



# Trajectories of psychological need satisfaction from early to late adolescence as a predictor of adjustment in school



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## ABSTRACT

The present longitudinal study described developmental patterns of perceived psychological need satisfaction (PNS) from the end of elementary school to the end of high school and their contribution to school adjustment at the end of high school. The first goal thus consisted in estimating whether developmental trajectories of perceived PNS were homogeneous (i.e., all students reported similar developmental patterns) or heterogeneous (i.e., there were several distinct developmental trajectories). The second goal involved comparing trajectory groups on dimensions of school adjustment (social, academic, and emotional–personal). A stratified sample of 609 students (277 boys, 332 girls) was surveyed annually on a 6-year period, from the end of elementary school until the end of high school. Results of group-based trajectory modeling (Nagin, 1999, 2005) revealed that developmental trajectories of PNS were heterogeneous for autonomy, competence, and relatedness. For each need, four distinct developmental patterns were identified. These trajectories varied in shape, composition, and magnitude such that some students reported increasing PNS over time while others reported stable or decreasing PNS. Results from multivariate analyses revealed that students in upper trajectories (e.g., reporting higher levels of PNS, either stable or increasing) generally reported higher levels of academic, social, and personal–emotional adjustment at the end of high school. Results are discussed with respect to their implications for research and interventions.

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## 1. Introduction

Secondary education has several goals: instruct, socialize and qualify (Quebec Ministry of Education, Leisure and Sports, 2006). Qualification is operationalized as the earning of a high school diploma, issued once students successfully performed standardized tests and succeed core disciplines. Reaching this milestone implies that students have acquired knowledge and developed skills across the high school years, and that they have adjusted to the different academic demands and challenges. Because of the demands and stress placed upon students at the end of high school, their capacities to adjust are particularly put to the test.

While most students can be expected to adjust well to school demands and challenges, some of them experience difficulties that

can be exacerbated in periods of instability, such as at the end of high school where qualification examinations take place and significant decisions regarding their future need to be made (e.g., going to college, entering the job market). In order to better meet the needs of more vulnerable students and prevent the crystallization of their difficulties, it becomes important to better identify the protective factors on which we can intervene in the school context. A factor likely to shield students' adjustment capacity is the extent to which their psychological needs are being met within school. The present study therefore sought to understand how patterns of perceived psychological need satisfaction throughout the high school years can predict students' adjustment at the end of high school, using a self-determination perspective.

### 1.1. Psychological need satisfaction

Self-determination theory (Deci & Ryan, 2000; Deci & Vansteenkiste, 2004) is a macro-theory which postulates that all individuals have innate psychological needs whose satisfaction is essential for development, functioning, and well-being. First is the *need for autonomy* according to which individuals strive to be at the origin of their actions, to be volitional and intentional in their doings (deCharms, 1968; Deci & Ryan, 1991). In the school context, this

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need will be satisfied if, for instance, student feels volitional in their decision to engage in academic activities. Second is the *need for competence*, which involves being effective in producing changes on one's environment (White, 1959). When students perceive themselves as able to complete a class assignment, this need is being satisfied. Lastly is the *need for relatedness* and it refers to the need to establish significant and satisfying relationships with other individuals (Baumeister & Leary, 1995). This need will be satisfied when, for example, students perceive themselves as emotionally close to their fellow classmates.

These needs were shown to be innate, universal, and fundamental in the development of an individual's full potential (Deci & Ryan, 2000). The satisfaction of the basic psychological needs constitutes the nutriment on the basis of which individuals can integrate and actualize themselves as well as regulate their behaviors and emotions (Deci & Vansteenkiste, 2004; Ryan, 1995, 1998). Hence, to the extent that individuals perceive their psychological needs as being satisfied, they will experience benefits such as physical and psychological well-being, autonomous motivation, and effective coping strategies (Ntoumanis, Edmunds, & Duda, 2009; also see Deci & Ryan, 2000; Deci & Vansteenkiste, 2004; Ryan, 1995, 1998). Alternatively, perceived need thwarting predicts a host of negative outcomes characteristic of ill-being.

### 1.2. Psychological need satisfaction and adjustment in school

In education, research has documented the importance for students to perceive their psychological need as being satisfied, which has been associated with various dimensions of adjustment. Among studies that examined psychological need satisfaction (PNS) globally (i.e., averaging all needs in a single score), two general conclusions emerge: First, these studies showed that perceived PNS predicted higher scores of emotional adjustment, operationalized as high levels of subjective well-being and low levels of ill-being (Milyavskaya et al., 2009; Véronneau, Koestner, & Abela, 2004). Second, these studies showed that perceived PNS predicted higher scores of academic adjustment, operationalized as high levels of autonomous motivations, adaptive learning strategies, classroom engagement, low levels of dropout intentions, and high achievement (Betoret & Artiga, 2011; Doménech-Betoret & Gómez-Artiga, 2014; Jang, Kim, & Reeve, 2012; Milyavskaya et al., 2009; Sheldon & Krieger, 2007). The studies that examined the contribution of each need separately reported similar findings. Specifically, emotional and academic adjustment was predicted by the satisfaction of all three needs (Ciani, Sheldon, Hilpert, & Easter, 2011; Cox, Smith, & Williams, 2008; Gillison, Standage, & Skevington, 2008; Sheldon & Krieger, 2007; Véronneau et al., 2004).

In light of these findings, we expected that students' adjustment in school would be higher for students who perceive their psychological needs as being satisfied. We relied on the conceptualization of Baker and Siryk (1984, 1989), which distinguishes between academic, social, and personal–emotional adjustment. *Academic adjustment* pertains to the way students deal with the demands associated with their academic work. It includes elements such as their attitudes, efforts, and so on. *Social adjustment* refers to how students deal with the demands of the academic community and includes elements such as responsiveness to social activities and their appreciation of their social environment in school. Finally, *emotional–personal adjustment* involves the way students come to terms with an environment characterized by pressure and stress. It involves psychological as well as physical functioning. While there are no studies, to our knowledge, that related this conceptualization of adjustment to perceived PNS, we expect the satisfaction of students' needs for autonomy to predict all forms of adjustment based on the studies reviewed above.

### 1.3. Examining psychological need satisfaction longitudinally

According to the stage–environment fit hypothesis (Eccles, 2004; Eccles et al., 1993), one explanation for middle and high students' academic decline is the diminished opportunities where they can express their needs for autonomy and so on (Eccles, Lord, & Midgley, 1991; Eccles & Roeser, 2009). Indeed, during the transition to adolescence, students experience a variety of changes; their bodies and cognitive capacities change, their perception of themselves and their social relationships evolve (Brown & Larson, 2009; Harter, 1986; Harter, Stocker, & Robinson, 1996; Inhelder & Piaget, 1958; Kuhn, 2009; Laursen & Collins, 2009; Lerner & Steinberg, 2009). Unfortunately, academic environments do not necessarily support the satisfaction of adolescents' needs or, if they do, these efforts might not be perceived as such by students. In the present research, the focus will be on how students perceive their psychological needs to be satisfied.

In addition to person–environment mismatching, other reasons such as variations in class composition and teachers across school subjects can lead to fluctuations in PNS over time. Hence, across high school, we might expect students in the high school years to report fluctuation in the satisfaction of the psychological needs. Whether these fluctuations apply to all students remains to be investigated, and will largely depend on the way change is modeled, which is the topic of the next section. We first review research on changes in PNS.

Typically, studies on perceived PNS have used cross-sectional (i.e., one data wave) or short-term prospective (i.e., two data waves) designs and, in the education domain, only a few studies examined perceived PNS and even fewer surveyed a long period of time (1 year or beyond). There is thus a strong need for developmental research on students' perceived PNS that uses a truly longitudinal design (i.e., three data waves or more). Studying these processes over longer periods of time will inform us on the specific moments where PNS is more salient, and for whom. Such vital knowledge will in turn guide future interventions within the school setting.

To our knowledge, only one study examined students' perceived PNS using a truly longitudinal design (Wandeler & Bundick, 2011). This large-scale longitudinal study surveyed 414 university students over a 3-year period where they completed measures of PNS in their training program. Their findings suggest that competence and relatedness satisfaction were more stable over a 3-year training period whereas stability coefficients for autonomy satisfaction were lower. We might consequently expect more fluctuations, or distinct developmental patterns, for autonomy satisfaction, although the sample of this study included young adults. We also found one prospective study that examined students' perceived PNS over a 7-month period. Data come from a large-scale longitudinal study that surveyed 1004 elementary school students from Grades 3 to 6 over a 4-year period (Marchand & Skinner, 2007). Findings revealed high stability for all three needs ( $r$ s ranged from .55 to .67), with some grade-level effects. These two studies are difficult to compare or aggregate, given their differences in design and sample. We can nevertheless expect some stability on developmental patterns of perceived PNS.

In the related domain of physical education class, a first, prospective study used data from a longitudinal study surveying 455 students from grade 6 until the end of middle school (Cox et al., 2008). Here, 356 students provided measures of perceived PNS toward physical education, 1 year apart. Findings revealed a statistically significant decrease in the satisfaction of competence but not of other needs. The second study used an event-sampling design where 178 students from grades 6 to 9 completed measures of perceived PNS in physical education class 3 months in a row (Taylor, Ntoumanis, Standage, & Spray, 2010). While precise change statistics were omitted, means and standard deviations were reported,

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