing measures of parenting (e.g., Child Puppet Interview: Parenting Scales (CPI-P; Sessea, Avenevoli, Steinberg, & Morris, 2001); CRPBI (Schaefer, 1965a; Schludermann & Schludermann, 1988); Parental Psychological Control Measure (PPC; Hart & Robinson, 1995); Psychological Control Item Bank (Barber, 2003); and PSC-YSR (Barber, 1996)). The first controlling dimension of the scale's preliminary version consisted of nine behavioral controlling items. As well, the second controlling dimension scale's preliminary version was comprised of three subdivisions of psychological control: *erratic behavior* (6 items), *suppression of verbo-emotional expression* (7 items), and *control by self-derogation* (10 items). These subdivisions were intended to reflect the parental psychologically controlling dimension and are similar to those that appear in the work of Schaefer (1965a), Baumrind (1991), and Barber, Olsen and Shagle (1994).

The preliminary items of the scale assessing youth sport motivation was administered to 138 undergraduate students (95 women and, 17 men and 26 'no gender specified') who were enrolled in a Psychology program (51%) at the University of Ottawa (Canada). Almost half of the sample reported English as their first language (44%) while the remaining were French (38%). Participants' age ranged from 17 to 39 with a mean age of 21.23 years. In addition, 53% of the participants indicated living at home with their parents. Accordingly, while 85% of participants answered thinking of their mother, the remaining 15% answered thinking of their father figure.

Overall, 138 questionnaires were accessed and completed online (see Appendix A and Appendix B). Participants were asked to complete the scale using the stem: "Educating children involves easy to difficult interactions. We are interested in better understanding

the parent-child relationships. Please indicate to which extend the behaviors mentioned below were (or still are) typical of the behaviors of your parents (i.e., when you were younger or when living at home). Please answer according to one or the other: Mother or Father". The response format was a Likert-type scale, ranging from (1) *not at all* to (7) *exactly*.

Exploratory Factor Analysis. An exploratory factor analysis (EFA) was conducted on the 31 items of the scale's preliminary version. Using an oblique rotation, this EFA (maximum likelihood extraction) revealed four main factors (i.e., behavioral control, erratic behavior, suppression of verbo-emotional expression, and control by self-derogation; eigenvalues greater than 1). Based on preliminary descriptive statistics (e.g., means, skewness, kurtosis, correlations, and crossloadings higher than .30), 14 items were dropped from further analyses.

The resulting EFA solution still revealed four main factors with five items serving as indicators of behavioral control (6% of variance explained; $\alpha = .83$) and thirteen items serving as indicators of psychological control (erratic behavior: 45% of variance explained (3 items; $\alpha = .87$), suppression of verbo-emotional expression, 9% of variance explained (4 items; $\alpha = .84$); and control by self-derogation, 6% of variance explained (6 items; $\alpha = .74$); eigenvalues greater than 1). To the exception of one control by self-derogation item ("Avoids looking at me when he (she) is disappointed"), all items had loadings higher then .30 (Tabachnick & Fidell, 2001) and loaded on one (and only) factor. That is, to the exception of three items with crossloading. All factor loadings are presented in Table 11.

Insert Table 11 here

In addition to the adequate internal consistency estimates, each set of items showed midrange to high item-to-total correlations (all above .35, $ps < .01$), and the correlations between the four latent factors were moderately high (rs ranging from .61 to .71, with a correlation of .72 between behavioral and psychological control, $ps < .01$), representing a first indicator of good construct validity. Finally, the assertion of the scale's unidimensionality was tested using the ratio of the first to second eigenvalue and was higher than 3:1 (Tabachnick & Fidell, 2001).

Following this first step, the scale's experimental version was translated using a back-translation procedure (Vallerand, 1989) and then administered to 201 French-speaking adults (172 women and, 28 men and 1 'no gender specified') from the Hull-Gatineau region (Canada). Participants' age ranged from 32 to 58 with a mean age of 43.44 years. More than three quarters of the sample reported being married or in common law relationships (84.2%). In addition, 79.9% of the participants indicated having completed post-secondary education.

Participants were recruited as part of a longitudinal study involving athletes and their parents and coaches (see Study 3 for complete details). They were invited to voluntarily take part in the study and were assured that their responses would be anonymous and kept confidential (see Appendix N and Appendix O). Interested participants responded to the items of the scale and were instructed to return it in postage-paid envelopes within two weeks to the University of Ottawa. No compensation was offered in exchange for participation. Overall, 500 questionnaires were distributed and 201 copies were returned, indicating a response rate of 40.2%. Participants were asked to

complete the scale using the same stem employed in the preliminary version of the scale assessing controlling strategies (but rating their own behaviors). The response format was a Likert-type scale, ranging from (1) *not at all* to (7) *exactly*.

Confirmatory Factor Analysis. A confirmatory factor analysis (CFA) was conducted including all 18 items of the scale's experimental version and was performed on the covariance matrix generated by EQS 6.1 (Bentler, 2005). Using the maximum likelihood (ML) estimation method, this CFA rendered the following goodness-of-fit: S-B χ^2 ($df=132$, $N=201$) = 576.1069, $p < .001$ (χ^2/df ratio = 4.36; Kline, 1998); *CFI = .800; SRMR = .111; *RMSEA = .131, 90% CI RMSEA = .120, .142. As confirmed by the Wald test, all estimated parameters were significant. To the exception of one control by self-derogation item ("Avoids looking at me when he (she) is disappointed"), all items had standardized factor loadings over .30 (ranging from .30 to .91). The Lagrange Multiplier (L-M) test also revealed that no parameter could be added to improve the factorial structure. As well, the correlations among the four latent factors were moderately high (r s in the range of .58 to .83, with a correlation of .73 between behavioral and psychological control, $ps < .01$), and the internal consistency estimates were deemed adequate (behavioral control: $\alpha = .79$; erratic behavior: $\alpha = .82$; suppression of verbo-emotional expression: $\alpha = .80$; and control by self-derogation: $\alpha = .73$), further suggesting acceptable construct validity. The items and standardized factor loadings associated with the latent constructs in this four-factor measurement model are presented in Figure 6.

 Insert Figure 6 here

Table 11

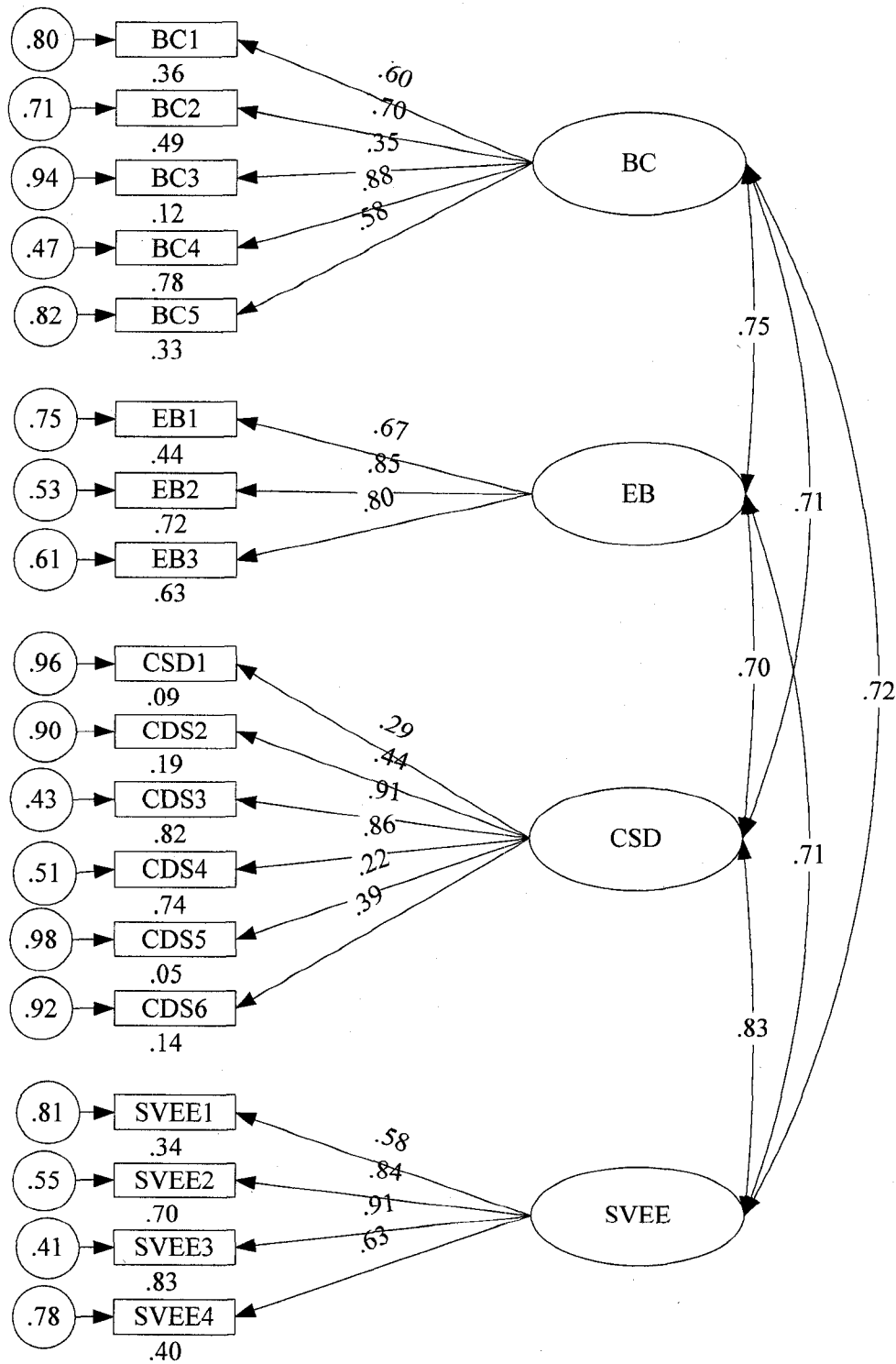
Factor loadings, Cronbach alphas and item-to-total correlations for the 18 items of the scale assessing controlling strategies (Appendix E)

	<i>EB</i>	<i>SVEE</i>	<i>CSD</i>	<i>BC</i>	<i>Item-total correlations</i>
EB 3	.82				.76
EB 2	.51				.78
EB 4	.57	.43			.71
SVEE 5		.89			.75
SVEE 4		.76			.71
SVEE 3		.72			.73
SVEE 1		.50			.54
CSD 2			.77		.52
CSD 1			.70		.56
CSD 3	.35		.69		.38
CSD 4			.53		.74
CSD 6			.31		.41
CSD 5			.26		.35
BC 3				.63	.66
BC 7				.62	.64
BC 2				.61	.68
BC 8				.58	.51
BC 4		.41		.44	.64
α	.87	.84	.74	.83	

Note. BC: behavioral control; CSD: control by self-derogation; EB: erratic behavior;

SVEE: suppression of verbo-emotional expression.

Figure 6 *Experimental items of the scale assessing controlling strategies and standardized factor loadings associated with the latent constructs in the four-factor model (Appendix E)*



Appendix F

Visio Consent Form



uOttawa

L'Université canadienne
Canada's university**VISIO PROGRAM: CONSENT FORM**

I am invited to participate in a laboratory session entitled “**Visio: Basics and Computerized-Trial**” that is currently being conducted by Maxime Tremblay and Céline Blanchard, Ph.D., both from the School of Psychology in the Faculty of Social Sciences, here at the University of Ottawa.

I understand that the purpose of this study is to test a computerized-task that could possibly take part in a training course on the Visio program. My participation will essentially consist of attending to this **one lab session**, which will be **approximately 40 minutes in duration**. I understand that my participation in this session will entail the achievement of a *computerized-task*, followed by the completion of a *short questionnaire* asking me general questions about my experience in the session. In exchange for my participation in this study, I understand that I will be granted **one point** (1%) which will be added to my final grade for this course.

The researcher has informed me that the experimental task may cause me some emotional or psychological discomfort. However, the researcher has also stated that the experimental task will only last 10 minutes and is representative of any Microsoft product trials that one could find and/or download from the Web. I also understand that I may feel some discomfort during the completion of the questionnaire, because I am asked to respond as openly and as accurately as possible. However, I have received assurance from the researcher that I do not have to answer any questions that I do not feel comfortable answering. In the event that I may experience emotional or psychological discomfort from participating in this study, I may contact the Center for Psychological Services here on campus at (613) 562-5289.

Finally, I have been reminded that my participation in this research is entirely voluntary and I am free to withdraw from the lab session at any time without any negative consequences. If I choose to withdraw, the data I provided will be destroyed and thus will not be used for any analyses. I have also been assured that the answers I provide in this session will be kept strictly confidential. Only the researchers will have access to that information. This will be achieved by the assignment of a numerical identification code (i.e., 4 last digits of my phone number and the 3 last digits of my student ID), rather than the use of real names.

I was also informed that my anonymity will be protected because this consent form will be kept in a separate box from the questionnaire I will be asked to complete during the lab session. I am aware that results obtained from the data I provide, are for research purposes only and will be published in scientific journals in “group” format. I understand that the data I provide the researchers will be stored in locked cabinets in the researcher’s laboratory for a period of 5 years. I have been informed that only the researchers will have access to the data.

I, _____, agree to participate in the study entitled “**Visio: Basics and Computerized-Trial**”, conducted by Maxime Tremblay and Céline Blanchard, Ph.D. I understand that by accepting to participate I am in no way waiving my right to withdraw from the study.

If I have any questions about the study, or if I would like to receive a report of the results when they come available, I may contact the researcher Maxime Tremblay by phone (613-562-5800 ext. 4902) or

by email: I am also aware that a brief summary of the results will be available on the Sona-Systems Web page.

If I have any ethical concerns regarding my participation in this research, I may contact the University of Ottawa's Ethics Board, at 550 Cumberland Street, Room 159 (phone: (613) 562-5841; email: ethics@uottawa.ca).

There are two copies of the consent form, one of which is mine to keep.

Participant's signature: _____

Date: _____

Researcher's signature: _____
mtrem001@uottawa.ca

Date: _____

Supervisor's signature: _____
Celine.Blanchard@uottawa.ca

Date: _____

Appendix G

Visio Experimental Scripts

Autonomy-Supportive Condition

Part 1. Introduction

Hi, welcome to the social psychology lab. My name is _____ and I will guide you through this lab session.

(bring participant to the computer area)

First, I want to thank you for accepting to take part in this study. Before we start, I will take a minute to explain the procedure. This lab session includes two different phases. The technician will explain these phases as you go along, but they basically consist of a computerized-drawing and the completion of a short questionnaire.

I will now ask you to read this consent form and sign at the bottom if you accept to continue.

(Signature of the consent form)

If you don't have questions, I will now introduce you to the technician.

(Experimenter enters the room; the experiment then begins)

Part 2. Experimental Task: Visio computerized-trial

Hello, my name is _____ and I will guide you during the first phase of this lab session. The proposed activity involves the drawing of a figure. We would like of you to reproduce a particular figure in a time frame of approximately 10 minutes, using the Microsoft program Visio.

(showing of the Visio figures) Which one would you like to draw?

Unfortunately, at this point, I am not allowed to answer any Visio-based questions.

Simply do the best you can.

You may feel that 10 minutes is not long and I can perfectly understand and accept your feelings. This drawing may eventually be incorporated in a Visio training session for professionals and we would like it to be suitable for beginners. Participants who have done it so far, said they were able to rate their own Microsoft skills and really improve them.

If you choose to continue once you have completed this task, (name) will introduce you to the second phase.

Do you have any questions? Perfect!

If you are ready, all you need to do is start the activity by opening the Visio window at the bottom of the screen.

Now you may open the Visio window.

I am now going to leave you to the task.

(Participant engages in the task for a duration of 10 minutes ; START CHRONO)

(Experimenter stays in the room waiting)

After 5 minutes: (*watch participant for 5-10 sec and say: Don't worry, simply do the best you can!*)

(*After 9 minutes : interviewer says to technician: I'll be in the 419 and leaves the room.*)

It's been 10 minutes, I will have to ask you to stop. (*end of the experimental task*)
Do you feel you did well? I personally think you were able to master a lot of functions.
(*"save" drawing and "close" Visio*)

Part 3. Waiting: Free-choice period

The first phase is now over so I will go get (name) for the second one. It may take a few minutes because she is preparing another participant. Do you mind waiting here? By the way, if you would like to read some magazines (*point to the magazines*) or work on the figure some more, you're welcome to do so. Simply re-open your drawing on the desktop, and "save" it when you are done.

(*participant is left in the room for 5 minutes ; START CHRONO*)
(*at one point, technician makes a discrete sign at interviewer to come back inside and says to technician (after the 5 minutes is over): is it over? By the way, the participant is ready in the 419.*)

Part 4. Questionnaire

(*Interviewer enters room and "saves" the drawing if participant is still working on it*)

Thank you for waiting. This is the last phase. I will now ask you to complete this questionnaire. Simply let me know when you are done.
(*Participant completes the questionnaire alone*)

Part 5. Evaluation of suspicions

The session is now over.
(*The interviewer takes note of the participant's answers to the following question*)

Before leaving, I would like you to tell me:
1) What was the purpose of the study?

Part 6. Debriefing

Actually, the study did have another purpose. The goal was to study people's perceptions of different interpersonal influences.

Please read and sign the following debriefing form.
(*Signature of the debriefing form*)

Do you have any questions? We also ask that you do not reveal the purpose of this study or what you did in it to anyone (e.g., friends or schoolmates). Doing so could bias the results.

This is the end. Do you have any more questions?
Thank you for your participation!
(*Take note of participant's engaging time i.e., Visio properties + experimental condition + Figure*)
(*Sign behavioral measure form*)

Behavioral Control Condition

Part 1. Introduction

Hi, welcome to the social psychology lab. My name is _____ and I will guide you through this lab session.

(bring participant to the computer area)

First, I want to thank you for accepting to take part in this study. Before we start, I will take a minute to explain the procedure. This lab session includes two different phases. The technician will explain these phases as you go along, but they basically consist of a computerized-drawing and the completion of a short questionnaire.

I will now ask you to read this consent form and sign at the bottom if you accept to continue.

(Signature of the consent form)

If you don't have questions, I will now introduce you to the technician.

(Experimenter enters the room; the experiment then begins)

Part 2. Experimental Task: Visio computerized-trial

Hello, my name is _____ and you will follow my instructions during the first phase of this lab session. The activity that you will have to achieve is the drawing of a figure. What you will be required to do is reproduce a particular figure in a time frame of 10 minutes, using the Microsoft program Visio.

(experimenter looks at the two figures and says : This is the one that you will have to draw).

Unfortunately, at this time, I am not allowed to answer any Visio-based questions.

Pay attention, if you make too many errors (or do not complete it), I will be unable to use your data.

You may feel that 10 minutes is not long, but remember that that's all there is.

You have to complete this task before (name) introduces you to the second phase.

Do you have any questions? Was I clear enough in all my instructions?

Start the activity by opening the Visio window at the bottom of the screen.

Now you can open the Visio window.

I am now going to leave you to the task.

(Participant engages in the task for a duration of 10 minutes ; START CHRONO)

(Experimenter stays in the room waiting)

After 5 minutes: *(watch participant for 5-10 sec and say: Pay attention, if you want your data to be used.*

(After 9 minutes : interviewer says to technician: I'll be in the 419 and leaves the room.)

It's been 10 minutes, I will have to ask you to stop. (*end of the experimental task*)

I think you did all right.
(*"save" drawing and "close" Visio*)

Part 3. Waiting: Free-choice period

The first phase is now over so I will go get (name) for the second one. It may take a few minutes because she is preparing another participant. You will have to wait here. By the way, if you would like to read some magazines (*point to the magazines*) or work on the figure some more, you're welcome to do so. Simply re-open your drawing on the desktop, and "save" it when you are done.

(*participant is left in the room for 5 minutes ; START CHRONO*)
(*at one point, technician makes a discrete sign at interviewer to come back inside and says to technician (after the 5 minutes is over): is it over? By the way, the participant is ready in the 419*).

Part 4. Questionnaire

(*Interviewer enters room and "saves" the drawing if participant is still working on it*)

Thank you for waiting. This is the last phase. I will now ask you to complete this questionnaire. Simply let me know when you are done.
(*Participant completes the questionnaire alone*)

Part 5. Evaluation of suspicions

The session is now over.
(*The interviewer takes note of the participant's answers to the following question*)

Before leaving, I would like you to tell me:
2) What was the purpose of the study?

Part 6. Debriefing

Actually, the study did have another purpose. The goal was to study people's perceptions of different interpersonal influences.

Please read and sign the following debriefing form.
(*Signature of the debriefing form*)

Do you have any questions? We also ask that you do not reveal the purpose of this study or what you did in it to anyone (e.g., friends or schoolmates). Doing so could bias the results.

This is the end. Do you have any more questions?
Thank you for your participation!
(*Take note of participant's engaging time i.e., Visio properties + experimental condition + Figure*)
(*Sign behavioral measure form*)

Psychological Control Condition

Part 1. Introduction

Hi, welcome to the social psychology lab. My name is _____ and I will guide you through this lab session.

(bring participant to the computer area)

First, I want to thank you for accepting to take part in this study. Before we start, I will take a minute to explain the procedure. This lab session includes two different phases. The technician will explain these phases as you go along, but they basically consist of a computerized-drawing and the completion of a short questionnaire.

I will now ask you to read this consent form and sign at the bottom if you accept to continue.

(Signature of the consent form)

If you don't have questions, I will now introduce you to the technician.

(Experimenter enters the room; the experiment then begins)

Part 2. Experimental Task: Visio computerized-trial

Hello, my name is _____ and I guess that I will be with you during the first phase of this lab session. The activity that you must achieve is the drawing of a figure. You are required to reproduce a particular figure in a time frame of 10 minutes, using the Microsoft program Visio.

Which one would you like to draw? *(let participant decides which figure, then add : Oh sorry! It is actually this one that you are required to draw).*

Unfortunately, at this time, I am not allowed to answer any Visio-based questions.

Let's hope you meet our expectations.

I'm sure you may feel that 10 minutes is not long. Am I right? Anyway, it doesn't really matter since you only have ten minutes no matter what.

Once you have completed this task, (name) will eventually come and introduce you to the second phase.

Do you have any questions? Yes? (sigh and rolling of the eyes) No? Good! There is no time to waste.

To start the activity, you must open the Visio window at the bottom of the screen.

Go ahead! Open the Visio window!

I am now going to leave you to the task.

(Participant engages in the task for a duration of 10 minutes ; START CHRONO)

(Experimenter stays in the room waiting)

After 5 minutes: *(watch participant for 5-10 sec and say: Come on! I could do way better.*

(After 9 minutes : interviewer says to technician: I'll be in the 419 and leaves the room.)

It's been 10 minutes, I will have to ask you to stop. *(end of the experimental task)*

(avoid looking at the participant here) This is a bit disappointing; the drawing you got was the easiest.
("save" drawing and "close" Visio)

Part 3. Waiting: Free-choice period

The first phase is now over so I will go get (name) for the second one. It might take a few minutes because she is preparing another participant. I'm sure you don't mind waiting. By the way, if you would like to read some magazines *(point to the magazines)* or work on the figure some more, you're welcome to do so. Simply re-open your drawing on the desktop, and "save" it when you are done.

(participant is left in the room for 5 minutes ; START CHRONO)

(at one point, technician makes a discrete sign at interviewer to come back inside and says to technician (after the 5 minutes is over): is it over? By the way, the participant is ready in the 419).

Part 4. Questionnaire

(Interviewer enters room and "saves" the drawing if participant is still working on it)

Thank you for waiting. This is the last phase. I will now ask you to complete this questionnaire. Simply let me know when you are done.

(Participant completes the questionnaire alone)

Part 5. Evaluation of suspicions

The session is now over.

(The interviewer takes note of the participant's answers to the following question)

Before leaving, I would like you to tell me:

- 3) What was the purpose of the study?

Part 6. Debriefing

Actually, the study did have another purpose. The goal was to study people's perceptions of different interpersonal influences.

Please read and sign the following debriefing form.

(Signature of the debriefing form)

Do you have any questions? We also ask that you do not reveal the purpose of this study or what you did in it to anyone (e.g., friends or schoolmates). Doing so could bias the results.

This is the end. Do you have any more questions?

Thank you for your participation!

(Take note of participant's engaging time i.e., Visio properties + experimental condition + Figure)

(Sign behavioral measure form)

Appendix H

Visio Questionnaire



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VISIO PROGRAM: QUESTIONNAIRE

During the reproduction of the Visio figure ...

Not at all 1	2	3	Moderately 4	5	6	Exactly 7	
1. I felt happy while doing the drawing.	1	2	3	4	5	6	7
2. I could not concentrate on the task at hand.	1	2	3	4	5	6	7
3. I found the technician quite controlling.	1	2	3	4	5	6	7
4. I believe I had some choice about doing this task.	1	2	3	4	5	6	7
5. I found the colors and the fonts in Visio to be appropriate.	1	2	3	4	5	6	7
6. I believe that Visio could be a useful drawing tool for me.	1	2	3	4	5	6	7
7. I believe that using Visio could be of some value to me.	1	2	3	4	5	6	7
8. I found Visio to be a user-friendly program.	1	2	3	4	5	6	7
9. For some reason, the technician affected me in some way.	1	2	3	4	5	6	7
10. I found this activity valuable.	1	2	3	4	5	6	7
11. I enjoyed doing this activity very much.	1	2	3	4	5	6	7
12. I found the presence of the technician stressful.	1	2	3	4	5	6	7
13. I found the Visio trial interesting.	1	2	3	4	5	6	7
14. I felt pressured by the technician.	1	2	3	4	5	6	7

Could you, in a short paragraph, describe how you felt during the Visio trial?

(e.g., comments concerning the task; your thoughts and feelings while engaging in the task; the technician's instructions ...)

How would you describe your relationship with the technician?

Not at all harmonious 1	2	3	Moderately harmonious 4	5	6	Extremely harmonious 7
-------------------------------	---	---	-------------------------------	---	---	------------------------------

How competent do you feel about the Visio drawing you had to achieve?

Not at all competent 1	2	3	Moderately competent 4	5	6	Extremely competent 7
------------------------------	---	---	------------------------------	---	---	-----------------------------

To what extent was the technician able to motivate you?

Not at all 1	2	3	Moderately 4	5	6	Extremely 7
-----------------	---	---	-----------------	---	---	----------------

COMPUTERS IN YOUR LIFE

Do you own a computer? Yes ☐ No ☐

How often do you usually work with computers?

Once a day ☐ Couple times a day ☐ Couple times a week ☐

On a typical day, how long do you work at a computer?

Less than an hour ☐ One hour ☐ Couple hours ☐ Five hours or more ☐

Would you say your concentration is at best during a computer session for ...

15 minutes or less ☐ 30 minutes ☐ One hour ☐ Up to couple hours ☐

Please indicate to which extend you use the following computer programs in your life.

Not at all						Moderately						Frequently			
1	2	3	4	5	6	7									
1. Word.	1	2	3	4	5	6	7	7. EQS.	1	2	3	4	5	6	7
2. Wordperfect.	1	2	3	4	5	6	7	8. Eudora.	1	2	3	4	5	6	7
3. Powerpoint.	1	2	3	4	5	6	7	9. Adobe.	1	2	3	4	5	6	7
4. Outlook.	1	2	3	4	5	6	7	10. Corel Draw.	1	2	3	4	5	6	7
5. SPSS.	1	2	3	4	5	6	7	11. Statistica.	1	2	3	4	5	6	7
6. Visio.	1	2	3	4	5	6	7	12. Excel.	1	2	3	4	5	6	7

What would be the best three descriptors for the Visio program?

1) _____ 2) _____ 3) _____

Would you recommend Visio as a good alternative to Word for creation of business and technical diagrams? Yes ☐ No ☐

Would you recommend the technician to be the keynote speaker for the Visio-based training? Yes ☐ No ☐

What would be the three most important basic information professionals would need in order to fully benefit from Visio?

1) _____
2) _____
3) _____

How much time do you feel you would have needed to fully complete the computerized-figure?
_____ minutes

Do you feel more competent with Visio now that you have achieved this computerized-figure? Yes ☐ No ☐

YOUR INTERACTION WITH THE TECHNICIAN

Please indicate to which extend the behaviors mentioned below were typical of the ones displayed by the technician who gave you the instructions for the Visio task (and guided you throughout the lab session).

Not at all 1	2	3	Moderately 4	5	6	Exactly 7	
1. He/She lost temper easily with me.	1	2	3	4	5	6	7
2. He/She did not liked (or cared) to hear what I had to say.	1	2	3	4	5	6	7
3. He/She told me that I did not live up to expectations.	1	2	3	4	5	6	7
4. When I asked him/her to help me with a problem, he/she asked me what I think before giving me his/her opinion.	1	2	3	4	5	6	7
5. He/She made a lot of rules.	1	2	3	4	5	6	7
6. He/She did not approve when I expressed emotions.	1	2	3	4	5	6	7
7. He/She told me that my behavior was dumb or stupid.	1	2	3	4	5	6	7
8. He/She told me exactly what I had to do.	1	2	3	4	5	6	7
9. He/She encouraged me to be myself.	1	2	3	4	5	6	7
10. He/She yelled (or shouted) when he/she believed that I did something wrong.	1	2	3	4	5	6	7
11. He/She avoided looking at me when he/she was disappointed.	1	2	3	4	5	6	7
12. He/She provided me with opportunities to make personal decisions in what I did.	1	2	3	4	5	6	7
13. He/She took away some privileges.	1	2	3	4	5	6	7
14. He/She ignored my ideas and my opinions.	1	2	3	4	5	6	7
15. He/She easily exploded in anger towards me.	1	2	3	4	5	6	7
16. He/She wanted to control whatever I did.	1	2	3	4	5	6	7
17. He/She openly acknowledged my thoughts and feelings although they might have been different from his/hers.	1	2	3	4	5	6	7
18. He/She made me feel as though I was bothering him/her	1	2	3	4	5	6	7
19. He/She liked to tell me how I should feel.	1	2	3	4	5	6	7
20. He/She let me know when he/she was disappointed in me	1	2	3	4	5	6	7
21. He/She made me feel free to do things my own way.	1	2	3	4	5	6	7
22. He/She often reminded me that there were consequences to my actions.	1	2	3	4	5	6	7
23. He/She told me that I was not as good as him/her.	1	2	3	4	5	6	7

If you had the opportunity to work once more with the technician, would you be willing to be under his/her guidance again?

Not at all 1	2	3	Moderately 4	5	6	For sure 7
-----------------	---	---	-----------------	---	---	---------------

YOUR EMOTIONS

Please indicate to which extent you felt each of these emotions while completing the task.

	Not at all 1	2	3	4	Moderately 5	6	Exactly 7								
1. Attentive.	1	2	3	4	5	6	7	11. Guilty.	1	2	3	4	5	6	7
2. Interested.	1	2	3	4	5	6	7	12. Angry.	1	2	3	4	5	6	7
3. Excited.	1	2	3	4	5	6	7	13. Strong.	1	2	3	4	5	6	7
4. Worried.	1	2	3	4	5	6	7	14. Upset.	1	2	3	4	5	6	7
5. Irritable.	1	2	3	4	5	6	7	15. Enthusiastic.	1	2	3	4	5	6	7
6. Panicked.	1	2	3	4	5	6	7	16. Distressed.	1	2	3	4	5	6	7
7. Nervous.	1	2	3	4	5	6	7	17. Confident.	1	2	3	4	5	6	7
8. Affraid.	1	2	3	4	5	6	7	18. Ashamed.	1	2	3	4	5	6	7
9. Proud.	1	2	3	4	5	6	7	19. Scared.	1	2	3	4	5	6	7
10. Determined.	1	2	3	4	5	6	7	20. Alert.	1	2	3	4	5	6	7

GENERAL QUESTIONS

What is your date of birth ? ____ / ____ / 19____
 month / day / year

You are ? Male ☐ Female ☐

What is your mother tongue ? French ☐ English ☐ Other: _____

What is your marital status ? Single ☐ Married ☐ Common law ☐ Divorced ☐

What is your last school diploma obtained ? High School ☐ College ☐ University ☐

Are you currently enrolled in a psychology program ? Yes ☐ No ☐

**Thank you for your precious
collaboration !**

Appendix I

Visio Debriefing Form



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VISIO PROGRAM: DEBRIEFING FORM

The real purpose of this study was not to test a computerized-task that could possibly take part in a training course on the Visio program, but rather **to see how hierarchical interpersonal styles may influence individuals' engagement maintenance in an interesting activity.**

That being said, your completion of the Visio task was not of main importance, but **we were rather interested in investigating your thoughts, feelings and reactions regarding the experimenter's attitude** when giving you the directives for the Visio task and guiding you throughout the lab session. You may have found him/her a bit controlling, pressuring or even arrogant. Such feelings were totally expected since the manipulated variable was the experimenter's interpersonal style, which we are aware, was more or less unpleasant. It is important for you to understand that the experimenter's attitude was not the result of something you might have said or done; he/she was following a pre-determined script that remained the same across participants. Before you leave this room, I must make sure that you understand this.

Although you only took part in one condition, there were three different interpersonal styles: one portraying autonomy support (e.g. taking the other's perspective, acknowledging the other's feelings, and providing the other with pertinent information and opportunities for choice, while minimizing the use of pressures and demands), one representing behavioral control (e.g., attempting to manage or regulate the other's behaviors: demands, monitoring, setting limits) and another displaying psychological control (e.g., attempting to exercise control over the psychological and emotional world of the other person: invalidating feelings, guilt induction).

The experimenter-participant interaction in this lab session was meant to reproduce the different interpersonal styles individuals may come across in their day-to-day interactions with others in authority positions and examine if particular styles may affect individuals, either positively or negatively, in specific and distinct ways (i.e., emotions, concentration).

Such a study is important for the main reason that very little research was conducted thus far on the distinction between autonomy-supportive, behavioral and psychological controlling styles and how these three affect others in terms of positive and negatives consequences.

If you felt any emotional or psychological discomfort during the lab session or wish to further discuss any preoccupations you may have, please contact the Center for psychological services here on campus at (613) 562-5289.

Finally, we would kindly like to inform you that it is extremely important that you do not reveal the purpose of this study, what you did while you were here or any other detail about the research to anyone. Doing so could bias the results of the study and lead to erroneous results.

In closing, we would like to **thank you for participating** in this study.

Please sign your name below; signature that will indicate that you have read this explanation and agreed not to discuss this research with anyone.

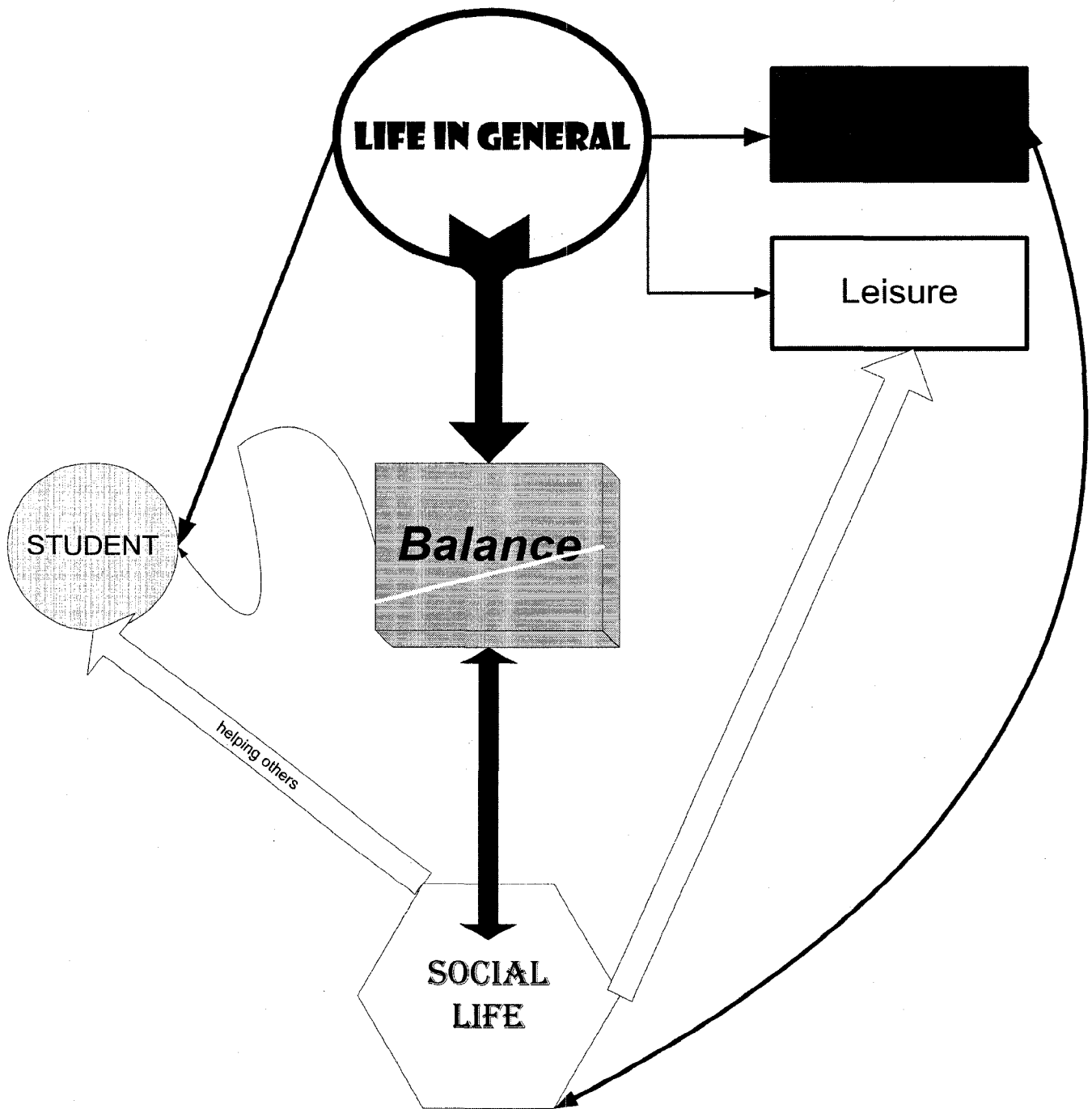
Participant's signature: _____

Date: _____

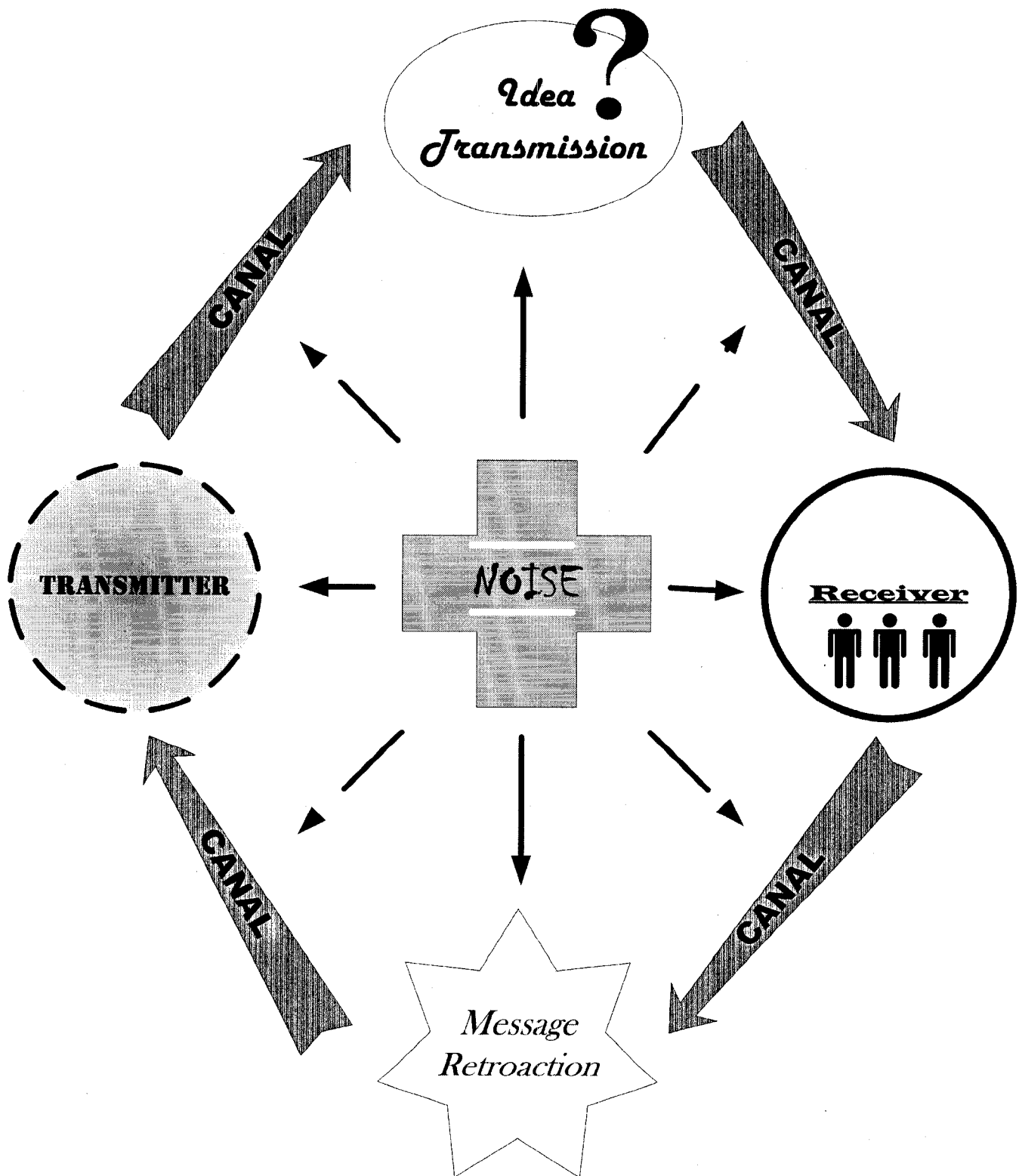
Appendix J

Visio Figures

Life domains



COMMUNICATION PROCESS



Appendix K

Visio Behavioral Measure

ID CODE: __/__/__/__/__/

Condition /__/_/

What was the purpose of the study?

Visio properties:

	dd	mm	yy	00	00	00
Created						
Modified						
Accessed						

General comments

Experimenter: _____

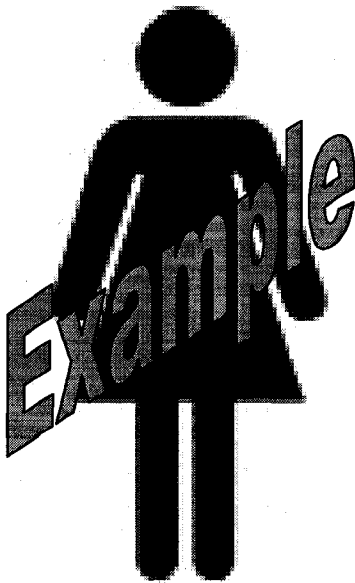
Interviewer: _____

Appendix L

Equivalence of Experimenters

Indiquez à quel point cette jeune fille vous semble ...

1



- Plaisante
- Attrayante
- Contrôlante
- Sympathique
- Chaleureuse
- Professionnelle
- Confiante
- Stressante

Quelle est votre âge?
Quelle est votre sexe?

MERCI !!!

Appendix M

Clubs' Information Letter

DESCRIPTION DE LA RECHERCHE : ENTRAÎNEUR(E)-CHEFS

GYMNASTIQUE : APPROCHE À L'ENTRAÎNEMENT

Une recherche est présentement en cours à l'Université d'Ottawa sous la supervision de Dr. Céline Blanchard et Maxime Tremblay de l'École de psychologie. **Le but de cette recherche est de mieux comprendre les raisons pour lesquelles les jeunes pratiquent des activités sportives, de même que les émotions qu'ils vivent et les buts qu'ils se fixent en entraînement ainsi que le rôle des entraîneur(e)s.** La présente recherche permettra d'approfondir les connaissances tant théoriques que pratiques en ce qui concerne un sujet d'étude important peu développé : l'impact de l'approche à l'entraînement sur des variables motivationnelles.

Il serait très apprécié que vos entraîneur(e)s et gymnastes participent à cette étude. S'il(elle)s décident d'y participer, il(elle)s seront invité(e)s à compléter deux questionnaires : le premier en septembre 2006 (gymnastes et entraîneur(e)s) et le second en janvier 2007 (gymnastes seulement). Grâce à votre accord, les deux questionnaires seront complétés en gymnase, pendant une pause lors de l'un de leurs entraînements. Par la suite, vos gymnastes seront également sujets à participer à une courte formation en préparation psychologique (6X30 minutes; p.ex., imagerie mentale, objectifs, concentration) afin de les aider dans leur développement sportif (détails à venir). Enfin, les parents de gymnastes seront également invités à répondre (en septembre 2006) à un questionnaire leur étant destiné.

Le temps requis pour compléter chaque questionnaire est d'environ **20 minutes**. Nous leur poserons des questions concernant les raisons pour lesquelles il(elle)s sont entraîneur(e) ou gymnaste, leur approche vis-à-vis de l'entraînement, de même que l'ambiance générale et spécifique entourant le sport de jeunes athlètes. Lorsqu'il(elle)s répondront aux questions, nous leur demanderons de répondre de la façon la plus honnête et précise que possible. Il est important qu'il(elle)s gardent en tête qu'il n'y a pas de bonne ou de mauvaise réponse; nous sommes intéressés à leurs opinions personnelles. Aussi, nous les encouragerons à répondre à toutes les questions et à choisir la réponse qui représente le mieux leurs pensées et leurs émotions pour chaque énoncé. Leur participation ne comporte aucun risque. Il(Elle)s ne sont bien entendu pas obligés de répondre aux questions pour lesquelles il(elle)s éprouvent de l'inconfort. Enfin, si certaines questions provoquent chez eux un inconfort psychologique et qu'il(elle)s sentent le besoin d'en discuter, il(elle)s leur est possible de communiquer avec le Centre des services psychologiques de l'Université d'Ottawa au (613) 562-5289.

Par ailleurs, les chercheurs rendront les résultats de la recherche disponible aux entraîneur(e)-chefs, entraîneur(e)s, parents et gymnastes qui en feront la demande. Nous serons heureux de vous faire parvenir une copie de ce rapport si vous nous appelez au numéro suivant : (613) 562-5800 poste 4902. Vous pouvez aussi utiliser ce numéro afin d'obtenir toute information additionnelle concernant le projet. Les résultats obtenus ne seront utilisés qu'à des fins de recherche et seront publiés dans des journaux scientifiques de manière globale plutôt qu'individuelle. Les données contenues dans les questionnaires seront conservées dans un laboratoire de l'Université d'Ottawa fermé à clef, cinq ans après leur publication et seuls les chercheurs principaux auront accès à ces données.

Les chercheurs prévoient également offrir aux entraîneur(e)s et aux cadres de la Fédération de Gymnastique des informations pratiques concernant l'impact de l'approche à l'entraînement sur les athlètes. Ces informations seront en partie basées sur les résultats obtenus de la présente recherche, de même que sur les études antérieures dans le domaine.

La participation à ce projet est entièrement volontaire. Vous pouvez donc être assurés que leurs réponses seront gardées confidentielles et anonymes. Pour ce faire, nous assignerons un code numérique à chaque participant(e) pour que des codes, plutôt que des noms, servent à identifier les participant(e)s. Finalement, il(elle)s sont libres de se retirer de la recherche à tout moment. Concernant toute question d'éthique, vous pouvez contacter les responsables de la déontologie à l'Université d'Ottawa au (613) 562-5800 poste 5387.

Vous pouvez conserver le présent document pour vos dossiers administratifs.

Enfin, nous leur demandons de retourner les formulaires de consentement dûment complétés directement à vous à l'aide de **l'enveloppe de retour**, d'ici la prochaine semaine.

En vous remerciant à l'avance pour votre aide dans cette recherche, nous vous prions d'agréer l'expression de nos sentiments les meilleurs.

Maxime Tremblay

Céline Blanchard, Ph.D.

Appendix N

Parents' Information Letter



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DESCRIPTION DE LA RECHERCHE : PARENT / TUTEUR

GYMNASTIQUE : APPROCHE À L'ENTRAÎNEMENT

Une recherche est présentement en cours à l'Université d'Ottawa sous la supervision de Dr. Céline Blanchard et Maxime Tremblay de l'École de psychologie. **Le but de cette recherche est de mieux comprendre les raisons pour lesquelles les jeunes pratiquent des activités sportives, de même que les émotions qu'ils vivent et les buts qu'ils se fixent en entraînement ainsi que le rôle des entraîneurs.** La présente recherche permettra d'approfondir les connaissances tant théoriques que pratiques en ce qui concerne un sujet d'étude important peu développé : l'impact de l'approche à l'entraînement sur des variables motivationnelles.

Cela dit, il serait très apprécié que votre enfant participe à cette étude. S'il(elle) décide d'y participer, votre enfant sera invité(e) à compléter **deux questionnaires** : le premier en **septembre 2006** et le second en **janvier 2007**. Grâce à l'accord de Mme *Jocelyne Legault*, les deux questionnaires seront complétés **en gymnase**, pendant une pause lors de l'un des entraînements de votre enfant. S'il(elle) le désire, votre enfant sera également sujet à participer à une courte **formation en préparation psychologique** (6X30 minutes; p.ex., imagerie mentale, objectifs, concentration) afin de l'aider dans son développement sportif (détails à venir). Pour votre part, vous serez également invité à répondre (en **septembre 2006**) à un questionnaire destiné aux parents de gymnastes.

Le temps requis pour compléter chaque questionnaire est d'environ **20 minutes**. Nous poserons à votre enfant des questions concernant les raisons pour lesquelles il(elle) fait du sport, son approche vis-à-vis l'entraînement, de même que l'ambiance générale et spécifique entourant le sport de jeunes athlètes. Lorsque votre enfant répondra aux questions, nous lui demanderons de répondre de la façon la plus honnête et précise que possible. Il est important de garder en tête qu'il n'y a pas de bonne ou de mauvaise réponse; nous sommes intéressés à ses opinions personnelles. Aussi, nous l'encouragerons à répondre à toutes les questions et à choisir la réponse qui représente le mieux ses pensées et ses émotions pour chaque énoncé. Sa participation ne comporte aucun risque. Il(elle) ne sera bien entendu pas obligé(e) de répondre aux questions pour lesquelles il(elle) éprouve de l'inconfort. Enfin, si certaines questions provoquent chez lui(elle) un inconfort psychologique et qu'il(elle) ressent le besoin d'en discuter, n'hésitez pas à communiquer avec le Centre des services psychologiques de l'Université d'Ottawa au (613) 562-5289.

Par ailleurs, les chercheurs rendront les résultats de la recherche disponible aux parents, entraîneur(e)s et gymnastes qui en feront la demande. Nous serons heureux de vous faire parvenir une copie de ce rapport si vous nous appelez au numéro suivant : (613) 562-5800 poste 4902. Vous pouvez aussi utiliser ce numéro afin d'obtenir toute information additionnelle concernant le projet. Les résultats obtenus ne seront utilisés qu'à des fins de recherche et seront publiés dans des journaux scientifiques de manière globale plutôt qu'individuelle. Les données contenues dans les questionnaires seront conservées dans un laboratoire de l'Université d'Ottawa fermé à clef, cinq ans après leur publication et seuls les chercheurs principaux auront accès à ces données.

Les chercheurs offriront également aux entraîneur(e)s et aux cadres de la Fédération de Gymnastique des informations pratiques concernant l'impact de l'approche à l'entraînement sur les athlètes. Ces informations seront en partie basées sur les résultats obtenus de la présente recherche, de même que sur les études antérieures dans le domaine.

La participation à ce projet est entièrement volontaire. La décision que vous prendrez concernant la participation (ou la non-participation) de votre enfant ne sera en aucun cas communiquée à son entraîneur(e). Soyez donc assurés que ses réponses seront gardées confidentielles et anonymes. Pour ce faire, nous assignerons un code

numérique à chaque gymnaste pour que des codes, plutôt que des noms, servent à identifier les participant(e)s. Finalement, votre enfant sera libre de cesser la complétion de son questionnaire à tout moment. Concernant toute question d'éthique, vous pouvez contacter les responsables de la déontologie à l'Université d'Ottawa au (613) 562-5800 poste 5387.

Vous pouvez conserver le présent document pour vos dossiers personnels.

Enfin, nous vous demandons de retourner les présents **formulaire de consentement** (parents et gymnaste) dûment complétés directement à Mme *Jocelyne Legault* à l'aide de **l'enveloppe de retour**, d'ici la prochaine semaine.

En vous remerciant à l'avance pour votre aide dans cette recherche, nous vous prions d'agréer l'expression de nos sentiments les meilleurs.

Maxime Tremblay

Céline Blanchard, Ph.D.

Appendix O

Parents' Consent Form



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FORMULAIRE DE CONSENTEMENT DES PARENTS OU TUTEUR

GYMNASTIQUE : APPROCHE À L'ENTRAÎNEMENT

Je, _____, confirme avoir lu et compris les renseignements qui m'ont été fournis au sujet du projet de recherche sur les sources d'influences de la motivation des athlètes (questionnaires & formation en préparation psychologique), mené par Dr. Céline Blanchard et Maxime Tremblay de l'Université d'Ottawa et j'ai discuté de ce projet avec mon enfant afin de m'assurer qu'il(elle) désirait y participer.

- ☐ Je suis d'accord pour que mon enfant participe à cette étude
- ☐ Je suis d'accord pour participer à cette étude.
- ☐ Je ne suis pas d'accord pour que mon enfant participe à cette étude.
- ☐ Je ne suis pas d'accord pour participer à cette étude.

Section à remplir par le parent ou le tuteur de l'enfant

Nom du (de la) gymnaste : _____

Nom du parent / tuteur : _____

Nom de l'entraîneur(e) : _____

Signature du parent / tuteur: _____

Date : ____ / ____ / 2006

Section à remplir par les responsables de la recherche

Signature : _____ Date : ____ / ____ / 2006

Maxime Tremblay

Signature : _____ Date : ____ / ____ / 2006

Céline Blanchard, Ph.D.

S.V.P. Retournez cette copie à Mme XXXX d'ici la semaine prochaine

Appendix P

Athletes' Consent Form



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psychologie

FORMULAIRE DE CONSENTEMENT DU (DE LA) GYMNASTE

GYMNASTIQUE : APPROCHE À L'ENTRAÎNEMENT

Nous nous intéressons à savoir pourquoi tu pratiques ton sport. Pendant **20 minutes**, nous te demanderons de **répondre à des questions** concernant ton sport, tes entraînements, tes comportements et ton entraîneur(e). Garde en tête qu'il n'y a pas de bonnes ou de mauvaises réponses. Nous voulons simplement savoir ce que tu penses vraiment concernant plusieurs aspects de la gymnastique.

Nous voulons aussi que tu saches qu'il n'y a aucune conséquence si tu ne veux pas participer à cette étude. Ton entraîneur(e) et tes parents ne seront pas informés de tes réponses. De plus, ce que nous allons te demander de faire ne présente absolument aucun danger. Ça va ressembler un peu à un exercice que tu pourrais faire en classe. Tu devras simplement répondre à des questions en choisissant parmi des choix de réponses.

Tu as le choix de participer ou non.

Tu n'es pas obligé de nous aider.

Nous aimerions que tu saches que ta **participation serait vraiment appréciée**. Ta participation permettra de mieux comprendre pourquoi les jeunes s'intéressent à la gymnastique et voir comment on pourrait aider les jeunes à mieux réussir dans leur sport.

Est-ce que tu acceptes de participer à cette recherche?

☐ OUI

☐ NON

Ta signature : _____

Date : ____ / ____ / 2006

S.V.P. Retournez cette copie à Mme XXXX d'ici la semaine prochaine

Appendix Q

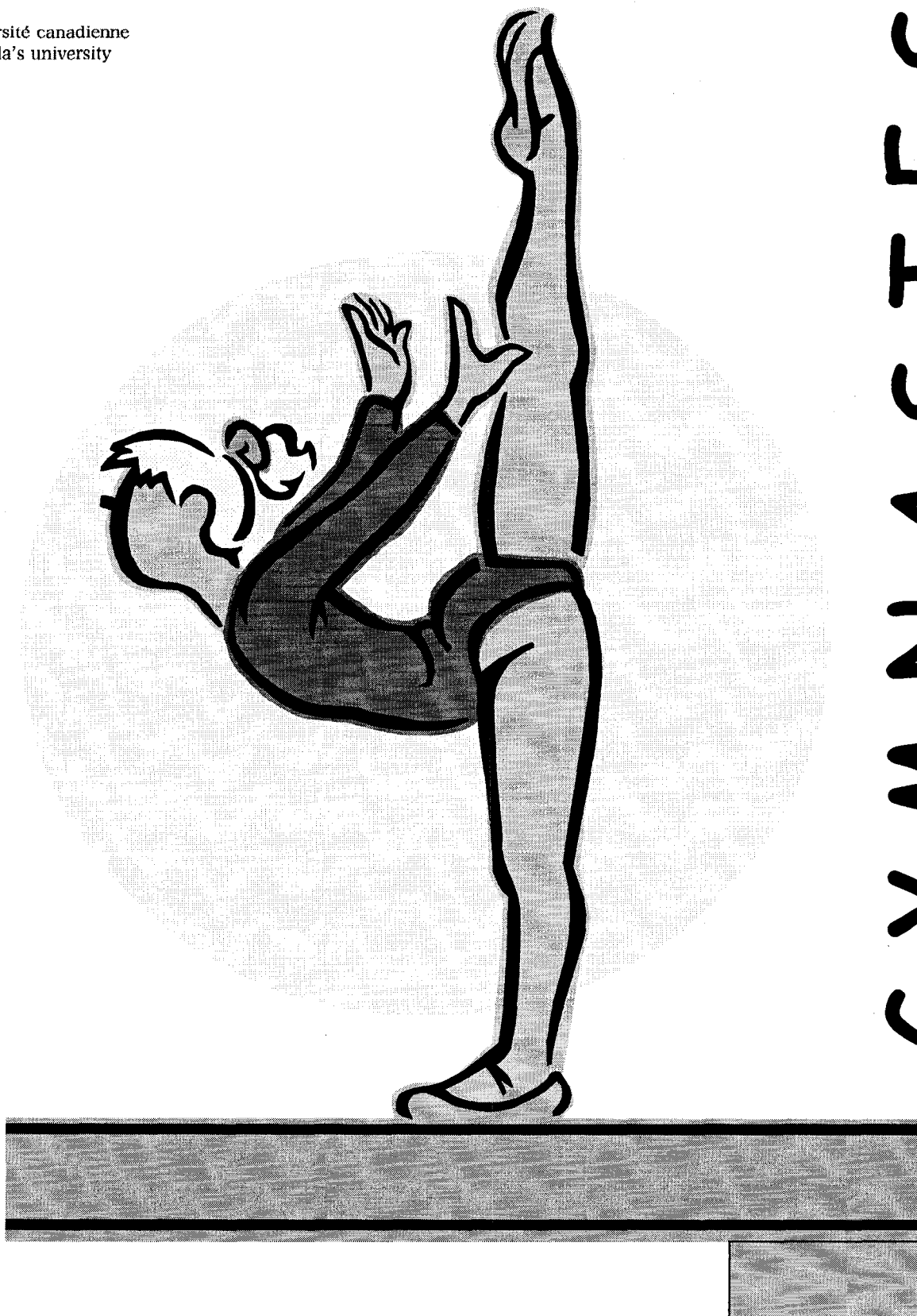
Athletes' Questionnaires



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QUESTIONNAIRE 1



GYMNASTES

QUELLE EST L'ATTITUDE DE TON ENTRAÎNEUR(E) ?

Indique si les énoncés suivants représentent « **jamais** », « **un peu** », « **des fois** », « **à l'occasion** » ou « **souvent** » l'attitude de ton entraîneur(e) lors de tes entraînements.

	Jamais	Un peu	Des fois	À l'occasion	Souvent
1. Il/Elle perd son calme facilement envers moi.					
2. Il/Elle n'aime pas (ou ne veut pas) entendre ce que j'ai à dire.					
3. Il/Elle me dit que je ne suis pas à la hauteur.					
4. Il/Elle fait beaucoup de règlements.					
5. Il/Elle n'accepte pas le fait que j'exprime mes émotions.					
6. Il/Elle me dit que mes comportements sont stupides.					
7. Il/Elle me dit exactement ce que je dois faire.					
8. Il/Elle crie (ou s'empporte) lorsque je fais quelque chose d'incorrect.					
9. Il/elle évite de me regarder lorsqu'il/elle est déçu(e).					
10. Il/Elle m'enlève certains privilèges.					
11. Il/Elle ignore mes idées et mes opinions.					
12. Il/Elle explose de colère contre moi.					
13. Il/Elle veut contrôler tout ce que je fais.					
14. Il/Elle me fait sentir que je le/la dérange.					
15. Il/Elle voudrait me dire comment me sentir.					
16. Il/Elle me laisse savoir lorsque je lui fais honte.					
17. Il/Elle me rappelle constamment qu'il y a des conséquences à mes actions.					
18. Il/Elle me dit que je ne suis pas aussi bon(ne) que lui/qu'elle.					

QUELLES SONT VOS RELATIONS ENTRAÎNEUR(E)-ATHLÈTE ?

Indique si les énoncés suivants représentent « *pas du tout* », « *un peu* », « *moyennement* », « *beaucoup* », ou « *tout à fait* » le type de relation que tu as avec ton entraîneur(e).

	Pas du tout	Un peu	Moyen	Beaucoup	Tout à fait
1. Lorsque je lui demande de l'aide technique, il/elle me demande mon avis avant de me dire quoi faire (ou comment le faire).					
2. Il/Elle m'encourage à être moi-même (qui je suis).					
3. Il/Elle me donne plusieurs chances de prendre mes décisions concernant ma gymnastique.					
4. Il/Elle considère mes pensées et mes sentiments, bien qu'ils soient différents des siens.					
5. Il/Elle me fait sentir libre de faire les choses à ma manière.					

QUESTIONS GÉNÉRALES

Combien d'heures par semaine t'entraînes-tu ? _____ h / semaine

Quelle est ta date de naissance ? _____ / _____ / 19____
jour / mois / année

Es-tu ? Une fille ☐ Un garçon ☐

Quel est ton entraîneur(e) ? Une femme ☐ Un homme ☐

À quel niveau compétitionnes-tu ? Régional ☐ National ☐
Provincial ☐ International ☐

Un gros merci pour ta participation !!!

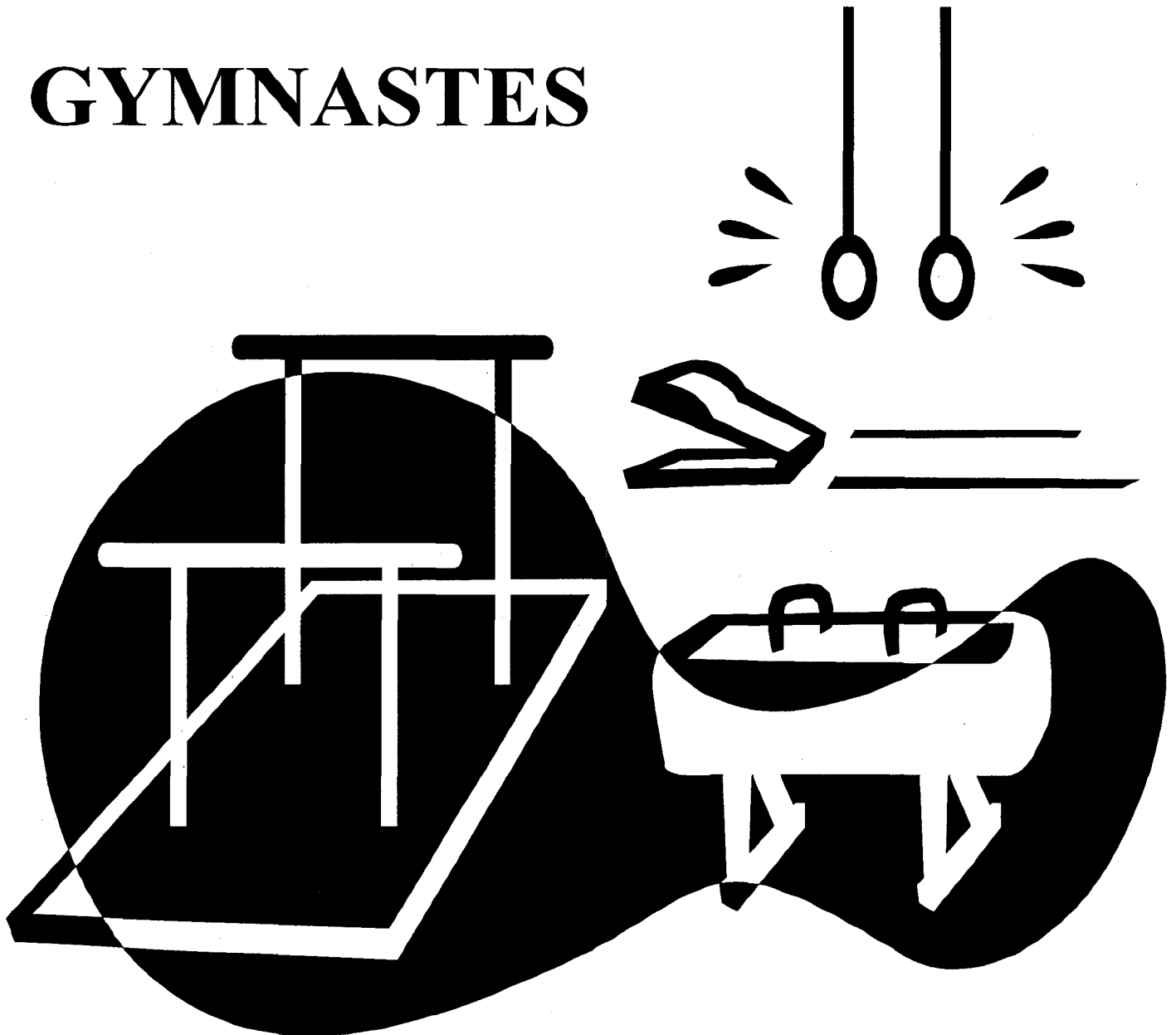


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QUESTIONNAIRE 2

GYMNASTES



QUELLE EST TON ATTITUDE AU GYM ?

***En cette fin d'année de gym,** indique si tu ressens « **jamais** », « **un peu** », « **des fois** », à l'occasion » ou « **souvent** » les sentiments (ou symptômes) suivants.*

	Jamais	Un peu	Des fois	À l'occasion	Souvent
1. Je me tourmente par ce que mon entraîneur(e) va me dire.					
2. Je suis distrait(e).					
3. J'ai mal au ventre.					
4. Je suis tendu(e).					
5. Je suis concentré(e) sur ce que je fais.					
6. J'ai l'impression que mon entraîneur(e) va me dire que je fais les choses de la mauvaise façon.					
7. Mes mains sont moites.					
8. Je m'inquiète de ce que les autres (gymnastes / entraîneur(e)s) pensent de moi.					
9. Je suis fatigué(e).					
10. Je me surprends à penser à autres choses.					
11. Je suis nerveux(se).					
12. Je m'inquiète souvent (en pensant à la gym).					

QUELS SONT TES ÉMOTIONS EN GYM ?

En cette fin d'année de gym, indique si tu ressens « *jamais* », « *un peu* », « *des fois* », « *à l'occasion* » ou « *souvent* » les émotions suivantes lors de tes entraînements.

	Jamais	Un peu	Des fois	À l'occasion	Souvent		Jamais	Un peu	Des fois	À l'occasion	Souvent
Irritable						Fier(ère)					
Positif(ve)						Découragé(e)					
Apeuré(e)						Nerveux(se)					
Heureux(se)						Déterminé(e)					
Paniqué(e)						Anxieux(se)					
Fâché(e)						Coupable					

ES-TU SATISFAIT(E) EN GYM ?

En cette fin d'année de gym, indique si les énoncés suivants représentent « *pas du tout* », « *un peu* », « *moyen* », « *beaucoup* » ou « *tout à fait* » ta satisfaction de la gymnastique.

	Pas du tout	Un peu	Moyen	Beaucoup	Tout à fait
1. Jusqu'à maintenant, j'ai obtenu ce que je voulais en gym.					
2. Je suis satisfait(e) de ma vie en gym.					
3. Si je pouvais recommencer mon expérience en gym, je n'y changerais presque rien.					

Quelles sont les chances que tu te réinscrives en gymnastique l'an prochain ?

Pas probable 0 %	Peu probable 25 %	Moyen 50 %	Probable 75 %	Très probable 100 %

Un gros merci pour ta participation !!!

Appendix R

Assessment of Youth Sport Motivation Items by Subscale

Autonomous Motivation

Parce que j'ai du plaisir à faire de la gymnastique
Parce que ce que j'apprends est le fun
Parce que je trouve amusant d'apprendre de nouveaux mouvements
Pour les diverses expériences que la gymnastique me permet de vivre
Parce que la gymnastique apporte quelque chose de bien à ma vie
Parce que je veux toujours m'améliorer et me dépasser
Parce que je me sens bien dans ma peau lorsque je fais de la gymnastique
Parce qu'en faisant de la gymnastique, je me sens actif(ve) et en bonne santé

Controlled Motivation

Parce que je dois vraiment réussir à la gymnastique
Parce que je dois être le(la) meilleur(e) gymnaste
Parce que je sens que je dois faire de la gymnastique
Pour gagner des rubans et des médailles lors des compétitions
Pour faire plaisir à mes parents
Parce que mes ami(e)s font de la gymnastique
Pour faire plaisir à mon entraîneur(e)

Non-Regulation

Je me demande si je dois continuer ou non
Je ne le sais pas, j'ai vraiment l'impression de perdre mon temps
Je ne sais pas, je sens que je n'ai pas de bonnes raisons d'y aller

Appendix S

Preliminary Psychometric Properties of the Scale Assessing Youth Sport Motivation

Preliminary Items. Eighteen preliminary items were adapted from existing Self-Determination Theory (SDT; Deci & Ryan, 1985, 2002) measures of sports motivation (e.g., Sport Motivation Scale: Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995; Exercise Self-Regulation Questionnaire: adapted from Ryan, & Connell's (1989) standard version) as well as from motivational assessments adapted to younger populations (i.e., Children Academic Motivation Scale adapted from the Academic Motivation Scale; Vallerand, Blais, Brière, & Pelletier, 1989). Moreover, these preliminary items were formulated on the results from a small qualitative study in which 52 young athletes were asked open-ended questions about their motives for participating in sports. In line with SDT, these preliminary items were formulated around five subscales: *intrinsic regulation*, *identified regulation*, *introjected regulation*, *external regulation*, and *non-regulation*. The decision to omit the integrated regulation subscale was based on the target population's age as well as on previous research suggesting that even adults fail to distinguish between integrated and identified regulation (e.g., Pelletier et al., 1995; Richard & Schneider, 2005; Vallerand, Blais, Brière, & Pelletier, 1989). A group of experts in SDT examined the items for face validity and found them appropriate.

The preliminary items of the scale assessing youth sport motivation was administered to 149 French-speaking athletes (143 girls, 5 boys and 1 'no gender specified') from 4 gymnastics Clubs in the province of Québec (Canada). Participants' age ranged from 9 to 18 with a mean age of 14.69 years. In addition, participants' were training on average 13.5 hours per week (ranging from 4 to 24 hours) and 83.1% of them competed at the provincial level. Finally, participants' coaches were mainly women (80.5%).

Questionnaires were mailed to each of the Clubs and were distributed to the participants by the Club's head-coach. Following parental permission for participation (see Appendix N and Appendix O), participants were invited to voluntarily take part in the study and were assured that their responses would be anonymous and kept confidential (see Appendix P). Interested participants responded to the items of the scale and were instructed to return it in postage-paid envelopes within two weeks to the University of Ottawa. No compensation was offered in exchange for participation. Overall, 300 questionnaires were distributed and 149 copies were returned, indicating a response rate of 49.7%. Participants were asked to complete the scale using the stem: "Please indicate to which extent the reasons mentioned below are typical of the reasons why you do gymnastics". The response format was a Likert-type scale, ranging from (1) *not at all* to (5) *exactly*.

Exploratory Factor Analyses. A total of three EFAs (maximum likelihood extraction with oblique rotation) were conducted on the remaining 18 items of the scale's preliminary version before reaching an appropriate factorial solution. First, on the basis that the fifth obtained factor was comprised of only one item (Kline, 1998), SDT's original five-factor solution was rejected. Second, the four-factor solution demonstrated mixed results (i.e., crossloadings) which made no sense theoretically: two intrinsic/identified factors, one external/non-regulation factor, and one external/introjected factor. Following these unexpected results, a three-factor solution was finally tested. The resulting EFA solution revealed three main factors (eigenvalues greater than 1) with eight items serving as indicators of *autonomous motivation* (i.e., intrinsic and identified regulation; 37% of variance explained; $\alpha = .89$), seven items

serving as indicators of *controlled motivation* (i.e., introjected and external regulation; 14% of variance explained ($\alpha = .79$)), and three items serving as indicators of *non-regulation* (9% of variance explained ($\alpha = .75$)). All items had loadings higher than .30 (Tabachnick & Fidell, 2001) and loaded on one (and only) factor (to the exception of two autonomous motivation items with crossloading). All factor loadings are presented in Table 12.

 Insert Table 12 here

In addition to the adequate internal consistency estimates, each set of items showed midrange to high item-to-total correlations (all above .38, $p < .01$), and the correlations between the three latent factors were moderate (r s ranging from .15 to -.41, p s $< .05$), representing a first indicator of good construct validity. Finally, the assertion of the scale's unidimensionality was tested using the ratio of the first to second eigenvalue and was higher than 3:1 (Tabachnick & Fidell, 2001).

Following this first step, the scale's experimental version (including four minor item modifications¹) was then administered to 178 French-speaking athletes (160 girls, 12 boys and 6 'no gender specified') from 5 gymnastics Clubs in the province of Québec (Canada). Participants' age ranged from 8 to 18 with a mean age of 14.49 years. In addition, participants' were training on average 13.6 hours per week (ranging from 2 to

¹ "Pour les diverses expériences que la gymnastique me permet de vivre" was replaced with "Pour vivre des expériences que je ne peux vivre qu'en faisant de la gymnastique"; "Parce que je peux toujours m'améliorer et me dépasser" was replaced with "Parce que je veux toujours m'améliorer et me dépasser"; "Pour être actif(ve) et me garder en bonne forme physique" was replaced with "Parce qu'en faisant de la gymnastique, je me sens actif(ve) et en bonne santé"; "Parce que j'ai l'occasion de voir mes ami(e)s" was replaced with "Parce que mes ami(e)s font de la gymnastique".

24 hours) and 75.7% of them competed at the provincial level. Finally, participants' coaches were mainly women (76%). The methodology employed for the first group was applied here as well. Overall, 300 questionnaires were distributed and 178 copies were returned, indicating a response rate of 59.3%.

Confirmatory Factor Analysis. A CFA was conducted including all 18 items of the scale's experimental version and was performed on the covariance matrix using the ML estimation method. Based on the L-M test for adding free parameters, three pairs of correlated errors were added in order to improve the factorial structure: Aut-M2 and Aut-M8 (both containing the word "well"), Aut-M4 and Aut-M6 (learning-related items), and Cont-M1 and Cont-M2 ("succeeding" and "being the best"). This CFA rendered a marginal goodness-of-fit: S-B χ^2 ($df=99$, $N=178$) = 128.1804, $p < .001$ (χ^2/df ratio = 1.29); *CFI = .881; SRMR = .075; *RMSEA = .043, 90% CI RMSEA = .016, .063. As confirmed by the Wald test, all estimated parameters were significant. All items had standardized factor loadings over .30 (ranging from .38 to .75). As well, the correlations among the three latent factors were all moderate (r s in the range of -.34 to .25, p s < .05), and the internal consistency estimates were deemed adequate (autonomous motivation: α = .73; controlled motivation: α = .63; and non-regulation: α = .73), further suggesting acceptable construct validity. The items and standardized factor loadings associated with the latent constructs in this three-factor measurement model are presented in Figure 7.

 Insert Figure 7 here

Autonomous versus Controlled Motivation. Building on the present findings and in order to further test the idea that young athletes do not necessary clearly differentiate between autonomous and controlled reasons underlying their involvement in sports, participants were also invited to rate pairs of items worded as responses to the general question: “It may happen that athletes do gymnastics for a variety of reasons. Some reasons go well together because they bring more or less the same consequence while others are basic opposites. In comparing the pairs of reasons below, please indicate if you would put them in the same gym bag because they are “identical”, in overlapping bags because they are “slightly similar” or in opposite gym bags because they are “very different?”.

Fifteen pairs of reasons were formulated to contrast autonomous motivation (i.e., intrinsic and identified regulation) with controlled motivation (i.e., introjected and external regulation)². Examples of contrasting pairs of items are as follow: “because in doing gymnastics I feel active and in good health (identified)” vs. “because I really have to succeed at gymnastics (introjected)”, and “because I have fun in gymnastics (intrinsic)” vs. “to please my parents (external)”. For research purposes, three autonomous motivation reasons (e.g., “because I find it fun to learn new moves” vs. “because I can always get better and surpass myself”) as well as controlled motivation reasons (e.g., “because my friends do gymnastics” vs. “because I feel that I have to do gymnastics”) were also contrasted. The response format was a Likert-type scale, ranging from (1) *identical* to (5) *very different*.

² The scale’s non-regulation items were not included as part of this analysis because it was postulated that children would be able to distinguish between items of this nature and items of autonomous (intrinsic, identified regulation) as well as controlled (introjected, external regulation) motivation.

As partial evidence of the validity of Deci and Ryan's (1985, 2002) self-determination continuum, many researchers (e.g., Guttman, 1969; Pelletier et al., 1995; Ryan and Connell, 1989) have reported in the past (quasi) simplex patterns in the correlations between motivational dimensions located within the self-determination continuum. As evidence of the applicability of this 5-dimension theoretical structure to a younger population, it would first be hypothesized that a clear distinction should not only been apparent between items measuring non adjacent dimensions (e.g., intrinsic-introjected), but also between adjacent ones (e.g., intrinsic-identified). For example, children should be able to classify two autonomous motivation items as dissimilar, the same way they would be able to classify two items tapping different motivational orientations (i.e., one autonomous, one controlled) as dissimilar. Second, it would also be hypothesized that, when grouped from the most similar dimensions to the most dissimilar ones, pairs of items would be ranked in the following order: 1) intrinsic-identified and introjected-external; followed by 2) identified-introjected, intrinsic-introjected, and identified-external; and 3) intrinsic-external. However, on the bases of the current preliminary and confirmatory factorial analyses, it is expected that these SDT's structural premises will not necessarily hold in a younger population, which may have more difficulties distinguishing between the different motivational dimensions.

As hypothesized, when compared together, pairs consisting of autonomous motivation and controlled motivation items were perceived as dissimilar (identified-introjected and intrinsic-introjected were perceived as "different" ($M_s = 4.06$ and 3.83 , respectively); intrinsic-external and identified-external were perceived in the range of "different" to "really different" ($M_s = 4.32$ and 4.33 , respectively)). In addition, results

did not show a differentiation between pairs of autonomous motivation items (intrinsic-identification) nor between pairs of controlled motivation items (introjected-external). On the contrary, participants perceived sets of items assessing the same motivational orientation as being in the similar range (autonomous motivation: “almost identical” ($M = 1.79$); controlled motivation: ranging from “almost identical” to “slightly similar” ($M = 3.09$)). The results also failed to display the simplex patterns of the self-determination continuum. Accordingly, the pattern of item ranking was as follow: 1) identified-external and identified-introjected; followed by 2) intrinsic-external; and 3) intrinsic-introjected; and finally 4) introjected-external, and intrinsic-identified.

Test-Retest Correlations. Finally, as a first assessment of the scale’s reliability, test-retest correlations were also obtained from a sample of 49 female athletes (mean age of 13 years and training on average 10.65 hours per week) tested at an interval of four months. The results were conclusive, with moderate to high Time1 to Time2 correlations (autonomous motivation: $r = .54$, $p < .01$, $Mas = .65$; controlled motivation: $r = .77$, $p < .01$, $Mas = .79$; and non-regulation: $r = .43$, $p < .01$, $Mas = .61$).

Table 12

Factor loadings, Cronbach alphas and item-to-total correlations for the 18 items of the scale assessing youth sport motivation (Appendix S)

	<i>Aut-M</i>	<i>Cont-M</i>	<i>AMO</i>	<i>Item-total correlations</i>
Aut-M 6	.91			.76
Aut-M 1	.80			.65
Aut-M 4	.78			.76
Aut-M 8	.74			.66
Aut-M 3	.67			.68
Aut-M 2	.58			.68
Aut-M 5	.50	.32		.62
Aut-M 7	.40	.39		.61
Cont-M 1		.85		.70
Cont-M 4		.71		.64
Cont-M 2		.58		.47
Cont-M 3		.58		.59
Cont-M 7		.50		.39
Cont-M 6		.49		.49
Cont-M 5		.38		.38
AMO 1			.88	.65
AMO 3			.80	.58
AMO 2			.60	.50
α	.89	.79	.75	

Note. Aut-M: autonomous motivation; Cont-M; controlled motivation; AMO: amotivation (non-regulation).

Figure 7

Experimental items of the scale assessing youth sport motivation and standardized factor loadings associated with the latent constructs in the three-factor model (Appendix S)

