Motivation across a transition: Changes in achievement goal orientations and academic well-being from elementary to secondary school

Heta Tuominen[a,b,*], Markku Niemivirta[c,a], Kirsti Lonka[a,d], Katariina Salmela-Aro[a,e]

[a] Faculty of Educational Sciences, P.O. Box 9, 00014 University of Helsinki, Finland
[b] Turku Institute for Advanced Studies and Department of Teacher Education, 20014 University of Turku, Finland
[c] School of Applied Educational Sciences and Teacher Education, University of Eastern Finland, P.O. Box 111, 80101 Joensuu, Finland
[d] Optentia Research Focus Area, North-West University, South Africa
[e] ETH Collegium Helveticum Zurich, Switzerland

ARTICLE INFO

ABSTRACT

The aim of this study was to examine i) the prevalence of achievement goal orientation profiles among Finnish sixth- and seventh-graders (N = 419), ii) the stability and change in these profiles across the transition from elementary to lower secondary school, and iii) the profile differences in academic achievement (grades) and academic well-being (school engagement and school burnout). Using latent profile analysis, four goal orientation profiles were extracted: *indifferent*, *success-oriented*, *mastery-oriented*, and *avoidance-oriented*. Latent transition analysis confirmed that these profiles were stably identified over time. There was substantial stability in profiles: being assigned to the same group yielded the highest transition probabilities (0.63–0.75). Likely transitions were from success-oriented to indifferent and from indifferent to avoidance-oriented. Of those who transitioned, the majority moved from more to less favorable profiles. Students who stayed in the mastery-oriented group across the transition displayed the most adaptive pattern of motivation, academic achievement, and well-being.

1. Introduction

The multiple goals perspective[1] suggests that students may endorse multiple achievement-related goals simultaneously and to varying degrees (e.g., Harackiewicz et al., 2002; Pintrich, 2000). To date, many studies have embraced a person-oriented approach to explore students' multiple goals and their associations with relevant academic outcomes (for reviews, see Niemivirta, Pulkka, Tapola, & Tuominen, 2019; Wormington & Linnenbrink-Garcia, 2017). However, there are still only few studies that have investigated developmental changes in the patterning of achievement goal orientations, especially among younger (i.e., elementary school) students and across educational transitions (see, however, Schwinger & Wild, 2012).

Educational transitions can pose a risk for students' academic motivation and well-being. Studies have suggested that an overall negative change in academic motivation (e.g., decreases in mastery goals, value beliefs, and interest) takes place during early adolescence (Anderman & Anderman, 1999; Bong, 2009; Wigfield & Eccles, 2000), that the onset

of the decline in motivation occurs in the late years of elementary school (Hornstra, van der Veen, Peetsma, & Volman, 2013; Spinath & Spinath, 2005), and that this decline is most pronounced during educational transitions (Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006). Further, negative changes have been detected in adolescent students' academic achievement and socio-emotional well-being (Roeser, Eccles, & Freedman-Doan, 1999). However, not all students encounter these negative shifts (Roeser et al., 1999; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2012). Accordingly, we adopted a person-oriented approach and focused on the individual differences and developmental relationships between motivation, academic achievement, and academic well-being among early adolescent students. The aim was to examine i) the prevalence of achievement goal orientation profiles among sixth and seventh grade students, ii) the stability and change in these profiles across the transition from elementary (sixth grade) to lower secondary school (seventh grade), and iii) the profile differences in academic achievement (i.e., register-based grades) and academic well-being (i.e., school engagement and school burnout).

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* Corresponding author at: Faculty of Educational Sciences, P.O. Box 9, 00014 University of Helsinki, Finland.
  E-mail addresses: heta.tuominen@helsinki.fi, heta.tuominen@utu.fi (H. Tuominen), markku.niemivirta@uef.fi, markku.niemivirta@helsinki.fi (M. Niemivirta), kirsti.lonka@helsinki.fi (K. Lonka), katariina.salmela-aro@helsinki.fi (K. Salmela-Aro).

[1] Here, the term "multiple goals perspective" refers simply to a perspective in which students' simultaneous multiple goals are addressed, not a perspective emphasizing the positive potential of performance-approach goals alongside mastery goals (cf., Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002).

1.1. Achievement goal orientations

Broadly, there seem to be two lines of achievement goal research differing in the specificity of goal directed behavior: one line considers goals as task-specific and situational, while the other considers the same construct in terms of the generalized tendencies that influence goal adoption (see Niemivirta et al., 2019). Our focus is on the latter, that is, on achievement goal *orientations*. They describe students' general orientations towards learning and studying; in other words, students' tendency to prefer and choose certain kinds of goals and outcomes (Niemivirta, 2002).

Within achievement goal research, there are also differences in which goals are taken into consideration. The central division has been between students' strivings towards developing their competence and demonstrating their competence; that is, between mastery and performance goals (Dweck, 1986; Nicholls, 1984). This dichotomous scheme formed the grounds for later advancements. Performance goals have been differentiated into performance-approach (directed at demonstrating competence) and performance-avoidance goals (directed at avoiding the demonstration of incompetence) (Elliot & Harackiewicz, 1996). Later, the approach-avoidance division was also applied to mastery goals, suggesting the differentiation of mastery-approach (desire to learn) and mastery-avoidance (desire to avoid misunderstanding or failing to learn) dimensions (2 × 2 framework; Elliot & McGregor, 2001). However, the relevance and prevalence of mastery-avoidance goals among school-aged children and adolescents are still unclear (Bong, 2009; Sideridis & Mouratidis, 2008), and mastery-avoidance goals have been included in only a few studies examining students' goal profiles (see Niemivirta et al., 2019). Other mastery-related nuances include mastery-extrinsic (Niemivirta, 2002) or outcome goals (Grant & Dweck, 2003). The mastery-extrinsic orientation implicates the goal of mastery (i.e., a skill or knowledge that makes one master of a subject), but instead of referring to the intrinsic process of learning, alludes to the extrinsic manifestations of mastery (e.g., grades). Students with an emphasis on this orientation focus on absolute success (i.e., achievement without any reference to others) instead of relative success (i.e., outperforming others).

There are also other kinds of refinements and classifications. For example, based on the goal standards model (see Senko, 2016), it has been suggested that there is a need to distinguish between performance goals focused on appearing talented (appearance goals) and those focused on outperforming others (normative goals) as they have different consequences (Senko, 2016; Senko & Dawson, 2017). Also adhering to goal standards, the 3 × 2 model defines goals according to the valence (i.e., positive or negative) and definition (i.e., in reference to task, self, or others) of competence to form six different achievement goals (Elliot, Murayama, & Pekrun, 2011).

Finally, in addition to mastery and performance, a third class of goal orientations, work-avoidance, reflects the tendency to minimize effort and avoid school-related work (Nicholls, Patashnick, & Nolen, 1985). Although work-avoidance goals are not directly targeted at increasing or demonstrating competence, research suggests that they indeed belong to the goals students themselves identify and subscribe to in achievement contexts (Dowson & McInerney, 2001).

1.2. Employing a person-oriented approach to consider achievement goal orientation profiles

The person-oriented approach focuses on identifying naturally occurring combinations of variables at the level of the individual (Bergman, Magnusson, & El-Khouri, 2003). It provides the option of extracting groups of individuals according to the patterns they show with respect to certain individual characteristics and examining the proportion of the sample that shows a particular pattern (Bergman et al., 2003). For example, students who display similar combinations of achievement goal orientations can be grouped together to identify common patterns of goal endorsement, that is, goal orientation profiles.

Instead of focusing on individual achievement goal dimensions, many researchers explore simultaneously salient multiple goals and their relations to various outcomes by employing a person-oriented approach (see Niemivirta et al., 2019; Wormington & Linnenbrink-Garcia, 2017). Person-oriented methodology seems to be well suited for the achievement goal research, as it has the potential to complement variable-oriented findings by more accurately representing multiple goal pursuit. It makes it simple to expand the consideration of multiple goals beyond, for example, just mastery and performance goals, to a much wider array of goals and, thus, take into account the complexity in the possible goal combinations. This is essential because compared to the early work, when researchers differentiated mainly between mastery and performance goals, more eclectic approaches are currently common; for instance, the trichotomous (i.e., mastery, performance-approach, and performance-avoidance; Elliot & Harackiewicz, 1996) and the 2 × 2 (Elliot & McGregor, 2001) goal models. Further, work-avoidance goals are sometimes included (e.g., Kolić-Vehovec, Rončević, & Bajšanski, 2008; Peixoto et al., 2016; Pulkka & Niemivirta, 2013), and some studies have used other goals as well (e.g., social goals; Gonçalves, Niemivirta, & Lemos, 2017) for classification along with academic goals.

Methodologically, different approaches have been used to investigate the goal configurations and their effects. The methods have ranged from the examination of the interaction effects of goals through multiple regressions (e.g., Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997) or the comparison of groups formed through median-split procedures (e.g., Pintrich, 2000; Shih, 2005) to the application of more appropriate person-oriented analyses relying on either cluster analyses (e.g., Conley, 2012; Kolić-Vehovec et al., 2008) or model-based techniques, such as latent profile analyses (e.g., Luo, Paris, Hogan, & Luo, 2011; Pastor, Barron, Miller, & Davis, 2007). The model-based approaches have several advantages, including statistical criteria for determining the number of classes (Nylund, Asparouhov, & Muthén, 2007).

The interpretation of the existing results on goal profiles is challenging due to the differences in conceptualizations and measures of achievement goals, analytical methods, sample characteristics (i.e., participants of different ages and from various educational contexts), as well as final classification solutions (see Niemivirta et al., 2019). Still, some generalizations can be made. It seems that students with qualitatively different achievement goal orientation profiles can clearly be identified, and that the extracted profiles are rather similar across studies.

In most cases, the number of identified goal profiles has varied between three and six, with the majority of studies including three or four profiles (see Niemivirta et al., 2019; Wormington & Linnenbrink-Garcia, 2017). Certain profiles seem to be common across studies, almost irrespective of the educational context. The following profiles usually emerge: *a predominantly mastery goal profile* (e.g., mastery-oriented, learning-oriented; Peixoto et al., 2016; Schwinger, Steinmayr, & Spinath, 2016; Tapola, Jaakkola, & Niemivirta, 2014; Zhang, Watermann, & Daniel, 2016), *a predominantly performance goal profile* (e.g., performance-oriented, low-mastery/high-performance; Gonçalves et al., 2017; Tapola & Niemivirta, 2008), *a combined mastery and performance-approach goal profile* (e.g., success-oriented, multiple goals cluster, approach group; Daniels et al., 2008; Luo et al., 2011; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008, 2011; Zhang et al., 2016), *a moderate goal profile* (i.e., no dominant tendency towards any specific goal orientation; e.g., indifferent, moderate multiple goals; Jansen in de Wal, Hornstra, Prins, Peetsma, & van der Veen, 2016; Pulkka & Niemivirta, 2013; Schwinger et al., 2016), and *a low goal profile* (e.g., low-mastery/low-performance, low-motivation, disaffected; Conley, 2012; Daniels et al., 2008; Gonçalves et al., 2017). If a work-avoidance orientation is included, *a work-avoidant profile* is usually extracted (e.g., avoidance-oriented, work-avoidance group)

with relatively low values on the other orientations (e.g., Brdar, Rijavec, & Loncaric, 2006; Tapola et al., 2014).

Prior studies examining elementary school students' goal profiles have most often extracted three profiles, while studies focusing on middle school or lower secondary school students have most commonly identified four profiles (for a review, see Niemivirta et al., 2019). It seems that among younger students, a mastery-oriented profile is invariably identified (e.g., Schwinger et al., 2016; Zhang et al., 2016), whereas a mainly performance-oriented profile is usually not found. Both high multiple goals and moderate multiple goals profiles have been rather typical (e.g., Jansen in de Wal et al., 2016; Schwinger & Wild, 2012). In addition, studies taking young students' avoidance tendencies into account have extracted an avoidance-oriented profile (Peixoto et al., 2016; Tapola et al., 2014; Tapola & Niemivirta, 2008).

1.3. Stability and change in achievement goal orientation profiles

Previous studies have exhibited moderate correlational stability, albeit also some slight increases or declines in the mean levels of achievement goals among early adolescent students across educational transitions (Anderman & Anderman, 1999; Anderman & Midgley, 1997; Shim, Ryan, & Anderson, 2008; Urdan & Midgley, 2003). For example, studies have shown that early adolescent students' mastery goals decrease while performance goals increase (Anderman & Anderman, 1999) or remain stable (Urdan & Midgley, 2003), or that all goals decline during educational transitions (Paulick, Watermann, & Nückles, 2013; Shim et al., 2008). However, there is a lack of person-oriented studies investigating the development of early adolescents' achievement goal orientations from the multiple goals perspective (see Footnote 1); that is, examining the stability and change in goal orientation profiles, especially during a critical phase of educational transition.

With respect to the stability of goal orientation profiles, the existing findings are rather mixed suggesting variations by the composition of the study sample, the timing of observations, and choice of measures and methods (see Table 1 for a comprehensive summary of these studies). Regarding methodology, studies have mainly used latent profile analysis (LPA) for classifying the students based on achievement goals. Studies differ, however, in whether they classify students separately for each time point (i.e., cross-sectionally) or simultaneously across all time points by employing, for instance, the I-States-As-Objects Analysis procedure (ISOA; Bergman & El-Khouri, 1999), which is a method for studying developmental stability and change in patterns of variable values. For the subsequent examination of profile stability, configural frequency analysis has been commonly used. So far, only one study has used latent transition analysis (LTA) along with LPAs to investigate goal profiles and transitions between the profiles across time (Jansen in de Wal et al., 2016; see also Mädamürk & Kikas, 2018, who classified students based on math skills and goal orientations using LTA).

Among young students, some studies have shown that only one-third or even less of elementary school students hold the same profile over the school years (Schwinger et al., 2016; Schwinger & Wild, 2012), while according to other studies, as much as 80% of the students remained stable in their goal profiles from fifth to sixth grade (Jansen in de Wal et al., 2016) and 76% of middle school students displayed the same profile from seventh to eighth grade (Lo, Chen, & Lin, 2017). In secondary and higher education, the proportion of students displaying identical profiles within and between school years has varied from 60 to 75% (Lee, Wormington, Linnenbrink-Garcia, & Roseth, 2017; Pulkka & Niemivirta, 2013; Tuominen-Soini et al., 2011). Even across the transition from basic to secondary education (i.e., from ninth to tenth grade) 36% stability in Portugal (Gonçalves et al., 2017) and 50% stability in Finland (Tuominen-Soini et al., 2012) has been detected in goal profiles.

Existing findings concerning the qualitative shifts in profiles over time are again somewhat inconsistent. Schwinger and Wild (2012) found that many students move from the high multiple to the moderate

multiple goals profile from third to seventh grade, while Jansen in de Wal et al. (2016) found that, among the few elementary students that did transition between profiles, a large proportion moved from the multiple goals to the moderate/indifferent profile or from the indifferent to the approach oriented profile. Further, changes from maladaptive to adaptive profiles were more frequent than vice versa across the transition to secondary education in Portugal (Gonçalves et al., 2017). The majority of studies have concluded that even though some changes in the group memberships occur over time, most of these changes are directed towards neighboring groups with fairly similar profiles and there are usually only few substantial qualitative shifts (Gonçalves et al., 2017; Pulkka & Niemivirta, 2013; Tuominen-Soini et al., 2011, 2012). To give an example, even though half of the students displayed change in their profile across the transition to upper secondary education, as much as 46% of the students moved to a neighboring group (e.g., from mastery- to success-oriented), while only 2% demonstrated considerable maladaptive change (i.e., from mastery- or success-oriented to avoidance-oriented), and only 2% reported clear adaptive change in their profile (i.e., from avoidance-oriented to mastery- or success-oriented) (Tuominen-Soini et al., 2012).

Some changes detected in the studies surely reflect "true" changes; the motivational change can stem, for example, from the cognitive developments within the adolescent individual (e.g., Nicholls, 1984) or from the contextual changes occurring during the course of schooling (e.g., Eccles & Roeser, 2009). Especially in early adolescence, the puberty-related developmental challenges overlap with changes in institutional affordances (Eccles & Roeser, 2009), and these aspects related to the co-occurence of individual and contextual changes may increase the inconsistencies in findings concerning goal profile stability in different countries with varying educational systems. Also, when interpreting the somewhat incoherent existing findings, we should bear in mind that the instability observed in some studies might also be partly due to the methodology. For instance, most studies demonstrating low stability (e.g., Madjar, Weinstock, & Kaplan, 2017; Schwinger et al., 2016; Schwinger & Wild, 2012) have classified students according to their goal profiles separately at different time points, thus ignoring the dependence of the measures across time. In turn, the studies revealing higher stability (e.g., Jansen in de Wal et al., 2016; Pulkka & Niemivirta, 2013; Tuominen-Soini et al., 2011) have taken this non-independence explicitly into account by classifying students simultaneously across all time points. The latter approach, owing to the identical classification structure over time, simplifies comparisons across measurement points and allows for more easily interpretable findings concerning developmental trends. In turn, classifying students into groups separately for each time point makes the examination and interpretation of the stability in profiles somewhat difficult as the profiles might not be identical across time and all profiles might not be prevalent at each wave. Finally, it should be noted that the studies of Schwinger and Wild (2012) and Schwinger et al. (2016) encompassed many years and, naturally, it is reasonable to expect more change as the period of investigation lengthens.

1.4. Achievement goal orientation profiles and educational outcomes

Findings of person-oriented studies lend support for the adaptiveness of predominantly mastery and combined mastery and performance-approach goal profiles. Mastery-oriented students exhibit an adaptive pattern of adjustment and well-being, for example, positive self-perceptions, high engagement and enjoyment, low negative affect and anxiety, and high academic achievement (Daniels et al., 2008; Gonçalves et al., 2017; Tapola & Niemivirta, 2008; Tuominen-Soini et al., 2008, 2012; Turner, Thorpe, & Meyer, 1998). Similarly, students simultaneously emphasizing mastery and performance-approach (e.g., success-oriented or approach-oriented) have shown to perform well, value studying, and be highly engaged in school and committed to their educational goals (Luo et al., 2011; Tuominen-Soini et al., 2008, 2012).

Table 1
Summary of the studies examining stability of achievement goal profiles over time.

Study	Measures	Sample, age, N, country, domain	Transition	Method	Classification	Number of profiles, profile labels	% stable	Stability
Veermans & Tapola, 2004	Learning, performance, and avoidance orientations	3rd to 6th grade, primary school, age ~ 8–12 y., N = 21, Finland, general	No	CA	Separately	3: Avoidance, Learning, Performance-avoidance	–	Low
Schwinger & Wild, 2012	Mastery, performance-approach, and performance-avoidance goals	3rd to 7th grade, age ~ 8–12 y., from elementary to secondary school, N = 302, Germany, mathematics	Yes, between 4th and 5th	LPA, CONFA	Separately	3: High multiple goals, Moderate multiple goals, Primarily mastery-oriented	35%	Low
Schwinger et al., 2016	Mastery, performance-approach, and performance-avoidance goals	3rd to 4th grade (five measurement points), elementary school, mean age 7.95 y. at first and 9.93 y. at last measurement, N = 542, Germany, mathematics	No	LPA, CONFA	Separately	5: High multiple goals, Moderate multiple goals, Primarily mastery-oriented, Moderately performance-oriented, Amotivated	13%	Low
Tuominen-Soini et al., 2011	Mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and work-avoidance orientations	During 9th grade, lower secondary school, mean age 15 y. at T1, N = 530; 11th to 12th grade, upper secondary school, mean age 17 y. at T1, N = 519, Finland, general	No	LPA (ISOA), CONFA	All time points	4: Indifferent, Success-oriented, Mastery-oriented, Avoidance-oriented	57% 60%	High
Tuominen-Soini et al., 2012	Mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and work-avoidance orientations	9th to 10th grade, from lower to upper secondary school, mean age 15 y. at T1, N = 579, Finland, general	Yes, between 9th and 10th	LPA (ISOA), CONFA	All time points	4: Indifferent, Success-oriented, Mastery-oriented, Avoidance-oriented	50%	High
Pulkka & Niemivirta, 2013	Mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and work-avoidance orientations	1st to 2nd year, university, age ~ 20–23 y., N = 169, Finland, general	No	LCCA (ISOA), CONFA	All time points	4: Mastery-oriented, Success-oriented, Avoidance-oriented, Indifferent	60%	High
Jansen in de Wal et al., 2016	Mastery approach, performance approach, and performance avoidance orientation	5th to 6th grade, elementary school, mean age 10.64 y. at TI, N = 722, Netherlands, language and mathematics	No	LPA, LTA	All time points	3: Multiple goals, Approach oriented, Moderate/Indifferent (similar profiles for both language and mathematics)	78% (language) 85% (math)	High
Goncalves et al., 2017	Mastery, performance-approach self-presentation, performance-approach competitive, performance-avoidance, social responsibility, prosocial friendship oriented, and prosocial learning oriented goals	9th to 10th grade, mean age 14.53 y., from basic to secondary education, N = 386, Portugal, general	Yes, between 9th and 10th	LCCA (ISOA), CONFA	All time points	6: Overall moderate, Disaffected, Performance oriented, Mastery-social oriented, Overall high non-competitive, Performance-mastery oriented	36%	Moderate
Lee et al., 2017	Mastery-approach, performance-approach, and performance-avoidance goals	Undergraduate students, three time points during one semester, age ~ 18–24 y., N = 121, USA, anatomy	No	LPA (ISOA), CONFA	All time points	3: Very-low performance, Low performance, Moderate performance (all profiles had similarly high levels of mastery)	65% (T1 to T2), 75% (T2 to T3)	High
Lo et al., 2017	Mastery-approach, performance-avoidance, and mastery-avoidance goals	7th to 8th grade, middle school, age ~ 12–13 y., N = 488, Taiwan, mathematics	No	LPA, CONFA	Separately	3: Maladaptive, Indifferent, Success-oriented (T1); Avoidant-but-adapting, Indifferent, Success-oriented (T2)	76%	High
Madjar et al., 2017	Mastery-approach, performance-approach, performance-avoidance goals	High school students, twice during 10th grade, age ~ 14–15 y., N = 250, Israel, mathematics and history	No	CA	Separately	5: Dominant performance goals, Dominant performance-approach, Combined performance-approach, Combined mastery-performance-avoidance, Dominant performance- avoidance, Dominant mastery goal	35%	Low

Note. The summary comprises studies in peer-reviewed, English-language journals that meet the criteria of clustering students on the basis of achievement goals or goal orientations and examining stability in goal profiles following a person-oriented approach with corresponding methods. Studies using also other variables for classification in addition to achievement goals are excluded from this summary. CA = cluster analysis; LPA = latent profile analysis; LCCA = latent class cluster analysis; LTA = latent transition analysis; ISOA = I-States-As-Objects Analysis; CONFA = configural frequency analysis; Separately = the participants are classified into groups separately for each time point; All time points = the participants are classified simultaneously across all time points. Stability (high/low) refers to the overall conclusion of profile stability made by the authors of the study in question.

4

However, some studies have suggested that these students' stronger concerns with performance might also increase their vulnerability to emotional distress, such as anxiety, stress, fear of failure, and school burnout (Daniels et al., 2008; Tuominen-Soini et al., 2008, 2011; Zhang et al., 2016).

It seems evident that particularly the endorsement of performance-avoidance goals entails unfavorable concomitants. For example, in elementary school, performance-approach goals were found to be adaptive for achievement when combined with mastery goals, but not when combined with performance-avoidance goals (Schwinger et al., 2016). Also, in secondary education, the combination of high performance-avoidance goals and relatively low mastery goals contributed to lower levels of effort and achievement (Luo et al., 2011; Tuominen-Soini et al., 2008). With respect to well-being, endorsing predominantly performance goals and especially performance-avoidance goals, has been linked with anxiety, negative affect, and low self-esteem (Luo et al., 2011; Pintrich, 2000; Tapola & Niemivirta, 2008).

However, holding a dominant performance goal orientation seems to be associated with more adaptive outcomes than not emphasizing any achievement goal orientation. Students who are only slightly preoccupied with both mastery and performance (i.e., low motivation students) have less adaptive profile in terms of academic and emotional functioning (Conley, 2012; Daniels et al., 2008; Tuominen-Soini et al., 2008). In turn, students displaying a moderate multiple goal profile show mostly moderate values also on other indices of motivation and achievement, and although they express some degree of passivity, they do not report any severe psychological distress (Schwinger et al., 2016; Tuominen-Soini et al., 2011, 2012). Finally, predominantly avoidance-oriented students manifest the most negative outcomes, for example, adjustment problems, cynicism, depressive symptoms, low school value and engagement, poor achievement, and grade retention (Kolić-Vehovec et al., 2008; Peixoto et al., 2016; Tuominen-Soini et al., 2008, 2012). It should be noted, however, that some studies have not found considerable differences in academic achievement between goal profiles (e.g., Korpershoek, Kuyper, & van der Werf, 2015; Schwinger et al., 2016; Tapola et al., 2014).

In sum, students with mainly performance-oriented, moderate, low, and work-avoidant profiles show consistently less adaptive patterns of academic and emotional functioning than students with more approach-driven (e.g., mastery- and success-oriented) profiles.

1.5. The present study

We maintain that all students identify and share similar goals, but the relative emphasis on one or several of them is what makes the difference. In the early work on goal profiles, many studies differentiated mainly between mastery and performance goals and, later, especially the trichotomous model gained popularity, but various other combinations of goals have been used as well (see Niemivirta et al., 2019). We believe that the range of achievement goal orientations considered should be extensive rather than limited and, thus, a five-fold conceptualization of goal orientations was utilized (Niemivirta et al., 2019). It adheres to the early division into mastery, performance, and work-avoidance orientations (e.g., Ames, 1992; Dweck, 1986; Nicholls, 1984; Nicholls et al., 1985) with further distinctions into intrinsically- and extrinsically-based mastery goals (Niemivirta, 2002), as well as approach and avoidance components of performance goals (Elliot & Harackiewicz, 1996). Accordingly, we focused on a set of orientations that in our view represent a comprehensive array of goals and outcomes relevant in the classroom (i.e., mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and work-avoidance) and considered their simultaneous emphases.

A vast majority of prior studies on goal profiles are cross-sectional (see Niemivirta et al., 2019; Wormington & Linnenbrink-Garcia, 2017). We aimed to gain more insight into the temporal stability of goal orientation profiles and the sustained educational benefits of specific profiles by conducting a longitudinal study investigating students' goal orientation profiles, academic achievement, and academic well-being. Furthermore, we employed a latent transition analysis, which seemed to be a promising method for the current purpose as it is a longitudinal extension of latent profile analysis in which individuals are allowed to make transitions between profiles (Kaplan, 2008). Accordingly, the aim of this study was threefold. First, we aimed to identify achievement goal orientation profiles among early adolescent students during sixth grade in elementary school and seventh grade in lower secondary school. Second, we explored the stability and change in the goal orientation profiles across the transition. Third, we investigated how the changes in goal orientation profiles are related to students' grades after the transition and to parallel changes in school engagement and school burnout across the transition.

Three hypotheses were advanced. First, based on an array of prior studies (see Niemivirta et al., 2019; Wormington & Linnenbrink-Garcia, 2017), we expected that meaningful configurations of achievement goal orientations can be educed. In line with previous studies (e.g., Brdar et al., 2006; Schwinger & Wild, 2012; Tapola et al., 2014; Tapola & Niemivirta, 2008; Tuominen-Soini et al., 2012; Turner et al., 1998; Zhang et al., 2016), we assumed to find groups of students who manifest a predominantly mastery goal profile (e.g., mastery-oriented), a combined mastery and performance-approach goal profile (e.g., success-oriented), and a predominantly avoidance goal profile (e.g., avoidance-oriented), as well as a moderate goal profile (e.g., indifferent).

Second, we examined the developmental change in motivation as a function of multiple goals, that is, with regard to shifts within a person's goal configurations. For now, little is known about the stability and change in achievement goal orientation profiles among early adolescent students across educational transitions. However, based on the summary of prior studies (Table 1) it is plausible to assume that goal orientation profiles are relatively stable even across an educational transition. More specifically, as the existing studies investigating stability of goal profiles have identified similar profiles at different time points (Jansen in de Wal et al., 2016; Schwinger & Wild, 2012), we expected to find the same number and similar profiles consistently over time. However, even when a consistent pattern of goal orientation profiles is yielded over time, this does not preclude changes in the profiles. We anticipated that while most students would display a stable motivational profile, some students would demonstrate either adaptive or maladaptive change in motivation over time (Jansen in de Wal et al., 2016; Lo et al., 2017; Pulkka & Niemivirta, 2013; Tuominen-Soini et al., 2011, 2012). As there is evidence of negative changes in academic motivation during early adolescence and across educational transitions (e.g., Wigfield et al., 2006), it was assumed that there might be more maladaptive than adaptive changes during the transition.

Third, we focused on academic well-being and chose to assess specifically school-related engagement (i.e., a positive, fulfilling study-related state of mind characterized by energy, dedication, and absorption; Salmela-Aro & Upadyaya, 2012) and burnout (i.e., exhaustion due to school demands, cynical attitude towards school, and feelings of inadequacy as a student; Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009), because they have been linked with achievement goal orientations (Tuominen-Soini et al., 2012) and important educational outcomes, such as achievement, educational aspirations and attainment, and dropout (Korhonen, Linnanmäki, & Aunio, 2014; Salmela-Aro & Upadyaya, 2012, 2017; Widlund, Tuominen, Tapola, & Korhonen, 2020). Therefore, they might be particularly important indicators when trying to understand and gauge early adolescents' achievement goal orientations and related outcomes during a transitional period. As adolescent students have been shown to experience declines in motivation, to become less emotionally engaged, and to feel more pressure and stress in school after educational transitions (e.g., Roeser et al., 1999; Wang, Chow, Hofkens, & Salmela-Aro, 2015; Wigfield et al., 2006), it seems essential to address the simultaneously occurring

changes in motivation and academic well-being. This is in accordance with researchers who have highlighted the need for an integration of educational and socio-emotional perspectives on adolescent development (e.g., Boekaerts, 1993; Roeser et al., 1999). Further, it has been suggested that it is important to consider both positive (e.g., engagement) and negative (e.g., burnout, stress) emotional processes when investigating adolescent development (Wang et al., 2015).

We deem that if the learner's focus is mainly on the task itself, it is probable that this emphasis on mastery facilitates engagement and concentration on learning, while focusing more on the outcomes (performance) is more likely accompanied with greater emotional distress due to concerns with proving one's adequacy. Focusing on effort reduction (avoidance), in turn, is likely linked with disengagement. With respect to academic achievement, there has been some debate over the benefits of striving for multiple goals versus predominantly mastery goals (Harackiewicz et al., 2002; Senko, Hulleman, & Harackiewicz, 2011), and the findings have been threefold showing that the mastery-oriented students attain the highest academic achievement (e.g., Gonçalves et al., 2017; Schwinger & Wild, 2012), students holding both mastery and performance-approach goals get the highest grades (e.g., Pastor et al., 2007; Tuominen-Soini et al., 2008), or that these two groups of students perform equally well (e.g., Daniels et al., 2008; Pintrich, 2000). To summarize, drawing on previous studies, we hypothesized that mastery-oriented students would display the most adaptive pattern of achievement and academic well-being, students striving for both mastery and performance would show some signs of school burnout despite their presumably high achievement and engagement, while avoidance-oriented students would manifest the most negative outcomes in terms of achievement and well-being (Daniels et al., 2008; Jang & Liu, 2012; Luo et al., 2011; Tuominen-Soini et al., 2008, 2012).

2. Method

2.1. Participants and procedure

The participants were 12–13-year-old Finnish students[2] (236 girls, 183 boys) from the metropolitan area of Helsinki, who filled in self-report questionnaires once during the sixth grade in elementary school (spring 2013) and once during the seventh grade in lower secondary school (spring 2014). At the first measurement occasion, 705 students returned their questionnaires. Of these, 419 students participated in the study also after the transition and had achievement goal orientation information from both measurement points, and were thus included in the final sample. Independent samples t-tests were conducted to investigate whether the students in the final sample and the students with incomplete data (data only from T1) differed in their achievement goal orientations in Time 1. No differences were found in mastery-intrinsic (t (703) = −0.93, p = .355, d = 0.07), mastery-extrinsic (t (703) = −1.54, p = .124, d = 0.11), performance-approach (t (703) = −1.21, p = .227, d = 0.09), performance-avoidance (t (703) = 0.87, p = .384, d = 0.07), or avoidance orientations (t (703) = −0.29, p = .775, d = 0.02). Further, girls and boys were equally distributed among students with complete and incomplete data, $\chi^2(1)$ = 0.14, p = .707, C = 0.01, as were students who reported Finnish as their native language and those who reported some other language to be their native language, $\chi^2(1)$ = 0.96, p = .326, C = 0.04.

The participants completed the questionnaires at schools during regular school hours with the help of research assistants and teachers. Participation in the study was voluntary, informed consent forms were collected from both the students and their parents, and the participants were assured of the confidentiality of their responses. The University of Helsinki Ethical Review Board in Humanities and Social and Behavioral Sciences has reviewed the study and approved it.

2.2. Measures

Descriptive statistics and internal consistencies for all variables are presented in Table 2 and correlations in Table 3.

2.2.1. Achievement goal orientations

An instrument (Niemivirta, 2002) validated in a large body of previous research (e.g., Pulkka & Niemivirta, 2013; Rawlings, Tapola, & Niemivirta, 2017; Tapola et al., 2014; Tuominen-Soini et al., 2008, 2011, 2012) was used for assessing goal orientations at both measurement points. The scales assessed students' general orientations to learning and studying. The instrument taps five orientations (three items each): *mastery-intrinsic* (e.g., "To acquire new knowledge is an important goal for me in school"), *mastery-extrinsic* (e.g., "It is important for me to get good grades"), *performance-approach* (e.g., "An important goal for me in school is to do better than the other students"), *performance-avoidance* (e.g., "I try to avoid situations in which I may fail or make mistakes"), and *avoidance* (referring to work-avoidance; e.g., "I try to get away with as little effort as possible in my school work"). Students rated all items using a 7-point Likert-type scale ranging from 1 (Not true at all) to 7 (Completely true). The missing values were imputed by expectation-maximization (EM) algorithm as implemented in the SPSS statistical program. Only 0.6% of the item scores measuring achievement goal orientations at Time and Time 2 were missing. Composite scores were computed separately for the five orientations.

2.2.2. Academic well-being

For assessing *school engagement* at both measurement points, we used the Schoolwork Engagement Inventory (Salmela-Aro & Upadyaya, 2012), which consists of nine items measuring energy (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 schoolwork. Participants rated items on a 7-point Likert-type scale ranging from 0 (Never) to 6 (Every day). A composite score was computed from all nine items to indicate overall school engagement.

Students also responded twice to the School Burnout Inventory (Salmela-Aro et al., 2009), which consists of three subscales: *exhaustion at school* (4 items, e.g., "I feel overwhelmed by my schoolwork"), *cynicism towards the meaning of school* (3 items, e.g., "I feel that I am losing interest in my schoolwork"), and *sense of inadequacy as a student* (3 items, e.g., "I often have feelings of inadequacy in my schoolwork"). Responses were given on a 6-point Likert-type scale ranging from 1 (Completely disagree) to 6 (Completely agree). Composite scores were computed separately for the subscales.

2.2.3. Academic achievement

Students' grades from all the courses in mathematics, Finnish, biology, and physics held during the seventh grade were drawn from the registry maintained by the Education Division of the city. These register-based grades were collected only in the seventh grade. A

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[2] In Finland, compulsory basic education starts in the year when a child turns seven and lasts nine years. Basic education comprises elementary (grades 1–6) and lower secondary (7–9) level education. This nine-year basic education does not include selecting, tracking, or streaming of students. Every student is allocated a place in a nearby school, but they can also choose another school with some restrictions. All schools follow the national core curriculum of basic education, which includes the objectives and core contents of different subjects. The education providers, usually the local education authorities, and the schools themselves draw up their own curricula within the framework of the national core curriculum. In grades 1–6 the students are mainly taught by one class teacher and in grades 7–9 mostly by specialized teachers for each subject. After completing compulsory education, students may choose at the age of 16 to continue their upper secondary education in either an academic track or a vocational track.

Table 2
Descriptive statistics and internal consistencies for all variables.

Variable	Time 1			Time 2		
	M	*SD*	*α*	*M*	*SD*	*α*
Mastery-intrinsic orientation	5.32	1.32	0.86	4.88	1.35	0.85
Mastery-extrinsic orientation	5.68	1.17	0.87	5.59	1.25	0.89
Performance-approach orientation	3.97	1.40	0.69	3.89	1.40	0.71
Performance-avoidance orientation	4.15	1.59	0.80	3.84	1.68	0.87
Avoidance orientation	4.26	1.45	0.75	4.33	1.42	0.75
School engagement	4.53	1.38	0.93	4.22	1.49	0.95
Burnout: Exhaustion	2.53	1.09	0.74	2.63	1.14	0.79
Burnout: Cynicism	2.25	1.25	0.80	2.29	1.25	0.82
Burnout: Inadequacy	2.47	1.22	0.79	2.43	1.21	0.78
Academic achievement	–	–	–	8.29	0.95	0.89

Note. α = Cronbach's alpha.

composite score of all the course grades in these subjects (correlations varied between 0.62 and 0.77) was used as an indicator of students' academic achievement after the transition. The grades are given on a scale of 4 (=fail) through to 10 (=distinction).

2.3. Data analyses

2.3.1. Preliminary analyses

First, cross-sectional confirmatory factor analyses (CFA) on achievement goal orientations were performed to verify the acceptability of the measurement of the constructs. Next, measurement invariance of goal orientations across the transition was confirmed through longitudinal CFAs (LCFA; see Appendix S1 in online Supplementary material).

2.3.2. Latent profile analysis

Two cross-sectional LPAs were specified for Time 1 and Time 2, separately. LPAs were conducted using the composite scores of the five achievement goal orientation scales. The basic principle of LPA is to group individuals with a similar profile of indicator variables into distinct classes (Vermunt & Magidson, 2002). Classes are added stepwise until the model optimally fits the data. Several statistical criteria were considered to determine the optimal number of profiles: Akaike information criterion (AIC), Bayesian information criterion (BIC), sample-size adjusted BIC (SABIC), Vuong–Lo–Mendell–Rubin (VLMR) and adjusted Lo–Mendell–Rubin likelihood ratio tests, and Bootstrap likelihood ratio test (BLRT). Lower values in AIC, BIC, and SABIC suggest a better model fit. As regards VLMR, LMR, and BLRT, *p*-values smaller than .05 indicate that the estimated model is preferable over the reduced model (Lo, Mendell, & Rubin, 2001; Nylund et al., 2007). Furthermore, classification quality (entropy value > 0.70), the meaningfulness and interpretableness of the latent classes in the solutions as well as the conformity of the solutions in relation to theory and previous research were considered when comparing different models (Marsh, Ludtke, Trautwein, & Morin, 2009). Profiles with too little cases in them (< 3% of the cases) were not considered meaningful. Conducting the cross-sectional LPAs informs model selection in the subsequent latent transition analysis (Collins & Lanza, 2010).

2.3.3. Latent transition analysis

As a first step, measurement invariance of the goal orientations over time was confirmed. Assuming measurement invariance (i.e., restricting the profile-specific means to be invariant across time) allows for a straightforward interpretation of transitions between profiles (see Meeus, van de Schoot, Klimstra, & Branje, 2011). A two-wave LTA was conducted. LTA is a longitudinal extension of LPA, which is designed to model not only the prevalence of latent profile membership, but also the incidence of transitions between profiles over time (Collins & Lanza, 2010). For example, if a student is in a particular goal orientation

profile at Time 1, LTA provides the probability that the student will be in that profile at Time 2 and the probability that the student will be in a different profile. LTA can be used to fit a model that represents a complex array of data in a concise way while revealing interesting scientific information contained in the data (Collins & Lanza, 2010). Another advantage is that like LPA, LTA estimates item-response probabilities and, thus, the latent profile prevalences and the incidence of transitions between latent profiles are estimated while adjusting for measurement error (Collins & Lanza, 2010). By means of LTA, we estimated the probabilities of goal orientation profile membership, profile-specific means of the indicator variables, and transition probabilities between profiles across time (Lanza & Collins, 2008). Transition probabilities denote the probability of changing from one profile to another, ranging from 0 to 1.

2.3.4. Analyses of variance and covariance

To examine how the changes in achievement goal orientation profiles from Time 1 to Time 2 are related to academic achievement at Time 2, a one-way analysis of variance (ANOVA) was conducted. To investigate how the changes in profiles are related to parallel changes in well-being, we performed one-way analyses of covariance (ANCOVA) with Time 1 well-being measures as covariates.

Methods of CFA, LCFA, LPA, and LTA were implemented by M*plus* 8 (Muthén & Muthén, 2012–2017) and ANOVAs by SPSS 25.

3. Results

3.1. Preliminary results

LCFAs indicated sufficient measurement invariance over time (see Appendix S1 in online Supplementary material).

3.2. Achievement goal orientation profiles

Our first central aim was to examine what kinds of achievement goal orientation profiles can be found before and after the transition from elementary to lower secondary school. LPA models with up to seven latent profiles were run and the solution with four profiles for both measurement points was considered best-fitting (see Table 4). Even though the values for AIC, BIC, and SABIC continued to decrease with the addition of profiles, the decrease tended to plateau at around four profiles. In addition, the solutions with five or more profiles yielded small class sizes. As a further aid in identification of the optimal solution, we examined the means of achievement goal orientations for the bordering (three- and five-profile) solutions and this inspection revealed that the four-profile solution conformed most closely to theory and the findings of prior studies (e.g., Pulkka & Niemivirta, 2013; Tuominen-Soini et al., 2011, 2012). The entropy values for the four-profile solutions for Times 1 and 2 were 0.78 and 0.80, respectively, which pointed to clear classifications (see Table 5).

Four similar goal orientation profiles were educed at both measurement points (for raw mean values, see Table 6). *Indifferent* students (44%$_{T1}$; 41%$_{T2}$) had average scores on all orientations, although avoidance orientation was slightly pronounced. As this was the largest group, these students represented a "typical" student in the sample. *Success-oriented* students (33%$_{T1}$; 30%$_{T2}$) had high scores on both performance-related orientations, and they also considered the goals of learning and getting good grades very important. For *mastery-oriented* students (19%$_{T1}$; 22%$_{T2}$), an important goal was to learn and acquire new knowledge, although they also aimed for doing well in school. They scored the lowest on avoidance orientation. *Avoidance-oriented* students (4%$_{T1}$; 7%$_{T2}$) displayed relatively most emphasis on minimizing the effort and time spent on studying and, in turn, least emphasis on both mastery-related orientations. Girls and boys were equally distributed in the groups at Time 1, χ^2 (3) = 5.71, *p* = .127, C = 0.12, and at Time 2, χ^2 (3) = 7.79, *p* = .051, C = 0.14.

Table 3
Correlations.

Measures		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
Time 1																				
1.	MI	–																		
2.	ME	0.64**	–																	
3.	PAP	0.24**	0.37**	–																
4.	PAV	0.05	0.11*	0.36**	–															
5.	AV	−0.38**	−0.26**	0.04	0.30**	–														
6.	ENG	0.58**	0.49**	0.15**	−0.10*	−0.48**	–													
7.	EXH	−0.14**	−0.08	0.18**	0.37**	0.25**	−0.26**	–												
8.	CYN	−0.44**	−0.38**	0.02	0.22**	0.45**	−0.46**	0.61**	–											
9.	INA	−0.25**	−0.20**	0.15**	0.33**	0.40**	−0.34**	0.72**	0.75**	–										
Time 2																				
10.	MI	**0.57****	0.42**	0.10*	0.01	−0.33**	0.45**	−0.12**	−0.29**	−0.19**	–									
11.	ME	0.37**	**0.43****	0.15**	0.02	−0.27**	0.37**	−0.11*	−0.27**	−0.23**	0.68**	–								
12.	PAP	0.09	0.17**	**0.51****	0.23**	0.06	0.11*	0.10*	0.05	0.11*	0.26**	0.36**	–							
13.	PAV	0.08	0.09	0.23**	**0.44****	0.09	0.01	0.17**	0.10*	0.13*	0.07	0.17**	0.48**	–						
14.	AV	−0.27**	−0.20**	0.06	0.12*	**0.52****	−0.31**	0.08	0.24**	0.20**	−0.29**	−0.09	0.17**	0.23**	–					
15.	ENG	0.43**	0.34**	0.13*	−0.05	−0.37**	**0.56****	−0.12*	−0.28**	−0.17**	0.61**	0.45**	0.21**	0.01	−0.46**	–				
16.	EXH	−0.05	−0.03	0.13*	0.27**	0.18**	−0.08	**0.44****	0.31**	0.37**	−0.08	−0.05	0.22**	0.34**	0.20**	−0.13*	–			
17.	CYN	−0.27**	−0.19**	0.04	0.13*	0.38**	−0.34**	0.36**	**0.51****	0.48**	−0.40**	−0.33**	0.09	0.23**	0.44**	−0.42**	0.61**	–		
18.	INA	−0.19**	−0.18**	0.07	0.22**	0.33**	−0.25**	0.34**	0.31**	**0.45****	−0.21**	−0.23**	0.10*	0.30**	0.40**	−0.35**	0.69**	0.75**	–	
19.	ACH	0.12*	0.17**	−0.07	−0.11*	−0.21**	0.22**	−0.21**	−0.38**	−0.35**	0.20**	0.31**	0.07	−0.02	−0.10	0.22**	−0.18**	−0.32**	−0.28**	–

Note. MI = mastery-intrinsic orientation; ME = mastery-extrinsic orientation; PAP = performance-approach orientation; PAV = performance-avoidance orientation; AV = avoidance orientation; ENG = school engagement; EXH = exhaustion; CYN = cynicism; INA = inadequacy; ACH = academic achievement. Test-retest correlations are given in bold.

* $p < .05$.

** $p < .01$.

Table 4
Information criteria values for different class solutions for Time 1 and Time 2.

k	AIC	BIC	SABIC	p_{VLMR}	p_{LMR}	Entropy	BLRT	Group sizes
Time 1 (sixth grade)								
1	7310.810	7351.189	7319.456	–	–	–	–	419
2	7063.292	7127.898	7077.125	0.0104	0.0115	0.73	0.0000	145, 274
3	6968.446	7057.280	6987.467	0.0077	0.0085	0.83	0.0000	17, 222, 180
4	*6884.136*	*6997.197*	*6908.344*	*0.2152*	*0.2225*	*0.78*	*0.0000*	*184, 137, 81, 17*
5	6848.158	6985.445	6877.553	0.1099	0.1141	0.77	0.0000	5, 41, 79, 175, 119
6	6802.596	6964.111	6837.179	0.4888	0.4991	0.80	0.0000	11, 69, 92, 12, 139, 96
7	6772.086	6957.828	6811.856	0.3097	0.3160	0.83	0.0000	9, 81, 82, 13, 11, 145, 78
Time 2 (seventh grade)								
1	7403.409	7443.788	7412.055	–	–	–	–	419
2	7129.119	7193.725	7142.952	0.0000	0.0000	0.78	0.0000	150, 269
3	6999.656	7088.490	7018.677	0.0001	0.0001	0.76	0.0000	157, 92, 170
4	*6907.714*	*7020.774*	*6931.922*	*0.0548*	*0.0583*	*0.80*	*0.0000*	*31, 170, 94, 124*
5	6869.161	7006.449	6898.557	0.0874	0.0922	0.82	0.0000	10, 89, 112, 79, 129
6	6839.436	7000.950	6874.019	0.2414	0.2492	0.83	0.0000	78, 10, 93, 101, 29, 108
7	6820.975	7006.717	6860.746	0.6264	0.6318	0.79	0.0000	68, 24, 41, 74, 23, 99, 90

Note. k = number of latent profiles in the model; AIC = Akaike information criterion; BIC = Bayesian Information Criterion, SABIC = sample-size adjusted BIC; p_{VLMR} = Vuong–Lo–Mendell–Rubin likelihood ratio test, p_{LMR} = Lo–Mendell–Rubin adjusted likelihood ratio test; BLRT = Bootstrap likelihood ratio test. Values in italics indicate the best-fitting model.

3.3. Stabilities and transitions

The second aim was to investigate the stability and change in profiles across the transition. Based on the preliminary LPAs, a four-profile model was imposed for the subsequent LTA. The results for the LTA (for alternative analyses, see Appendix S2) are presented in Table 7, that is, the time-invariant means of the indicator variables, the cross-classification of the profile membership across time, and the transition probabilities. The time-invariant achievement goal orientation profiles based on estimated means can be seen in Fig. 1 (for profiles based on standardized scores illustrating the relative differences between the profiles, see Appendix S3). The four profiles extracted – indifferent, success-oriented, mastery-oriented, and avoidance-oriented – were very similar to the solutions obtained in the preliminary LPAs conducted separately for the Time 1 and Time 2 data. The entropy of the LTA model was 0.80, indicating a clear classification. Out of sixteen possible configurations of stabilities and transitions, the transition probabilities indicated to substantial stability in goal orientation profiles: being assigned to the same profile in both measurement points yielded the highest transition probabilities (0.63–0.75). Altogether, 75% of the students displayed a stable profile over time. The transitions with reasonably high transition probabilities (transition probability > 0.10 and cell size > 20) were patterns in which students moved from success-oriented to indifferent (transition probability = 0.27) and from indifferent to avoidance-oriented (transition probability = 0.16); thus, reflecting movement predominantly from more to less favorable profiles. The other transitions seemed rather unlikely.

3.4. Achievement goal orientation profiles, achievement, and academic well-being

The final aim was to investigate how are the changes in goal orientation profiles related to students' grades at the end of the seventh grade and to parallel changes in academic well-being across the transition. To begin with, a variable reflecting change in goal orientation group from Time 1 to Time 2 was created. Students who stayed in the same group were coded into the stable groups: *stable indifferent, stable success-oriented, stable mastery-oriented,* and *stable avoidance-oriented.* Students who changed groups were coded either into the *adaptive change* (i.e., from avoidance-oriented to indifferent, success-oriented or mastery-oriented; from indifferent to success-oriented or mastery-oriented; from success-oriented to mastery-oriented) or *maladaptive change* (i.e., from mastery-oriented to success-oriented, indifferent or avoidance-oriented; from success-oriented to indifferent or avoidance-oriented; from indifferent to avoidance-oriented) groups. Only 5% of the students demonstrated an adaptive change in their motivational profile, while 20% displayed a maladaptive change.

We performed one-way ANCOVAs with change in goal orientation group as an independent variable, Time 2 well-being measures as dependent variables, and Time 1 well-being measures as covariates (see Tables 8 and 9). Significant effects were detected for change in goal orientation group for all measures. The pairwise comparisons of adjusted means revealed, for example, that stable mastery- and success-oriented students displayed higher school engagement than students in stable indifferent, stable avoidance-oriented, and maladaptive change groups. With respect to exhaustion at school, interestingly, success-oriented students scored significantly higher than mastery-oriented students. In relation to cynicism and inadequacy, stable mastery-oriented students expressed less cynicism and inadequacy compared with

Table 5
Average latent profile probabilities (row) for most likely profile membership (column) at Time 1 and Time 2.

Most likely profile membership	Latent profile			
	Indifferent	Success-oriented	Mastery-oriented	Avoidance-oriented
1	*0.906/0.892*	0.069/0.051	0.020/0.029	0.005/0.028
2	0.065/0.045	*0.842/0.882*	0.092/0.073	0.000/0.000
3	0.032/0.043	0.124/0.068	*0.844/0.890*	0.000/0.000
4	0.105/0.082	0.000/0.000	0.000/0.000	*0.895/0.918*

Note. Probabilities for Time 1 and Time 2 are separated by slash. Values in italics represent the average posterior probability associated with the profiles to which students were assigned.

Table 6
Results of cross-sectional LPAs: means and standard errors for achievement goal orientations in different profiles (Time 1 and Time 2).

Time 1 (sixth grade)	Indifferent N = 184, 44%		Success-oriented N = 137, 33%		Mastery-oriented N = 81, 19%		Avoidance-oriented N = 17, 4%	
Variable	M	SE	M	SE	M	SE	M	SE
Mastery-intrinsic	4.45	0.16	6.10	0.17	6.54	0.08	2.08	0.45
Mastery-extrinsic	5.02	0.12	6.46	0.18	6.29	0.15	3.19	0.38
Performance-approach	3.62	0.13	4.96	0.24	3.40	0.59	2.44	0.31
Performance-avoidance	4.11	0.18	5.04	0.24	2.95	0.32	3.21	0.61
Avoidance	4.68	0.11	4.44	0.46	2.83	0.24	5.58	0.56

Time 2 (seventh grade)	Indifferent N = 170, 41%		Success-oriented N = 124, 30%		Mastery-oriented N = 94, 22%		Avoidance-oriented N = 31, 7%	
Variable	M	SE	M	SE	M	SE	M	SE
Mastery-intrinsic	4.06	0.12	5.58	0.13	6.03	0.13	2.99	0.27
Mastery-extrinsic	4.91	0.16	6.50	0.09	6.45	0.08	3.05	0.27
Performance-approach	3.62	0.11	5.10	0.15	3.29	0.21	2.37	0.46
Performance-avoidance	3.82	0.14	5.30	0.20	2.45	0.22	2.57	0.57
Avoidance	4.69	0.10	4.61	0.17	3.40	0.23	4.26	0.35

students in stable success-oriented, stable indifferent, and maladaptive change groups. As register-based grades were available only for Time 2, one-way ANOVA was conducted to examine group differences in achievement. Stable mastery- and success-oriented students had higher grades than those in the maladaptive change group but, unexpectedly, mastery- and success-oriented students did not have statistically significantly higher grades than stable avoidance-oriented and indifferent students. All in all, the differences in grades were rather small.

4. Discussion

The aim of this study was to examine the prevalence and stability of achievement goal orientation profiles, profile differences in academic achievement, and the parallel changes in profiles and academic well-being across the transition from elementary to lower secondary school. Despite the already numerous studies on goal profiles, the issue of goal profile stability has been underrepresented in the literature. This is one of the few longitudinal studies to investigate the development of achievement goal orientation profiles across an educational transition. Specifically, we aimed to contribute to the field by examining goal orientation profiles among early adolescent students across the

transition from elementary to lower secondary school, by incorporating an extensive set of goal orientations, and by employing a method (LTA) less frequently used in similar studies. An additional objective was to review and synthesize existing studies employing a person-oriented approach in order to highlight issues that may complicate the interpretation and comparison of prior studies, and to contemplate the potential influence of, for example, the chosen analytical method to the results.

4.1. Achievement goal orientation profiles among early adolescent students

The results imply that early adolescent students are not a uniform group but, rather, subgroups of students characterized by distinct configurations of achievement goal orientations can be identified, and they can have sustained consequences for academic and socio-emotional functioning. We found, in line with our assumptions and consistent with previous studies (e.g., Brdar et al., 2006; Niemivirta, 2002; Pulkka & Niemivirta, 2013; Tapola & Niemivirta, 2008; Tuominen-Soini et al., 2011), four divergent profiles: indifferent, success-oriented, mastery-oriented, and avoidance-oriented.

We identified a large group of students displaying a moderate

Table 7
Results of LTA: time-invariant means, cross-classification of goal orientation profile membership (N), and transition probabilities from Time 1 (rows) to Time 2 (columns).

Time-invariant means	Indifferent $N_{T1/T2}$ = 172/181		Success-oriented $N_{T1/T2}$ = 116/97		Mastery-oriented $N_{T1/T2}$ = 98/83		Avoidance-oriented $N_{T1/T2}$ = 33/58	
Variable	M	SE	M	SE	M	SE	M	SE
Mastery-intrinsic	4.44	0.20	6.03	0.20	6.25	0.10	3.16	0.40
Mastery-extrinsic	5.19	0.22	6.58	0.11	6.33	0.10	3.70	0.64
Performance-approach	3.85	0.26	5.22	0.13	3.19	0.34	2.53	0.39
Performance-avoidance	4.27	0.33	5.05	0.35	2.80	0.19	2.76	0.37
Avoidance	4.77	0.11	4.36	0.24	3.13	0.21	4.62	0.19

Cross-classification of goal orientation profile membership (N), transition probabilities in parantheses

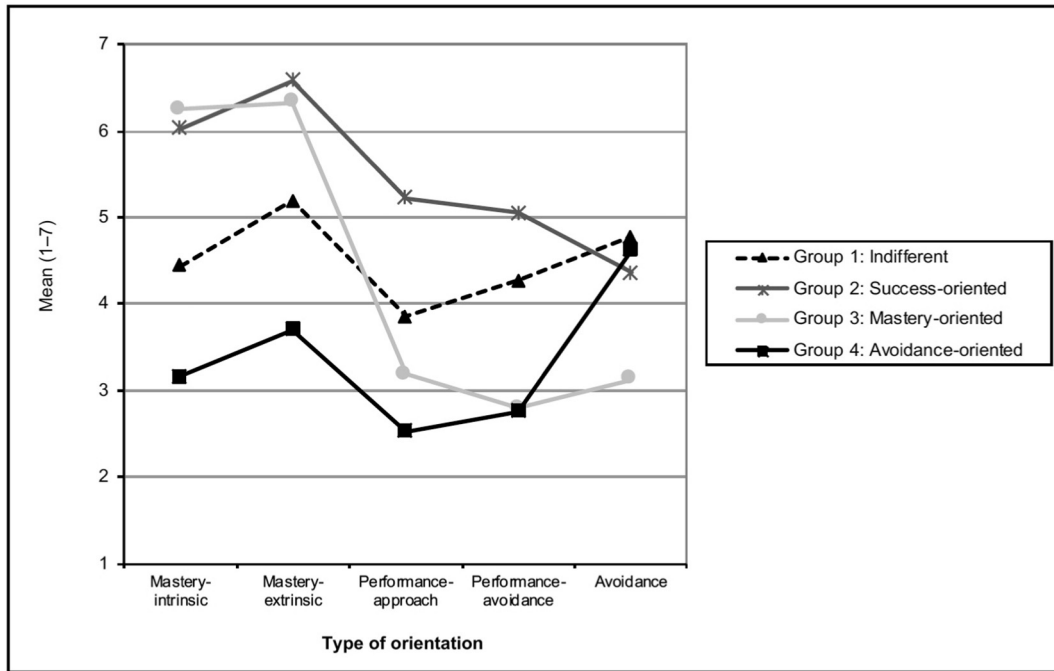|	Time 2							
Time 1	Indifferent		Success-oriented		Mastery-oriented		Avoidance-oriented	
Indifferent	135	**(0.74)**	14	(0.10)	0	(0.00)	23	(0.16)
Success-oriented	34	(0.27)	75	**(0.63)**	3	(0.05)	4	(0.05)
Mastery-oriented	10	(0.13)	8	(0.10)	77	**(0.74)**	3	(0.03)
Avoidance-oriented	2	(0.17)	0	(0.00)	3	(0.08)	28	**(0.75)**

Fig. 1. Time-invariant achievement goal orientation profiles (estimated means).

profile with no peak on any achievement goal orientation. These students seem to be in many respects "average" students, who seek to do what is expected in school (to learn and perform), but also wish to minimize the effort. Holding such moderate multiple goals is surely common in the school context where students seek both to follow personal interests and to respond to external demands. These results concur with previous studies identifying a group of elementary school students showing a moderate multiple goal profile (e.g., moderate/indifferent, moderate multiple goals, uncommitted; Jansen in de Wal et al., 2015; Schwinger et al., 2016; Schwinger & Wild, 2012; Turner et al., 1998). A group holding a moderate multiple goal profile has been large also in prior studies and, additionally, the amount of these students has even shown to increase over the elementary and secondary school years (Jansen in de Wal et al., 2016; Schwinger & Wild, 2012).

Consistent with the majority of prior studies (e.g., Daniels et al., 2008; Jansen in de Wal et al., 2016; Pulkka & Niemivirta, 2013; Tuominen-Soini et al., 2012), a group of students emphasizing both mastery and performance goal orientations was found. These success-oriented students value absolute success (getting good grades) and relative success (outperforming others) besides gaining new knowledge. Interestingly, they also score comparatively high on performance-avoidance orientation, suggesting a pattern of combined approach and avoidance tendencies (see Luo et al., 2011), and implying that these students indeed are spurred by multiple goals. Note that we found no

profile exclusively characterized by performance goals, which is in line with several studies examining elementary school students' goal profiles (Jansen in de Wal et al., 2016; Schwinger & Wild, 2012; Tapola et al., 2014; Zhang et al., 2016).

Instead, mastery-oriented students' focus in schoolwork is dominantly on learning, understanding, and self-improvement, although succeeding in school is also important for them. They do not express performance-focused or avoidance tendencies. A group of students emphasizing predominantly mastery is identified in the vast majority of goal profile studies, and, in fact, studies have suggested that several goal orientation groups in elementary school are characterized by high mastery goals (Schwinger et al., 2016), and that early adolescent students frequently mention mastery goals as the reason for studying (Lee & Bong, 2016).

The small group of avoidance-oriented students exhibits a rather unfavorable motivational profile; their principal aim is to get away with as little effort as possible in schoolwork and, at the same time, they display low mastery aspirations. The (work) avoidance orientation has been included in altogether one third of the prior studies examining students' goal profiles (Niemivirta et al., 2019), and these studies have usually extracted a work-avoidant profile (e.g., Brdar et al., 2006; Kolić-Vehovec et al., 2008; Tapola & Niemivirta, 2008). In our view, the inclusion of avoidance orientation in the measurement of students' goals provides supplementary information on students' diverse

Table 8

Summary statistics for ANCOVAs (school engagement and school burnout) and ANOVA (academic achievement).

Dependent variables	Independent variables					
	Covariate[a]			Change in goal orientation group		
	F	p	η^2	F	p	η^2
School engagement	$F(1,360) = 88.00$	.000	0.20	$F(5,360) = 10.24$	.000	0.12
Burnout: Exhaustion	$F(1,389) = 74.59$	.000	0.16	$F(5,389) = 3.53$	.004	0.04
Burnout: Cynicism	$F(1,389) = 104.04$	.000	0.21	$F(5,389) = 6.79$	.000	0.08
Burnout: Inadequacy	$F(1,372) = 65.85$	.000	0.15	$F(5,372) = 6.00$	.000	0.07
Academic achievement[b]				$F(5,405) = 4.22$	.001	0.05

[a] Covariate is the Time 1 score of the same variable.
[b] Register-based grades were available only for Time 2.

Table 9
Means, standard deviations, and adjusted means (with Time 1 scores as covariates) for school engagement, school burnout, and academic achievement by change in goal orientation group.

Variable	Stable indifferent N = 135		Stable success-oriented N = 75		Stable mastery-oriented N = 77		Stable avoidance-oriented N = 28		Adaptive change N = 22		Maladaptive change N = 82	
	M	SD/(SE)	M	SD/(SE)	M	SD/(SE)	M	SD/(SE)	M	SD/(SE)	M	SD/(SE)
Engagement	3.69	1.28	4.99	1.28	5.29	1.01	2.73	1.27	4.25	1.46	3.85	1.56
Adjusted mean	4.01_{ae}	(0.11)	4.72_{def}	(0.15)	4.83_{abc}	(0.15)	3.42_{cd}	(0.26)	4.48	(0.28)	3.71_{bf}	(0.14)
Exhaustion	2.72	1.12	3.05	1.22	2.02	0.83	2.43	1.10	2.72	1.13	2.69	1.15
Adjusted mean	2.69	(0.09)	2.93_a	(0.12)	2.26_a	(0.12)	2.43	(0.21)	2.49	(0.22)	2.71	(0.11)
Cynicism	2.59	1.15	2.23	1.26	1.36	0.73	2.80	1.17	2.17	1.25	2.51	1.39
Adjusted mean	2.40_b	(0.09)	2.30_a	(0.12)	1.71_{abc}	(0.13)	2.40	(0.20)	1.96	(0.23)	2.64_c	(0.12)
Inadequacy	2.74	1.17	2.50	1.24	1.55	0.83	2.49	1.26	2.38	1.15	2.70	1.17
Adjusted mean	2.65_b	(0.10)	2.41_a	(0.13)	1.84_{abc}	(0.13)	2.48	(0.21)	2.26	(0.23)	2.69_c	(0.12)
Academic achievement T2	8.19	0.91	8.52_b	0.98	8.59_a	0.90	8.12	0.73	8.36	0.90	8.02_{ab}	1.01

Note. Means within a row sharing the same subscripts are significantly different at the $p < .05$ level (with Bonferroni adjustment). Pairwise comparisons are made for adjusted means, except for academic achievement, which was available only for Time 2.

motivational aspirations in achievement-related contexts, and assists in recognizing the group of students, who primarily aim at avoiding schoolwork. Here, the prevalence of students showing such avoidance tendencies was low, albeit slightly increasing from sixth to seventh grade.

4.2. Stability and change in profiles across a transition

With respect to the temporal stability of goal orientation profiles, our expectation of considerable stability was confirmed; as much as 75% of the students displayed identical motivational profiles over time. This echoes the findings of prior studies demonstrating notable stability in goal profiles over time (Jansen in de Wal et al., 2016; Lee et al., 2017; Lo et al., 2017; Tuominen-Soini et al., 2011). However, when interpreting the findings of existing studies and drawing inferences from them, we must exercise caution and consider how the chosen analytical method might influence the results. For example, our finding of substantial stability in goal profiles is consistent with other studies allowing for the non-independence of the measures across time, that is, classifying the students simultaneously across all time points (Jansen in de Wal et al., 2016; Lee et al., 2017; Pulkka & Niemivirta, 2013; Tuominen-Soini et al., 2011, 2012). Also, all these studies examined stability during a relatively short time period, approximately one year. The apparent discrepancy between our findings and those of Schwinger and Wild (2012) and Schwinger et al. (2016) demonstrating low stability in goal profiles among elementary school students might thus be explained by the facts that they classified students independently at each measurement point, and investigated stability over a longer time period encompassing several years. Furthermore, it is important to note that the Finnish educational system does not involve tracking when moving on from elementary to lower secondary school as opposed to the early tracking within the German educational system (i.e., students attend different tracks already from fifth grade onward). This might naturally also explain why stability of goal orientation profiles is higher in the Finnish compared to the German sample of early adolescents. When young Finns choose their educational track for the first time after the ninth grade, it has been shown that 50% of the students display identical profiles across the transition from lower to upper secondary education (Tuominen-Soini et al., 2012).

Taken together, the findings of the present study demonstrate that goal orientation profiles do not randomly fluctuate but are rather stable among early adolescent students and even across an educational transition from elementary to lower secondary school. Clear changes in achievement goal orientations could have taken place as a function of the transition, but this was not the case. This finding supports the conception of achievement goal orientations as tendencies to view and approach achievement and learning settings in certain ways. In other words, despite some degree of fluctuation, most students tend to have certain goal preferences across contexts and over time. Still, it does not imply that goal orientation profiles should be taken as fixed entities or trait-like characteristics but, rather, as generalizations that set the stage for new experiences and contribute to students' responses somewhat differently depending on the context (see Niemivirta et al., 2019).

Regardless of the notable stability, some students reported a change in their profile. The few students who transitioned between profiles across the transition to lower secondary school, moved from success-oriented to indifferent and from indifferent to avoidance-oriented. That is, the early adolescent Finns seem to move from more to less favorable profiles across an educational transition, which is in line with the observed decline in motivation during early adolescence and across educational transitions (Wigfield et al., 2006). Early adolescence as a phase of life might play a role here as, in fact, the opposite has been found among slightly older adolescents (about 15-year-olds) during an educational transition: positive changes towards a more favorable profile seemed more likely than changing to unfavorable profiles (Gonçalves et al., 2017). Also, among elementary school students approximately the same age (8–12-year-olds) as in the present study but not yet experiencing a transition to secondary school, the observed transitions implied moving from less favorable to more favorable profiles (Jansen in de Wal et al., 2016). The negative shift detected in the present study might reflect both the changes associated with the transition (e.g., possibly increased emphasis on grades and competition) and the simultaneous changes and challenges characteristic of early adolescence.

4.3. Adaptability of achievement goal orientation profiles across a transition

Our findings regarding the sustained consequences of goal orientation profiles demonstrate that students who stay in the mastery-oriented group over time display a very positive pattern of motivation, achievement, and well-being (see also Mädamürk & Kikas, 2018; Tuominen-Soini et al., 2012). Interestingly, while the simultaneous focus on mastery and performance may lead to positive outcomes in terms of engagement and achievement, it also might entail some unfavorable outcomes as stably success-oriented students report more exhaustion, cynicism, and feelings of inadequacy compared with their mastery-oriented peers. Hence, performance-focused goals might be linked to some socio-emotional vulnerability, even when they are pursued along with mastery-focused goals (see Daniels et al., 2008; Tuominen-Soini et al., 2008). This illustrates the added value of the person-oriented analyses; it is not simply the levels of individual variables but the interdependence of all the variables that characterize the adaptivity of motivational profiles. Then again, students who stay in the

indifferent or avoidance-oriented groups across the transition display lower school engagement than the mastery- and success-oriented students. Prior studies have demonstrated that avoidance-oriented students display the most maladaptive educational and emotional functioning (Peixoto et al., 2016; Tuominen-Soini et al., 2008), but it would seem important to pay attention also to the large group of indifferent students, whose motivational mindset is clearly not optimal either, due to their relatively strong emphasis on avoidance tendencies and subsequent disengagement. It seems that this is the prototypical student in this age group in the Finnish educational system, which suggests that many students accept the inherent goals of the school (e.g., gaining knowledge and demonstrating it), although they may be somewhat reluctant to put effort to it. These students might thus benefit from instructional strategies that focus on enhancing interest, relevance, and task value. That is, pedagogical activities reinforcing intrinsic reasons for studying instead of obligations and necessity. Our results echo the findings of earlier studies in showing that the most adaptive goal orientation profiles seem to have the highest scores for mastery-focused tendencies, while profiles characterized by average levels of goals or pronounced avoidance goals are more maladaptive in terms of achievement and well-being (see Niemivirta et al., 2019; Wormington & Linnenbrink-Garcia, 2017).

During an educational transition, parallel changes are occurring both in the individual (e.g., pubertal changes and cognitive developments in early adolescence; e.g., Nicholls, 1984) as well as in the environment (e.g., the changes in the learning environment during the transition from elementary to secondary school) and, accordingly, the stage-environment fit (Eccles & Midgley, 1989) is likely disturbed and need to be reassessed. If the new learning environment after the transition offers a poor fit for adolescents' psychological needs, it might lead to undermining of motivation, whereas if the environment fits well with adolescents' needs and goals, positive motivation and engagement should be more likely (see Eccles & Midgley, 1989). In the present study, the high school engagement of students who displayed a stable mastery- or success-oriented profile might imply a good fit between the student and the new educational environment, whereas the lower engagement of students continually manifesting an avoidance-oriented or indifferent profile might reflect some kind of misfit.

4.4. Limitations and future research

Although the present study contributes to a deeper understanding of goal orientation profile stability among early adolescent students during an educational transition, it also has some limitations. In this study, five distinct achievement goal orientations were included in order to capture the diversity of students' motivational strivings. In future work, a still broader range of students' goals could be considered, including, for instance, social goals (see Gonçalves et al., 2017; Korpershoek et al., 2015). The possible weaknesses of the person-oriented methodology are related to the decision-making regarding the number of profiles. Here, however, model-based techniques provided fit indices that were used – along with theory and prior research – to facilitate decision-making. Another potential methodological bias is that although LPA allows the person a membership in each cluster to a certain degree (probabilities), the modal assignment of persons to clusters still results in a person being classified in only one cluster (i.e., cluster associated with the largest of the posterior probabilities) (Pastor et al., 2007). Accordingly, persons who are on the border of two groups are classified in only one of them, which might increase the proportion of students who end up being classified as reporting a change in profile, even though there necessarily have not been notable changes in the configuration of their ratings. This can be seen as a limitation of this study, but the modal assignment of persons to clusters was used in order to obtain important information about how the changes in achievement goal orientation profiles are related to parallel changes in well-being.

Goal orientation profiles could be examined among even younger

students and across a prolonged period during elementary school in order to recognize critical stages in the development of motivation and to gain more information about the sources of different goal orientation profiles. In this study, the focus was on the intra-individual changes in goal orientations across a transition from one educational context to another but, in future work, the interaction of individual and contextual factors could be taken more specifically into account. Schools can, naturally, make a difference. For example, it has been shown that if the new school places greater emphasis on competition and ability differences, students transitioning to this school exhibit higher performance goals after the transition, whereas students who move into a school that uses more task-focused instructional practices exhibit fewer negative changes in achievement goal orientations after the transition (L.H. Anderman & E.M. Anderman, 1999; see also Urdan & Midgley, 2003). Goal orientations should not, therefore, be regarded as entities unaffected by institutional and cultural frames. Future research endeavors could explore how contexts, situations, and individual differences combine in the processes that elicit achievement goal orientations.

4.5. Conclusions

Person-oriented analytical approach provided valuable information about the prevalence, stability and change, and functionality of different patterns of motivation during transition. In short, the findings demonstrate that students display various patterns of achievement goal orientations that such patterns are substantially stable even when students move from elementary to lower secondary school, and that striving for mastery seems to be most beneficial when both achievement and emotional well-being are considered. For the most part, this echoes previous findings, but also adds to what we know about the dynamics between motivation and well-being. The study also shows that even though the results from research on achievement-related goals at different levels of specificity seem to concur to a large extent, it might be beneficial to look further into the linkage between disposition-like tendencies and more specific situational goals, and its theoretical underpinnings. This might help to understand better not only the developmental antecedents of students' preferences for certain goals, but also how those preferences might be triggered by situational cues and moderated by contextual factors.

Although many students exhibit a stable, favorable motivational profile over time, and some display positive changes in their academic motivation across educational transitions (see also Gonçalves et al., 2017; Tuominen-Soini et al., 2012), it is alarming that a small group of early adolescent students displays a stable avoidance-oriented profile, and that of those students who demonstrate a change in their profile, the majority move to less favorable profiles. Combined, a quarter of students are stably avoidance-oriented or experience some sort of maladaptive change in their school-related motivation across the transition from elementary to secondary school. This finding has important practical implications, because it points to the need for teachers and educational practitioners to identify these students and try to support their engagement by structuring the environment so that it provides as optimal fit as possible with the diversity of students' motivational tendencies. Further, regarding school burnout, it is important for teachers as well as parents to note that when a student is in the performance mode aiming to excel or demonstrate superiority over others, this psychological mind-set might lead to success at school but it is likely also accompanied with emotional vulnerability for experiencing school-related stress, pressure, and exhaustion (see also Tuominen-Soini et al., 2008). During the transition from elementary to lower secondary school, support and encouragement especially from parents has been shown to be helpful in promoting adolescents' school well-being, because parental support may be more consistently available during the transition than support from changing school friends and teachers (Kiuru et al., 2019).

Declaration of competing interest

None.

Acknowledgements

Appendix A. Supplementary material

Supplementary material to this article can be found online at https://doi.org/10.1016/j.lindif.2020.101854.

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