

Kati Vasalampi

Appraisals of Education-Related  
Goals During Educational  
Transitions in Late Adolescence  
Consequences for Academic Well-being  
and Goal Attainment



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## ABSTRACT

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Finnish summary

This dissertation examined the role of education-related goal appraisals and academic well-being in educational transitions during late adolescence. The thesis had four aims, which were to examine: 1) the role of educational transitions in adolescents' goal appraisals; 2) the extent to which goal appraisals are related to adolescents' success in their educational transitions; 3) how goal appraisals are related to individuals' academic well-being; and 4) the role of academic well-being in educational transitions. Two different data sets were used. The first data set consisted of two samples from the FinEdu study. Sample 1 consisted of 606 adolescents who were surveyed three times: at the beginning and at the end of the final semester of comprehensive school, and one year after the transition to the post-comprehensive education. Sample 2 consisted of 614 general upper secondary school students who were surveyed three times: in the second and in the third grade of general upper secondary school, and one year later. The second data set was part of the Entrance into University study, in which 280 young adults were examined during their entrance examination period in qualifying for university. The results of the present thesis suggest that when adolescents end up in a mode of education that is congruent with their academic competencies and interests, their autonomous motivation (i.e., goals set according to one's own internal needs) for goal pursuit and goal progress increase, whereas controlled motivation (i.e., goals set according to external determination) decreases. Autonomous motivation is important in educational transitions because it facilitates progress toward goal attainment, particularly since autonomous motivation helps an individual to invest effort in the goal, which in turn increases progress toward the goal. Goal progress is an important factor in educational transitions in two ways: First, it is associated with the success in challenging educational transitions. Second, it is related to high self-esteem and academic well-being, which in turn contribute to success in the later educational trajectory.

Keywords: academic well-being, autonomous motivation, controlled motivation, educational goal, educational transition, goal appraisal, goal effort, goal progress, goal stress, school burnout, school engagement, self-concordance, self-esteem

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# 1 INTRODUCTION

During adolescence, individuals face several transitions that direct and constrain their lives (Caspi, 2002). It has also been suggested that young people's own agency has important consequences for their success in dealing with these transitions and for their subsequent subjective well-being (e.g., Haase, Heckhausen, & Silbereisen, *in press*; Salmela-Aro & Nurmi, 1997a). Personal goals, i.e., future-oriented representations of what individuals want to attain in various life domains (Austin & Vancouver, 1996; Karniol & Ross, 1996), and related appraisals are an important part of this agency. For example, education-related goals contribute to young people's success in the educational transitions they face. Several mechanisms are responsible for this impact of goals on life transitions. For example, previous research has shown that the selection of goals out of autonomous motivation (i.e., goals that are in accordance with one's internal needs) helps individuals to invest effort in accordance with the demands of their current personal goal (e.g., Sheldon & Elliot, 1998; Ryan & Connell, 1989; Locke & Latham, 2006). In addition, the ways in which young people invest effort and experience progress in their personal goal related to a certain life domain have an influence on their subsequent success in dealing with their current life situation (Little, 1983; Salmela-Aro & Nurmi, 1997b; Turban, Tan, Brown, & Sheldon, 2007), and affects their subsequent subjective well-being (Brunstein, 1993; Emmons, 1986; Little, 1989; Sheldon & Hoon, 2007; Sheldon & Kasser, 1998).

The importance of personal goals and related appraisals for adolescents' subjective well-being and goal attainment during various transitions has been shown in several studies (e.g., Nurmi, Salmela-Aro & Koivisto, 2002; Salmela-Aro & Nurmi, 1997a; Sheldon & Houser-Marko, 2001), but the previous research has some important limitations. First, the role of personal goals has seldom been studied regarding educational transitions during late adolescence (for exceptions, see Dietrich, Jokisaari, & Nurmi, 2012; Nurmi et al., 2002). Second, little is known about the role of educational transitions in appraisals of personal goals during post-comprehensive transition (i.e., regarding the transition from Finnish comprehensive school ending with Grade 9). Third, no

longitudinal research has systematically examined the importance of motivation in educational goals, such as autonomous motivation, goal effort and progress in relation to young people's academic well-being and success in dealing with challenging educational transitions during late adolescence.

Consequently, the present thesis focused on investigating the appraisals of education-related goals during major educational transitions in late adolescence and their role in individuals' academic well-being, self-esteem and goal attainment. The first aim of the thesis was to examine whether adolescents' education-related goal appraisals change during the educational transition from comprehensive school to a post-comprehensive education (i.e., either academic or vocational track). The second objective was to examine the extent to which autonomous motivation, effort and progress pertaining to the educational goal would predict the success of adolescents (or young adults) in dealing with challenging educational transitions. The third aim was to examine the associations between goal appraisals, adolescents' academic well-being (i.e., school engagement, school burnout), and self-esteem. The fourth objective was to examine the roles of academic well-being (i.e., school engagement and burnout) and self-esteem in educational transitions.

## **1.1 Educational transitions in late adolescence**

According to life-span theory, individuals' developments are lifelong processes during which they experience different developmental contexts depending on their age (Heckhausen, 2002). These normative structures and age-graded environments have been conceptualized by many concepts, such as developmental tasks, role transitions, constraints, and institutional tracks (Havighurst, 1948; Elder, 1985; Neugarten, Moore, & Lowe, 1965; Mayer, 1986). Age-graded environments include demands, opportunities and challenges for all individuals' lives that create predictable and socially recognized developmental pathways (Hagestadt & Neugarten, 1985).

In adolescence, individuals are prepared to move from childhood to adulthood. During this life stage, adolescents face major developmental tasks. They, for example, encounter identity development, independence from parents, educational choices, and preparation for their occupational career (e.g., Havighurst, 1948). It has been suggested that in successful development, adolescents showed interest in age-graded role transitions, solved developmental tasks and became committed to adult roles (Erikson, 1968). Adolescence is also characterized by the fact that young people become more active agents of their own development (e.g., Larson, 2006; Lerner & Galambos, 1998).

Especially important developmental tasks during adolescence are those related to education and preparing for working life (Heckhausen & Schulz, 1999; Nurmi, 1993; Salmela-Aro & Nurmi, 1997a). Adolescents face many educational transitions during that period of life, although the precise forms and timing of

these transitions are thought to vary widely across cultures and cohorts (Elder, 1998; Nurmi, 1993, 2004; Shanahan, 2000). During those transitions, social systems, such as educational institutions, regulate and channel individuals' life trajectories (Heckhausen et al., 2010; Nurmi, 2001), and individuals must respond to those challenges in a time- and age-sensitive way to optimize their own potential to successfully deal with the forthcoming transitions (Baltes & Baltes, 1990). According to motivational theories and models of life-span development, this requires that the adolescents compare their motivation to the constraints, opportunities and challenges they face in their current transition (Heckhausen et al., 2010; Salmela-Aro, 2009). Success in those key transitions (e.g., gaining a study place in further education) is important, and they are likely to have long-term effects on adolescents' self-esteem and further educational goals (Nurmi, 1993, 2001; see also Klaczynski & Reese, 1991). Success in educational transitions is particularly important for adolescents' adaptation to society, since dropping out of education is a risk that can lead to low occupational status and low well-being in later life (Kaplan, Peck, & Kaplan, 1997; Kokko, Pulkkinen, Mesiäinen, Lyyra, 2008), and even to social exclusion (Jahnukainen & Järvinen, 2006). Nowadays, there is an increasing group of adolescents who do not succeed in education and face the risk of dropping out of education already after comprehensive school (i.e., upon completing Grade 9, at the age of 16) (Myrskylä, 2011).

The transition from basic education to either an *academic* or a *vocational track* is the key educational transition during adolescence in many European education systems. This transition has important consequences for adolescents' future educational context: the track taken determines the quality and kinds of learning opportunities an adolescent receives (Oakes, Gamoran, & Page, 1992). In Finland, all adolescents receive a similar basic education up to age 16 and a major educational transition occurs at this time when adolescents move from Grade 9 of comprehensive school to either general upper secondary school (*academic track*) or vocational school (*vocational track*) (see Figure 1). According to recent statistics, 50% of adolescents proceed to the academic track (general upper secondary school) and 41% to the vocational track (vocational school), and around 9% do not continue their studies right after comprehensive school (Central Statistical Office of Finland, 2010).

Those who proceed on the *academic track* attend general upper secondary school for three years, after which they tend to continue with the standard transition to university (see Figure 1). Those who take the *vocational track* attend vocational school (also referred to as vocational upper secondary school) for three years, after which their next key transition tends to be to either continue their studies at a polytechnic institute or to enter the labour market (see Figure 1). Whether students end up in general upper secondary school or vocational school is largely determined by their grade point average (GPA) and personal interests. Adolescents can enter most vocational schools with a relatively low GPA. In most cases, entrance examinations are not held by either general upper secondary or vocational schools. Among the few exceptions are some art-



related vocational institutes. Until the completion of Grade 9, all Finnish adolescents follow the same curriculum, which includes many academic subjects such as mathematics, physics, chemistry, and at least one foreign language. Therefore, Finnish comprehensive school constitutes a very challenging learning environment for students who are academically less skilled, are not interested in academic subjects, or have learning difficulties. For those students, the transition to further education at a vocational school provides the possibility to change to a learning environment that is less academic, as the majority of the subjects in vocational institutions are practical. General upper secondary school instead entails a focus on academic subjects, such as languages, physics, or mathematics.

The educational choice made at the end of general upper secondary school, is the next of the most determinant transitions with respect to adolescents' further educational and occupational trajectories. This period could also be seen as a transition to the real-world stage of development, which means making compromises, or changing goals according to circumstances (Nurmi, 2004). However, for Finnish adolescents, this transition is also very stressful because success of ending up on one's envisaged educational track is not assured. In Finland, all universities have a selection procedure and everybody has to choose the major subject they wish to apply for. For university studies, the application procedure is very demanding as only a minority of the applicants is accepted. For example, in 2008, only 19.1% of all applicants succeeded in gaining entrance to a university immediately after having completed general upper secondary school (Central Statistical Office of Finland, 2010). In regard to gender, Finnish girls graduate from general upper secondary school and enter university in more cases than boys do (Nevala, 2000). For example, 20,168 new students began their studies at Finnish universities in 2010, and 11,171 (55%) of these were women (Central Statistical Office of Finland, 2010).

A successful transition to university, however, is important for young adults' further life-paths as it provides a foundation for their later career options and income level (Chisholm & Hurrelmann, 1995; Schulenberg, Maggs, & Hurrelmann, 1997). Moreover, while transitions associated with different life domains typically interact with each other (Roisman, Masten, Coatsworth, & Tellegen, 2004), success in the transition to university may also have consequences for the timing and success of other transitions, such as interpersonal ones (Salmela-Aro & Nurmi, 1997a).

The present thesis focused on examining individuals' motivation and well-being during these important educational transitions. Study I focused on the educational transition after comprehensive school when adolescents get on either the academic or the vocational track. Study II examined the educational transition immediately following general upper secondary school, and Study III investigated the challenging educational transition to university.

## FORMAL EDUCATION IN FINLAND

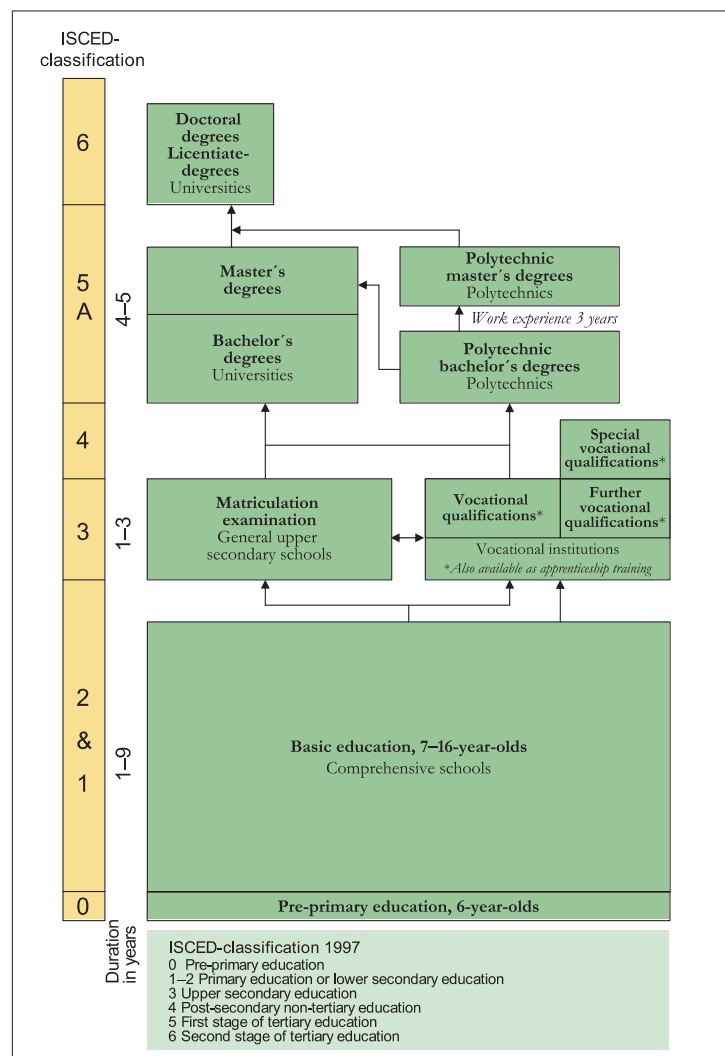


FIGURE 1 Overview of the Finnish education system (Finnish National Board of Education, 2012).

## 1.2 Motivation in the context of education

Motivation is a process that influences the direction, persistence and vigor in goal-directed behavior. The Latin meaning for the word motivation is “to move,” and hence, research on motivation focuses on action. In this particular research field, however, there prevails a substantial diversity of motivational theories and constructs. Modern theories of motivation have focused particularly on beliefs, values and goals (Eccles & Wigfield, 2002). For example, Eccles and her colleagues have developed an *expectancy-value model* of achievement-related choices (e.g., Eccles-Parsons, 1983), addressing two key cognitive influences: individuals’ evaluation of the likelihood of success at a task (*expectancies*) and their evaluation of the *value* of the task. They have defined four aspects of achievement tasks that can influence achievement behavior: *attainment value* (importance of doing well in a task), *intrinsic value* (enjoyment the individual gets from performing the activity), *utility value* (importance of the goal for other goals), and *cost* (negative aspects of engaging in the task). Intrinsic value is a construct somewhat similar to the construct of autonomous motivation defined in the *personal goal approach*, as both are related to enjoyment and interest in a task (see e.g., Sheldon & Elliot, 1998, 1999; Wigfield & Eccles, 1992). Furthermore, utility value includes some components of controlled motivation, such as doing a task not for its own sake but in order to reach some other desired end state (Wigfield & Eccles, 1992). Expectancy-value theory, however, covers a broader spectrum of concepts and does not only deal with the reasons (*why*) individuals have for engaging in different tasks (Eccles & Wigfield, 2002).

Current goal theories, instead, concentrate on the reasons individuals have for engaging in different tasks (Eccles & Wigfield, 2002). For example, the *achievement goal theory* was developed to explain students' school motivation (Pintrich, 2000). The central distinction drawn by achievement goal theorists has been between mastery and performance goals (e.g., Ames, 1992; Dweck, 1986). A mastery goal refers to the striving to learn, while a performance goal is seen as a striving to outperform others. Most achievement goal theorists contend that mastery goals facilitate intrinsic interest and enjoyment (i.e., autonomous motivation). Performance goals, on the other hand, are posited to produce pressure and anxiety, processes considered to be subject to controlled motivation (Rawsthorne & Elliot, 1999). Achievement goals are, however, traditionally conceptualized as dispositions that reflect students' generalized tendencies to select academic goals rather than being assessed with situation-specific goal appraisals (Dweck, 1986; McAdams & Pals, 2006). Furthermore, researchers considering the personal goal approach have investigated personal goals in more general ways, not only in school settings. They have emphasized that personal goals—and how individuals think and feel about these (as reported in goal appraisals)—play an important role in the ways that individuals make choices in their own lives and direct their own development in all life domains (Baltes, 1997; Heckhausen, Wrosch, & Schulz, 2010; Nurmi,

1993; Salmela-Aro & Nurmi, 1997a; Salmela-Aro, 2009). Therefore, the personal goal approach was applied in the present thesis.

### 1.3 Personal goal approach

Personal goals have typically been conceptualized using many terms, such as *personal projects* (Little, 1983), *current concerns* (Klinger, 1975), *life tasks* (Cantor, Norem, Niedenthal, Langston, & Brower, 1987), *personal strivings* (Emmons, 1986), and *future goals* (Nurmi, 1989). One of the first definitions for goal units was Little's (1983) *personal projects*, which focused on examining individuals' current and planned action in immediate or long-term goals. Those projects are much influenced by and influence the environment, and this interactive process is mediated within the individual at a cognitive, affective and behavioral level (Chambers, 1997). Therefore, the environment can facilitate or prevent an individual's progress in his or her goals.

Personal goals, such as personal projects, are conceptualized as consisting of two aspects (Cantor et al., 1987; Nuttin, 1984). First, the personal goals consist of goal contents, that is, the objectives people mention as their personal goals (Cantor et al., 1987; Little, 1983; Nurmi, 1989; Salmela-Aro, 1992). For example, young people's goals most often focus on the future, education, occupation, family, and peers (e.g., Blais, Vallerand, Brière, Gagnon, & Pelletier, 1990; Nurmi, 1991; Salmela-Aro & Nurmi, 1997a). Second, following on from this, personal goals also consist of factors associated with how people cognitively, emotionally, and behaviorally work out their goals (Little, 1983). In motivational research, this latter approach is conceptualized as the examining of goal appraisals.

A traditional method for investigating individuals' appraisals of their goals is to ask the respondents to rate their personal goals along several appraisal dimensions, such as the effort they expect to invest in their personal goals, the progress they expect to make toward realising their goals, the stress they expect will be imposed, and what their intrinsic and extrinsic motivational motors are (for a review, see Austin & Vancouver, 1996). Traditionally, the sum scores for goal appraisals have aggregated across all the personal goals people describe (e.g., Brunstein, 1993; Cantor et al., 1991). However, later research of goal appraisals has shifted from overall ratings of a whole set of personal goals to rating goals that focus on specific life domains, such as on education (Nurmi et al., 2002; Turban et al., 2007) or social relationships (Salmela-Aro & Nurmi, 1996). One of the reasons why this refined approach has developed is that integrative theories of personality have suggested that cognitive-motivational units, such as goal appraisals, are highly contextual and situation-specific (e.g., McAdams & Pals, 2006; Nurmi, Salmela-Aro, & Aunola, 2009). The present thesis applied the latter framework as the interest was in investigating education-related goal appraisals. However, the three studies comprising the thesis, two different terms were used to refer to education-related goals. In

Studies I and III, the term *education-related goal* was used, and in Study II the term *achievement-related goal* was used.

### 1.3.1 Autonomous goals

One approach in the goal appraisal framework is to examine the inner resources for goal pursuit. For example, Deci and Ryan (1985, 2008) have emphasized the importance of autonomous motivation for working on important personal goals. According to this self-determination theory (SDT), autonomously motivated goals are pursued because of either *intrinsic* motivation or *identified* motivation. Intrinsic motivation means that the person acts because the activity is inherently interesting and challenging (Sheldon & Elliot, 1999), and identified motivation refers to the fact that the person acts with a sense of choice and volition, even if he or she does not enjoy the action (Brunstein & Gollwitzer, 1996; Little, 1993). In either case, goals are pursued as a result of the expression of personal choices (Sheldon & Elliot, 1999). Indeed, autonomous motivation has been assumed to facilitate interest, inspiration and confidence, which in turn improve adolescents' creativity, learning, satisfaction, and task persistence (for a review, see Guay, Ratelle, Chanal, 2008).

In contrast, goals that are motivated by control, i.e., *controlled motivation*, are pursued because of *extrinsic* or *introjected* motivational factors. *Extrinsic motivation* refers to the fact that the person acts with a feeling of being controlled by external pressures or contingencies (Deci & Ryan, 1985; Sheldon & Kasser, 1998), and *introjected motivation* means that the person acts to avoid guilt or anxiety, or to attain ego enhancements such as pride (Ryan & Deci, 2000). Thus, controlled motivation makes people experience pressure to think, feel or behave in a particular way (Deci & Ryan, 2008). External and introjected goals are classified as potentially problematic because in both cases the personal goals are not set according to one's own values and interests (Deci & Ryan, 2000; Sheldon, 2002). Such goals are less likely than autonomously motivated goals protected from competing desires and temptations (Kuhl, 1986), and controlled goals are disengaged from more easily with the passage of time (Judge, Bono, Erez, & Locke, 2005; Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001).

The traditional research on SDT has conceptualized autonomous and controlled motivation as a continuum of self-determination (Deci & Ryan, 2008; Ryan & Connell, 1989). For example, Ryan and Connell (1989) empirically defined the continuum ranging from extrinsic via introjected and identified motivation to intrinsic motivation. In that point of view, intrinsic motivation is weighted as the most internal and self-determined motivation, whereas extrinsic motivation is weighted as the most externally directed and least self-determined motivation (Grolnick & Ryan, 1987). The motivational continua between those ends are weighted as intermediate (Grolnick & Ryan, 1987). However, some later models based on SDT have focused, instead of on continuum in self-determination, on the issue of whether motivation is congruent or concordant with the person's deeper values (Sheldon, 2002). For

example, according to Sheldon and Elliot's (1998, 1999; Sheldon, 2002) self-concordance model, goals are defined as self-concordant when they are integrated with the "self". That is, although all goals are self-determined, external and introjected motivations do not reflect core values and deeper interests. Sheldon and Elliot (1998, 1999) suggested that an index of self-concordance should be created by subtracting controlled motives from autonomous motives, because the controlled motives weaken individuals' intrinsic motivation in the actional phase (Gollwitzer, 1996; Sheldon & Elliot, 1998, 1999). The usefulness of subtracting controlled motivation may, however, depend on outcome variables. Koestner, Otis, Powers, Pelletier, and Gagnon (2008) showed with three different studies that autonomous motivation was highly related to goal progress but controlled motivation was not. At the same time, there is considerable evidence that controlled motivation is negatively associated with indicators of well-being (e.g., Ryan & Deci, 2000; Vansteenkiste, Lens, De Witte, De Witte, & Deci, 2004).

In the present thesis, different aspects of autonomous and controlled motivation were studied. In Study I, specific components of autonomous and controlled motivations—such as intrinsic and extrinsic reasons—were examined in the context of educational transitions. In Study II, Sheldon and Elliot's (1998, 1999) self-concordance model was applied and tested in an educational context. Finally, in Study III, the importance of autonomous motivation (as intrinsic and identified motivations) for goal effort and progress as well as later successful goal attainment was examined. The aim of this study was to examine, in particular, the importance of autonomous motivation for goal attainment in current educational goals that include external factors.

### 1.3.2 Goal attainment

The ways in which people work on and progress in their personal goals that are related to a certain life domain have been found to affect goal attainment in that particular domain (Little, 1983; Salmela-Aro & Nurmi, 1997b; Turban et al., 2007). Invested goal effort, for example, has been shown to be related to success in school (Turban et al., 2007) and to subsequent career goal attainment (Haase, Heckhausen, & Köller, 2008). Similarly, goal progress has been shown to be an important determinant of success in several life domains, such as in academic achievement (Salmela-Aro & Nurmi, 1997b), in life-stage transitions (Nurmi et al., 2002), and in working life (Pomaki, Karoly, & Maes, 2009).

It has further been suggested that autonomous motivation plays an important role in goal effort, and thereby contributes to goal attainment (Sheldon & Elliot, 1998). This is true for several reasons. First of all, intrinsic motivation reinforces effort invested in a goal, partly because it increases the interest in and enjoyment of the goal (Deci & Ryan, 1985; Sheldon & Elliot, 1998). However, not all goals—such as educational goals—are always fun, and in such cases identified motivation may be beneficial. Goals motivated by identified motivation continue to activate effort even when they are not enjoyable (Sheldon & Elliot, 1998). By contrast, although external and introjected



motivations (i.e., *controlled motivation*) may also form a preliminary sense of commitment, there are several studies showing that individuals have problems in translating these goals into action (Gollwitzer, 1996; Sheldon, 2002; Sheldon & Elliot, 1998). For example, Sheldon and Elliot (1999; see also Sheldon & Lyubomirsky, 2006), in their semester-long study, showed that those students who began their semester with self-concordant (i.e., *autonomous*) goals were able to invest more effort in these goals during the semester and were less likely to give up their goals than those with goals motivated by control. As a result, autonomously motivated individuals attained their goals more readily.

Autonomous motivation has also been found to facilitate progress in individuals' goals (e.g., Koestner et al., 2008; Koestner, Lekes, Powers, & Chicoine, 2002; Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001; Sheldon & Kasser, 1998). For example, Sheldon and Kasser (1998) showed that students with autonomous motivation made more progress in their goals over the course of a semester than other students. Furthermore, Koestner et al. (2002, 2008) performed a meta-analysis that examined the extent to which autonomous motivation (i.e., self-concordance) facilitated goal progress. The results showed that participants were especially likely to make successful progress when they had selected goals that were congruent with their inner resources.

The impact of autonomous motivation on goal progress has been suggested to be mediated by invested goal effort (Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001; Turban et al., 2007). Sheldon and Elliot (1998) demonstrated in three studies that personal goals pursued for autonomous reasons progressed well over a 15-week period. By contrast, the amount of control connected with a goal did not predict progress. Sheldon and Elliot (1998) argued that this happened because participants were investing effort in their autonomous goals despite external control. In other words, autonomous goals were protected, progressed and attained because they are continually energized (Gollwitzer, 1990; Little, 1983; Koestner et al., 2002; Sheldon, 2002). However, only few efforts have been made to investigate these motivational processes in systematic ways by using longitudinal data. Consequently, the present thesis aimed to broaden the earlier research by studying autonomous motivation, goal effort, and goal progress with large longitudinal data sets in an educational context. Based on previous research on autonomous motivation, it was expected that autonomous motivation for an educational goal would facilitate progress in the goal because adolescents whose goals are autonomously motivated may also invest effort in those goals.

### **1.3.3 The role of goal appraisals in one's academic well-being and self-esteem**

A growing body of research has shown that how people appraise their personal goals is associated with aspects of subjective well-being such as satisfaction (Judge et al., 2005), happiness (Sheldon & Elliot, 1998), and adjustment (Sheldon & Houser-Marko, 2001; Skorikov, 2007). Indeed, the evaluation of personal

goals in terms of their attributed level of autonomous motivation (Burton, Lydon, D'Alessandro, & Koestner, 2006; Judge et al., 2005), goal progress (Brunstein, 1993; Emmons, 1986; Little, 1989; Sheldon & Hoon, 2007; Sheldon & Kasser, 1998), and lack of controlled motivation (Kasser & Ryan, 1996), has been shown to be important for individuals' well-being. It can also be assumed that well-being is influenced particularly by goal appraisals that are of importance to the individual's current period in life. Therefore, in the present thesis, taking into account the centrality of education in the lives of adolescents (Nurmi, 2004), well-being was defined in relation to the educational context. More specifically, it was conceptualized as *academic well-being*, which is seen to consist of school engagement on the one hand and school burnout on the other (Tuominen-Soini, Salmela-Aro, & Niemivirta, 2012). Schoolwork engagement refers to a positive, fulfilling and study-related state of mind that is characterized by vigor, dedication and absorption (Salmela-Aro & Upadaya, 2012). These characteristics are important determinants of academic well-being: *vigor* refers to a high level of energy and mental resilience concerning one's studies; *dedication* refers to a sense of significance, enthusiasm, inspiration, pride and challenge; and *absorption* refers to concentration and happiness in connection with one's studies (Salmela-Aro & Upadaya, 2012; Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002). In turn, burnout among students has been defined as consisting of feeling exhausted because of study demands, having a cynical and detached attitude toward studies, and experiencing inadequacy as a student (Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009; Salmela-Aro, Kiuru, Pietikäinen, & Jokela, 2008; Schaufeli et al., 2002). In the present thesis, it was assumed that positive goal appraisals—as regards autonomous motivation, goal effort, and goal progress—that reflect the current age-related developmental task at hand are associated with a high level of school engagement and a lack of school burnout in that particular life domain and developmental context, i.e., education (Salmela-Aro & Nurmi, 1997a; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001; Wiese, Freund, & Baltes, 2002).

How people appraise their personal goals is also associated with their self-view (Roeser, Strobel, & Quihuis, 2002; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008). For example, Tuominen-Soini et al. (2008) showed that high levels of commitment, effort and progress in educational goals played a combined role in students' high self-esteem. Similarly, Judge et al. (2005) showed that, in the occupational context, individuals with positive self-regard (e.g., high self-esteem) were likely to pursue occupational goals for autonomous reasons. Furthermore, because self-esteem represents how much a person likes, accepts and respects him- or herself overall as a person (Harter, 1990; Rosenberg, 1965), it is also thought to be central to successful performance in developmental tasks (Diener & Diener, 1995; Harter, 1990). Therefore, the present thesis examined the prospective relations between adolescents' goal appraisals and self-esteem in the educational context. It was assumed, in this thesis, that adolescents' positive goal appraisals, such as intrinsic reasons for goal pursuit and goal-related effort and progress, increase adolescents' self-



esteem, and also that a high level of self-esteem will contribute to positive goal appraisals, such as having intrinsic reasons for one's goal pursuit and goal-related effort and progress, as well as experiencing a lack of both extrinsic reasons and goal-related stress.

## **1.4 Goals appraisals and academic well-being during educational transitions in late adolescence**

### **1.4.1 The role of educational transitions in adolescents' goal appraisals**

One of the key assumptions in the present thesis is that educational transitions channel adolescents' personal goals, thinking and behavior, and these in turn direct their future path (Cantor et al., 1987; Nurmi, 2004). The assumption is rooted in motivational theories and the model of life-span development proposing, and suggests that the demands, challenges and opportunities individuals face along their life course channel the kinds of personal goals they construct (Heckhausen et al., 2010; Salmela-Aro, 2009). Previous research that has, however, mainly focused on the transitions in early adolescence—such as the transition to lower secondary education, i.e., Finnish Grades 7 through 9 (students are aged 13–16 years at the respective commencement of each school year)—have shown that such transitions primarily have negative consequences for adolescent development, such as a loss of self-esteem and a reduction in intrinsic reasons (Blyth, Simmons, & Bush 1978; Eccles & Midgley, 1989; Otis, Grouzet, & Pelletier, 2005; Wigfield & Eccles, 2002), as well as a drop in grades (Blyth, Simmons, & Carlton-Ford, 1983). In their stage-environment theory, Eccles and Midgley (1989; see also Eccles, 2004) proposed that such motivational and behavioral declines among early adolescents could result from inappropriate educational environments. However, this may not be the case in post-comprehensive educational transitions during late adolescence in Finland as the Finnish adolescents can, for the first time in their life, choose an educational track according to their academic skills and interests.

Consequently, the present thesis examined the impact of the post-comprehensive educational transition on adolescents' goal appraisals (i.e., regarding intrinsic and extrinsic motivation, goal progress, goal effort, and goal stress). It was assumed that adolescents' appraisals of their education-related goals would change when the students face the transition from comprehensive to post-comprehensive school for three reasons: First, in Finland, adolescents are allowed to choose between two alternative educational tracks—general upper secondary school or vocational school—which differ from each other in their developmental contexts. Second, at this stage, the adolescents move closer to completing comprehensive school (upon completing Grade 9, at age 16), so the transition to entering the labour market becomes increasingly salient if further education is not an option. Third, adolescents are moving to a school

form that is more in accordance with their academic competencies and interests, and their entering a mode of education that is more congruent with their own interests and skills can be assumed to be important to the adolescents' motivation (Eccles & Midgley, 1989). For these reasons, it was assumed that adolescents' intrinsic reasons for goal striving, and their progress and effort toward their education-related goal would increase, while goal stress and extrinsic reasons would decrease during the transition from comprehensive school to a post-comprehensive education.

#### **1.4.2 Goal appraisals and academic well-being as predictors of educational transitions**

The next key assumption of the present thesis was that individuals' goal appraisals play a particularly important role in how they deal with major life transitions (Nurmi, 2004; Nurmi et al., 2002; Salmela-Aro, 2009; Wiese & Freund, 2005). There were several reasons for this notion. First, as the motivational theory of life-span development suggests, adolescents typically face many alternative goals and environmental options at the same time, and goal selection is necessary to focus one's resources on a particular task (Heckhausen et al., 2010). Second, an autonomous motivation behind a goal may also play a role in goal selection, as it is likely to protect individuals from competing desires and temptations (Kuhl, 1986; Little, 1983) and thereby helps to invest effort in accordance with the demands of the chosen task (e.g., Locke & Latham, 2006; Ratelle, Guay, Vallerand, Larose, & Sénécal, 2007; Ryan & Connell, 1989; Sheldon & Elliot, 1998). Moreover, goal effort and progress are assumed to be more effective in dealing with challenging tasks if the person is autonomously motivated concerning a particular task (Ryan & Connell, 1989; Sheldon & Kasser, 1995; Sheldon, 2002; Sheldon & Elliot, 1998, 1999; Turban et al., 2007; Wiese & Freund, 2005).

Furthermore, it is also possible that academic well-being provides a basis for success in educational transitions. For example, Salmela-Aro and Nurmi (1997a) showed that subjective well-being increased people's interest in goals that concern major developmental tasks. Accordingly, school engagement and the absence of school burnout may lay a strong foundation for successful educational decisions and trajectories, if it is assumed that a high degree of well-being facilitates constructing goals that focus on dealing with the demands of the individual's current life situation (Nurmi & Salmela-Aro, 2002). Focusing on dealing with their current life situation, in turn, directs people's lives in an adaptive manner (Salmela-Aro & Nurmi, 1997a).

Although previous studies have examined the role of distinct goal appraisals in life-stage transitions (e.g., Dietrich et al., 2012; Nurmi et al., 2002; Salmela-Aro & Nurmi, 1997b), and have shown the importance of autonomous motivation concerning goal effort and goal progress (Locke & Latham, 2002; Sheldon, 2002; Sheldon & Elliot, 1998, 1999), as well as the importance of goal progress for goal attainment (Nurmi et al., 2002; Pomaki et al., 2009; Salmela-Aro & Nurmi, 1997b), those studies have at least two limitations. First, no

previous studies have systematically examined the importance of autonomous motivation, goal effort and goal progress (i.e., the self-concordance model) in relation to individuals' success in dealing with challenging educational transitions. Second, little is known about the role of academic well-being in success in challenging educational transitions.

Consequently, one aim of the present thesis was to examine the extent to which autonomous motivation, effort and progress relating to educational goals around the time of applying for a studying place in university predict success in dealing with the challenging transition to university. On the basis of previous research (Locke & Latham, 2002; Sheldon, 2002; Sheldon & Elliot, 1998, 1999), it was assumed that those individuals who have an autonomous goal would invest more effort in their educational goal of studying in university, which would then also facilitate their goal progress. It was also assumed that progress in the educational goal would facilitate a successful transition.

Furthermore, this thesis examined the role of school engagement and burnout in the educational transition following the completion of general upper secondary school (*academic track*) from two points of view: firstly, whether school engagement and burnout predict the success in the transition (successful transition, delay, or moratorium on studies), and secondly, whether they predict the long-term educational aspirations after the transition from general upper secondary school. The educational transition was defined as "successful" if the student graduated from general upper secondary school in three years and then succeeded in entering further education, e.g., university. Further, the educational transition was defined as a "delay in studies" if the student remained on the general upper secondary school an extra year. In Finland, the maximum duration of the general upper secondary school is four years, while the norm is three years. Finally, some students graduated from general upper secondary school in three years, but did not succeed in entering further education after that. This kind of educational transition was defined as "moratorium on studies." Long-term educational aspirations were categorized into four levels: the highest level of educational aspiration was university, followed by polytechnic studies, general upper secondary school, and the lowest level, vocational school (vocational upper secondary school). On the basis of the existing studies, it was assumed that students with a high level of school engagement and a low level of school burnout would be the ones who construct autonomously motivated goals that are related to their current situation (Deci & Ryan, 1985; Kasser & Ryan, 1996; Sheldon & Kasser, 1998), and that would predict, on the one hand, success in the challenging educational transition, and on the other hand, later long-term positive educational aspirations (Feist, Bodner, Jacobs, Miles, & Tan, 1995; Seifert, 2004; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008).

## 1.5 Aims of the empirical studies

The aim of this thesis was to examine the role of goal appraisals, academic well-being, and self-esteem in educational transitions.

Study I examined the extent to which adolescents' appraisals of their education-related goals change during the transition immediately following the completion of their comprehensive school ending with Grade 9 (academic vs. vocational track) and how such appraisals contribute to their self-esteem. It was assumed that when adolescents enter the next mode of education, which would be more congruent with their skills and interests as they have several options to choose from according to their own interest, their goal-related intrinsic reasons and their level of goal progress would increase. In turn, it was assumed that their goal-related stress and extrinsic reasons would decrease at the same time. In addition, it was assumed that, because of the importance of this particular transition to their future life, adolescents' goal-related effort would increase toward the end of comprehensive school. Furthermore, a high level of intrinsic reasons for goal pursuit, as well as high levels of goal progress and goal-related effort prior to this transition were expected to be related to a high level of self-esteem during the next stage upon making the transition, whereas goal-related stress and a high level of extrinsic reasons were expected to be related to a low level of self-esteem during the next stage. Finally, a high level of self-esteem before the transition was expected to be related to high levels of goal progress, intrinsic reasons and effort, and to low levels of extrinsic reasons and stress after the transitional step.

Study II examined, first, whether self-concordance in an adolescents' education-related goal would facilitate goal effort and goal progress during their general upper secondary school. The second aim was to examine whether goal progress in an education-related goal would contribute to school engagement and school burnout during the general upper secondary school. Finally, the third aim was to examine whether school engagement and burnout during the general upper secondary school would predict success in the educational transition and longitudinal educational aspirations after completion of the general upper secondary level. It was expected, first, that those individuals who select self-concordant goals would be found to invest goal effort in those goals, which in turn would facilitate their progress in those goals. Second, it was expected that high goal progress in a self-concordant education-related goal would be related to a high level of school engagement and a low level of school burnout during the general upper secondary school. Third, it was assumed that students with a high level of school engagement and a low level of school burnout are those who try hard to achieve their goals and who progress better in their goals, and that such effort toward an education-related goal would predict a successful educational transition after the general upper secondary school. Fourth, it was expected that school engagement and burnout would be important predictors of later long-term educational outcomes.

Study III examined the extent to which autonomous motivation, goal effort, and progress relating to educational goals predict success in dealing with the challenging transition to university. Success or failure of passing the entrance examination was checked by referring to the university archives. It was hypothesized that those individuals who have an autonomous goal would invest more effort in their educational goals, which would then also facilitate their goal progress. Furthermore, it was assumed that progress toward fulfilling an educational goal would facilitate a successful transition, and that goal effort would mediate the impact of autonomous goals on goal progress.

## 2 METHOD

The three studies forming the present thesis are based on the FinEdu (Finnish Educational Transitions) study and Entrance into University study. Both are longitudinal studies. The FinEdu study is ongoing (since 2003), with the aim of examining life planning, motivation, and school transitions from middle adolescence to adulthood. In the present thesis, two samples (2003–2004) of the FinEdu study were used. The Entrance into University study (2002–2003) aimed to examine the role of motivation during the educational transition to university, in Finland.

### 2.1 Study I

In the first study, the data of *Sample 1* from the FinEdu study was analyzed using repeated multivariate analysis of variance (MANOVA) and path modeling (see Table 1). At the beginning of the original FinEdu study, the participants were ninth graders facing the transition to post-comprehensive education (mean age = 16 years;  $N = 773$ ). For Study I of the present thesis, the first three measurement points from the original FinEdu study were used: 606 (293 girls, 313 boys) adolescents were examined twice during their final semester in comprehensive school, that is, at the beginning and at the end of the final spring semester. The third measurement took place one year after the first measurement, in early spring of the first year of the participants' upper secondary education. The sample size at the second measurement was 516, and at the third measurement 496.

Attrition analyses showed that the students who dropped out of the study at the second measurement point were in more cases boys than girls (*adjusted residuals* = 3.5) and in more cases students moving on to the vocational track than to the academic track (*adjusted residuals* = 3.4). The results also showed that those individuals who participated in the second measurement had shown more goal progress than those who dropped out had ( $M = 5.27$ ;  $SD = 0.95$ ) at

the first measurement point, and they had a higher GPA in the Spring semester preceding the first measurement ( $M = 8.06$ ;  $SD = 0.81$ ; Time 0).

At each measurement point, the questionnaires were group-administered to the students in their classrooms during regular school hours. The measures used in the present study were concerned the students' education-related goal appraisals, self-esteem, academic achievement, and their educational track (academic vs. vocational track) after comprehensive school (see Table 1).

Participants' education-related goal appraisals were assessed at each measurement point by asking the respondents to rate their education-related goal according to what extent they were pursuing the goal for *intrinsic vs. extrinsic reasons* (Ryan & Connell, 1989; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001), and to report their *goal progress* (Sheldon & Kasser, 1998), *goal effort* (Sheldon & Elliot, 1999), and *goal stress* (Chambers, 1997). The participants responded to the following questions and statements related to these factors: *to you intrinsic reasons (How important is this goal?; How committed are you to this goal?); extrinsic reasons (I am pursuing this goal because somebody else wants me to or because the situation demands it; I am pursuing this goal because I will feel shame, guilt or anxiety if I fail to realize it); goal progress (To what extent have you progressed in achieving your goal?; How probable would you say it is that this goal will be realized?; How capable are you of realizing your goal?); goal effort (How much time and effort have you expended on your goal?; To what extent have you worked toward achieving your goal?); goal stress (How tiring is your goal?; How stressful do you find your goal?)*. Furthermore, *self-esteem* was assessed using the abbreviated version of Rosenberg's self-esteem scale (Rosenberg, 1965) both before and after the educational transition. The scale consisted of 5 unidimensional items (e.g., *On the whole, I am satisfied with myself; I feel that I have a number of good qualities*). *Academic achievement* was checked at the first measurement point by asking the participants to report the grade point average (GPA) they achieved the preceding Spring semester. This self-report measure has been shown to have a correlation of .96 with the actual grade point average (Holopainen & Savolainen, 2005). The chosen *educational track (academic vs. vocational track)* after comprehensive school was reported and coded at the third measurement point.

## 2.2 Study II

In the second study, the *Sample 2* data from the FinEdu study was analysed using path modeling (see Table 1). At the beginning of the original FinEdu study, the participants were general upper secondary school students in their second year of studies (median age = 18 years,  $N = 763$ ). For Study II, the first three measurement points of the original FinEdu study were used: the general upper secondary school students participating in the study were surveyed in the second and in the third (i.e., final) grade of general upper secondary school and one year later. At the first measurement point, 614 adolescents (376 girls,



237 boys), at the second measurement point 636 adolescents, and at the third measurement point 449 adolescents participated in the study.

The result of the attrition analyses showed that those students who dropped out of the study after the second measurement point had shown lower school engagement at the second measurement point than those who were continuing and participated at the third measurement point ( $t(394) = -2.90, p < .01$ ).

At each measurement point, the questionnaires included questions regarding the students' goal appraisals of their education-related goal (according to self-concordance, goal effort, and goal progress), their school engagement vs. burnout, and their educational aspirations (see Table 1).

At the first measurement point, participants' *self-concordance* was examined by asking them to rate their reasons for pursuing their education-related goal. There were four categories of reasons: *intrinsic*, *identified*, *introjected*, and *external* (Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001; Sheldon & Kasser, 1998). These categories were evaluated according to participants' confirmation or negation of the following statements: intrinsic reasons (*I am pursuing this goal because of the enjoyment it gives me and I am really interested in it*); identified reasons (*I am pursuing this goal because I really believe it is an important goal*); introjected reasons (*I am pursuing this goal because I would feel ashamed, guilty or anxious if I did not*); external reasons (*I am pursuing this goal because somebody else wants me to or because the situation demands it*). At the first and second measurement point, the participants were also asked to appraise their education-related *goal effort* and *goal progress* (for a review of concepts, see Austin & Vancouver, 1996) with the following questions: goal effort (*How much time and effort have you put into this goal?*; *To what extent have you worked on this goal?*); goal progress (*To what extent have you progressed toward achieving this goal?*). The goal effort and goal progress variables were formed by the mean of the scores from both measurement points (Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001).

At the second measurement point, adolescents' schoolwork engagement and burnout were assessed. *School engagement* was examined by measuring vigor, dedication, and absorption with regard to school work (Salmela-Aro & Upadaya, 2012; Salmela-Aro & Näätänen, 2005). *School burnout* was examined by enquiring about feelings of exhaustion, cynicism, and detachment with regard to one's studies (Salmela-Aro & Näätänen, 2005; Salmela-Aro, Savolainen, & Holopainen, 2009).

At the third measurement, the participants were asked about their educational trajectory and educational aspirations concerning the transition following the completing of the three years of general upper secondary school. The *educational trajectory* was measured by asking what type of education the participants were engaged in. *Educational aspirations* were examined by asking the participants to state the highest level of education they expect to attain.



### 2.3 Study III

The third study of the present thesis was part of the Entrance into University study. The sample of this study was analyzed using path modeling (see Table 1). The participants of the original FinEdu study were young adults who were taking part in an entrance examination for studying psychology at a university. The original study included three measurement points, from which the first two were used for this study: *first*, before the entrance examination, participants (median age = 21 years,  $N = 320$ ) filled in a questionnaire on autonomous motivation, goal effort, and progress regarding their educational goals; and *second*, after the results of the examination were determined by the university, the success in passing the entrance examination was noted according to records in the university archives (see Table 1). The interval between these two measurement points was two months. Because 87.5% of those who participated in the entrance examination were women and only 10% men (2.5% did not report their gender), we excluded men and those who did not report their gender. The final sample consisted of 48 women who passed their entrance examination and hence attained a study place at the university, and 232 who failed.

Participants' *autonomous motivation* was assessed at the first measurement point by asking the respondents to rate their autonomous motivation (intrinsic and identified reasons) to pursue their educational goal (e.g., Sheldon & Elliot, 1998). The autonomous motivation scale was devised of three questions. Motivation according to one's own values or goals (Ryan & Connell, 1989) was identified and measured using two questions (*How important is this goal to you?; Why are you trying to carry out this goal; because you believe that it is important for you?*). The third question (*Why are you trying to carry out this goal; because you enjoy carrying it out and are interested in it?*) measured intrinsic reasons—assumed to be the most autonomous by nature (Deci & Ryan, 1985; Sheldon & Elliot, 1999)—involved in the pursuit of educational goals. Furthermore, at the first measurement point, the participants were also asked to appraise their *educational goal-related effort* and *goal progress* (for a review of concepts, see Austin & Vancouver, 1996) as follows: goal effort (*How many resources have you put into this goal?; To what extent have you worked toward achieving your goal?*). Goal progress was enquired about with three questions (*To what extent have you progressed toward achieving this goal?; How probable would you say it is that you will reach this goal?; How capable are you of realizing your goal?*).

At the second measurement point, after the results of the examination were determined by the university, participants' success or failure of passing the entrance examination was checked by referring to the university archives.

TABLE 1 Overview of the studies

Study	Data, measurement points	Variables	Statistical methods
Study I Education-related goal appraisals and self-esteem during the transition to secondary education: A longitudinal study	FinEdu, Sample 1 <ul style="list-style-type: none"> <li>Grade 9, beginning of the Spring semester (<math>n = 606</math>)</li> <li>Grade 9, end of the Spring semester (<math>n = 516</math>)</li> <li>One year after the first measurement (<math>n = 496</math>)</li> <li>Mean age: 16 years (<math>sd = 0.34</math>)</li> </ul>	Education-related goal appraisals: intrinsic ( $\alpha = .65, .66, .72$ ) and extrinsic reasons ( $\alpha = .58, .74, .68$ ); goal progress ( $\alpha = .77, .75, .752$ ); goal effort ( $\alpha = .86, .87, .88$ ); and goal stress ( $\alpha = .81, .84, .85$ ) Self-esteem ( $\alpha = .78$ ) Academic achievement Educational trajectory	Repeated multivariate analysis of variance (MANOVA) Path modeling
Study II Adolescents' self-concordance, school engagement and burnout predict their educational trajectories	FinEdu, Sample 2 <ul style="list-style-type: none"> <li>General upper secondary school, grade 2 (<math>n = 614</math>)</li> <li>General upper secondary school, grade 3 (<math>n = 636</math>)</li> <li>One year after (<math>n = 449</math>)</li> <li>Mean age: 17 years (<math>sd = 0.28</math>)</li> </ul>	Achievement-related personal goal appraisals: self-concordance ( $\alpha = .61$ ); goal effort ( $\alpha = .82$ ); and goal progress (one question) School engagement ( $\alpha = .94$ ) School burnout ( $\alpha = .87$ ) Educational trajectory Educational aspirations Academic achievement	Path modeling
Study III The role of goal-related autonomous motivation, effort and progress in the transition to university	Entrance into University <ul style="list-style-type: none"> <li>Before the entrance examination (<math>n = 280</math>)</li> <li>After receiving results of examination success in entrance examination</li> <li>Mean age: 21 years (<math>sd = 3.75</math>)</li> </ul>	Education-related goal appraisals: autonomous motivation ( $\alpha = .71$ ); goal effort ( $\alpha = .90$ ); and goal progress ( $\alpha = .69$ ) Success in entrance examination Academic achievement	Path modeling

### 3 OVERVIEW OF THE ORIGINAL STUDIES

#### 3.1 Study I: Education-related goal appraisals and self-esteem during the transition to secondary education: A longitudinal study

The study investigated the following research questions: (1) Do adolescents' appraisals (intrinsic and extrinsic reasons for goal striving, progress, effort and stress) of their education-related goals change during the transition from comprehensive school to a post-comprehensive secondary education? Do such changes differ between students who enter an *academic track* (i.e., progressing to the Finnish three-year general upper secondary educational level to qualify for the subsequent tertiary educational level of university) and those who change over to the *vocational track* (i.e., switching to vocational school to prepare for one's subsequent occupational field)? (2) Do adolescents' education-related goal appraisals before the educational transition contribute to their self-esteem after the transition? Or, conversely, does self-esteem before the transition contribute to adolescents' education-related goal appraisals afterward? Do these prospective relationships differ between students on the academic and those on the vocational track?

*Sample 1* of the original FinEdu study consisted of 606 adolescents were surveyed three times: (1) at the beginning and (2) at the end of the final Spring semester of comprehensive school, and (3) one year after the transition to post-comprehensive secondary education (either academic or vocational track).

The results showed, first, an increase in the young people's intrinsic reasons for goal striving and a decrease in their extrinsic reasons during the school transition (Figure 2). Furthermore, the amount of effort adolescents invested in their education-related goal increased in particular at the end of Grade 9, i.e., the final school year of Finnish comprehensive schooling (Figure 2).

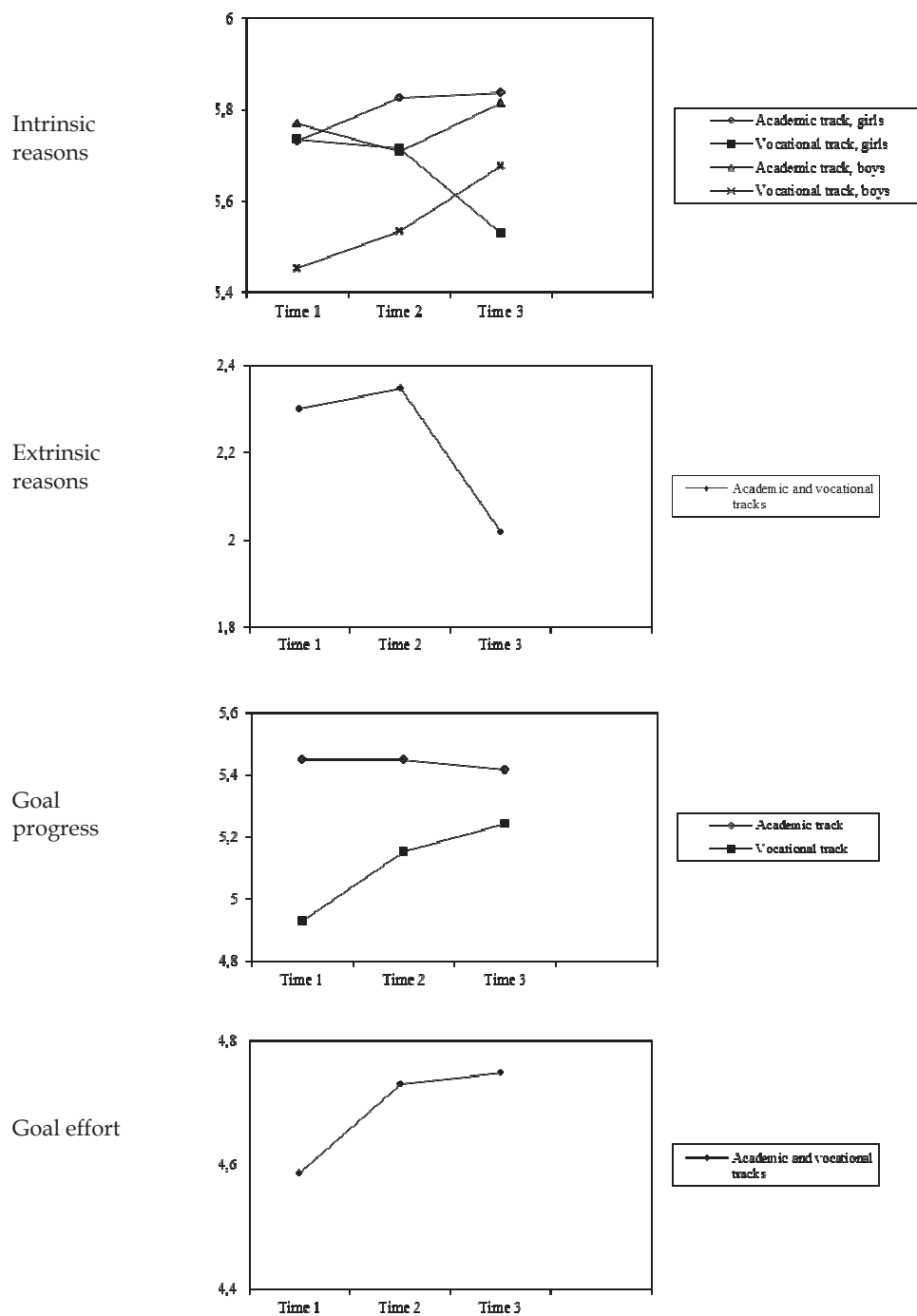


FIGURE 2 Change of intrinsic and extrinsic reasons, goal effort and progress during the school transition to an academic versus a vocational track.

Note. Time 1 = at the beginning of the spring term in the ninth grade; Time 2 = at the end of the spring term in the ninth grade; Time 3 = one year after the school transition to an academic or a vocational track.

Second, the benefit of a transition to a congruent school context was particularly evident with regard to the students who proceeded on the vocational track: after the transition, they reported a high overall level of progress toward their education-related goal, as did the students on the academic track—although the two groups had differed substantially with regard to their goal progress in comprehensive school (Figure 2).

Third, the results also indicated, however, that girls who ended up on the vocational track had shown a decrease in intrinsic reasons for striving toward an education-related goal during the educational transition (Figure 2).

Fourth, the results of path modeling showed that the only goal appraisal that was related to self-esteem was that of goal progress. However, the results also showed that self-esteem was associated with extrinsic reasons and goal progress: adolescents with a high level of self-esteem tended to appraise their goals in terms of a high level of progress and a low level regarding extrinsic reasons following the educational transition.

Overall, the results of the present study suggest that adolescents benefit from entering a mode of education that is in accordance with their motivation and academic competencies. Furthermore, motivational processes and self-esteem may form a cumulative cycle.

### **3.2 Study II: Adolescents' self-concordance, school engagement and burnout predict their educational trajectories**

This study investigated whether self-concordance of adolescents' education-related goal would predict their school engagement and lack of burnout during general upper secondary school, and their subsequent educational trajectories. The following research questions were posed: (1) Does a self-concordant education-related goal promote goal effort and goal progress during general upper secondary school? (2) Is progress toward an education-related goal associated with a high level of school engagement and a low level of school burnout during general upper secondary school? (3) Do school engagement and school burnout predict the outcome of the educational transition (successful transition, delay, or moratorium on studies) after general upper secondary school? (4) Do school engagement and school burnout predict long-term educational aspirations after general upper secondary school?

*Sample 2* of the FinEdu study consisted of 614 general upper secondary school students aged 18 years, who were surveyed three times: (1) in the second and (2) in the third grade of general upper secondary school, and (3) one year later.

The results of the study showed that when adolescents pursued their education-related goal for internal reasons, they also invested effort in achieving the goal, which was evidenced by a high level of goal progress. Goal progress, in turn, was related to a high level of school engagement during

general upper secondary school. Furthermore, girls' goal progress in their education-related goal was related to a low level of school burnout. However, goal progress did not contribute to school burnout among boys. The model for girls is presented in Figure 3 and the model for boys is presented in Figure 4.

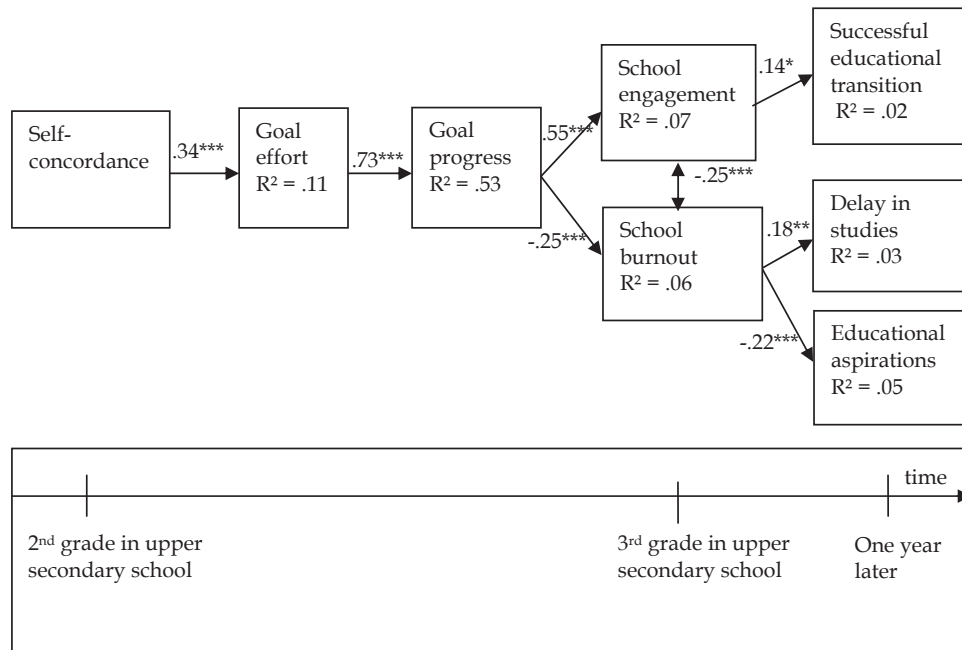


FIGURE 3 The path model among girls.  
 Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

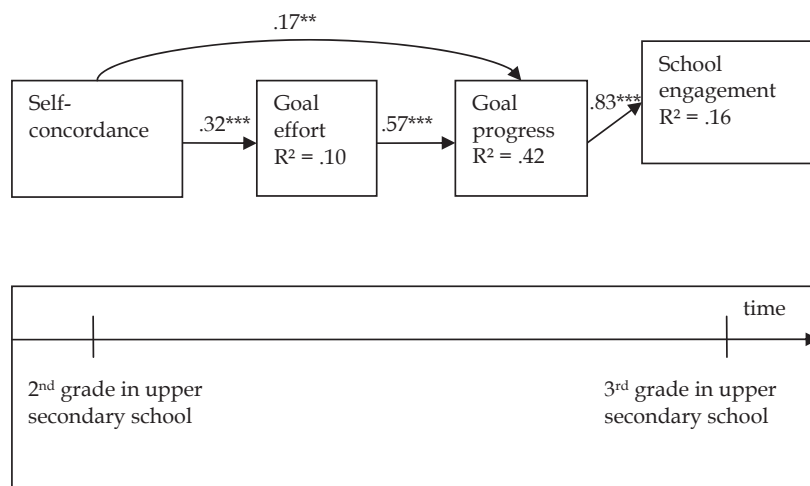


FIGURE 4 The path model among boys.  
 Note. \*\* $p < .01$ , \*\*\* $p < .001$ .

The results showed further that girls' school engagement was related to their success in the educational transition after general upper secondary school (Figure 3). By contrast, school burnout in general upper secondary school was related to delay in studies as well as low educational aspirations after general upper secondary school, but only among girls. Among boys, school engagement in general upper secondary school was not related to success in the educational transition thereafter (Figure 4).

Overall, the results suggest, first, that goal appraisals are important determinants of students' levels of school engagement and burnout. Second, among girls, a high level of school engagement and a low level of school burnout during general upper secondary school are later reflected in a successful educational transition. These results are important from the viewpoint of finding instruments to help adolescents to accomplish this challenging life transition successfully.

### **3.3 Study III: The role of goal-related autonomous motivation, effort and progress in the transition to university**

This study investigated the extent to which autonomous motivation, effort and progress relating to current educational goals predict success in dealing with the challenging transition to university. Two research questions were investigated: (1) To what extent does autonomous motivation promote young people's goal effort and goal progress in an educational context, and specifically in regard to the challenging university entrance examination? (2) To what extent does progress in an education-related goal predict young people's success in passing the entrance examination to university?

Study III used the Entrance into University data set and included two measurement points: (1) The first measurement was conducted before the university entrance examination, at which time participants ( $n = 280$ ) reported ratings of their autonomous motivation, effort and progress regarding their educational goals. (2) The second measurement was conducted after the university determined the results of the examinations, upon which time the students' success or failure of passing the entrance examination was checked by referring to the university archives.

The results of the path model showed that when young people pursued their educational goal for autonomous reasons, they invested special effort in their goal and this led to a high level of goal progress. Goal progress, in turn, predicted their successfully passing the university's entrance examination. The model is presented in Figure 5.

Overall, the results suggest that inner resources have a great influence on goal attainment, particularly in situations in which differences in effort would also be related to important outcomes, such as performance in a complex task.

However, it is important to note that the sample of this study included only women.

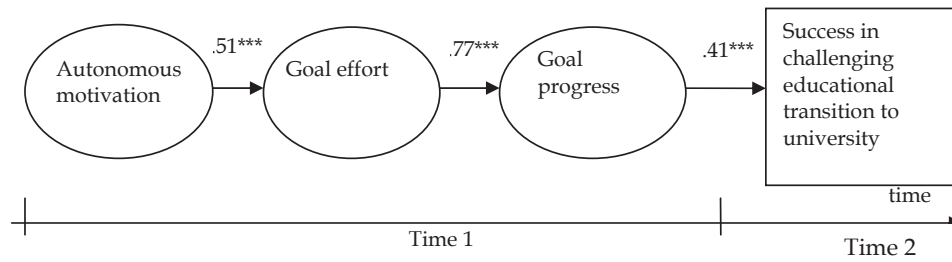


FIGURE 5 SEM model linking autonomous motivation, goal effort and goal progress to successfully passing the university's entrance examination.

Note 1. \*\*\* $p < .001$ . Note 2. Time 1 = 1 month before the entrance examination; Time 2 = after getting the results of the entrance examination.



## 4 GENERAL DISCUSSION

Adolescence is a stage of life during which individuals face a substantial number of different life transitions (Caspi, 2002), including the transition of moving from one educational level or type of education to another. Adolescents' success in these transitions is important for their future life and adaptation to society. Dropping out of education is strongly associated with having a subsequently weak position in the labour market (Kokko & Pulkkinen, 2000), and even with a high risk of social exclusion (Jahnukainen & Järvinen, 2006). However, little is known about those mechanisms in educational transitions after the basic education (Eccles, 2004). Consequently, this thesis focused on examining the relations between motivation, academic well-being, and self-esteem during educational transitions in adolescence. In particular, the associations between educational transitions and adolescents' goal appraisals were examined. Further, the influence of goal appraisals on academic well-being and self-esteem, as well as the role of academic well-being and self-esteem in educational transitions were examined. The results of the thesis in general suggest that when adolescents end up in a mode of education that is congruent with their academic competencies and interests, their autonomous motivation for goal pursuit and goal progress increases, whereas controlled motivation decreases. Autonomous motivation also facilitates progress toward goal attainment, particularly because autonomous motivation helps individuals to invest effort in their goal, which in turn increases progress made toward the goal. Goal progress is an important factor in educational transitions in two ways: First, it predicts the success in dealing with a challenging educational transition. Second, it predicts high levels of self-esteem and academic well-being, which in turn contribute to individuals' success in their later educational trajectory.

#### 4.1 Changes in appraisals of education-related goals in educational transitions

One aim of the present thesis was to investigate changes in adolescents' appraisals of their education-related goals during their transition from comprehensive school to the next stage in their education, i.e., either the academic or vocational track. Changes in intrinsic and extrinsic reasons, goal progress, effort, and stress were examined in Study I. The results showed that there was an increase in the adolescent participants' intrinsic reasons for goal pursuit, as well as a decrease in their extrinsic reasons, during their educational transition to either general upper secondary school or vocational school. The amount of goal effort that adolescents invested in their education-related goal increased, in particular, at the end of Grade 9. The results showed further that the benefit of a transition to a new educational context was particularly evident with respect to the students who switched to the vocational track: upon having made the transition, they reported as high an overall level of progress toward their education-related goal as did the students on the academic track, although these groups differed substantially in their level of goal progress during comprehensive school. However, students on the academic track reported more intrinsic reasons for their goal pursuit and a higher overall level of goal progress and effort, yet also more goal stress concerning their education-related goal, in comparison to the students on the vocational track.

These results suggest that the educational transition after comprehensive school is important for adolescents' motivation toward education. The results may be due to the fact that during the post-comprehensive transition, Finnish adolescents are able, as *agents*, to direct their own life according to their academic skills and interests or occupational aspirations. Therefore, adolescents' progression to an educational setting that was congruent with their academic competencies and interests or occupational aspirations had a positive effect on how the adolescents appraised their educational goals. Similar findings have Ratelle et al. (2004), who showed that the transition to university i.e., to an educational context that may enhance students' perception of autonomy, increased adolescents' intrinsic motivation. This finding and the results of the present thesis support ideas of stage-environment theory (Eccles, 2004; Eccles & Midgley, 1989; Eccles et al., 1993; Eccles & Roeser, 2011), as well as some life-span theories (Nurmi, 2004), by showing that an appropriate developmental context is important for adolescent students' motivation.

The benefit of the transition to a congruent educational context was especially evident among those adolescents who ended up on the vocational track. There are two different explanations for that result. First, the results may be due to the fact that in the Finnish school system, comprehensive school provides a learning environment that is highly theoretically oriented. Hence, the beneficial results of the transitional choice to switch to the vocational track – i.e., to an educational setting that not only better matches those students'

motivation but also provides a basis for their concrete occupational aspirations in anticipation of their future occupation—was reflected in these students' progress toward their education-related goal. The second explanation is related to the theory of the "big-fish-little-pond effect" (see e.g., Marsh, Trautwein, Lüdtke, Baumert, & Köller, 2007). According to this theory, students compare their academic ability to that of their classmates. The theory posits that such comparisons lead students to experience a low academic self-concept when the academic environment is above their level. Thus, according to this theory, it can be derived that if students who are used to performing more poorly move away from the comprehensive school setting where the average ability level of classmates is high compared to their own, that is, by switching to a vocational school setting where most students show a similar level of competence, then their academic self-concept and well-being is more likely to develop positively. The "big-fish-little-pond" theory was also evidenced in the result that the students on the academic track showed more goal stress regarding their educational goal than did the vocational track students, although the students on the academic track were more autonomously motivated. This finding suggests that students who move to academic track find themselves in an environment in which their peers, on average, show a higher level of competence than was the case in comprehensive school, and they are subsequently more likely to experience a higher level of education-related goal stress.

The findings also showed that adolescents invested extra effort in their education-related goal at the end of comprehensive school. In Finland, the grade point average attained at this stage of the school career is one of the most important determinants of individuals' future educational career, and as such, investing additional effort at that time is particularly important for students wishing to optimize their educational success. This result is also an important practical finding, since leaving school without a study place after comprehensive school is a big risk for dropping out of education and even for later marginalization (Jahnukainen & Järvinen, 2006).

Although the majority of adolescents benefited from the transition to either general upper secondary school or vocational school, there was, however, a group of students whose intrinsic motivation did not increase during this transition. Namely, regarding girls who ended up on the vocational track, the results pertaining to the time of their educational transition showed a decrease in these girls' intrinsic reasons for striving toward their education-related goal. It seems that education-related goals were not as important to the girls who took the vocational track as they were for the boys who took the same direction. These findings may be related to earlier findings which suggested there to be differences in future orientations between boys and girls (for a review, see Greene & DeBacker, 2004), as well as between university preparatory and vocational students (Klaczynski & Reese, 1991). For example, Greene and Wheatley (1992) showed that girls were more oriented toward social issues, whereas boys were more focused on achievement and property (Greene &

DeBacker, 2004). Furthermore, Klaczynski and Reese (1991) showed that university preparatory students had a “career preparation” orientation, whereas vocational students had an “adulthood preparation” orientation. It is possible that particularly girls who take the vocational track are more focused on preparing for adulthood and on social goals, for example on family roles, whereas boys perceive their future vocation as an important requirement for a successful adult life (Nurmi, 2004). In future, this possibility should be studied in more detail.

In general, the life-span model of motivation proposes that personal goals are sensitive to transitions (Salmela-Aro, 2009). The findings of the present thesis suggest that the reason for the change in personal goals may not be the transition *per se* but the developmental context individuals face (see also Eccles & Midgley, 1989, Nurmi, 2004; Salmela-Aro, 2009). Furthermore, Nurmi and Salmela-Aro (2002) showed that during the transition to entering the labour market, young adults reconstructed particularly those goal contents that were related to the transition they had just passed, whereas goals in other life domains stayed more stable. This thesis adds to the existing research by showing that individuals do not only reconstruct goal contents but also goal appraisals. In sum, changing to an educational environment that is in accordance with one’s own academic competencies and interests facilitates autonomous motivation and progress in the pursuit of educational goals.

## **4.2 The importance of goal appraisals in goal attainment during educational transitions**

One major aim of the present thesis was to examine the role of motivational processes in goal attainment during challenging educational transitions. The results showed, in general, that autonomous motivation, goal effort, and goal progress were important predictors of the outcomes in educational transitions. More specifically, when adolescents pursued their educational goals out of autonomous motivation, they also invested effort in their goal. Goal effort, in turn, facilitated adolescents’ goal progress (Study II and Study III), which then contributed to the attainment of a challenging educational goal (Study III).

According to the motivational theory of life-span development, the requirements of behavioral and developmental selectivity are twofold: first, individuals must choose from among their goals; and second, once they have made the choice, they need to invest their resources in a selectively focused way on the chosen action path or developmental pathway (Heckhausen et al., 2010). The results of the present thesis show that autonomous motivation is beneficial in goal selection perhaps because it helps people to focus their resources toward the goal. That is, students whose educational goals were based on personal interests and meaningful values were more likely to invest effort and make progress in their educational goals. These findings are in line with recent

research (Ratelle et al., 2007; Smith, Ntoumanis, & Duda, 2007; Turban et al., 2007). For example, Smith et al. (2007) showed that athletes who were autonomously motivated regarding their sport goals also invested more effort in their goals and consequently attained these goals. Similarly, students with internalized reasons for taking school courses in university have been shown to exert more effort in the courses and have subsequently achieved better grades in class (Turban et al., 2007). These findings may be due to the fact that autonomous goals enable individuals to work continuously toward achieving their goals regardless of whether the goal is enjoyable or not (self-concordance model; see Sheldon & Elliot, 1998, 1999), and when people feel fully autonomous in setting their goals, such goals are likely to be progressed (Carraro & Gaudreau, 2011; Judge et al., 2005; Koestner et al., 2002; Sheldon, 2002; Turban et al., 2007). On the whole, the results of the present thesis together with previous findings extend the existing research with respect to the self-concordance model (Sheldon & Elliot, 1998, 1999) by showing that this particular model is also true in a challenging educational context.

The present results showed further that young adults who appraised their goal progress toward their educational goal to be high were successful in their transition to university. This finding supports the suggestion that goal appraisals are important in directing people's behavior during life-stage transitions (see also Nurmi et al., 2002; Salmela-Aro & Nurmi, 1997b). Similar results have been found in some previous studies. For example, Nurmi et al. (2002) showed that the earlier young adults still in vocational school appraised the progress toward their work-related goal, the more likely they were to find a job commensurate with their education upon graduating or one year thereafter. By contrast, those young adults who reported a low level of progress toward their work-related goal were likely to be unemployed after graduating from vocational school. These findings give further support for the theory (Locke & Latham, 2006) that inner resources are particularly important for goal attainment when people pursue challenging goals in which external factors play a significant role.

It is important to note, however, that although *self-concordance* (Study II) was related to goal effort and progress in educational goals, pure *autonomous motivation* (as *intrinsic* and *identified* motivation) measured in Study III was equally a predictor of goal effort and progress. This result may indicate some potential problems in aggregating autonomous and controlled motivation to form a sum of self-concordance in research of educational goal attainment (see also Judge et al., 2005). First, educational choices made in adolescence are typically made together with significant others (Kiuru, Nurmi, Aunola, Salmela-Aro, 2009), and in such situations controlled motivation may not be negatively related to autonomous motivation. As Eccles and Wigfield (2002) have pointed out, external reasons for engaging in a task can be of value to a person as these may facilitate important goals concerning their future. Second, it is possible that challenging educational goals, although they may be autonomously motivated in the long run, are partly motivated by control as

well. For example, when students are preparing for their entrance examination to university, they consider their educational goals to be autonomously motivated, yet they are actually also subject to experiencing controlled motivation in their everyday life while attempting to attain their challenging educational goal. In such a case, however, controlled motivation is defined as being more responsive to the specific situation (Zuckerman, Gioioso, & Tellini, 1988), and therefore exerts a less stable influence on the individual's behavior over time and across situations than does autonomous motivation (Koestner et al., 2008). Indeed, in future, it seems important to study the role of controlled motivation in the attainment of educational goals (see also Koestner et al., 2008) besides that of autonomous motivation.

### **4.3 Goal appraisals, academic well-being and self-esteem in educational transitions**

The present thesis also aimed to examine the relations between goal appraisals, academic well-being, and self-esteem during educational transitions (Study II and Study III). The results of the thesis suggest, in general, that autonomous motivation is important for well-being particularly because it facilitates goal effort and goal progress. Goal progress, in turn, is associated with high levels of self-esteem and school engagement, and low levels of school burnout. Furthermore, academic well-being, such as represented by experiencing high engagement and a lack of burnout in school, are important for success in dealing with challenging educational transitions.

#### **4.3.1 Associations between goal appraisals, academic well-being and self-esteem**

The results showed that progress made toward education-related goals was an important determinant of academic well-being. That is, students' high level of goal progress toward their educational goal at the beginning of general upper secondary school contributed to a high level of school engagement and to a lack of school burnout at the end of general upper secondary school. These results extend the existing research findings showing that progress toward personal goals is related to subjective well-being (Oishi & Diener, 2001; Sheldon & Elliot, 1999).

However, the results are also consistent with those showing that particularly progress in autonomously motivated goals is beneficial for subsequent well-being (Guay et al., 2008; Oishi & Diener, 2001; Pomaki et al., 2009). For example, the research has shown that the more students endorse autonomous forms of motivation, the more they are satisfied and experience positive emotions at school (Guay et al., 2008). These findings may reflect the suggestion that autonomous motivation in goals enables individuals to put effort into achieving their goals, thus increasing the probability of goal



attainment, which in turn increases well-being (Deci & Ryan, 1985; Harris, Daniels, & Briner, 2003).

The role of the motivational process in academic well-being is an important finding concerning Finnish society, where low academic well-being is a serious problem among adolescents, although, according to the PISA (Programme for International Student Assessment) study, the adolescents perform well academically. Approximately 10% of girls and 7% of boys suffer from severe school burnout at the end of comprehensive school (Salmela-Aro & Tynkkynen, *in press*). Furthermore, following comprehensive school, especially girls who continue on the academic track are at risk of experiencing burnout: in general upper secondary school, a considerable 17% of girls suffer from severe school burnout (Salmela-Aro & Tynkkynen, *in press*). Severe school burnout, in turn, is a strong predictor of depression (Salmela-Aro et al., 2009). Similarly, it has been shown that students whose school engagement decreases during adolescence are at risk of dropping out of school (Janosz, Archambault, Morizot, & Pagani, 2008).

However, the results regarding school burnout were only in line with the hypotheses of this thesis in regard to female students: a high level of goal progress was related to a low level of school burnout among girls, but not among boys. This unexpected finding may be due to the fact that girls are typically more motivated toward achieving their education-related goals (Dwyer & Johnson, 1997; Pomerantz, Altermatt, & Saxon, 2002) and attribute greater importance to academic achievement than do boys (Murberg & Bru, 2004). Girls also fear academic failure more than do boys, and this tendency may lead to a high level of school burnout if the pursued goal is not attained (Sheldon, 2002).

The findings further showed that progress toward educational goals was not only related to well-being in that particular life domain but also to adolescents' self-esteem: a high level of goal progress at the end of comprehensive school was related to a high level of self-esteem after the transition to either academic or vocational track. This finding suggests that adolescents construct their self-concept by evaluating the extent to which they are successful in goal attainment (Harter, 1990; Nurmi, 1993). Therefore, from a practical point of view, starting a new type of education creates new possibilities for the adolescent: the new context may offer positive experiences, which are in turn reflected in self-esteem.

However, the results also showed that adolescents with a high level of self-esteem tended to appraise their goals in terms of a high level of progress and low level in extrinsic reasons after the educational transition. These findings suggest that self-esteem also influences the kinds of environments people seek and whether they appraise such environments as attainable (Salmela-Aro & Nurmi, 2007). Furthermore, the results support some of the existing findings suggesting that motivational processes and self-esteem may form a cumulative cycle (Salmela-Aro & Nurmi, 1997b; Sheldon & Houser-Marko, 2001). Indeed, personal goals that are in accordance with the

developmental tasks of a particular stage of life are adaptive in directing one's life and therefore facilitate one's positive self-evaluation (Sheldon & Houser-Marko, 2001), which may in turn enhance later motivation (Salmela-Aro & Nurmi, 1997a).

#### **4.3.2 Consequences of academic well-being for educational transitions**

The results showed that high engagement in general upper secondary school was related, among girls, to success in the subsequent educational transition. By contrast, a high level of school burnout was related to a delay in studies and low educational aspirations, but again only among female students. These results are in line with some recent findings showing that a high level of life satisfaction during adolescence helps youths to find a suitable educational track after comprehensive school (Salmela-Aro & Tuominen-Soini, 2010). These findings imply that well-being is an important aspect of development and has cumulative, positive consequences for long-term outcomes, such as for success in an educational transition (Lyubomirsky, King, & Diener, 2005). Again, these are especially important findings concerning Finland, where delay in studies is a typical phenomenon.

Surprisingly, among boys, a high level of school engagement in general upper secondary school was not associated with the success in the educational transition thereafter. It is possible that the school transition after general upper secondary school is more challenging for boys than for girls in Finland: Finnish girls graduate from general upper secondary school and enter university in more cases than boys do (Central Statistical Office of Finland, 2007).

### **4.4 Practical implications of the findings**

The results of the present thesis have important practical implications. First, the results highlight the importance of adolescents' own decisions concerning their educational careers. According to the findings, a key factor in adolescents' successful goal pursuit during educational transitions is their ability of to select goals that are in line with their own internal needs and skills (see also Conti, 2000; Sheldon, 2002; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001). That is, adolescents who possessed strong autonomous motivation were more likely to attain their goals, especially because they invested more time and effort into achieving those goals (see also Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001), and this may also lead them to better cope with the challenges presented by the transition. Adolescents' autonomous motivation, high level of goal effort, and progress toward their educational goals also had important consequences, on the one hand, for their academic well-being, and, on the other hand, for their general self-esteem.

Second, autonomous motivation in challenging educational transitions seems to be an important resource for adolescents, which is why it is important



to support adolescents' autonomous motivation. This would be particularly essential nowadays, as there is an increasing number of adolescents who drop out of education already after comprehensive school (Myrskylä, 2011), in Finland. Even brief interventions have been shown to affect motivation positively, and support for autonomous motivation could be organized at schools through student counseling services. For example, Salmela-Aro et al. (2012) showed that even an intervention lasting only one week enhanced employees' intrinsic work-goal motivation.

Because educational transitions in particular are periods of life when people face change, supporting adolescents' autonomous motivation in such times may be especially important for students who find it difficult to make decisions regarding their future education. However, efforts to motivate adolescents externally toward the particular educational track when it is not in line with their own interests may be a risk factor for dropping out of education later on, since controlled educational goals are not as likely to be progressed with the intensity that autonomous educational goals are. On the other hand, after finding an educational track where the content students were asked to master was in line with their current interests, autonomous motivation and goal progress with regard to their education increased.

The results further showed that a high level of school engagement was also an important predictor of developing a successful educational trajectory (see also Haase et al., in press; Salmela-Aro, 2009; Shulman & Nurmi, 2010), whereas school burnout predicted delays in studies and low educational aspirations. Consequently, it is important, first, to reorganize school environments so that students not only perform well but also feel well. In making such changes, focusing on positive school climate, positive feedback received from teachers, and support from the school may be important aspects (Salmela-Aro et al., 2008). Second, student counseling in comprehensive schools should also make use of questionnaires assessing school engagement (Salmela-Aro & Upadaya, 2012) and school burnout (Salmela-Aro & Näätänen, 2005). Concerning practical implications, it is important to note that a high level of school engagement was inversely related to school burnout: a high level of school engagement was related to a low level of school burnout. Therefore, increasing school engagement through motivation may avoid school burnout.

## 4.5 Limitations

The results of the present thesis have several limitations. First, the reliabilities of some of the individual scales, such as the scales for *intrinsic* and *extrinsic reasons* in Study I, and for *self-concordance* in Study II, were somewhat low. This may have decreased the statistical power of the path models. Furthermore, this might have been one reason why the self-concordance model in Study II did not fit the entire sample so well. This has to be taken into account when making any generalizations on the basis of the results. Similar scales, however, have also

been used successfully in previous studies (Ryan & Connell, 1989; Sheldon & Elliot, 1998, 1999, Sheldon & Houser-Marko, 2001).

Second, the attrition analyses showed some differences between participants who took part in the entire study and those who dropped out of the study. For example, in Study I, of the students who had not filled in the questionnaire, more were moving on to the vocational track after basic education rather than to the academic track, most were boys, and more had a lower GPA and showed less goal progress. Recent studies have shown that 12.6% of Finnish adolescents dropped out of education after comprehensive school (i.e., upon the fulfillment of their basic education with the completion of Grade 9, normally at age 16), and 64% of these were boys (Myrskylä, 2011). Therefore, it is possible that the participants who prematurely dropped out of the present research study would also be more likely to drop out of education before those who continued their participation. Overall, the study's attrition rate may have decreased the power of its statistical tests regarding vocational school students, especially with respect to the male participants.

Furthermore, in Study II, those upper secondary school students who dropped out of the research after the second measurement point had shown lower school engagement at the second measurement point than those who continued and participated in the third measurement. This attrition has may decreased the power of the statistical tests.

Third, in Study III, only women were studied. Although previous studies have not shown any gender differences with respect to the particular motivational model discussed (Sheldon & Elliot, 1999), the homogeneity of the sample may have affected the results nonetheless.

Fourth, in the present studies, all measures relating to motivation, education and well-being were based on self-reports. As self-reports are not always the most valid and reliable method of data collection (Shaffer, 2002), they may have caused biases that may have influenced the results. One has to keep in mind that subjective experience is particularly important in the case of measuring items like internal and external motivation, school engagement and burnout, although more objective measures could be used regarding academic achievement, goal effort and goal progress.

Fifth, participants were asked to state their education-related goal in response to the following request: "Please, on the line below, write one of your personal goals that is related to either your studies, prospective choice of occupation, or potential working career." Therefore, it was impossible to control which of these three areas – education, occupation, or career – each individual's reported main goal would be related to. It could also be the case that an individual's goal might change from one measurement point to another, so it was also not possible to control this in the studies.

Sixth, some of the constructs, such as the educational goal or forms of self-concordance, were measured by only one item. In the case of these constructs, it is difficult to evaluate the reliability of the item. Consequently, some of the findings should be replicated by using constructs with multiple items. For

example, measures of educational goals and self-concordance should be validated by adding more items to the scales.

Finally, although the studies were carried out using longitudinal data sets, the data did not allow fully cross-lagged longitudinal designs. Therefore, previous levels of the outcome variables were not controlled for and conclusions concerning the causal direction of the variables remain tentative.

## 4.6 Future directions

The results of the present thesis have several future implications. First, the aim of the thesis was to examine the role of goal appraisals in educational transitions, as these represent the most important developmental context in adolescence. The findings emphasize the importance of autonomous motivation in successful goal pursuit and academic well-being during challenging educational transitions. Future research should consider this further by examining whether this particular motivational process is also beneficial in other important life-stage transitions.

Second, although this thesis investigated motivation and academic well-being in connection with adolescents' success in handling challenging educational transitions, one should keep in mind that several transitions and changes occur, sometimes simultaneously, during late adolescence with regard to, for example, family, romantic relationships and peers (Caspi, 2002), and changes in those life domains may also have impact on each other (Fuligni, Eccles, Barber, & Clements, 2001; Garrett & Eccles, 2009). For example, individuals are not typically able to focus on only one domain, as most have to invest effort and time in multiple goals pertaining to different life domains (Heckhausen et al., 2010). Furthermore, by default, making one choice rather than another also always results in some opportunities being lost (Eccles & Wigfield, 2002). The life-span theory has suggested that individuals who select and optimize fewer contexts would have better resources to excel in those contexts (Baltes, 1997). Narrowing investment down to only one domain can, however, deprive progress in other domains (Carrett & Eccles, 2009; Heckhausen et al., 2010). It has also been found that the manner in which individuals deal with conflicting goals has a direct impact on goal attainment (Emmons & King, 1988). Consequently, it is possible that people who can creatively integrate their different goals in different life domains (e.g., studying and meeting peers by studying in a group) are those who progress best toward their goals. In future, empirical research is needed in order to expand our knowledge of how young people's goal appraisals in different life domains are related, and how different combinations of such appraisals contribute to goal success.

Third, this thesis focused on examining adolescents' individual motivation. However, as the life-span model of motivation suggests, other people also have an impact on individuals' goals (Salmela-Aro, 2009), including on their goals

related to education (Eccles, 2004; Lent, Brown, & Hackett, 2000; Nurmi, 2001). For example, it has been shown that peer groups resemble each other in academic achievement (Ryan, 2001) and in educational aspirations (Kiuru, Aunola, Vuori, & Nurmi, 2007). In future, it would be important to examine the impact of those aspects on adolescents' educational transitions. It is possible, for example, that adolescents invest more effort in their educational goals if their peer group shares similar goals, since in such a case they receive social support for their goal pursuit. Also, the impact of family background and parents on success in educational transitions should be studied further.

Fourth, goal appraisals have been shown to vary not only between individuals but also across the different goal contents that individuals have reported (Nurmi et al., 2009). For example, achievement-related goals are typically appraised as being more difficult, more stressful, and as requiring more effort than interpersonal goals, whereas interpersonal goals are appraised as being more rewarding (Cantor et al., 1987; Nurmi et al., 2009; Rhoades & Maggs, 2006). This needs to be taken into account when generalizing the results of this thesis. Furthermore, in future research, hierarchical analyses that take into account the nested structure of goal appraisals, i.e., both the differences between individuals and the amount of variation between individuals' different goals (nested within individuals), should be conducted.

Fifth, according to the present results, goal progress is an important determinant of academic well-being and self-esteem. Some previous studies have shown, however, that the relationship between goal progress and outcomes in well-being may not be equally beneficial to all individuals (Pomaki et al., 2009; Wiese & Freund, 2005): the relationship seems to be different depending on goal properties, such as goal difficulty (Wiese & Freund, 2005) and goal attainability (Pomaki et al., 2009). For example, Pomaki et al. (2009) showed that employees' subjective well-being changed more if goal progress made their goals more attainable over time. In the present thesis, the moderator effects of other goal properties on the relationship between goal progress and well-being was not studied. It is possible, therefore, that there is a group of adolescents whose progress toward their educational goals facilitates their academic well-being more so than is the case for other individuals. In future, it would be important to examine joint effects of goal properties on adolescents' well-being within the educational context.

Sixth, it is known, however, that there are an increasing number of adolescents who drop out of the educational system already at the end of comprehensive school, i.e., upon completing Grade 9. Why were those adolescents not able to motivate themselves with regard to their education even though they probably knew that their education is essential to their success in their subsequent life course? What are the factors that hinder the factors found to contribute to subsequent positive educational transitions, i.e., autonomous motivation, goal effort, and goal progress? It is possible that, for example, a high level of stress in connection with an educational goal prevents progress

toward that goal (Dietrich et al., 2012). This possibility should be studied in more detail in future research.

Seventh, the measures of goal appraisals were based on self-reports. Self-knowledge can be a complicated issue, particularly for young people (Wilson, 2002), and the consistency of one's goals with one's deeper needs has to be reported accurately. Self-reports are commonly used in motivational research, and in the present thesis this approach was assumed to measure motivation because interests, invested effort and progress, and also the presence of guilt or extrinsic motivation, are relatively easy to report, and reporting these is not particularly fraught with social pressure (Sheldon, 2007). It is, however, important to note that the recent research has provided empirical evidence for the idea that people's motivational processes and goals are only partly conscious processes (Levesque, Copeland, & Sutcliffe, 2008). If autonomous and controlled motivations can be activated automatically in unconscious processes (Levesque et al., 2008), then it is possible that emotions related to a particular situation and measured by new technique (e.g., by face reader which recognize emotions from face) provide more valid information about one's actual motivation than do questionnaires about the motivation. Future research addressing the role and importance of unconscious processes in personal goals and goal appraisals is needed, and accordingly, new methods to measure motivational processes would need to be developed.

## 5 CONCLUSION

The results of the research conducted for this thesis suggest, first, that the educational contexts which adolescents face have impacts on their goal appraisals. Second, autonomous motivation in educational goals helps adolescents to invest effort in their goal, which in turn facilitates progress toward the goal. This is especially beneficial in challenging educational transitions because it is related, on the one hand, to the success in dealing with challenging educational transitions, and, on the other hand, to high self-esteem and academic well-being. Third, academic well-being, in turn, has longitudinal effects on adolescents' later educational trajectories.

## YHTEENVETO

Tässä väitöskirjatutkimuksessa tarkasteltiin motivaation ja kouluhyvinvoinnin roolia kolmessa nuoruuden keskeisessä koulutussiirtymässä: nuorten siirtyessä peruskoulusta toisen asteen koulutukseen, nuorten hakeutuessa lukion jälkeen jatko-opintoihin sekä heidän siirtyessään yliopistoon. Tutkimuksella oli neljä tavoitetta. Ensimmäisenä tavoitteena oli tarkastella, miten muuttuva koulutusympäristö vaikuttaa nuorten motivaatioon. Toisena tavoitteena oli tarkastella motivaation roolia nuorten kyvyssä selviytyä haastavasta koulutussiirtymästä. Kolmantena tavoitteena oli tutkia motivaation merkitystä kouluhyvinvoinnissa ja nuorten itsearvostuksessa. Neljäntenä tavoitteena oli selvittää hyvinvoinnin roolia koulutussiirtymässä.

Tutkimus koostui kolmesta osatutkimuksesta, jotka toteutettiin käyttämällä otoksia kahdesta eri tutkimusaineistosta. Ensimmäisen ( $n = 606$ ) ja toisen ( $n = 614$ ) otoksen aineistot olivat osa FinEdu (Finnish Educational Transitions) -tutkimusprojektia ja kolmannen otoksen ( $n = 280$ ) aineisto oli osa Entrance into University -tutkimusprojektia. Tutkimukset tehtiin kyselylomaketutkimuksina. Kyselylomakkeet sisälsivät osioita, jotka liittyivät nuorten motivaatioon, kouluhyvinvointiin ja koulutussuunnitelmiin. Kolmannessa osatutkimuksessa käytettiin myös yliopiston rekistereistä saatuja tietoja. Pääasiallisena analyysimenetelmänä käytettiin polkumallinnusta, jonka avulla pitkittäisaineistoissa voidaan tarkastella useamman muuttujan välisiä riippuvuuksia.

Ensimmäisessä osatutkimuksessa tarkasteltiin sitä, miten nuorten koulutustavoitteita koskeva motivaatio muuttuu heidän siirtyessään peruskoulusta toisen asteen koulutukseen. Lisäksi tutkittiin motivaation yhteyttä nuorten itsearvostukseen. Motivaation muuttumista mitattiin arvioimalla koulutustavoitteeseen liittyvän sisäisen ja ulkoisen motivaation sekä tavoitteen eteen työskentelyn, tavoitteessa koetun edistymisen ja stressin muuttumista siirtymän aikana. Kiinnostuksen kohteena oli erityisesti se, muuttuuko motivaatio peruskoulun jälkeen lukioon päätyvillä nuorilla eri tavalla kuin ammattikouluun siirtyvillä. Tulokset osoittivat, että kun nuoret siirtyivät motivaatiotaan ja taitojaan vastaavaan koulutusympäristöön (lukio vs. ammattikoulu), heidän sisäinen motivaationsa koulutustavoitetta kohtaan nousi, kun taas ulkoinen motivaatio laski. Erityisesti ammattikouluun siirtyneet nuoret kokivat myös edistyvänsä koulutustavoitteessaan paremmin kuin aiemmin. Edistyminen koulutustavoitteessa oli yhteydessä myös nuoren itsearvostukseen: Se, että nuori kertoi peruskoulun viimeisellä luokalla edistyvänsä hyvin koulutustavoitteessaan, ennakoii korkeaa itsearvostusta siirtymän jälkeen. Toisaalta myös korkea itsearvostus peruskoulun viimeisellä luokalla ennakoii sitä, että nuoret kokivat toisen asteen koulutukseen siirryttyään edistyvänsä hyvin koulutustavoitteessaan. Nuoret tekivät kovasti työtä koulutustavoitteensa saavuttamiseksi juuri ennen siirtymää, mikä kertoo koulutustavoitteen olevan nuoruuden keskeinen tavoite. Tuohon tärkeään tavoitteeseen liittyvä stressi ei kuitenkaan muuttunut siirtymän kuluessa, vaan ne, joilla oli stressiä koulutustavoitteestaan ennen siirtymää, kokivat sitä myös siirtymän jälkeen ja päinvastoin. Koulutustavoitteessaan stressiä kokevat



päätyivät siirtymän jälkeen todennäköisemmin lukioon kuin ammattikouluun. On siis mahdollista, että lukion vaativampi oppimisympäristö lisää nuorten koulutustavoitteessaan kokemaa stressiä. Yllättävä tulos tässä osatutkimuksessa oli se, että muista opiskelijoista poikkeavasti ammattikouluun päätyneillä tytöillä sisäinen motivaatio heidän koulutustavoitteessaan laski siirtymän jälkeen. Nämä nuoret naiset saattavatkin olla ryhmä, joka valmistautuu jo nuoruuden tai varhaisaikuisuuden muihin tavoitteisiin eikä pidä kouluttautumista itselleen tärkeänä. Kaikkiaan tämän osatutkimuksen tulokset osoittivat nuorten ympäristön olevan tärkeä motivaation määrittäjä: jos nuoret päätyivät koulutusympäristöön, joka vastasi heidän taitojaan ja mielenkiintonsa kohteita, heidän sisäinen motivaationsa nousi ja he kokivat saavuttavansa paremmin koulutustavoitteensa. Peruskoulun jälkeisestä siirtymästä näyttivät hyötyvän eniten juuri ammattikouluun päätyneet nuoret. Tutkimus myös osoitti, että peruskoulun jälkeisessä siirtymässä nuoret pyrkivät optimoimaan omaa kehitystään lisäämällä konkreettista työtä ajankohtaiseen kehitystehtävään.

Toisessa osatutkimuksessa oli kolme tutkimustavoitetta: Ensimmäinen tavoite oli selvittää, auttaako sisäinen motivaatio nuoria työskentelemään tehokkaammin koulutustavoitteensa saavuttamiseksi ja auttaako sisäinen motivaatio myös edistymään koulutustavoitteessa. Toinen tavoite oli selvittää motivaation yhteyttä lukioaikaiseen hyvinvointiin. Kolmas tavoite oli tarkastella motivaation ja kouluhyvinvoinnin merkitystä lukionjälkeisen koulutussiirtymän onnistumiselle ja pitkän aikavälin koulutustavoitteille. Tutkimuksen tulokset osoittivat sisäisen motivaation auttavan lukiolaisia paitsi työskentelemään tehokkaammin koulutustavoitteensa hyväksi myös edistymään siinä paremmin. Edistyminen omassa koulutustavoitteessa taas näkyi lukiolaisten kouluhyvinvoinnissa: se lisäsi heidän kouluinnokkuuttaan ja vähensi erityisesti tyttöjen koulu-uupumusta. Korkea kouluinnokkuus ja matala koulu-uupumus puolestaan ennakoivat tytöillä koulutustavoitteen saavuttamista: todennäköisesti he läpäisivät lukion kolmessa vuodessa ja pääsivät heti lukion jälkeen jatkokoulutukseen. Vastaavasti sillä, että nuoret kokivat lukioaikana edistyvänsä koulutustavoitteessaan heikosti, oli yhteys lukioajan koulu-uupumukseen, joka ennakoiki tytöille neljättä vuotta lukio-opinnoissa sekä alhaisia lukion jälkeisiä koulutustavoitteita. Tulokset tukevat hypoteesia, jonka mukaan edistyminen omassa tavoitteissa ja sitä kautta lisääntyvä hyvinvointi kasautuvat myöhemmässä elämässä: omien tavoitteiden saavuttaminen lisää hyvinvointia, joka taas edistää seuraavien tavoitteiden saavuttamista.

Kolmannessa osatutkimuksessa selvitettiin motivaatioprosessin merkitystä menestykselle yliopiston haastavissa pääsykokeissa. Motivaatioprosessia tutkittiin arvioimalla, miten sisäisesti motivoituneita pääsykokeisiin osallistujat olivat heidän tulevaan yliopistouraan liittyvässä tavoitteessaan. Lisäksi arvioitiin sisäisen motivaation merkitystä sille, miten paljon osallistujat työskentelivät tulevaan yliopistouraan liittyvän tavoitteen saavuttamiseksi ja miten he siinä kokivat edistyvänsä. Tutkimuksen tulokset osoittivat, että kun pääsykokeisiin osallistuneiden tulevaan yliopistouraan liittyvä tavoite pohjautui heidän sisäiseen motivaatioonsa, he myös työskentelivät tavoitteensa saavuttamiseksi ja



siksi he myös kokivat edistyvänsä siinä hyvin. Yliopiston rekisteritietojen perusteella nämä osallistujat myös läpäisivät pääsykokeen muita todennäköisemmin, vaikka opintosuoriutumisen vaikutus pyrittiin analyysseissä kontrolloimaan. Tulosten pohjalta voidaan olettaa, että sisäinen motivaatio auttaa nuoria keskittymään haasteelliseen siirtymään ja työskentelemään tavoitteen saavuttamiseksi, vaikka työskentely ei olisikaan helppoa ja mielihyvää tuottavaa. Sisäinen motivaatio ei kuitenkaan sinänsä suoraan edistä tavoitteessa edistymistä, vaan se on hyödyllinen edistymiselle erityisesti siksi, että se saa nuoren työskentelemään enemmän tavoitteensa saavuttamiseksi. Tulokset tukevat näkemystä, että sisäinen motivaatio on erityisen tärkeä tavoitteissa, joissa hyviin tuloksiin voidaan päästä vain kovalla työllä.

Kokoavasti väitöskirjan osatutkimusten pohjalta voidaan todeta, että yksilön ympäristö vaikuttaa suuresti hänen motivaatioonsa, joten nuoren on tärkeää itse valita koulutuspolkunsa omien kiinnostuksensa kohteiden ja arvojen mukaisesti. Se auttaa häntä motivoitumaan sisäisesti tavoitteeseensa. Sisäinen motivaatio puolestaan saa hänet keskittymään ja työskentelemään koulutustavoitteen saavuttamiseksi, vaikka työskentely ei aina olisikaan miellyttävää ja helppoa. Sisäisen motivaation tuki on hyödyllistä erityisesti sellaisissa koulutustavoitteissa, joita ei voi saavuttaa ilman suurta työpanosta. Väitöskirjatutkimus osoitti myös, että edistyminen omissa tavoitteissa heijastuu hyvinvointiin, joka myös osaltaan ennakoii onnistumista seuraavissa tavoitteissa.

Käytäntöön sovellettavaksi voidaan väitöskirjan tutkimusten pohjalta todeta, että haastavissa koulutussiirtymissä on tärkeää tukea nuorten sisäistä motivaatiota ja kouluhyvinvointia. Erityisen tärkeältä tuki tuntuu sen vuoksi, että yhteiskunnassamme on kasvava joukko nuoria, jotka syrjäytyvät jo ensimmäisen tärkeän koulutussiirtymän aikana eli heti peruskoulun päätyttyä (Myrskylä, 2011). Heille sisäisen motivaation ja koulumyönteisen ajattelun löytymiseen suunnattu pienikin tuki voi olla ratkaiseva myöhemmän elämänpolun kannalta.

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## ORIGINAL PAPERS

### I

#### EDUCATION-RELATED GOAL APPRAISALS AND SELF-ESTEEM DURING THE TRANSITION TO SECONDARY EDUCATION: A LONGITUDINAL STUDY

by

Kati Vasalampi, Katariina Salmela-Aro, & Jari-Erik Nurmi, 2010

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## Education-related goal appraisals and self-esteem during the transition to secondary education: A longitudinal study

Kati Vasalampi,<sup>1</sup> Katariina Salmela-Aro<sup>1</sup> and Jari-Erik Nurmi<sup>1</sup>

### Abstract

This study investigated whether adolescents' appraisals of their education-related goals change during the transition from comprehensive school to postcomprehensive secondary education (academic vs. vocational track) and how such appraisals contribute to their self-esteem. Six hundred and seven 16-year-old adolescents were surveyed three times: (1) at the beginning, (2) at the end of the final spring term of comprehensive school, and (3) one year after the transition to postcomprehensive secondary education. They were asked to appraise their education-related goal in terms of intrinsic and extrinsic reasons for goal striving, goal progress, effort, and stress. The results showed that, when adolescents ended up in a mode of education that was congruent with their skills, their intrinsic reasons for goal strivings and goal progress increased. Moreover, progress towards goal attainment contributed to self-esteem, and self-esteem also predicted goal progress. Furthermore, the higher the self-esteem in comprehensive school, the lower the level of extrinsic reasons for goal striving after the transition.

### Keywords

educational goals, goal appraisals, school transition, self-esteem

Previous research has shown that school transitions are often reflected in adolescents' motivation and self-esteem (Eccles & Midgley, 1989). For example, motivation and well-being tend to decrease during such transitions (e.g., Barber & Olsen, 2004; Eccles & Midgley, 1989; Otis, Grouzet, & Pelletier, 2005). This research, however, has at least three limitations. First, most of earlier studies have focused on middle-school transitions in early adolescence (e.g., Barber & Olsen, 2004; Eccles et al., 1993; Simmons, Carlton-Ford, & Blyth, 1987; Wigfield & Wagner, 2005), whereas transitions during middle adolescence have been seldom studied. Second, little is known about how appraisals of personal goals change during educational transition, when adolescents enter a school environment which offers opportunities that match their skills and competencies. For example, adolescent's intrinsic reasons for goal striving, and related progress appraisals can be assumed to increase, while goal stress and extrinsic reasons should decrease. Furthermore, the ways in which adolescents appraise their goals during educational transition might be assumed to be associated with their well-being (Salmela-Aro, 2009), such as with their self-esteem. Third, most studies have been carried out in the United States. Consequently, the present longitudinal study investigated whether adolescents' education-related goal appraisals change during the educational transition from comprehensive school to the postcomprehensive secondary education and how such changes contribute to their self-esteem.

personal strivings, and future goals (Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Emmons, 1986; Little, 1983; Nurmi, 1989), and how people appraise their goals along several dimensions, such as importance, commitment, progress, effort and stress (for a review, see Austin & Vancouver, 1996). One assumption made within this framework is that by setting personal goals, individuals direct their lives and their own development (Nurmi, 1993; Salmela-Aro, 2009; Salmela-Aro & Nurmi, 1997a). It has been suggested that people construct their goals by comparing their individual motives to the opportunity space created by their environments (Nurmi, 2004). People also adjust their personal goals during major life transitions in order to adapt to the outcomes of those transitions and environmental changes related to those transitions (Nurmi, 2004; Nurmi & Salmela-Aro, 2002; Salmela-Aro & Suikkari, 2008).

During their adolescent years, individuals are faced with many transitions that do not only have important consequences for their later development but also for their personal goals and related appraisals. Previous research has shown, for example, that the educational transition to middle or junior high school primarily has negative consequences for adolescent development, such as loss of self-esteem and intrinsic motivation (Eccles & Midgley, 1989; Otis et al., 2005), and a drop in grades (Blyth, Simmons, &

### Personal goals, their appraisals, and the school transition to secondary education

Individual motivation has been conceptualized in terms of self-articulated personal goals, such as life tasks, personal projects,

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Carlton-Ford, 1983). Many factors contribute to the stressfulness and decreased motivation observed in the transition to middle school (Barber & Olsen, 2004; Eccles et al., 1993; Simmonset al., 1987; Wigfield & Wagner, 2005). Eccles and Midgley (1989) proposed that such motivational and behavioral declines among early adolescents result from a lack of optimal development. Development is optimal when there is a fit between the needs of developing individuals and the opportunities afforded them by their social environments. For example, Marsh, Trautwein, Lüdtke, Baumert, and Köller (2007) showed that being in an academic environment where others perform better leads to low academic self-concept (see also, Ryan & Deci, 2000).

The previous research in the field, however, has some limitations. First, the stage-environment fit theory has been applied mainly in the middle school transitions in early adolescence and not to the educational transition during middle adolescence, that is, from middle or to junior high school (Midgley, Middleton, Gheen, & Kumar, 2002). In some other societies, however, the transition in middle adolescence is the major school transition. For example, in the Nordic countries the major school transition occurs at the age of 16, when adolescents move from the ninth grade of comprehensive school to either senior secondary school (academic track) or to vocational school (vocational track). Second, most studies have focused on the impact of the timing of the transition or the impact of the transition on adolescents' motivation (Barber & Olsen, 2004), or on general motivational changes (Otis et al., 2005). However, only a few studies have investigated changes in young people's goal appraisals in specific life domains, such as education, career, and interpersonal relations (Nurmi, Salmela-Aro, & Koivisto, 2002; Salmela-Aro & Nurmi, 1997a). Consequently, the present longitudinal study examined the impact of educational transition on adolescents' education-related goal appraisals. We assumed that adolescents' appraisals of their education-related goals should change when they are facing a transition from comprehensive school (middle school) to postcomprehensive education for three reasons. First, adolescents are moving to two alternative tracks, that is, senior secondary school or vocational school. Second, they move closer to graduation from secondary education, so the transition to work life becomes increasingly salient. Third, as suggested by Eccles (Eccles et al., 1993), adolescents are moving to a school form that is in accordance with their academic skills. For these reasons we assumed that adolescents' intrinsic reasons for goal striving, and their progress and effort towards their education-related goal should increase, while goal stress and extrinsic reasons would decrease during the transition from comprehensive school to post-comprehensive education.

The present study examined a group of Finnish adolescents who were facing the transition from comprehensive school to either an academic track (senior secondary school) or a vocational track (vocational schools). This transition has consequences for individuals' future educational context: senior secondary school focuses on theoretical subjects, such as languages, physics, or mathematics and often leads to university studies, whereas the most of the subjects studied in vocational school are practical with the aim of preparing students for working life. Since in the Finnish school system no tracking has taken place before this stage of education, we hypothesized that adolescents would give more intrinsic reasons for goal striving, and goal-related progress would increase when they enter a mode of education that is more congruent with their skills than their previous education. We also assumed that, at the same

time, their goal-related stress would decrease and they would give less extrinsic reasons for goal striving, as at the end of comprehensive school adolescents need to strive for good grades. In addition, we assumed that, because adolescents apply for educational tracks (for example, in vocational schools) on the basis of the final grades that they receive at the end of the ninth grade, their goal-related effort would increase towards the end of comprehensive school.

### Choice of the academic or vocational track in Finland

Finnish children start their education at kindergarten during the year of their sixth birthday. At age 7 they move to comprehensive school where they continue for the next 9 years. All Finnish adolescents thus receive a similar basic education up to age 16. After this point, adolescents apply for entry to either an academic or nonacademic educational track using a nationwide web-based application system. According to recent statistics, 55% of them proceed to an academic track (senior secondary schools) and 37% to a vocational track (vocational schools), 2% remain in comprehensive school for a tenth year (an additional grade for those doing poorly in comprehensive school), and around 6% do not continue their studies (Central Statistical Office of Finland, 2003). Those who proceed to an academic track attend senior secondary school for three years after which they make the next transition to university, polytechnic, or vocational school. Those who proceed to a vocational track attend vocational school for three years after which they make the next key transition to work or they continue their studies in a polytechnic. Whether students end up in senior secondary schools or vocational schools is largely determined by their Grade Point Average (GPA): A high level of academic achievement is required for admission to senior secondary school, although some fields in vocational schools also require a relatively high GPA. For most vocational schools, adolescents can enter with relatively low GPA. In most cases, entrance examinations are not held in either senior secondary or vocational schools. Among the few exceptions are some art-related vocational tracks. Given that up to grade 9 all Finnish adolescents follow the same curriculum which includes many academic subjects, such as mathematics, physics, chemistry and at least one foreign language, Finnish comprehensive school constitutes a very challenging learning environment, particularly for students who are less skilled, or have learning difficulties. The transition to secondary education means a large difference in learning environment for those students, as the majority of the subjects in vocational school is practical. Senior secondary school instead entails a focus on academic subjects, such as languages, physics, or mathematics.

There are gender differences in educational transitions. A higher proportion of Finnish girls than boys graduate from senior high school and enter university (*Education in Finland*, 1999; Nevala, 2000). Girls also obtain a university degree more often than boys (*Education in Finland*, 1999). For those reasons, we included an explorative aim of investigating gender differences in our study.

### Goal appraisals and well-being

The ways in which adolescents appraise their goals might be assumed to be associated with their well-being (Salmela-Aro, 2009), such as with their self-esteem. For example, Nurmi and



Pullainen (1991) found that adolescents with high self-esteem were more internal in their thinking about their future goals than those with low self-esteem. Moreover, Malmberg and Little (2007) showed that children whose school-related well-being was low reported few intrinsic reasons, whereas those whose well-being was high reported many intrinsic reasons for goal striving. Previous research has also found that the evaluation of goals in terms of high goal progress (Brunstein, 1993; Emmons, 1986; Little, 1989; Sheldon & Kasser, 1998), low outcome expectations, and low stress is associated with psychological well-being (Little, 1989; Salmela-Aro, 1992) and life satisfaction (Emmons, 1986). In the present study we used self-esteem as an indicator of well-being.

Previous research in the field has one major limitation. Because of the lack of cross-lagged longitudinal studies, little is known about the prospective relations between goal appraisals and well-being measures, such as self-esteem. For example, positive goal appraisals may lead to an increase in self-esteem. However, high self-esteem may also contribute to positive goal appraisals, such as progress, intrinsic motivation and lack of stress. The present study investigated such lagged relationships among adolescents who were facing the transition from comprehensive school to postcomprehensive secondary education.

## Research questions

The present study investigated the following research questions:

- (1) Do adolescents' appraisals (intrinsic and extrinsic reasons for goal striving, progress, effort and stress) of their education-related goals change during the transition from comprehensive school to postcomprehensive secondary education? Do such changes differ between students who enter on an academic and those who enter on a vocational track? We assumed that when adolescents ended up in a mode of education more congruent with their skills, their goal-related intrinsic reasons would increase and their level of goal progress would increase. In turn, it was assumed that at the same time, their goal-related stress and extrinsic reasons would decrease (Hypothesis 1). In addition, we assumed that, because of the importance of this particular transition to their future lives, adolescents' goal-related effort would increase towards the end of comprehensive school (Hypothesis 2).
- (2) Do adolescents' education-related goal appraisals before the educational transition contribute to their self-esteem after the transition? Or, conversely, does self-esteem before the transition contribute to adolescents' education-related goal appraisals afterwards? Are these prospective relationships different between students on an academic and those on a vocational track? We expected, that a high level of intrinsic reasons for goal striving, high goal progress and a high level of goal-related effort would increase self-esteem after the transition (Hypothesis 3a), whereas goal-related stress and a high level of extrinsic reasons before the transition for goal striving would decrease self-esteem after the transition (Hypothesis 3b). Furthermore, a high level of self-esteem before the transition was expected to increase goal progress, intrinsic reasons and effort and decrease extrinsic reasons and stress after the transition (Hypothesis 4).

## Method

### Participants

The present study is part of the Finnish Education (FinEdu) study. The FinEdu is an ongoing study with the aim of examining adolescents' life-planning and well-being in middle and late adolescence. The participants selected for the present study were all the ninth-grade students facing the transition to senior secondary or vocational schools in the same medium-sized town (population = 88,000) in central Finland. The ninth-graders were surveyed three times: twice during their final term of comprehensive school and once after the transition. The first measurement was at the beginning of the spring term (end of January; Time 1) and the second at the end of the spring term (end of May; Time 2). The interval between the measurements was four months. At Time 1, 606 students (293 girls, 313 boys) from eight comprehensive schools participated in the study. The median age of the participants was 16 at the first measurement ( $M = 16$ ;  $SD = 0.34$ ). At Time 2, 516 (265 girls, 251 boys) of those who had participated in the study at Time 1 answered the questionnaires. The third measurement was after the transition (during the following January; Time 3) and the questionnaires were answered by 496 individuals (258 girls, 238 boys), who had also participated at Times 1 and 2.

Attrition analyses showed that at Time 2 boys dropped out from the study more often than girls (*adjusted residuals* = 3.5). Furthermore, at Time 2 (*ad. res.* = 3.4) the dropouts were more often students on a vocational track after comprehensive school than those on an academic track. The results also showed that those who participated at Time 2 had shown more goal progress at Time 1 ( $M = 5.27$ ;  $SD = 0.95$ ) than those dropped out after the first measurement ( $M = 4.98$ ;  $SD = 1.18$ ;  $t(596) = -2.53$ ,  $p < .05$ ). No other selection effects were found in self-esteem or the other goal appraisals. Moreover, those who participated at Time 2 had a higher GPA in the spring term preceding the first measurement ( $M = 8.06$ ;  $SD = 0.81$ ; Time 0) than those who dropped out ( $M = 7.67$ ;  $SD = 0.88$ ;  $t(560) = -4.00$ ,  $p < .001$ ). Further, the participants who continued at Time 3 had a higher GPA at Time 0 ( $M = 8.04$ ;  $SD = 0.81$ ) than dropouts ( $M = 7.30$ ;  $SD = 0.89$ ;  $t(560) = -4.60$ ,  $p < .001$ ).

At each time point the questionnaires were group-administered to the students in their classrooms during regular school hours. The questionnaires consisted of self-report questions concerning the students' education-related goal appraisals.

### Measures

**Education-related goal appraisals.** The participants filled out a revised version of Little's (1983) Personal Project Analysis inventory (PPA) at each of the three time points. At every time point they stated one personal goal related to their education, future career or occupation ("Please state one personal goal related to your education, future career or occupation"; Nurmi et al., 2002; Salmela-Aro & Nurmi, 1997a). The goal was coded as an education-related goal if the students mentioned a goal relating to their present education/school, as a future career-related goal if they mentioned a goal related to studying in the future and occupation-related goal if they mentioned a specific occupation. After producing the goal, participants were asked to rate it on a 7-point Likert scale ranging from 1 (Not at all) to 7 (Very much) according to what extent they were pursuing the goal for intrinsic and extrinsic



reasons (Ryan & Connell, 1989; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001), and according to goal progress (Sheldon & Kasser, 1998), goal effort (Sheldon & Elliot, 1999), and goal stress (Chambers, 1997). The items included in the goal appraisals and reliabilities at each time-point were:

- Intrinsic reasons ("How important is this goal to you?" and "How committed are you to this goal?"),  $\alpha = .65, .66, .72$ .
- Extrinsic reasons ("Why are you trying to realize this goal? ... because somebody else wants you to or situation forces you to", "... because you will feel shame, guilt, or anxiety, if you fail to realize it."),  $\alpha = .58, .74, .68$ .
- Goal progress ("To what extent have you progressed in achieving your goal?", "How probable would you say it is that this goal will be realized?", "How capable are you of realizing your goal?"),  $\alpha = .77, .75, .75$ .
- Goal effort ("How much time and effort have you expended on your goal?", "To what extent have you worked towards achieving your goal?"),  $\alpha = .86, .87, .88$ .
- Goal stress ("How tiring or loading is your goal?", "How stressful do you find your goal?"),  $\alpha = .81, .84, .85$ .

**Self-esteem.** Self-esteem was assessed with the abbreviated version of Rosenberg's self-esteem scale (Rosenberg, 1965) both before and after the school transition. The scale consisted of five unidimensional items (e.g., "On the whole, I am satisfied with myself"; "I feel that I have number of good qualities"), which the adolescents rated on a 7-point Likert scale ranging from 1 (I totally disagree) to 7 (I totally agree). The scores were reversed so that high values indicated high self-esteem. A sum score was calculated from all five items. The Cronbach alpha reliability for the scale was .78.

**Academic achievement.** Academic achievement was measured at Time 1 by asking the participants to report their Grade Point Average (GPA) from the preceding spring term. Because GPA had been received half a year before, we report it as measured at Time 0. GPA ranged from 4 (lowest) to 10 (highest). Self-reported GPA has been shown to correlate (.96) with actual grade point average (Holopainen & Savolainen, 2005).

**Educational track.** Educational track after comprehensive school was reported at Time 3 and coded by asking the adolescents about their education after comprehensive school. Participants' answers to these questions were coded in the following way: 1 = senior secondary school (58.0%), 2 = vocational school combined with senior secondary school courses (4.4%), 3 = vocational school (28.2%), 4 = voluntary tenth grade (6.8%), and 5 = outside formal education (2.6%). Next, the educational trajectory variable was recoded by contrasting the senior secondary school trajectory with the vocational school trajectory. Adolescents in vocational school combined with senior secondary school courses, students in the voluntary tenth grade and adolescents outside formal education were excluded from the study. Adolescents in senior secondary school were coded 0 and students in vocational school were coded 1.

## Results

### Change in goal appraisals

The first aim of the present study was to examine how the adolescents' appraisals of their education-related goals changed during the transition to postcomprehensive secondary education (academic vs. vocational track). To investigate this, a repeated multivariate analysis of variance (MANOVA) was carried out. The analyses included Time (Time 1, Time 2, and Time 3) as a within-subject variable and Gender and School track as between-subject variables. Academic achievement (GPA) was used as a covariate in the analysis. The results showed a significant interaction between Goal appraisals, School track and Gender ( $F(713) = 3.81, p < .00$ ). Goal appraisals also had a main effect ( $F(710) = 76.37, p < .00$ ). Next, analogous ANOVAs were carried out for each appraisal variable separately.

The results pertaining to *intrinsic reasons* for personal strivings showed a significant linear three-way interaction for Time  $\times$  Gender  $\times$  School track. Although an increase in intrinsic reasons for goal striving was found among the other students during the school transition, a decrease occurred among girls on a vocational track (Table 1 and Figure 1). Moreover, although neither of the two-way interactions (Time  $\times$  School track or Time  $\times$  Gender), nor the main effects for Time or Gender were significant, the main effect for School track was statistically significant. Students on an academic track reported more intrinsic reasons for their education-related goals than those on a vocational track (Table 1 and Figure 1).

The results pertaining to *extrinsic reasons* for personal strivings did not show any significant interactions. Neither was there an effect for Gender or School track. However, there was a significant main effect for Time (Table 1). Extrinsic reasons did not change from the beginning of the spring term in the ninth grade to the end of the ninth grade, but they decreased significantly among all students from the end of the ninth grade to the posttransition period ( $t(545) = 3.46, p < .01$ ; Figure 1).

The results pertaining to *goal progress* showed a significant linear two-way interaction for Time  $\times$  School track. There was significant linear main effect for Time among the students who ended up on a vocational track (Table 1): goal progress increased over Time from the beginning of the spring term to the end of the school transition ( $t(153) = -3.20, p < .01$ ) among the vocational track students, but no change was found for the students ending up in an academic track. The results showed also significant School track and Gender differences: the students on an academic track showed more overall goal progress, and boys reported more goal progress than girls (Figure 1). However, after controlling for GPA only the main effect for Gender was significant.

The results pertaining to *goal effort* showed that none of interactions were significant (Table 1). However, there were significant main effects for Time and School track, whereas the main effect for Gender was not significant. The main effect for Time showed that goal effort increased among all students from the beginning of the spring term in the ninth grade to the end of the ninth grade ( $t(504) = -2.60, p < .05$ , but did not change after that (Figure 1). Moreover, those who ended up on an academic track after comprehensive school showed more overall goal effort regarding their education-related goal than those on a vocational track (Table 1).

The results for *goal stress* did not show any statistically significant interactions. Nor was there any Gender difference in

**Table 1.** Summary of repeated analyses of variance: main effects and interactions

	Intrinsic reasons		Extrinsic reasons		Goal progress		Goal effort		Goal stress	
	F(1,411)	$\eta^2$	F(1,410)	$\eta^2$	F(1,411)	$\eta^2$	F(1,410)	$\eta^2$	F(1,411)	$\eta^2$
Time (A)	0.49	.001	12.35***	.029	5.12*	.012	4.56 <sup>(a)</sup>	.011	0.99	.002
Gender (B)	0.95	.002	0.63	.002	11.79**	.028	0.15	.000	1.53	.004
School track (C)	6.03*	.014	0.47	.001	21.97***	.051	4.26*	.010	11.28**	.027
(A x B)	2.34	.006	0.74	.002	0.64	.002	3.58	.009	0.12	.000
(A x C)	0.31	.001	0.24	.001	7.59**	.018	1.35	.003	0.95	.002
(A x B x C)	4.06*	.010	0.01	.000	0.11	.000	0.94	.002	0.29	.001

Note. (a) = Change of effort is quadratic. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

goal stress. However, a significant difference was found for School tracks. Those on an academic track experienced significantly more goal stress in their education-related goals than those on a vocational track (Table 1).

#### Lagged associations between education-related goal appraisals and adolescents' self-esteem

The second aim of the present study was to examine whether the education-related goal appraisals would predict self-esteem, or whether self-esteem would rather predict the education-related goal appraisals. We were also interested in whether the association would be different for students on an academic track compared to students on a vocational track. The results were analyzed by means of path modeling with the Mplus statistical package (Muthén & Muthén, 1998). The path model was constructed by including only the first (Time 1) and last measurement points (Time 3), as we were particularly interested in the effect before and after the school transition. Besides stability coefficients the model also included cross-lagged paths between the constructs. The constructs were allowed to correlate with each other at the first measurement point. Also, the residuals of the goal appraisals and self-esteem variables at the last measurement point (Time 3) were allowed to correlate. The differences in the associations between the adolescents on the two educational tracks were examined by means of the multisample procedure (Muthén & Muthén, 1998). For an example of the path model, see Figure 2.

All of the estimated models were saturated. For goal progress, stress, and effort, the parameters of the model were estimated using the maximum likelihood (ML) procedure. Models for intrinsic and extrinsic reasons for personal strivings were estimated using the maximum likelihood robust (MLR) procedure, as their distributions showed substantial skewness. The correlations, Means ( $M$ ), and Variances ( $Var$ ) for the observed variables are presented in Table 2.

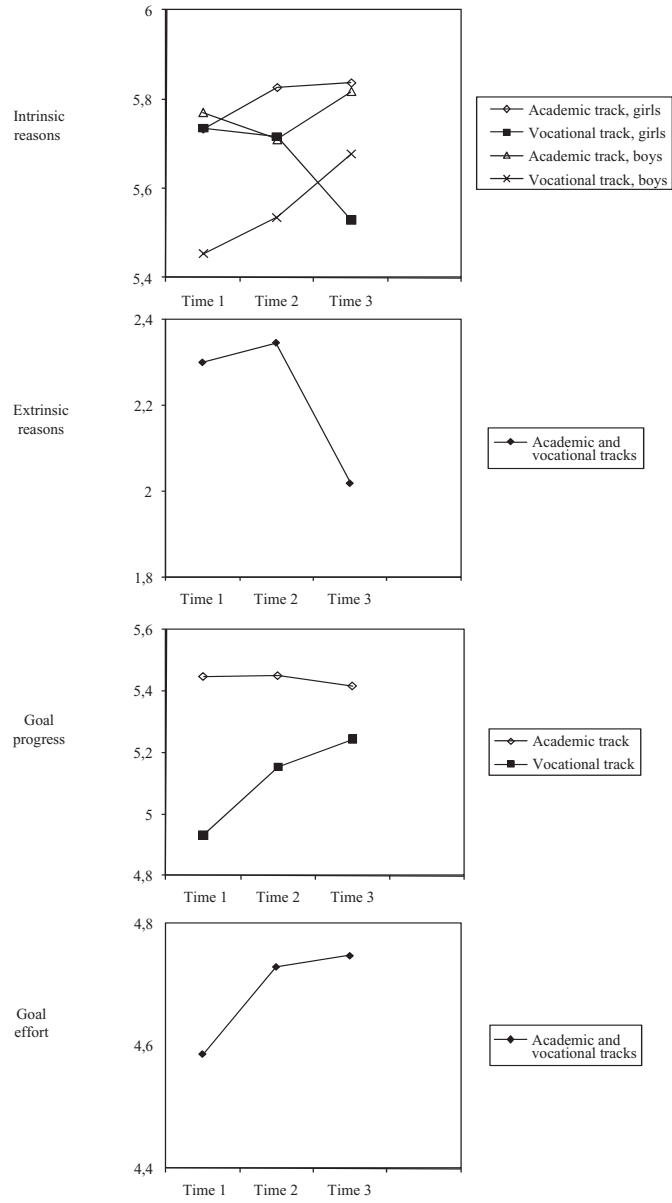
Among all students, high self-esteem in the ninth grade of comprehensive school predicted an increase in goal progress during the school transition (stand. estimate = .17,  $p < .001$ ). In turn, high progress towards one's goal in comprehensive school predicted higher self-esteem after the school transition (stand. estimate = .08,  $p < .05$ ; see Figure 2). The results showed further that the higher the self-esteem in the ninth grade, the lower the extrinsic reasons for the education-related goal after the school transition (stand. estimate =  $-.10$ ,  $p < .05$ ), although the number of extrinsic reasons pertaining to the goal given in the ninth grade did not predict change in self-esteem during the transition (stand. estimate = .00,  $p > .05$ ; see Figure 3). However, for intrinsic reasons, goal stress, and goal effort no cross-lagged paths were found.

Comparison of the models for the academic and vocational tracks did not show statistically significant differences in the cross-lagged paths between the tracks.

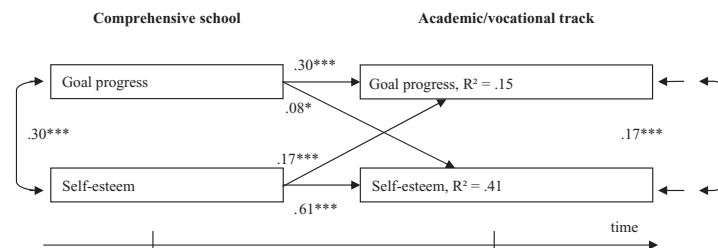
#### Discussion

This study examined changes in adolescents' appraisals of their education-related goals when they proceed from comprehensive school to the next stage in their education (i.e., an academic or a vocational track), and what consequences such changes, if any, have on their self-esteem. Our first hypothesis was that after entering a school environment which offers opportunities that match adolescents' skills and competencies, their intrinsic reasons for goal striving, and their progress towards their education-related goal would increase, while goal stress and extrinsic reasons would decrease. In line with this hypothesis, the results showed an increase in the young people's intrinsic reasons for goal striving and in the level of progress related to their education-related goal, and a decrease in their extrinsic reasons during the school transition. These findings support Eccles' (2004) stage-environment fit theory, as well as some other contextual models of self-development (Kalakoski & Nurmi, 1998; Nurmi, 1993; Nurmi, 2004; Salmela-Aro, 2009): The ways in which adolescents appraise their education-related goals are closely associated with the challenges and opportunity structures they face in their developmental environment.

The benefit of a transition to a congruent school context was particularly true for the students who proceeded to a vocational school: after the transition they reported as high overall level of progress towards their education-related goal as did the students on an academic track, although these groups differed in goal progress substantially in comprehensive school. One explanation for this result is that in the Finnish school system, comprehensive school is particularly challenging for many of those who later on end up in vocational school. The fact that after the school transition this group of adolescents ended up on vocational school and thus an educational setting that not only better matched their skills but also provided the basis for their concrete occupational aspirations was also reflected in their appraisals of their progress towards their education-related goal (Eccles, et al., 1993). An alternative explanation relates to the theory of "the big-fish-little-pond effect" (see e.g., Marsh et al., 2007) according to which students compare their own academic ability to those of their classmates. The theory posits that such comparison leads students to experience a low academic self-concept when the academic environment is above their level. However, it can also be derived from the theory that when poorer performance students move from a setting characterized by a high



**Figure 1.** Change of intrinsic and extrinsic reasons, goal effort and progress during the school transition to an academic versus a vocational track. Note. Time 1 = at the beginning of the spring term in the ninth grade; Time 2 = at the end of the spring term in the ninth grade; Time 3 = one year after the school transition to an academic or a vocational track.



**Figure 2.** The path model between goal progress and self-esteem at the beginning of the spring term in the ninth grade and one year after the school transition to an academic or a vocational track.  
 Note. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

level of academic competence to a setting in which most students show a similar, lower level of competence, their academic self-concept and well-being may develop more positively.

The results showed a decrease in intrinsic reasons for striving towards an educational-related goal during the educational transition among girls who ended up on a vocational track. These findings might be due to the fact that education-related goals are not as important for girls in a vocational track as they are for boys. These results are partially in line with those of Klaczynski and Reese (1991), who found that vocational school students had fewer positive educational goals than college-preparatory students. Instead, vocational school students focused their goals more on preparation for adulthood and the attainment of adult status than on education. It is possible that girls in a vocational track become more focused on future family roles than occupational roles, whereas boys perceive their future vocation as an important requirement for a successful adult life (Nurmi, 2004).

As we expected in the second hypothesis, the results showed further that the amount of goal effort invested in adolescents' education-related goal increased in particular at the end of the ninth grade. A possible reason for this is that the evaluation (GPA) they are given at that point is an important determinant of being admitted to the kind of postcomprehensive education they would prefer. It may be the case that during certain life situations, such as school transitions, young people seek to optimize their own development by increasing their investment in effort as a way of protecting themselves against accelerating developmental processes (Wrosch, Heckhausen, & Lachman, 2006). There are also alternative explanations for the findings of the present study. One is that moving to a particular educational track, and the developmental context it provides, contributes to change in goal appraisals. However, in this study, we were unable to separate this from the hypothesis based on Eccles' stage-environment theory. Secondly, it is theoretically possible that age may impact goal appraisals: the older the adolescents grow, the more important they see their educational-related goals. However, this explanation is somewhat unlikely, as our study spans only across one year.

One aim of the present study was to examine whether students on an academic track would appraise their education-related goals differently from students on a vocational track. The results showed that students on an academic track reported more intrinsic reasons for goal striving, a higher overall level of goal progress and effort but also more goal stress concerning their education-related goal. One explanation for this result is that high appraisals of

education-related goal with respect to intrinsic motivation, progress and effort among academic track students may also be related to the prevalence of their high academic self-concept. However, the adolescents on an academic track also perceived more stress in their education-related goals. This result is again in agreement with the theory of "the big-fish-little-pond effect" of Marsh (see e.g., Marsh et al., 2007) according to which students compare their own academic ability to those of their classmates. Because students who move to academic track find themselves in an environment in which their peers show a higher level of competence than their peers in comprehensive school, they may experience a higher level of educational goal-related stress. Furthermore, there are also high demands in academic track and that can be also reflected in students' goal stress. The findings of the present study also resemble those of Sheldon and Elliot (2000) who found that adolescents' intrinsic reasons for their education-related goals were related to goal difficulty and stressfulness.

### The role of goal appraisals in self-esteem

The second aim of the present study was to examine whether intrinsic reasons for educational goal-related striving, progress, and effort would predict adolescents' self-esteem after the educational transition (Hypothesis 3a), or rather, whether goal stress and extrinsic reasons would predict the posttransition level of self-esteem (Hypothesis 3b). The results showed, first, that only goal appraisal that predicted self-esteem was goal progress. That finding is in accordance with previous findings concerning goal progress as an essential predictor of self-esteem (Emmons, 1986; Nurmi & Salmela-Aro, 2002). However, the results showed also that self-esteem had an impact on extrinsic reasons and goal progress: adolescents with a high level of self-esteem tended to appraise their goals in terms of a high level of progress and low level in extrinsic reasons after the educational transition. Overall, these results support some previous findings suggesting that motivational processes and well-being may form a cumulative cycle (Salmela-Aro & Nurmi, 1997b; Sheldon & Houser-Marko, 2001).

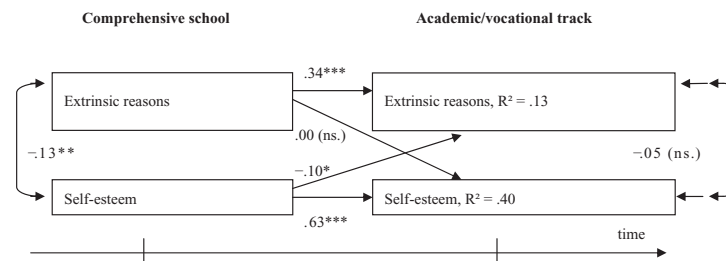
### Limitations

There are four limitations that have to be considered in any attempt to generalize the findings of this study. First, only self-reported GPA was used to give a proxy of students' skills. Although this

Table 2. Correlation matrix and means (M), and variances (Var) for observed variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	
1. Intrinsic reasons (T1)	1.00																		
2. Intrinsic reasons (T2)	.35***	1.00																	
3. Intrinsic reasons (T3)	.27***	.35***	1.00																
4. Extrinsic reasons (T1)	-.03	-.06	-.08	1.00															
5. Extrinsic reasons (T2)	-.12**	-.10*	-.12**	.45***	1.00														
6. Extrinsic reasons (T3)	-.04	-.06	-.05	.34***	.41***	1.00													
7. Goal progress (T1)	.52***	.28***	.19***	-.05	-.13**	-.09*	1.00												
8. Goal progress (T2)	.20***	.50***	.18***	-.16***	-.09*	-.11*	.43***	1.00											
9. Goal progress (T3)	.20***	.21***	.59***	-.05	-.06	-.07	.35***	.32***	1.00										
10. Goal effort (T1)	.30***	.34***	.18***	.01	-.07	-.07	.55***	.28***	.17***	1.00									
11. Goal effort (T2)	.30***	.53***	.26***	-.03	-.07	-.12**	.26***	.48***	.18***	.47***	1.00								
12. Goal effort (T3)	.26***	.25***	.54***	.01	-.03	-.03	.16***	.15***	.51***	.30***	.31***	1.00							
13. Goal stress (T1)	.07	.06	.02	.36***	.18***	.14**	-.03	-.07	-.06	.21***	.13**	.10*	1.00						
14. Goal stress (T2)	.01	.16***	.07	.21***	.27***	.19***	-.06	-.03	-.04	.11*	.24***	.08	.42***	1.00					
15. Goal stress (T3)	.12***	.08	.08*	.13***	.12***	.34***	-.03	-.03	-.02	.11*	.19***	.40***	.40***	.40***	1.00				
16. Self-esteem (T1)	.18***	.11**	.01	-.12**	-.07	-.11*	.28***	.32***	.23***	.18***	.10*	.04	-.14**	-.12**	-.14**	1.00			
17. Self-esteem (T3)	.13**	.16***	.13***	-.09*	-.08*	.12*	.23***	.29***	.34***	.14**	.16***	.10**	-.11*	-.07	-.15***	.61***	1.00		
18. GPA (T0)	.17***	.13**	.03	.02	-.04	.00	.32***	.24***	.11*	.18***	.10*	-.02	.06	.03	.10*	.21***	.21***	1.00	
M	5.72	5.86	5.76	2.29	2.31	2.10	5.22	5.29	5.35	4.71	4.72	4.25	4.31	4.42	4.62	4.88	8.00	8.00	1.00
Var	0.78	0.91	0.87	1.93	2.28	1.88	1.00	0.96	0.93	1.54	1.69	1.51	2.37	2.40	2.30	1.25	1.30	0.69	0.69

Note. T1 = At the beginning of the final term in comprehensive school; T2 = At the end of the final term in comprehensive school; T3 = One year after the school transition. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .



**Figure 3.** The path model relation between goal-related extrinsic reasons and self-esteem at the beginning of the spring term in the ninth grade and one year after the school transition to an academic or a vocational track.  
 Note. 1. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

self-report measure have been shown to correlate .96 with actual grade point average (Holopainen & Savolainen, 2005), there is an evident need to replicate the findings of the present study by using an appropriate measure of skills, such as intelligence tests. Second, some of our findings may be due to differences in the cognitive abilities of students ending up in senior secondary and vocational school. This is a possibility that we were unable to examine further, as it was not possible to separate the effects of differences in abilities and those related to educational track. Third, reliabilities in some of the individual scales, such as intrinsic and extrinsic reasons, were somewhat low, although similar scales have been used also in previous studies (Ryan & Connell, 1989; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001). This might have decreased the statistical power of testing main effects. Finally, the attrition analyses showed that students who did not filled out the questionnaire were more often students on a vocational track than those on an academic track, which needs to be considered in any generations made on the basis of the findings.

### Conclusion

The results of the present study showed that adolescents benefit from entering a mode of education that is in accordance with their motivation and academic skills. Adolescents who moved to an educational setting that matched their academic skills showed an increase in intrinsic reasons for goal strivings and goal progress, and a decrease in extrinsic reasons.

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## II

### **ADOLESCENTS' SELF-CONCORDANCE, SCHOOL ENGAGEMENT, AND BURNOUT PREDICT THEIR EDUCATIONAL TRAJECTORIES**

by

Kati Vasalampi, Katariina Salmela-Aro, & Jari-Erik Nurmi, 2009

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# Adolescents' Self-Concordance, School Engagement, and Burnout Predict Their Educational Trajectories<sup>1</sup>

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**Abstract.** This study investigated whether self-concordance of adolescents' achievement-related goal predicts their school engagement and lack of burnout during upper secondary school as well as their subsequent educational trajectories. We also examined whether goal effort and progress mediate these associations. The sample consisted of 614 17-year-old upper secondary school students, who were surveyed three times: (1) in the second grade of upper secondary, (2) in the third grade of upper secondary school, and (3) one year later. The results showed that when adolescents pursued their achievement-related goal for internal reasons, they also invested effort in their goal, which was reflected in a high level of goal progress. Among girls, goal progress predicted a high level of school engagement during upper secondary school and, subsequently, success in the educational transition after upper secondary school, whereas low goal progress was related to school burnout, which in turn was reflected later on in delay in studies and low educational aspirations.

**Keywords:** educational goal, educational trajectory, school burnout, school engagement, school transition

## Introduction

According to Sheldon and Elliot's (1998, 1999) self-concordance theory, having personal goals that are selected for autonomous reasons increases goal-directed effort and thereby increases goal progress. Goal progress, in turn, leads to an increase in subjective well-being and adjustment (Judge, Bono, Erez, & Locke, 2005; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001; Skorikov, 2006; see Figure 1). Although existing studies have shown the importance of self-concordance for later well-being (see e.g.; Sheldon, 2002; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001), they have some limitations. First, previous longitudinal studies (e.g., Sheldon & Houser-Marko, 2001) have spanned only relatively short time periods. Second, previous studies have not examined the role of self-concordance during an important transition in individuals' lives. Consequently, the present longitudinal study

examined the importance of achievement-related goal self-concordance, goal effort, and goal progress in adolescents' school adjustment during upper secondary school, and in their educational trajectories after finishing this phase of education.

## Self-Concordance Model of Personal Goals

Adolescents' motivation is reflected on their self-articulated personal goals, such as life tasks, personal projects, developmental goals, personal strivings, possible selves, and future goals (Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Emmons, 1986; Heckhausen & Schulz, 1999; Little, 1983; Markus & Nurius, 1986; Nurmi, 1989). Although in one sense all personal goals are self-determined, this does not mean that they all have their origin in intrinsic values and personal interests (Ryan & Connell, 1989). Instead of setting goals that reflect one's intrinsic interests and values, a person may adopt goals for external reasons, such as expectations of others or social pressure (Sheldon & Elliot, 1999; Sheldon & Kasser, 1998).

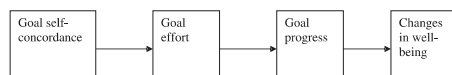


Figure 1. The self-concordance model (Sheldon & Elliot, 1998, 1999).

<sup>1</sup> This paper is part of a series on "Youth Development in Europe: Transitions and Identities" that will appear in the *European Psychologist* throughout 2008 and 2009. Taken together, the papers aim to make a conceptual contribution to the increasingly important area of youth development, especially within the context of an expanding Europe, by focusing on variations and changes in the transition to adulthood and emerging identities. The series will conclude with a summary by the organizers of the series, Katariina Salmela-Aro (University of Jyväskylä, Finland) and Ingrid Schoon (University of London, UK).

On the basis of self-determination theory, Sheldon and colleagues (Sheldon & Elliot, 1998, 1999) proposed a self-concordance model for goal selection. According to the model, goals are defined as self-concordant when they are integrated with the "self" (Sheldon & Elliot, 1999). These goals are pursued because of either intrinsic motivation (the person acts because the activity is inherently interesting and challenging; Sheldon & Elliot, 1999) or identity congruence (the person acts with a sense of choice and volition, even if he or she does not enjoy the action; Brunstein & Gollwitzer, 1996; Little, 1993). In either case, goals are pursued as a result of the expression of personal choices rather than with a sense of control by external forces (Sheldon & Elliot, 1999). The key distinction is not whether goals are pleasurable or not, but rather whether persons feel ownership as they pursue their goals (Sheldon & Elliot, 1999). In contrast, goals pursued for external reasons (the person acts with a feeling of being controlled by external pressures or contingencies; Deci & Ryan, 1985; Kasser & Ryan, 1996; Sheldon & Kasser, 1998), and because of introjected sanctions characterized by anxiety and guilt (the person acts with a feeling of being controlled by his or her own internal processes; Deci & Ryan, 1985), emerge from a nonintegrated region of the person (Sheldon & Elliot, 1998, 1999). External and introjected motivations are classified as potentially problematic, because in both cases the person does not satisfy his or her own psychological needs, which may appear as a lack of well-being (Deci & Ryan, 2000; Sheldon, 2002).

Previous research also showed that the pursuit of goals for internalized reasons promotes sustained effort, which then leads to high goal progress (Haase, Heckhausen, & Köller, 2008; Ryan & Connell, 1989; Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001; Sheldon, Ryan, Deci & Kasser, 2004). For example, Koestner, Lekes, Powers, and Chicoine (2002) found that students whose goals were self-concordant were more likely to make progress than students whose goals reflected external pressures. Further, progress in an important goal, such as career preparation in adolescence, has been found to have a direct effect on adjustment (Skorikov, 2006). For example, Sheldon and Houser-Marko (2001) found that adolescents who began the school semester with goals that matched their implicit values and interests were better able to attain their goals over the semester, which then led to increased adjustment. Goal attainment yielded an additional benefit in that high-achieving participants felt a greater sense of self-determination in their goals for the next semester, which in turn was associated with even higher levels of attainment during the next semester. Similar results have been found in work contexts. For example, Judge et al. (2005) found that self-concordant work goals were related to high work satisfaction, in the same way as self-concordant general life goals have been related to life satisfaction in previous research (see e.g., Sheldon & Elliot, 1998).

## Consequences of Self-Concordance on Adolescents' Adjustment and Transition Outcomes

This study applied Sheldon and Elliott's (1998, 1999) self-concordance model by examining the role of achievement-related goal self-concordance, effort, and progress in school adjustment and educational trajectories among Finnish adolescents. In Finland, the educational choice made at the end of upper secondary school is one of the most crucial in directing adolescents' further educational and occupational trajectories. This period could be seen as a transition into the reality stage of development, which means making compromises or adjusting goals according to circumstances (Nurmi, 2004). However, the transition is also very stressful for Finnish adolescents, because success in ending up on one's envisaged educational track is not assured. In Finland all the universities have selection procedures, and competition for study places is fierce. For example, in 2005 only 37.7% succeeded in gaining entrance to a university or polytechnic during their first year after upper secondary school (Central Statistical Office of Finland, 2007).

Because the present study was carried out in the school context, individual well-being was also defined in relation to that particular environment. Thus, we defined well-being, on the one hand, as school engagement, which refers to a positive, fulfilling, and study-related state of mind characterized by vigor, dedication, and absorption (Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002). Vigor refers to a high level of energy and mental resilience while studying; dedication is a sense of significance, enthusiasm, inspiration, pride, and challenge; and absorption is concentration and happiness in one's studies (Schaufeli et al., 2002). In contrast, lack of well-being was defined as school burnout, which among students means feeling exhausted because of study demands, having a cynical and detached attitude toward one's studies, and feeling incompetent as a student (Kiuru, Aunola, Nurmi, Leskinen, & Salmela-Aro, 2008; Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009; Salmela-Aro, Kiuru, Pietikäinen, & Jokela, 2008; Schaufeli et al., 2002).

It is also possible that adjustment and well-being provide a basis for many positive outcomes in individuals' lives (Feist, Bodner, Jacobs, Miles, & Tan, 1995; Seifert, 2004; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008). For example, school engagement and absence of school burnout may lay the foundation for successful educational decisions and trajectories – if it is assumed that a high degree of well-being leads to the construction of goals that focus on dealing with the demands of the individual's subsequent life situation (Nurmi & Salmela-Aro, 2002). Focusing on dealing with one's current life situation, in turn, directs people's lives in an adaptive manner (Salmela-Aro & Nurmi, 1997).

The present study focused on two outcomes after the transition from upper secondary school:

- 1) the success of this educational transition and
- 2) long-term educational aspirations.

We classified the success of the educational transition into three categories. First, the educational transition was defined as "successful" if the student had graduated from upper secondary school in 3 years and then proceeded to enter further education (university, polytechnic, or vocational school). Second, the educational transition was defined as "delay in studies" if the student had to remain in upper secondary school an extra year. (The maximum duration of upper secondary school is 4 years, while the norm is 3 years.) Third, some students had also graduated from upper secondary school in 3 years, but had not succeeded after that in entering further education. This kind of educational transition was defined as "moratorium in studies." Long-term educational aspirations were categorized into four levels: The highest level of educational aspiration was university, followed by polytechnic, upper secondary school, and vocational school.

Previous research revealed gender differences in some variables studied, such as school adjustment and maladjustment. For example, although girls have been found to be more engaged in school (Berndt & Miller, 1990; Ryan, 2001) and attribute greater importance to academic achievement (Murberg & Bru, 2004), they also experience higher level of stress (e.g., Ge, Lorenz, Conger, Elder, & Simons, 1994), internalized symptoms (e.g., Leadbeater, Blatt, & Quinlan, 1995; Pomerantz, Altermatt, & Saxon, 2002), and school burnout (Kiuru et al., 2008; Salmela-Aro et al., 2008). Boys, in turn, show a higher level of external problem behavior (e.g., Leadbeater et al., 1995).

The present study sought to answer the following four questions utilizing a longitudinal design. First, does a self-concordant achievement-related goal promote goal effort and goal progress during upper secondary school? On the basis of the earlier work of Sheldon and Elliot (1999), we expected that those who select self-concordant goals would be found to invest goal effort in those goals, which, in turn, would facilitate their progress in those goals (*Hypothesis 1*). Second, is progress in an achievement-related goal associated with school adjustment during upper secondary school? On the basis of earlier studies (Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001), we expected that high goal progress in a self-concordant achievement-related goal would be related to school engagement (*Hypothesis 2*) and to low school burnout (*Hypothesis 3*) during upper secondary school. Third, does school adjustment predict the outcome of the educational transition (successful transition, delay or moratorium in studies) after upper secondary school? Little work has been published on the role of self-concordance and school adjustment in educational transitions; however, on the basis of the existing studies we

assumed that students with high school adjustment are those who try hard to achieve their goals, and who also progress better in their goals (Deci & Ryan, 1985; Kasser & Ryan, 1996; Sheldon & Houser-Marko, 2001; Sheldon & Kasser, 1998; Skorikov, 2006); and that such effort toward an achievement-related goal would predict a successful educational transition (*Hypothesis 4*). Fourth, does school adjustment predict long-term educational aspirations after upper secondary school? We expected that school adjustment would be an important predictor of later long-term positive educational outcomes (Feist et al., 1995; Seifert, 2004; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001; Tuominen-Soini et al., 2008) (*Hypothesis 5*).

## Method

### Participants

The sample of the study ( $N = 763$ ) was drawn from the Finnish Education study, which consisted of all the upper secondary school students in a medium-sized town (population = 88 000) in central Finland. The mean age of the participants was 17 ( $M = 16.94$ ;  $SD = 0.28$ ). Consistent with the Finnish school population in general, the sample was homogeneous in cultural background. The majority of the adolescents' (99.5%) were Finnish-speaking, 0.5% of them having some other mother tongue. This agrees with the figures for ethnic minorities at the national level.

The upper secondary school students participating in the study were surveyed three times: in the second grade of upper secondary school, in the third grade of upper secondary school, and one year later. At the first measurement point 614 (80%; 376 girls and 237 boys, 1 did not report gender), at the second measurement point 636 (83%), and at the third measurement point 449 (61.4%) adolescents answered the questionnaire. We also examined whether those who dropped out after the second measurement point differed from those who continued to participate with respect to our key variables, that is, in self-concordance, goal effort, goal progress, or school engagement and burnout. The result of the  $t$ -test revealed that dropouts did not differ from those who continued in self-concordance, goal effort or goal progress, or in school burnout. Rather, they differed in school engagement: Those who dropped out after the second measurement point had lower school engagement at the second measurement point than those who participated at the third measurement point  $t(394) = -2.90, p < .01$ .

At each measurement point the questionnaires were group-administered to the students in their classrooms during regular school hours and included self-report questions concerning the students' goal appraisals, school adjustment, and educational aspirations.

## Measurements

### Achievement-Related Personal Goal

The achievement-related personal goal assessment was based on Little's (1983) Personal Project Analysis Inventory (PPA). At the first measurement point, the participants were asked, with an open question, to produce one achievement-related personal goal (Salmela-Aro, 2002).

Next, to assess goal self-concordance, participants were (following past research on self-concordance, Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001; Sheldon & Kasser, 1998) asked to rate their reasons for pursuing their achievement-related goal. These were four categories of reasons: intrinsic, identified, introjected and external. Items were rated using a 7-point Likert scale ranging from 1 (*not at all for this reason*) to 7 (*completely for this reason*). Intrinsic reasons was sought by the question "I am pursuing this goal because of the enjoyment it gives me and I am really interested in it," identified reasons by "I am pursuing this goal because I really believe it is an important goal," introjected reasons by "I am pursuing this goal because I would feel ashamed, guilty, or anxious if I did not," and external reasons by "I am pursuing this goal because somebody else wants me to or because the situation demands it." For each participant, the self-concordance variable was created by summing the intrinsic and identified scores and subtracting the introjected and external scores ( $\alpha = .61$ ; Judge et al., 2005; Sheldon & Elliot, 1999). The reliability for this scale was somewhat low suggesting that the scale is not very consistent. We used the scale as we were testing the theory of self-concordance.

At the first and second measurement points the participants were also asked to appraise their achievement-related goal effort and goal progress (for a review, see Austin & Vancouver, 1996) by rating the goal on a scale ranging from 1 (*not at all*) to 7 (*very much*). Goal effort ( $\alpha = .82$ ) was asked at each measurement point by two questions "How much time and effort have you put into this goal?" and "To what extent have you worked on this goal?" and goal progress was asked by question "To what extent have you progressed toward achieving this goal?" The goal effort and goal progress variables were formed by the mean of the scores to both measurement points (Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001).

### School Adjustment and Maladjustment

#### School Engagement

School engagement was measured at the second measurement point by the abbreviated student version (Salmela-Aro & Näätänen, 2005) of the Utrecht Work Engagement Scale (UWES-S) developed originally by Schaufeli and his colleagues (see Schaufeli, Bakker, & Salanova, 2006) on the basis of the Utrecht Work Engagement Scale (UWES-9,

Schaufeli et al., 2006). The scale was formed by 9 unidimensional items measuring vigor (e.g., "When I study, I feel that I am bursting with energy"), dedication (e.g., "I am enthusiastic about my studies"), and absorption (e.g., "Time flies when I'm studying") in relation to school work, which were rated on a 7-point scale (0 = *never*; 6 = *every day*). The school engagement variable ( $\alpha = .94$ ) was formed by mean of the scores of all 9 items.

#### School Burnout

School burnout was examined at the second measurement point with the School Burnout Scale (BBI-10) developed by Salmela-Aro and Näätänen (2005; Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009); Salmela-Aro et al., 2008). The scale consisted of 10 items measuring school burnout (e.g., "I feel overwhelmed by schoolwork"; "I have become less interested in schoolwork and I often think of dropping out of school"; "I expected to do better academically than I have done"), which were rated on a 6-point scale (1 = *strongly disagree*; 6 = *strongly agree*). The school burnout variable ( $\alpha = .87$ ) was calculated as the mean of the scores of all 10 items.

#### Educational Trajectory

Educational trajectory after three years of upper secondary school was measured by asking the participants at the third measurement point the following question: "What are you doing at the present time?" Participants were asked to choose from the following alternatives: I am (1) studying in an upper secondary school, (2) studying in a university, (3) studying in a polytechnic, (4) studying in a vocational school, (5) studying in an open university, (6) studying in a *folk* high school, (7) studying for a university entrance examination, (8) serving in the military, (9) working, (10) taking a year off from my studies, and (11) something else. Next, three educational trajectory variables were formed: 1) successful educational transition [studying in a university (13.6% of students), in a polytechnic (7.6%), in a vocational school (2.8%)]; 2) delay in studies [studying in an upper secondary school (2.6%); and 3) moratorium in studies [studying in an open university (2.2%), in a *folk* high school (1.6%), for entrance examination to a university (11.1%), working (16.8%) or taking a year off from my studies (8.2%)]. Studying in an open university or in a *folk* high school are not counted as "further education" in Finland, as there is no selection procedure for either, and typically they do not award educational qualifications. Of the excluded participants 10.2% were doing military service and 6.4% were doing something else.

Table 1. Correlations, means ( $M$ ), and standard deviations ( $SD$ ) for observed variables among girls and boys

	1.	2.	3.	4.	5.	6.	7.	8.	9.	$M_1$	$SD_1$	
1. Self-concordance (T1)	1.00	.33***	.37***	.18*	-.21**	.02	-.01	-.08	-.04	17.99	4.15	
2. Goal effort (T1 + T2)/2		.31***	1.00	.62***	.50***	-.14	.04	.01	-.02	4.21	1.10	
3. Goal progress (T1 + T2)/2		.26***	.73***	1.00	.33***	-.07	.15*	.03	.02	4.74	1.01	
4. School engagement (T2)		.32***	.40***	.35***	1.00	-.26**	.13	.01	-.03	2.99	1.36	
5. School burnout (T2)		-.21***	-.20***	-.27***	-.34***	1.00	-.03	.16*	.07	2.54	0.86	
6. Successful educational transition (T3)		.07*	.08	.10	.16**	-.08	1.00	-.05	-.04	0.07	0.25	
7. Delay in studies (T3)		-.04	-.04	-.05	-.00	.15**	-.10	1.00	.09	-.22*	0.04	0.18
8. Moratorium in studies (T3)		.06	.03	.07	.01	-.02	-.29***	-.07	1.00	.10	0.11	0.31
9. Educational aspirations (T3)		.11	.10	.12	.15*	-.26***	.14*	-.10	.02	1.00	3.72	0.54
$M_2$	18.96	4.54	4.56	3.57	2.73	0.32	0.01	0.36	3.77			
$SD_2$	4.77	1.05	1.03	1.25	0.87	0.47	0.14	0.48	0.43			

Notes. T1 = second grade of upper secondary school; T2 = third grade of upper secondary school; T3 = one year after. Values for girls are below the diagonal and for boys above the diagonal.  $M_1$  and  $SD_1$  are for boys and  $M_2$  and  $SD_2$  are for girls. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### Educational Aspirations

Educational aspirations were examined by asking the participants at the third measurement point to state the highest level of education they expected to attain by choosing one of the following alternatives: (1) university degree, (2) polytechnic degree, (3) matriculation from upper secondary school, (4) vocational school diploma, (5) matriculation from vocational school combined with upper secondary school curriculum, and (6) no further qualifications after upper secondary school. The highest educational aspiration variable was then formed from answers (1), (2), (3), and (4). A total of 44.1% of adolescents expected to obtain a university degree, 14.5% a polytechnic degree, 3% matriculation, and 4% a vocational degree. Adolescents who answered numbers (5) or (6) were excluded from the study. Matriculation from vocational school combined with upper secondary school curriculum (5) was reported by 9% of adolescents and no further qualifications after upper secondary school (6) by 9% of adolescents.

### Grade point average

Grade point average (GPA) was measured at the first measurement point by asking participants to state the grade average recorded on their certificate of graduation from comprehensive school (Time T0).

### Results

All statistical analyses were performed using the Mplus statistical package (Muthén & Muthén, 1998) with the missing data method, that is, the standard missing at random approach (MAR) to missingness (Muthén & Muthén, 1998). This missing-data method uses all the data available

to estimate the model without inputting data. Because the variables were skewed, the parameters of the models were estimated using the MLR estimator (Muthén & Muthén, 1998). Table 1 presents the correlations between all the major study variables among girls and boys.

To find answers to our research questions, we ran a path model in which self-concordance was used to predict goal effort and goal progress. These were then used to predict school engagement and school burnout, which in turn were expected to contribute to the outcome of the educational transition (successful educational transition, delay in studies, moratorium in studies, and educational aspirations). The hypothesized path model is presented in Figure 2. To control for academic achievement we added GPA to our model as a covariate. We carried our model out first for the whole sample, but the same model did not fit both girls and boys ( $\chi^2_{\text{difference}}(10) = 18.4, p < .05$ ). Consequently, we carried out the analyses separately for girls and for boys.

First, we carried out the path model for girls. The results showed that the hypothesized model as such was not true among girls: The overall fit of the model was poor. The modification indices suggested adding free correlations between the residuals of goal progress and school engagement, and between the residuals of school engagement and school burnout. After changing the model according to the modification indices the overall fit of the model was good ( $\chi^2(15) = 20.19, p > .05$ , CFI = 0.98, RMSEA = 0.03, SRMR = 0.04). The model for girls is presented in Figure 3. The results of that model supported all our hypotheses. Having a self-concordant achievement-related goal contributed to high goal effort among girls, which in turn was related to high goal progress. Furthermore, high goal progress predicted a high level of school engagement and low level of school burnout. High levels of school engagement and burnout, in turn, had subsequent outcomes after the school transition: School engagement predicted success in the educational transition after upper secondary school, whereas school burnout predicted delay in studies and low

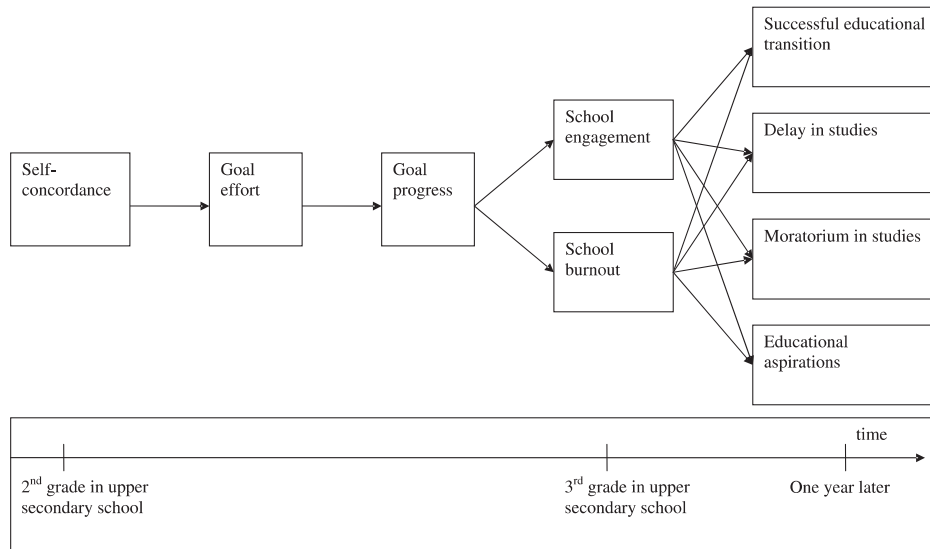


Figure 2. The hypothesized path model.

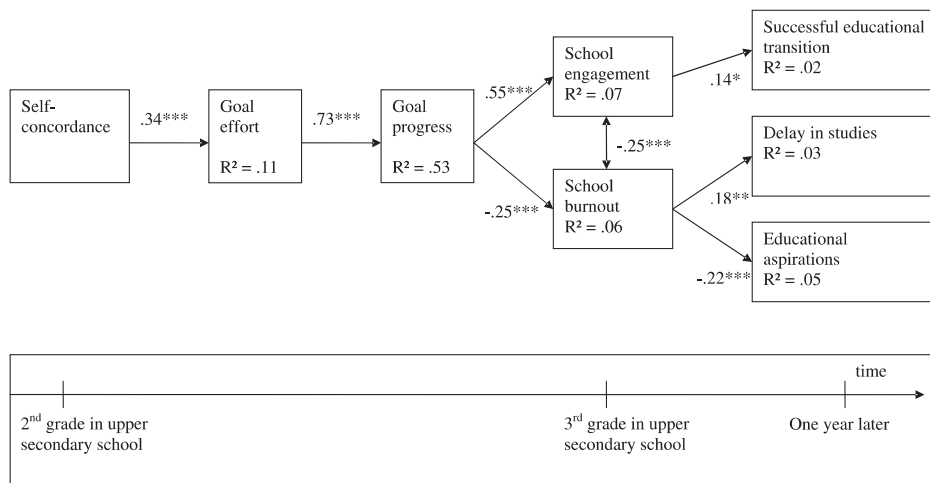


Figure 3. The path model among girls. Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

educational aspirations after upper secondary school. These results were shown even when GPA was controlled for.

Next, we added indirect paths from self-concordance to school engagement, burnout, and to the outcome variables of the model. The results showed that among girls there was a

statistically significant indirect path from self-concordance to school engagement ( $t = 4.53, p < .05$ ) and from self-concordance to school burnout ( $t = -3.87, p < .05$ ). Furthermore, among girls there was also an indirect path from self-concordance to success in educational transition ( $t = 2.19, p < .05$ ) and from self-concordance to educational aspiration ( $t =$



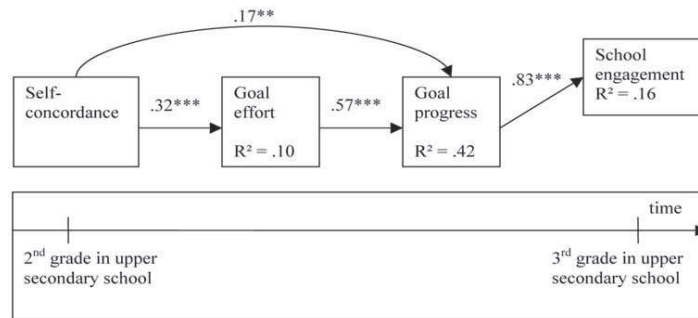


Figure 4. The path model among boys. Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

2.70,  $p < .05$ ). The stability of the self-concordance from Time 1 to Time 3 was .37\*\*\* among girls.

Different results were obtained among boys: The overall fit of the hypothesized model was poor. The modification indices suggested adding a direct path from self-concordance to goal progress and allowing the residuals of goal progress and school engagement to correlate freely. After changing the model according to the modification indices, the overall fit of the model was excellent ( $\chi^2(1) = 0.03$ ,  $p > .05$ ; CFI = 1.00; RMSEA = 0.00; SRMR = 0.00). The model for boys is presented in Figure 4. The results of that model supported our Hypothesis 1 among boys, that is, the self-concordant achievement-related goal contributed to goal effort, which in turn was related to goal progress. However, self-concordance among boys was also related directly to goal progress. Furthermore, among boys the results of the model partly supported our Hypothesis 2: Goal progress was related to school engagement during upper secondary school. However, the path from goal progress to school burnout was not significant. Moreover, school engagement did not predict subsequent outcome variables among boys. The stability of the self-concordance from Time 1 to Time 3 was also not significant among boys. The results, however, showed an indirect path from self-concordance to school engagement among boys.

## Discussion

According to Sheldon and colleagues (e.g., Sheldon & Elliot, 1998, 1999) self-concordant goals are likely to receive sustained effort over time, be more attainable, and consequently be more satisfying, which leads to many positive outcomes. The results of the present study showed that, when adolescents pursued their achievement-related goal for internal reasons, they also invested effort in achieving that goal, which was shown in a high level of goal progress. Goal progress, in turn, was related to a high level of school engagement during upper secondary school, which, among girls, predicted success in their educational transition after upper secondary school. By contrast, low goal progress was related to girls'

school burnout, which was subsequently reflected in a delay in studies and low educational aspirations.

## Self-Concordance, Goal Effort, and Progress During Upper Secondary School

The first aim of the present study was to examine whether self-concordance in an achievement-related goal would increase goal effort and goal progress during upper secondary school. The results were consistent with Hypothesis 1, suggesting that students whose achievement-related goal matched their implicit values and interests invested a lot of effort in working toward this goal and also showed a high level of goal progress during upper secondary school. These results were consistent with those of previous studies showing that individuals do better at self-concordant goals because they put more sustained effort into achieving such goals (e.g., Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001).

## Goal Progress, School Engagement, and Burnout

The second aim of the present study was to examine whether goal progress in an achievement-related goal would contribute to school engagement and school burnout during upper secondary school. The results for school engagement were consistent with Hypothesis 2: Goal progress in the achievement-related goal was related to a high level of school engagement at the end of upper secondary school among both boys and girls. These results may be due to the fact that self-concordance in goals enables individuals to put effort in achieving goals, thus increasing the probability of goal attainment, which in turn, increases well-being (Deci & Ryan, 1985). The present results are consistent with earlier findings (Sheldon, 2002; Sheldon & Houser-Marko, 2001; Skorikov, 2006).

The results for school burnout showed that among

girls goal progress in their achievement-related goal was related to a low level of school burnout. However, goal progress did not contribute to school burnout among boys. These results may be due to the fact that girls are typically more motivated toward achievement of their education-related goals (Dwyer & Johnson, 1997; Pomerantz et al., 2002) and attribute greater importance to academic achievement than do boys (Murberg & Bru, 2004). Girls also fear academic failure more than boys do, and this tendency may lead to their high level of school burnout if the goal is not attained (Sheldon, 2002). The other reason for the result may be that girls experience internalizing problems, like burnout, more often than boys, whereas boys exhibit externalizing problems more than girls (Leadbeater et al., 1995; Nolen-Hoeksema, & Gargus, 1994; Pomerantz et al., 2002). That we used a measure of internalizing problem behavior rather than externalizing behavior in the present study might have prevented us from identifying boys' problem behavior in a logically valid way.

Overall, our findings contribute to the previous research in two ways. First, our results showed that self-concordance has an impact both on well-being and on young people's educational trajectories. Second, the associations between self-concordance, well-being, and educational trajectories span several years.

### Consequences of School Engagement and Burnout for Educational Transition

The third aim of the present study was to examine whether school adjustment in upper secondary school would predict success later on in the educational transition. The results showed that school engagement among girls predicted success in the educational transition after upper secondary school, thereby supporting our Hypothesis 4. By contrast, school burnout in upper secondary school predicted a delay in studies, but only among girls. Overall, these results provide evidence that there is a cumulative path from academic motivation to later educational trajectories. Some earlier studies have found an accumulating cycle between motivation and performance in educational goals (Sheldon & Houser-Marko, 2001). The results of the present study are important from the viewpoint of finding instruments to help adolescents to deal with this challenging transition: An increase in school adjustment in upper secondary school may be a significant factor assisting the rapid school transition.

However, among boys school engagement in upper secondary school did not predict success in the educational transition thereafter. One explanation for this result may be that the school transition after upper secondary school is more challenging for boys than for girls in the Finnish school system: Finnish girls graduate from upper secondary schools and enter university more often than

boys (Central Statistical Office of Finland, 2007). It would be important task for future research to examine why the results were not similar among boys and girls.

### Role of School Engagement and Burnout in Educational Aspirations

The fourth aim of the present study was to examine whether school engagement and burnout during upper secondary school predicts longitudinal educational aspirations after upper secondary school. The results showed that school burnout predicted a low level of aspirations among girls (Hypothesis 5), but not among boys. The results are consistent with earlier findings. For example, Nummi and Salmela-Aro (2002) found that the more depressive symptoms people reported, the more pessimistically they rated their goal accomplishment, goal progress, and capability to achieve future goals.

### Practical Implications

According to this study the key factor in successful goal pursuit is the ability of adolescents to select goals that are well integrated with the self (see also Sheldon, 2002; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001). For example, Nurmi and Salmela-Aro (2002) found that if young people appraised their work-related goal as being important, this predicted success in dealing with the transition from vocational school to work. In the present study, those pupils with a strong intrinsic motivation were more likely to attain their goals and thus increase their well-being (see also Haase et al., 2008). Increased well-being, in turn, was a predictor of a successful educational trajectory. The results of the present study provide some support for some earlier findings (e.g., Salmela-Aro, Kiuru, & Nurmi, 2009) indicating that a high level of school adjustment among girls in upper secondary school helps them to deal with the later transition to further education. Consequently, increasing school engagement and supporting those suffering from school burnout would also help them in their later educational trajectories.

### Limitations

This study has several limitations that should be noted. First, goal progress was measured using a self-report instrument; such a method may not always represent participants' objective progress in their goals. Second, only one potential predictor of goal progress was examined; other potential predictors, such as commitment to achievement-related goals, were not included in the measures employed in this study. Third, the reliabilities of some of the individual scales were low. For example, the measure of self-

concordance was below moderate, which might have been a reason for why the model fit well for one subset of the data (boys) and which should be taken account when generalizing the results. Fourth, although we utilized longitudinal data, our data did not allow a fully cross-lagged longitudinal design, so that we were not able to control for previous levels of the outcome variables. Therefore, some of the conclusions concerning the causal direction of the variables remain tentative.

## Conclusion

Our results extend those of the previous research emphasizing the importance of self-concordance in the school context (e.g., Judge et al., 2005; Koestner et al., 2002; Sheldon & Houser-Marko, 2001; Sheldon et al., 2004) by showing in a longitudinal design that the pursuit of achievement-related goals for internal reasons was related to a high level of goal effort and goal progress, which in turn predicted a high level of school adjustment. A high level of school adjustment was later reflected in a successful educational transition after upper secondary school among girls. These results are important from the viewpoint of finding instruments to help adolescents to accomplish this challenging life transition successfully.

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### III

## **THE ROLE OF GOAL-RELATED AUTONOMOUS MOTIVATION, EFFORT AND PROGRESS IN THE TRANSITION TO UNIVERSITY**

by

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## The role of goal-related autonomous motivation, effort and progress in the transition to university

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**Abstract** This study investigated the extent to which autonomous motivation, effort and progress relating to current educational goals predict success in dealing with the challenging transition to university. Our study included two measurement points: (1) before the entrance examination, at which point participants ( $n=280$ ) documented ratings of their autonomous motivation, effort and progress regarding their educational goals; and (2) after receiving the results of the examination, at which time their success or failure of passing the entrance examination was checked by referring to the university archives. The results of the path model showed that when young adults pursued their educational goals for autonomous reasons, they invested special effort in their goal, and this led to a high level of goal progress. Goal progress, in turn, predicted their successfully passing the university's entrance examination.

**Keywords** Autonomous motivation · Educational goal · Educational transition · Goal effort · Goal progress

Attaining educational goals and success in educational transitions is one of the most important factors directing young adults' life paths (Heckhausen and Schulz 1999; Nurmi 1993; Salmela-Aro and Nurmi 1997a). Previous research has suggested that pursuing goals which are based on autonomous motivation (i.e. pursued goals are consistent with internal

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psychological needs) aids successful goal attainment. This is because autonomous motivation promotes sustained effort, which then leads to high goal progress (Locke and Latham 2002; Sheldon 2002; Sheldon and Elliot 1998, 1999). Progress in a personal goal contributes to goal attainment (Nurmi et al. 2002; Pomaki et al. 2009; Salmela-Aro and Nurmi 1997b). Although the importance of individuals' personal goals and related appraisals in life-stage transitions has been confirmed by evidence reported in previous studies (e.g. Dietrich et al. 2012; Nurmi et al. 2002; Salmela-Aro and Nurmi 1997a; Vasalampi et al. 2010), we know of no longitudinal research which has systematically examined the importance of autonomous motivation, goal effort and goal progress in relation to individuals' success in dealing with challenging university entrance examinations. In Finland, the transition to university is one of the most demanding educational transitions and one that has many consequences for individuals' later lives. Consequently, the present longitudinal study focused on investigating the extent to which autonomous motivation, effort and progress pertaining to the educational goal of studying Psychology in university would predict the success of young adults in dealing with their university entrance examination.

### Motivation and goal attainment

Personal goals can be perceived as future-oriented representations of what individuals want to attain in various life domains (Austin and Vancouver 1996; Locke and Latham 2002, 2006). The ways in which people work and their progress in personal goals related to a certain life domain have an influence on their goal attainment in that particular domain (Little 1983; Salmela-Aro and Nurmi 1997b; Turban et al. 2007). Invested goal effort has been shown, for example, to predict success in school (Turban et al. 2007) and to be important for career goal attainment (Haase et al. 2008). Similarly, goal progress is an important predictor of success in several life domains, such as in academic achievement (Salmela-Aro and Nurmi 1997b), life-stage transitions (Nurmi et al. 2002) and working life (Pomaki et al. 2009).

In one of the most influential motivation theories, Deci and Ryan (1985, 2000) emphasised the importance of inner resources for achieving important life goals such as educational goals (e.g. Sheldon and Elliot 1998; Sheldon and Houser-Marko 2001; Ryan and Connell 1989). According to this self-determination theory (SDT), individual goals can have their origin in distinct types of motivation, each of which has specific consequences in respect to goal-related behaviour (Ryan and Deci 2000). For example, those individuals whose goals are autonomously motivated not only invest more sustained effort into achieving their goals but their quality of effort is more effective as well (Sheldon 2002; Sheldon and Elliot 1998, 1999; Turban et al. 2007). Sheldon (2002) and Sheldon and Elliot (1998, 1999) reported that individuals' autonomous motivation was related to longitudinal goal effort and to subsequent goal attainment. That happens because both the *intrinsic* and *identified* facets of autonomous motivation provide distinctive motivational benefits (Sheldon and Elliot 1998). In other words, *intrinsic motivation* increases interest and enjoyment with respect to the goal (Deci and Ryan 1985) and, as such, naturally reinforces investing effort in the goal (Sheldon and Elliot 1998). However, not all goals, including educational goals, are always fun, and in such situations, *identified motivation* may be beneficial. Identified motivation occurs when the goal is congruent with one's values and beliefs. Thus, it continues to receive effort even when it is not enjoyable (Sheldon and Elliot 1998). By contrast, although external and introjected motivations (i.e. *controlled motivation*) may also form a preliminary sense of commitment, there are several studies showing that individuals have problems in translating these into action (Gollwitzer 1996; Sheldon and Elliot 1998). Indeed, Sheldon and Elliot



(1998) found that controlled motivation did not predict actual effort 2 weeks later, although autonomous motivation did. That is, such goals were not connected to people's deeper values and interests and thus failed to influence their inner source of energy (Sheldon and Elliot 1998; Sheldon 2002).

The pursuit of goals originating from autonomous motivation has been shown to promote goal progress by a number of studies (Judge et al. 2005; Koestner et al. 2002, 2008; Ryan and Connell 1989; Sheldon and Elliot 1998; Sheldon and Houser-Marko 2001; Sheldon and Kasser 1998; Sheldon et al. 2004). Koestner et al. (2002, 2008) performed a meta-analysis that examined the extent to which autonomous motivation (i.e. self-concordance) facilitated goal progress. The results showed that participants were significantly more likely to make successful progress when they had selected goals that were congruent with their inner resources.

The impact of autonomous motivation on goal progress has also been suggested as being mediated by invested goal effort (Sheldon and Elliot 1998, 1999; Vasalampi et al. 2009). In three studies, Sheldon and Elliot (1998) demonstrated that personal goals pursued for autonomous reasons progressed better over a 15-week period. In contrast, the amount of goal-related control did not predict progress. Sheldon and Elliot (1998) argued that this happened because participants were investing effort in their autonomous goals despite external control. In other words, autonomous goals were protected, progressed and attained because they are continually energised (Little 1983; Koestner et al. 2002; Sheldon 2002).

### **The role of motivation during challenging educational transitions in early adulthood**

One major transition during early adulthood is the transition to a higher education, such as university. In Finland, the transition to university is very demanding, and selection procedures are challenging (Central Statistical Office of Finland 2010). This particular transition has many consequences for young adults in later life. For example, a successful transition to university provides a good foundation for young adults' later career options, income level and socio-economic status (Chisholm and Hurrelmann 1995).

Autonomous motivation can be assumed to play a particularly important role in how individuals deal with major life transitions (Deci and Ryan 2000; Salmela-Aro 2009). First, because individuals are typically faced with many alternative goals and environmental options and because individuals' resources such as time and energy are limited, goal selection is necessary to focus one's resources on a particular task (Freund and Baltes 2000; Haase et al. 2008). Autonomous motivation behind a particular goal may be assumed to play a role in goal selection, as it is likely to protect individuals from competing desires and temptations (Little 1983; Locke and Latham 2002) and thereby helps to invest effort in accordance with the demands of the specific chosen transition (e.g. Sheldon and Elliot 1998; Ryan and Connell 1989; Locke and Latham 2006). Second, goal effort and goal progress are more effective in dealing with challenging tasks and transitions if a person is autonomously motivated to attain a particular goal (Ryan and Connell 1989; Sheldon and Kasser 1995; Sheldon 2002; Sheldon and Elliot 1998, 1999; Turban et al. 2007).

### **The present study**

Although previous studies have examined the role of distinct goal appraisals in life-span transitions (e.g. Dietrich et al. 2012; Nurmi et al. 2002; Salmela-Aro and Nurmi 1997a;

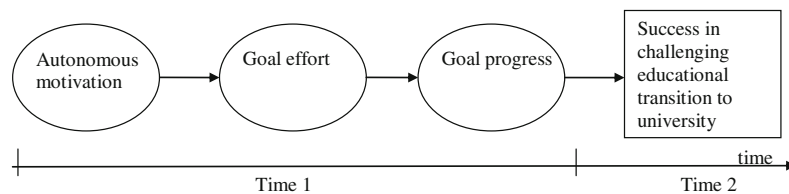
Vasalampi et al. 2010) and have shown the importance of autonomous motivation concerning goal effort and goal progress (Locke and Latham 2002; Sheldon 2002; Sheldon and Elliot 1998, 1999), as well as the importance of goal progress for goal attainment (Nurmi et al. 2002; Pomaki et al. 2009; Salmela-Aro and Nurmi 1997b), the previous research has at least two limitations. First, only a few studies have applied this motivational model to the educational context (Sheldon and Elliot 1999; Vasalampi et al. 2009). Second, no previous studies have applied a motivational path model to examine the associations between autonomous motivation, goal effort, goal progress and the attainment of goals in the challenging transition to university.

Consequently, the first aim of our present longitudinal study was to examine the extent to which autonomous motivation promotes young adults' goal effort and goal progress in an educational context, and specifically in regard to the challenging university entrance examination. On the basis of previous research (Locke and Latham 2002; Sheldon 2002; Sheldon and Elliot 1998, 1999), we assumed (Hypothesis 1) that those individuals who have an autonomous goal would invest more effort in their educational goal of studying Psychology in university, which would then also facilitate their goal progress. The second aim was to examine to what extent progress in an education-related goal would predict young adults' success in passing the entrance examination to university. We assumed (Hypothesis 2) that young adults' progress in their educational goal would facilitate a successful transition and that goal effort would mediate the impact of autonomous goals on goal progress (Sheldon and Elliot 1998, 1999; Vasalampi et al. 2009). The hypothesised model is presented in Fig. 1.

### Finnish educational system

Up to age 16, all Finnish adolescents have a similar basic education. After comprehensive school (secondary school), adolescents' educational trajectories begin to differ. Of all adolescents, around 50% enter upper secondary schools and 41% vocational schools, while 9% exit formal education altogether (Central Statistical Office of Finland 2010). High academic achievement in the last (ninth) grade of comprehensive school is required for admission to upper secondary school. Upper secondary school education, in turn, is a prerequisite for university education.

In Finland, all universities have a selection procedure, and everybody has to choose the major subject they wish to apply for. The application procedure is very demanding as only a minority of the applicants is accepted. Competition for study places is fierce. For example, in 2008, only 19.1% succeeded in gaining entrance to a university during their first year after upper secondary school (Central Statistical Office of Finland 2010).



**Fig. 1** The hypothesised model

In regard to gender, Finnish girls graduate from upper secondary schools and enter universities in more cases than boys (Nevala 2000). For example, 149 new students began to study Psychology in Finland in 2004, and 127 (85%) of these were women (Central Statistical Office of Finland 2010).

## Method

### Participants

The participants of the present study were 320 young adults who were taking part in entrance examinations for admission to study Psychology at a university in a medium-sized town in Central Finland. However, because 87.5% of those students who participated in the entrance examinations were women and only 10% were men (2.5% did not report their gender), we excluded men and those who did not report their gender. The final sample size was 280. The median age of the participants was 21 years at the first measurement point ( $M=21.18$ ;  $SD=3.75$ ).

The study included two measurement points. At the first measurement point, before the entrance examination, participants filled in measures on autonomous motivation, effort and progress relating to their current educational goal of studying Psychology in university. At the second measurement point, after receiving the results of the examination, participants' success in the entrance examination was documented based on data from the university archives. The interval between the two measurements was 2 months.

### Measures

#### *Current educational goal to study Psychology*

At the first measurement point, using an open-ended question, the participants were asked to state one personal goal that was related to their aim of studying Psychology.

*Autonomous motivation* Next, in line with past research on autonomous motivation (e.g. Sheldon and Elliot 1998), participants were asked to rate their autonomous motivation for pursuing their current educational goal of studying Psychology; a seven-point scale was used, ranging from 1 (*not at all for this reason*) to 7 (*definitely for this reason*). The autonomous motivation scale was devised of three questions, of which, questions (1) "How important is this goal to you?" and (2) "Why are you trying to carry out this goal; because you believe that this is an important goal?" identified and measured motivation by eliciting the reasons relating to acting according to one's own values or goals (Ryan and Connell 1989). The third question, "Why are you trying to carry out this goal; because you enjoy carrying it out and you are interested in it?" measured intrinsic reasons, assumed to be the most autonomous by nature (Deci and Ryan 1985; Sheldon and Elliot 1999) that may be involved in the pursuit of an educational goal. The Cronbach's alpha for the autonomous motivation scale was 0.71.

*Goal effort* The participants were asked to appraise their educational goal effort by rating it on a scale ranging from 1 (*not at all*) to 7 (*very much*). Goal effort was enquired about with two questions: (1) "How many resources have you put into this goal?" and (2) "To what extent have you worked toward achieving your goal?" The Cronbach's alpha for goal effort was 0.90.

*Goal progress* The participants were asked to rate their goal progress, related to their current educational goal of studying Psychology, on a scale ranging from 1 (*not at all*) to 7 (*very much*). Goal progress scale included two parts: progress and confidence, which were enquired about with three questions: (1) “*To what extent has this goal progressed?*” (2) “*How probable would you say it is that this goal will be realised?*” and (3) “*How capable are you of realising your goal?*” The Cronbach's alpha for the goal progress scale was 0.69.

#### *Success in the entrance examination*

The entrance examination for studying Psychology at the university was administered in two steps. The first step of the examination measured participants' knowledge in psychology and statistics. The top 100 applicants who received both the best results on the first part of the examination and had the best grades in upper secondary school were invited to the second part of the entrance examination. The second step of the examination was an interview aiming to evaluate participants' suitability for the profession of Psychologist. Data concerning students being accepted for Psychology studies by the university were gathered from the university archives. The data showed that 48 women succeeded in passing the entrance examination and subsequently attained a place of study at the university, while 232 did not achieve acceptance. The variable for success in passing the entrance examination was coded as a categorical binary variable: (1) those who did not succeed in passing the university's entrance examination (they either failed the examination that measured their knowledge in psychology or the subsequent interview) and (2) those who passed the entrance examination (succeeded at both steps) and received a place of study at the university.

#### *Academic achievement*

At the first measurement point, academic achievement was measured by asking participants to state their grades in theoretical subjects as recorded on their certificate of graduation from upper secondary school.

#### *Statistical analysis*

In the present study, structural equation model (SEM) analyses (Muthén and Muthén 1998–2006) were performed to assess the role of autonomous motivation, goal effort and goal progress in relation to participants' success in their university's entrance examination. The analyses were carried out in three steps. In the first step, we created a single confirmatory factor analysis of all motivational constructs (autonomous motivation, goal effort and goal progress) to examine the relations between them. In the second step, we tested a theoretical model in which we suggested a path model between motivational constructs. To evaluate the fit of the model, we compared the theoretical path model to the theoretical measurement model of the first step by using the Satorra–Bentler scaled  $\chi^2$  test for differences (Muthén and Muthén 1998–2006). Finally, in the third step, we added an outcome variable to the model (success in the entrance examination). Besides the path model, the indirect model (Muthén and Muthén 1998–2006) was used with a bias-corrected bootstrap confidence interval to examine indirect effects between autonomous motivation and goal progress via goal effort. Furthermore, academic achievement was used as a covariate in the analysis. We used latent variables to measure all constructs, except success in the entrance examination,

since latent variables have the advantage over scale scores of controlling for unreliability that could distort parameter estimates (Kaplan 2000).

The parameters of the model were estimated using the maximum likelihood robust procedure. Goodness-of-fit was evaluated using four indicators:  $\chi^2$  test, Bentler's (1990) comparative fit index (CFI), root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR). According to Hu and Bentler (1999), values above 0.95 for CFI, values below 0.06 for RMSEA and a value lower than 0.08 for SRMR can be considered as indicating a good fit between the hypothesised model and the observed data.

Although the average percentage of missing data for the constructs considered in this study was relatively small (i.e. below 6%), we used the 'missing values' option built into the Mplus 6.0 software programme. This missing data method uses all of the data that is available in order to estimate the model without imputing data.

## Results

The confirmatory factor analysis for autonomous motivation, goal effort and goal progress

The first step in our analyses involved examining all motivational constructs (autonomous motivation, goal effort and goal progress) in a single confirmatory factor analysis. To create a theoretical measurement model, the factors were allowed to correlate freely with each other. The model yielded an acceptable fit with the data:  $\chi^2(16)=46.89$ ,  $p=.00$ ; CFI=0.98; RMSEA=0.08; SRMR=0.06. The factor loadings ranged from 0.41 to 0.99. Hence, the confirmatory factor analysis suggested that autonomous motivation, goal effort and goal progress are distinguishable constructs in the present sample and that the factor structure of each construct is well defined. Factor loadings, correlations and means ( $M$ ) for key constructs are presented in Table 1.

**Table 1** Mean factor loadings (in bold, diagonal), correlations (below, diagonal) and means ( $M$ ) for observed variables

	1.	2.	3.	4.	5.	6.	7.	8.
Autonomous motivation								
1. AM1	<b>0.66</b>							
2. AM2	0.41	<b>0.65</b>						
3. AM3	0.45	0.51	<b>0.72</b>					
Goal effort								
4. GE1	0.42	0.29	0.34	<b>0.99</b>				
5. GE2	0.42	0.29	0.33	0.99	<b>0.99</b>			
Goal progress								
6. GP1	0.29	0.17	0.25	0.64	0.63	<b>0.79</b>		
7. GP2	0.24	0.23	0.34	0.39	0.40	0.43	<b>0.54</b>	
8. GP3	0.28	0.29	0.37	0.30	0.32	0.30	0.56	<b>0.41</b>
$M$	6.38	6.45	6.34	3.09	4.74	4.53	4.55	5.55

Correlations at or above 0.10 are significant at  $p<.05$

Note. Correlations between factors: AE with GE (.51), AE with GP (.52), and GE with GP (.79)

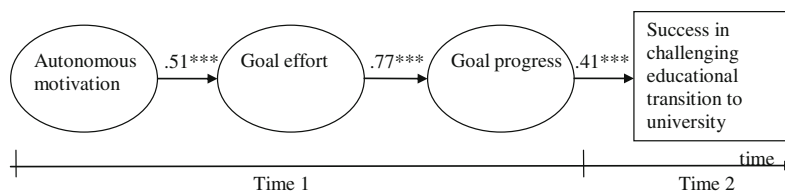
### The theoretical path model for autonomous motivation, goal effort and goal progress

In the second step, we ran a theoretical path model with which we analysed paths between the motivational constructs. In this theoretical path model, goal effort was predicted by autonomous motivation, and goal progress was predicted by goal effort (see Fig. 1). Furthermore, the indirect effect of autonomous motivation on goal progress via goal effort was tested.

The results of the path model showed that the overall fit of the model was acceptable:  $\chi^2(17)=49.12$ ,  $p=.00$ ; CFI=0.98; RMSEA=0.08; SRMR=0.07. Next, we compared our theoretical path model to the theoretical measurement model carried out in the first step with the Satorra–Bentler scaled  $\chi^2$  test for differences (Muthén and Muthén 1998–2006). The results of the  $\chi^2$  test showed that there was no significant difference between the models. As such, the correlations between factors could be explained by our theoretical path model. The results further showed that goal effort was significantly predicted by autonomous motivation [ $\beta=.51$ ,  $p<.001$ ], and goal progress was significantly predicted by goal effort [ $\beta=.77$ ,  $p<.001$ ]. The proposed model was also supported by the indirect model. The results of the indirect model showed a significant association [ $\beta=.39$ ,  $p<.001$ ; the bias-corrected bootstrap confidence interval was 0.246–0.524] between autonomous motivation and goal progress via goal effort in regard to the students' current educational goal. These results support our theoretical path model by showing that the autonomous motivation behind a personal goal increases the effort invested in the goal pursuit and this, in turn, predicts progress and confidence toward reaching the goal (Sheldon and Elliot 1998, 1999).

### Predicting success in the entrance examination with the motivational path model

In the third step, we added *success in the entrance examination* to the model as the outcome variable (see Fig. 1). Because the final model was a logistic regression analysis, the chi-square tests were not available, and as such, we evaluated the importance of the motivational constructs for the outcome variable with odds ratios. The results showed that goal progress was a significant predictor of successfully passing the entrance examination [ $\beta=.41$ ,  $p<.001$ ; odds ratio=2.33]: The more progress and confidence were reported toward reaching the educational goal, the more likely was the success of passing the entrance examination. Next, we constrained the estimate of goal progress and tested whether or not other motivational variables are also required in order to predict goal attainment. The results of the standardised regression coefficients showed that autonomous motivation [ $\beta=.09$ , ns.] and goal effort [ $\beta=.06$ , ns.] did not significantly predict success in the entrance examination when goal progress was constrained. The final model is presented in Fig. 2.



**Fig. 2** SEM model linking autonomous motivation, goal effort and goal progress to successfully passing the university's entrance examination. Note 1: \* $p<.05$ , \*\* $p<.01$  and \*\*\* $p<.001$ . Note 2: Time 1=1 month before the entrance examination; Time 2=after getting the results of the entrance examination

We also added academic achievement as a covariate to our model. The result showed that academic achievement was a significant predictor of successfully passing the entrance examination [ $\beta=.37, p<.001$ ]. However, academic achievement was not related to autonomous motivation, goal effort or goal progress. As such, adding academic achievement to the model did not change the effect of goal progress and confidence on the outcome variable.

## Discussion

It has been suggested that pursuing goals that are based on autonomous motivation are beneficial in that they aid successful goal attainment. The reason for this is that autonomous motivation promotes sustained effort, which then leads to high goal progress (Locke and Latham 2002; Sheldon 2002; Sheldon and Elliot 1998, 1999). Further, progress in a personal goal is assumed to have an effect on goal attainment (Nurmi et al. 2002; Pomaki et al. 2009; Salmela-Aro and Nurmi 1997b). However, no attempt has previously been made to model this process in the context of a challenging educational transition. The results of the present study showed that when participants pursued their educational goal to study Psychology out of autonomous motivation, they invested great effort in that goal. Goal effort, in turn, facilitated participants' goal progress and confidence, which then contributed to the achievement of reaching the educational goal, in this case, the successful entrance into university.

### Autonomous motivation promotes goal effort and goal progress

The first aim of the present study was to examine to what extent autonomous motivation promotes young adults' goal effort and progress concerning their educational goal of studying Psychology. On the basis of earlier research (Locke and Latham 2002; Sheldon 2002; Sheldon and Elliot 1998, 1999), we hypothesised that those students who are autonomously motivated toward their current educational goal would invest great effort in that goal, which would then facilitate their progress toward the goal (Hypothesis 1). The results of the path model supported our hypothesis. The results showed that young adults' autonomous motivation for their educational goal promoted the effort they invested in that goal. Moreover, high goal effort invested in their educational goal facilitated students' goal progress and confidence. These results are in accordance with previous theoretical notions that autonomous motivation has several benefits when trying to achieve a goal. For example, previous results have indicated that autonomous goals enable individuals to work continuously toward achieving their goals regardless of whether the goal is enjoyable or not (Sheldon and Elliot 1998, 1999). Furthermore, when people feel fully autonomous in setting their goals, such goals are likely to be energised, protected and progressed (Judge et al. 2005; Koestner et al. 2002; Sheldon 2002). It is important to note that in the present study, young adults' autonomous motivation for their educational goal was not directly related to goal progress but was mediated via goal effort. In other words, pursuing goals with personal interest and meaning was especially beneficial for progress because such autonomous goals are accompanied by hard work (see also Turban et al. 2007; Vasalampi et al. 2009).

### The role of motivation during the challenging transition to university

The second aim of the present study was to examine whether progress toward an education-related goal contributes to success in the demanding educational transition to university, and whether autonomous goals and goal effort contribute to goal attainment via goal progress in



such a situation. We assumed (Hypothesis 2) that goal progress contributes to success in dealing with a challenging transition (Nurmi et al. 2002), and that goal progress is impacted by goals that are highly autonomous and by a high level of goal effort (Sheldon and Elliot 1998, 1999; Vasalampi et al. 2009). Our results were consistent with our hypothesis in that young adults who appraised their goal progress and confidence toward their educational goal to be high were ultimately successful in their transition to university. This finding fit in well with previous research about the consequences of goal appraisals in life-stage transitions (e.g. Nurmi et al. 2002; Salmela-Aro and Nurmi 1997a; Vasalampi et al. 2009). For example, in a previous study concerning the transition from school to work, Nurmi et al. (2002) showed that the higher young adults in school appraised the progress toward their work-related goal to be, the more likely they were to find a job commensurate with their education just after graduation or within 1 year thereafter. In contrast, those young adults who reported a low level of progress toward their goals were likely to be unemployed after graduating from school.

Moreover, goal progress, which has been shown to increase the likelihood of goal attainment, was predicted by autonomous goal setting and goal effort. Overall, these results suggest, first, that autonomous motivation in the context of a challenging transition helps individuals to focus their individual resources on the demands and challenges of a particular transition (Freund and Baltes 2000; Nurmi et al. 2002; Salmela-Aro and Nurmi 1997a). Second, autonomous motivation leads to increased effort and thereby facilitates goal attainment (Sheldon and Elliot 1998, 1999; Vasalampi et al. 2009). Third, autonomous motivation, goal effort and goal progress together form a consecutive process that leads to success in managing challenging life transitions. These results are in line with some previous studies. For example, Haase et al. (2008) found that invested effort and volition regarding one's career goals are beneficial, especially when goal attainment opportunities were constrained. Such results provide further evidence for the theory (e.g. Haase et al. 2008; Locke and Latham 2006; Turban et al. 2007) that inner resources also have a great influence on goal attainment, particularly in situations in which the differences in effort would be related to important outcomes.

It is important to note that even when we controlled for prior academic achievement, goal progress and confidence predicted passing the university entrance examination. However, academic achievement itself was also an important predictor of successfully passing the entrance examination. These results suggest that both academic achievement and motivation are important yet independent predictors of success when dealing with a challenging academic transition.

#### Limitations

The present study is also subject to some limitations that should be taken into account before generalising the results. First, autonomous motivation, goal effort and goal progress were measured simultaneously and at only one point in time. Consequently, cross-lagged longitudinal research is needed before generalising the results of the present study. Second, only women were studied. Although previous studies have not shown any gender differences in respect to this particular motivational model (Sheldon and Elliot 1999; Vasalampi et al. 2009), the homogeneity of the sample may have had an effect on the results nonetheless. Third, although this study investigated a specific motivational model in regard to young adults' success in handling challenging transitions, one should keep in mind that this was limited to the context of the transition to university, which is only one of several important transitions in early adulthood (Caspi 2002). The motivational model of our study should be replicated in other contexts and in relation to other transitions with a more heterogeneous

sample before generalising the results. Fourth, the scale for autonomous motivation emphasised goal importance. Finally, the present study was limited to Finnish society. In Finland, the transition to university is particularly difficult, and all of the universities have demanding selection procedures.

### Conclusion

The present study extends the prior understanding of autonomous motivation and personal goals (e.g. Koestner et al. 2008; Sheldon and Elliot 1998, 1999; Sheldon and Houser-Marko 2001; Vasalampi et al. 2009) by showing empirically that, in the context of challenging life transitions, the motivational process—consisting of autonomous motivation, goal effort and goal progress—plays an important role in dealing with demanding educational transitions, that is, autonomous motivation for an educational goal increased goal effort, which in turn facilitated goal progress and ultimately led to success in the challenging educational transition to university.

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*Current themes of research:*

Educational transitions. Motivation. School well-being.

*Most relevant articles:*

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*Current themes of research:*

Teacher-child relationships. Motivation and learning. Personal goals and life transitions. Methods for investigating developmental dynamics.

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*Current themes of research:*

Motivation. Engagement. Burnout. Transitions. Interventions.

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