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**Anticipatory emotions at the prospect of the transition to higher education: A latent transition analysis**

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# **Anticipatory emotions at the prospect of the transition to higher education: A latent transition analysis**

## Highlights

- Examined anticipatory emotions at the prospect of the transition to higher education
- Person-centered approach highlighted three distinct profiles
- Significant transitions between profiles occurred across two time points
- Career decidedness and adaptability predicted profile membership and transitions

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## Abstract

While some attention has been devoted to the study of emotions in vocational psychology, research on the emotional anticipation of future career events is scarce. Using latent transition analysis, we investigated profiles of anticipatory emotions at the prospect of the transition to higher education during the last year of high school. We also investigated two career-related antecedents of profile membership and transitions between profiles: career decidedness and career adaptability. Our results shed light on three distinct profiles. First, most students experienced mostly positive anticipatory emotions with few negative anticipatory emotions (i.e., a *positive dominant* profile). Second, students in the *mixed* emotions profile displayed high levels of both positive and negative anticipatory emotions. Third, students in the *negative dominant* profile experienced mostly negative anticipatory emotions. Our results also showed that the *positive dominant* profile was relatively stable and that the *mixed* and the *negative dominant* profiles related to more transitions across time. With regard to the antecedents, our results demonstrated that students with higher career decidedness and career adaptability were more likely to belong to the *positive dominant* profile. When looking at transitions between profiles, students with high career decidedness and career adaptability were more likely to remain in or transition to the *positive dominant* profile. Identifying students with different anticipatory emotions profiles and the nature of transitions between these profiles have implications for implementing tailored career interventions and educational practices.

*Keywords:* anticipatory emotions, mixed emotions, transition to higher education, person-centered approach, latent transition analysis

## **Anticipatory emotions at the prospect of the transition to higher education: A latent transition analysis**

The transition from high school to higher education can be a stressful experience as students face numerous challenges: developing career awareness and exploration, contemplating potential educational and career paths, adjusting to a new learning environment, and developing adaptive study habits (Christie, 2009; Hartung et al., 2005; Porfeli & Lee, 2012; Trautwein & Bosse, 2017). Coping with these challenges not only has an impact on academic success and retention but also on motivation, learning, and well-being (for a review, see Noyens et al., 2017). From a vocational developmental perspective, successful career preparation and adaptation to the transition to higher education can have a long-lasting impact on students' career development and future professional trajectories (Hartung et al., 2005; Porfeli & Lee, 2012). In Belgium, where the present study was conducted, the educational and societal system expects high school students to choose a specific field of study by the end of high school. Students have significant flexibility in their vocational decisions as the system is an open free-access system with neither competitive selection process nor application forms for most programs and relatively low tuition costs. Consequently, the last year of high school entails many changes, and anticipating graduation and its numerous challenges is likely to induce strong emotional reactions (Nurmi, 1991).

Previous research has yielded critical insights about the role of emotions and stress (e.g., Postareff et al., 2017), and personal accounts of these emotions (e.g., Christie, 2009) in explaining students' adaptation to the transition to higher education. Affective individual characteristics such as emotional intelligence (Parker et al., 2004), alexithymia (Kerr et al., 2004), or emotion regulation (Srivastava et al., 2009) have also been identified as critical factors during the transition. However, aside from research on future-oriented affective dispositions such as career hope or anxiety (Santilli et al., 2017; Vignoli, 2015), we are aware of no studies that have

investigated these *anticipatory* emotions felt when adolescents anticipate their transition to higher education, imagine how it will occur, the consequences it will have, and visualize how they will behave (Baumgartner et al., 2008; Gilbert & Wilson, 2007). From a future-oriented perspective, focusing on anticipatory emotions allows one to adopt a preventive approach and augment our understanding of vocational behavior and processes *before* normative life and career events. As such, the anticipation of positive and negative future outcomes is argued to act as the main mechanism through which emotions impact behavior and proactive coping (Aspinwall & Taylor, 1997; Baumeister et al., 2007). In the context of preparing students for their transition after graduation, the possibility that anticipatory emotions could provide insightful information ventures to the design and implementation of emotion-focused educational and career guidance programs (e.g., Hodzic et al., 2018).

While potentially very stressful, the transition to higher education might also entail positive emotions: enthusiasm or excitement at the prospect of making new friends, following interesting courses, or developing new skills and interests. As such, the transition to higher education has been identified as particularly likely to induce *mixed emotions*—the experience of both positive and negative emotions at the same time (Ersner-Hershfield et al., 2008; Larsen et al., 2001). Indeed, growing evidence suggests that positive and negative emotions do not exist in isolation but rather co-occur within individuals (Larsen & McGraw, 2014), thereby calling for methods that allow such an intraindividual investigation like experience sampling designs (Trampe et al., 2015) or network analyses (Moeller et al., 2018). Using a person-centered approach, the present study extended this line of inquiry and investigated high school students' profiles of anticipatory emotions and transitions between profiles from the beginning to the end of the last year of high school. By providing a more realistic account that goes beyond the specific facets of positive or negative emotions taken separately, profiles offer a holistic picture

of emotional experience that could augment our understanding of the role of emotions in career development, a somewhat neglected area in the literature (Kidd, 2004). Investigating the stability of—and transitions between—profiles further adds to the study of the developmental processes at stake during the anticipation of life and career events.

Given the impact of emotions and stress on students' adaptation to the transition, understanding the factors that play a role in students' emotions is an important endeavor. Building on appraisal theories of emotion as an overarching framework (Moors et al., 2013; Roseman, 2013), appraising the transition as relevant and conducive to career goals, and appraising personal resources to prepare for and adapt to the transition are likely to influence anticipatory emotions. An additional objective of the present study was to investigate two career-related antecedents that have been identified in the vocational literature to reflect these appraisals: career decidedness and career adaptability. On the one hand, career decidedness refers to how adolescents have confirmed and committed to a selected career choice (Crites, 1978). Career decidedness is one of the core aspects of career decision-making and occurring during the last phases of the decision-making process and, in this matter, provides a relevant construct for investigating adolescents' career readiness (Hirschi & Läge, 2007). Originating from career construction theory, career adaptability refers, on the other hand, to self-regulatory resources that sustain individuals to prepare for and cope with career-related tasks and transitions (Savickas, 2013). Career adaptability refers to an individual's readiness to master present and prepare for future career-related challenges through the use of four related competencies: being concerned about the future (e.g., planning), having control over life (e.g., decision-making), demonstrating curiosity about self and occupational careers (e.g., exploring), and building confidence in constructing a future and deal with career problems (e.g., problem-solving; Savickas, 2013). A vast corpus of research has shown the beneficial role of career adaptability—including emotions

and well-being—in helping individuals to cope with career transitions and situations (for a meta-analysis, see Rudolph et al., 2017). The relevance of the career adaptability construct has been well established among high school students and adolescents (Hirschi, 2009). For example, research has demonstrated the impact of career adaptability on important consequences, such as academic and life satisfaction (Hirschi, 2009; Wilkins et al., 2014), as well as students' vocational identity and achievement (Negru-Subtirica et al., 2015; Negru-Subtirica & Pop, 2016).

The present study contributes to vocational research and practice in several ways. We advance the study of emotional processes in vocational behavior, an area that is still neglected despite repeated calls for the inclusion of emotions in vocational theory and research (Hartung, 2011; Kidd, 2004). Moreover, grounded in a future-oriented emotional perspective, this study offers a novel view on the period that precedes important educational and vocational transitions (Nurmi, 1991), a perspective that has the potential to help better understand how individuals prepare for and adapt to transitions (Nicholson, 1984). In this regard, focusing on important career antecedents also adds to the literature on the individual factors and meta-competencies that sustain important career behaviors (Hirschi & Läge, 2007; Rudolph et al., 2017). From a practical point of view, the future-oriented perspective constitutes a promising preventive approach among high school students that could inform the design and implementation of effective interventions targeting specific groups of students based on their emotional anticipation profiles. Finally, the person-centered approach used in this study offers novel perspectives about our understanding of emotional experiences. Differentiating profiles of anticipatory emotions offers a realistic representation that goes beyond the separate examination of constructs. The classification of students based upon their anticipatory emotions is not only consistent with research on the co-occurrence of multiple emotions (Larsen & McGraw, 2014), but also aligned with counselors'



categorical way of thinking and their efforts to tailor their practices based on the type of client they are attempting to help (Hofmans et al., 2020).

### **Anticipatory emotions**

While we experience a broad range of emotions related to present or past events, we also experience emotions at the prospect of future events (Ortony et al., 1988; Van Boven & Ashworth, 2007), which has been coined as anticipatory emotions (Baumgartner et al., 2008). Anticipatory emotions are a kind of future-oriented emotions and refer to emotions currently experienced at the prospect of an event that could occur in the future (e.g., fear if students think their chances to succeed in higher education are scarce; Baumgartner et al., 2008; Ortony et al., 1988). Anticipatory emotions have been conceptually and empirically distinguished from anticipated emotions, which refer to individuals' beliefs about how they think they will feel during imagined future events through a process known as affective forecasting (e.g., anticipating feeling sad if one imagines not making new friends at university; Gilbert & Wilson, 2007). Anticipatory emotions are based on prospects of a future event that could have either positive or negative consequences. Accordingly, the likelihood of the event and its consequences are part of anticipatory emotions; the degree of uncertainty causes anticipatory emotions (Moors et al., 2013). This partly explains why the anticipation of future events is a more evocative and powerful driver of emotions than retrospection of past events (Van Boven & Ashworth, 2007).

Anticipatory emotions comprise the subset of emotions called *prospect* emotions (Ortony et al., 1988) and refer to emotions that result from reacting to the prospect of anticipated desirable or undesirable future events. Hope and fear are considered the two most prototypical anticipatory emotions, although they are further conceptualized as broad families of emotional states (Baumgartner et al., 2008; Ortony et al., 1988). Hope is considered as a pleasant affective reaction about the prospect of a desirable event and is argued to affect thoughts and behaviors

towards goal attainment (Snyder, 2002). Hope emotions comprise several emotional facets such as excitement, optimism, confidence, or enthusiasm. In contrast, fear involves reactions in response to an anticipated situation perceived as being threatening and includes several facets such as worry, anxiety, nervousness, tension, and stress (Ortony et al., 1988). However, even though hope and fear—and their facets—are considered to be prototypical, the variety of appraisals, resources, and goals in the face of the transition increases the likelihood that other emotions emerge, such as interest at the prospect of learning new things, enthusiasm in becoming an independent adult, pride in developing a student identity in a chosen and beloved academic field. This variety of emotional experiences provides a rationale for investigating specific emotions rather than general positive and negative emotions.

Although not labeled anticipatory emotions, future-oriented affective mechanisms have already grasped researchers' attention in the vocational psychology literature (Hirschi, 2014; Vignoli, 2015). Existing empirical evidence has shown the positive correlations between career hope and vocational identity (Juntunen & Wettersten, 2006), career decidedness (Hirschi, 2014), career planning (Hirschi, 2014; Kenny et al., 2010), career self-efficacy beliefs (Hirschi, 2014; Juntunen & Wettersten, 2006), career exploration (Hirschi et al., 2015), and career behaviors (Hirschi, 2014). Similarly, empirical evidence has shown correlations between, for example, career anxiety and career indecision (Fuqua et al., 1987; Vignoli, 2015), career exploration (Vignoli, 2015), and career decision-making (Germeijs et al., 2006).

### ***Mixed anticipatory emotions and their co-occurrence***

Whether people can experience positive and negative emotions at the same time—what is called *mixed emotions*—has been at the heart of a passionate debate that takes its roots in the very inception of the field of psychology with Wilhelm Wundt (for a review, see Larsen & McGraw, 2014). On the one hand, opponents argue that the valence of emotions is a psychologically

irreducible dimension of core affect and contend that positive and negative emotions are the two mutually exclusive anchors of a single continuum (Russell & Carroll, 1999). On the other hand, proponents argue that positive and negative emotions are rather independent from each other, operate through different mechanisms, and thus can co-occur and combine together, as it is contended, for example, by the model of Watson and Tellegen (1985). Existing empirical evidence now brings relative convincing support for the co-occurrence of emotions (Larsen & McGraw, 2014). For example, it has been demonstrated that individuals tend to experience mixed emotions in a variety of situations such as moving house (e.g., nostalgia and excitement), graduation from college (e.g., anxiety and determination; Ersner-Hershfield et al., 2008; Larsen et al., 2001), and learning (e.g., stress and enthusiasm; Moeller et al., 2018). Empirical evidence has also been put forth by diary and experience sampling studies showing that, although rarely, individuals tend to experience mixed emotions across situations (e.g., 11–34% of occurrences; Barford et al., 2020; Trampe et al., 2015).

However, most existing research has relied on the study of positive and negative emotions *across* individuals using correlation coefficients. Besides conceptual and statistical arguments of their inadequacy to address mixed emotions (Larsen et al., 2017), correlation coefficients offer somewhat limited accounts of emotional experience as they only describe the relative size of the association between positive and negative emotions. They fail to describe *how* positive and negative emotions co-occur, that is, the patterns and the relative intensity of their co-occurrence. These caveats gave rise to calls for intraindividual analyses of emotional experience *within* individuals (Moeller et al., 2018) and motivated the person-centered approach adopted in the present study.

### **The present study and research questions**

We used latent profile and transition analysis (LPA–LTA) to investigate the combinations of high school students’ anticipatory emotions at the prospect of their transition to higher education and the longitudinal transitions between profiles between the beginning and the end of the last year of high school. Complementary to variable-centered methods, person-centered approaches are *typological* methods that consider the patterns or configurations of variables describing various types of individuals (Hofmans et al., 2020; Spurk et al., 2020). Profiles are differentiated upon their level and shape. Level describes profiles in terms of how students feel either positive or negative anticipatory emotions, from low to high levels. Shape describes profiles in terms of different forms (e.g., high levels of positive *and* low levels of negative anticipatory emotions). Contrary to algorithmic approaches such as classical clustering, latent profile analysis relies on latent variables modeling and thus offers several advantages: inclusion of covariates, modeling longitudinal changes, accounting for measurement error, and statistical tests of model fit. We formulated our first research question as follows:

*Research question 1.* How many profiles of positive and negative anticipatory emotions that vary quantitatively (in level) and qualitatively (in shape) emerge in the data?

We expected the emergence of several differentiated and distinct patterns of anticipatory emotions. First, compared to negative emotions, people tend to report moderate and stable levels of positive emotions (Diener et al., 2015). Second, daily diary studies showed that negative emotions seem to be less intense and more fluctuating than positive emotions depending upon the emergence of negative events (Scott et al., 2014; Trampe et al., 2015). Besides, purely negative emotional states seem to be very rare (Scott et al., 2014). We thus expected that most of the profiles would be characterized by higher levels of positive emotions than negative emotions and that profiles would be differentiated mainly upon fluctuating negative emotions. Furthermore, we

expected the emergence of profiles characterized by mixed emotions, that is, both positive and negative emotions at the same time. However, given the lack of prior evidence on anticipatory emotions in the context of the transition to higher education, we left our research question relatively open to reflect the exploratory and inductive nature of our research. This is consistent with the general approach of person-centered analyses (Hofmans et al., 2020; Spurk et al., 2020).

The second objective of this research was to explore the longitudinal within-person transitions between profiles from the beginning to the end of the last year of high school, and the associated research question was delineated below. Career development theories make the explicit assumption that developmental tasks are necessary and transitional in nature and that their successful completion should allow the individual to progress in their career development and career readiness or maturity to face the transition (Crites, 1978; Super, 1980). Concurrently, the unsuccessful completion of these developmental tasks should provoke heightened negative emotions as students approach the transition. Accordingly, the (un)successful completion of developmental tasks should, to some extent, provoke some changes—and, thus, transitions—in students' emotional anticipation of the transition.

*Research question 2.* To what extent do students transition between profiles between the beginning and the end of the last year of high school?

The final objective of this study was to investigate the extent to which career decidedness and career adaptability predicted profile membership, on the one hand, and the transitions between these profiles, if any, on the other hand. Appraisal theories offer interesting explanations of how motivation and cognition through appraisals cause emotions (Moors et al., 2013; Roseman, 2013). Emotions are experienced and differentiated following individuals' evaluations of events according to a set of appraisals. During appraisals, individuals assess the importance and meaning—according to their goals, past experiences, and beliefs—of an event and respond to it

at an emotional level if appraised as relevant. Scherer (2001), for instance, suggests that the extent to which the event is relevant to the individual (e.g., important and relevant for person's goals and needs), has implications or consequences (e.g., negative versus positive), offers some coping potential to the individual, or is compatible with internal or external standards, will elicit and differentiate emotional responses. Decidedness of future career goals and the perceptions of coping potential are thus pivotal in how individuals feel and experience emotions.

More strongly career decided individuals should thus appraise their upcoming transition as more relevant to them and as more conducive to achieving their career goals than students with lower levels of career decidedness. They thus should approach the transition with more positive emotions. In contrast, the transition to higher education should entail more uncertainty and threat for more career undecided individuals because of the urgency to choose an educational path to pursue. They thus should approach the transition with more negative emotions such as fear, anxiety, and stress. In the same vein, career decidedness should also influence students' transitions between profiles. Students who were already decided at the beginning of the year should either remain stable in a profile characterized by elevated positive emotions or transition to such a profile if they were in another profile at the beginning of the year (e.g., a profile characterized by elevated negative and low positive anticipatory emotions). These assumptions are in line with research in vocational psychology that showed how emotions relate to career decision-making processes (Anghel & Gati, 2019; Park et al., 2017; Saka et al., 2008). Empirical evidence showed, for example, that career decision-making difficulties—among them, career indecision—are generally positively associated with feelings of anxiety, stress, and even depression (Anghel & Gati, 2019; Fuqua et al., 1987; Germeijs et al., 2006; Vignoli, 2015), while being negatively associated with feelings of happiness and hope (Zhou & Xu, 2013).

*Hypothesis 1a:* High levels of career decidedness will be associated with a high probability to belong to profiles characterized by high levels of positive and low levels of negative anticipatory emotions.

*Hypothesis 1b:* High levels of career decidedness will be associated with stability in—and transitions to—profiles characterized by high levels of positive and low levels of negative anticipatory emotions.

Similarly, individuals who appraise that they have coping potential over their upcoming transition should experience more positive emotions than individuals who do not appraise the event as controllable (Scherer, 2001). Career adaptability, defined as a set of self-regulatory resources that enable individuals to prepare for, cope with, and manage career transitions as well as career-related issues, fits nicely these appraisals of coping potential (for a review, see Rudolph et al., 2017; Savickas, 2013). Therefore, students with higher levels of career adaptability should have a higher likelihood of belonging to profiles characterized by higher levels of positive and low negative anticipatory emotions. Similarly, these students should remain in these profiles or transition to these profiles from profiles characterized by a more negative outlook toward the transition to higher education. These hypotheses are consistent with previous research that showed that emotions and affect represent self-regulatory processes. Emotions and affect may act here as mediating mechanisms that enable individuals to put their career adapt-abilities into action and achieve desirable work outcomes, such as higher job satisfaction and lower work stress (Fiori et al., 2015). In the same vein, Santilli and their colleagues (2017) showed that individuals with higher levels of career adaptability displayed higher levels of career hope, leading to better life satisfaction. According to the career construction framework (Savickas, 2013), students' career adaptability influences emotions, and these emotions, in turn, act as

adapting responses and drive individuals in their career-related goals and efforts, ultimately achieving adaptation results (see also, Aspinwall & Taylor, 1997).

*Hypothesis 2a:* High levels of career adaptability will be associated with a high probability to belong to profiles characterized by high levels of positive and low levels of negative anticipatory emotions.

*Hypothesis 2b:* High levels of career adaptability will be associated with stability in—and transitions to—profiles characterized by high levels of positive and low levels of negative anticipatory emotions.

## Method

### Participants and procedure

We collected data among two different cohorts measured one year apart. However, for both cohorts, the measurement time points pertained to the same developmental window, that is, the last year of high school (i.e., 12<sup>th</sup> grade). Data are part of a larger cohort-sequential study among 11<sup>th</sup> and 12<sup>th</sup> grade high school students followed over two years. Thus, the data used in the present study correspond to the last two measurement time points for the first cohort and the first two measurement points for the second cohort (see Table S1 for a visual representation of the design). Cohort-sequential designs are a form of planned missing designs that take multiple single cohorts at different time points, each one starting at a different period or age (Rhemtulla & Hancock, 2016). Importantly, this focus allowed us to maximize the statistical power of our analyses, alleviate the risks associated with attrition effects, and avoid validity threats due to cohort-specific characteristics. Data at the beginning (Time 1) and the end of grade 12 (Time 2) were collected during November and May. To ensure the quality of our sampling, data were collected in 13 different schools with varying levels of socioeconomic status and region. School principals were contacted to participate in the present study, and after having presented the



study's objectives in classrooms, we collected 1,509 e-mail addresses from students who volunteered for the study. Students were then invited to participate in an online survey and were assured of both the anonymity and confidentiality of their participation, and invited to give their informed consent. In Belgium, high school or secondary education refers to international grades 7 through 12 and is divided into three educational types: general, technical, and vocational secondary education. Almost 80% of students enter into higher education after graduating from high school. The higher education system is split up between two types of institutions: colleges offering professional bachelor programs with a limited number of academic bachelor programs and universities offering broader bachelor- and master-level academic programs.

Among students of Cohort 1, a total of 172 students participated at the beginning of 12<sup>th</sup> grade, and 148 students participated at the end of 12<sup>th</sup> grade, with 109 students completing both time points. Among students of Cohort 2, 315 and 169 students participated at the beginning and the end of 12<sup>th</sup> grade, respectively, with 134 completing both time points. A total of 541 students completed at least one of the two time points and were included in the final sample (see the online supplements for further details on dropout analyses). Of the total sample, 37.5% and 66.1% were girls for Cohort 1 and Cohort 2, respectively, and the mean age was 17.43 years ( $SD = .89$ ).

## **Measures**

All constructs included in this study were measured at each time point using Likert-type scales ranging from 1 to 5. Details concerning the measurement analyses of the constructs can be found in the online supplements. Reported reliability coefficients are averaged across time points.

### ***Anticipatory emotions***

We measured positive anticipatory emotions with five items: excited, strong, enthusiastic, proud, and determined ( $\alpha = .86$ ). Likewise, negative anticipatory emotions were measured with

five items: jittery, upset, scared, nervous, and afraid ( $\alpha = .87$ ). The choice of these emotions was based on the conceptualization of *prospect* emotions by Ortony et al. (1988), which comprise two broad emotion families revolving around Hope emotions (*excited* and *enthusiastic*) and Fear emotions (*jittery*, *upset*, *scared*, *nervous*, and *afraid*). We also included *agent*-based emotions that capture one's affective reactions to how one deals with the anticipated future event with the self as an agent (*strong*, *proud*, and *determined*; Ortony et al., 1988). Following Baumgartner et al. (2008), the instructions for the emotional induction were as follows: “*Stop for a moment and take the time to think about the studies you will start in a few months and the job you will do later. How do you feel right now at the prospect of your transition from secondary school to higher education?*”

### ***Career decidedness***

Career decidedness was measured with a single item designed for this study: “*Do you already have a clear idea of the job you would like to do later?*” Although this measure consisted of a unique item, this method has already been used in career research (Urbanaviciute et al., 2014) and provides a basic and direct way to examine students' current career decisional status.

### ***Career adaptability***

Career adaptability was assessed with the French version of Career Adapt-Abilities Scale (Johnston et al., 2013;  $\alpha = .93$ ). This measure consists of 24 items and is composed of separated sub-scores for 4 career-adaptabilities: concern ( $\alpha = .85$ ; e.g., “*Preparing for the future*”), control ( $\alpha = .88$ ; e.g., “*Counting on myself*”), curiosity ( $\alpha = .82$ ; e.g., “*Exploring my surroundings*”), and confidence ( $\alpha = .89$ ; e.g., “*Taking care to do things well*”).

### **Analytical strategy**

Statistical analyses were conducted using the *Mplus* 8 robust maximum likelihood estimator (MLR) with full information maximum likelihood (FIML) and followed a five-step

strategy. The first step involved dropout and preliminary analyses and longitudinal measurement invariance analyses to assess the equivalence of our constructs across cohorts and across time points. The nesting of the data (i.e., students within schools) was systematically taken into account in our analyses using the sandwich estimator for robust standard errors as implemented in Mplus.

Second, we performed time-specific LPA on anticipatory emotions using a stepwise procedure from a 1- to a 6-profile solution. Contrary to classical LPA, we focused on the discrete emotion terms rather than the higher-order constructs of positive and negative emotions in order to finely assess the differences on the specific emotions across profiles. Accordingly, these models used full structural equation modeling and were equivalent to factor mixture models (Lubke & Muthén, 2007). All models were estimated with factor mean and factor variances fixed to 0 and 1, respectively, for model identification and longitudinal invariance. Item intercepts were freely estimated across profiles, with factor loadings and item residuals constrained to be equal across profiles and time points to respect measurement invariance. Alongside fit statistics, researchers are invited to select parsimonious models, ensure that the profiles make sense theoretically, carry substantive meaning, are not redundant, and composed of more than 1% of the total sample when deciding on the number of profiles to retain (Nylund et al., 2007). All LPAs were performed using 20,000 random sets of starting values and 500 iterations, the 2000 best solutions being retained for optimization. These values were 40,000, 500, and 2,000 for longitudinal LPA. Several fit statistics were used to evaluate each profile solution: the Akaike Information Criterion (AIC), the Consistent AIC (CAIC), the Bayesian Information Criterion (BIC), the sample-size adjusted BIC (SABIC), and entropy. The best profile solution should display smaller AIC, CAIC, BIC, and SABIC values compared with other profile solutions and

an entropy greater than .70 (ranges from 0 to 1). Following recommendations from simulation studies (Nylund et al., 2007), we privileged the values associated with the BIC and CAIC.

In the third step, we replicated the profile enumeration in a longitudinal LPA setting and we applied a sequential strategy following a procedure developed by Morin and Litalien (2017). The sequential steps examine whether the same number of profiles can be established in each time point (i.e., *configural*) and if they are similar with regards to the means and the variances of the indicators (*structural* and *dispersion*), and the sizes of the profiles (*distributional* similarity). Latent transition analyses generally impose that the same profiles (in terms of their number and their means) are modeled at each time point. This assumption is likely to be too restrictive in many real cases and led researchers to distinguish longitudinal LPA from latent transition analyses (Morin & Litalien, 2017). The preliminary step of longitudinal LPA is important to assess the construct validity of the profiles across time before taking the within-person transition probabilities into account. This rationale is similar to testing longitudinal measurement invariance across time before assessing structural relations between constructs in a variable-centered approach.

Fourth, we performed latent transition analyses including the within-person transition probabilities across time points. Finally, we investigated the impact of antecedents on profile memberships and transitions using multinomial logistic regressions following procedures developed by Morin and Litalien (2017) and Muthén and Asparouhov (2011).

## Results

Details on the preliminary analyses and the time-specific LPAs are available in the online supplements. The means, standard deviations, and bivariate correlations are displayed in Table S1. Measurement invariance analyses showed that all constructs were reliably measured and equivalent across cohorts and time points (see Table S2). The profile enumeration and the

associated fit indices are displayed in Table S3. Overall, results supported a 3- and a 4-profile solution for Time 1, and a 3-profile solution for Time 2. Contrary to longitudinal LPA, these analyses were not able to take the longitudinal invariant parameters into account and thus provided only partial information.

### **Longitudinal latent profile analyses**

From the time-specific LPA, we replicated the profile enumeration in a longitudinal setting. In the first step designed to investigate the number of profiles in each time point (i.e., configural similarity), we sequentially compared models with varying combinations of profiles across each time point. From a 1-profile solution in each time point, we sequentially compared competing models while gradually adding profiles to each time point.

[INSERT TABLE 1]

Results of the longitudinal LPA profile enumeration are displayed in Table 1. Consistent with the results from time-specific LPA, the 3–3, 3–4, and the 4–3 solutions appeared as optimal models with regards to the fit statistics. However, a thorough investigation of these models showed that the last three solutions of Table 1 were statistically improper. More specifically, besides the emergence of very small profiles smaller than 1% of the total sample, we also observed that one item intercept had been fixed across profiles during the iteration process due to a non-significant loading with its higher-order construct. Furthermore, these solutions showed problems of convergence and non-replicated best log-likelihood values that raised local maxima issues. Contrary to classical LPA, the models estimated in this study used full measurement models and are thus more prone to these kinds of problems due to the number of estimated parameters (Lubke & Muthén, 2007). When excluding these problematic solutions, the 3–3 solution was statistically proper, yielded meaningful and well differentiated profiles fully

consistent with our expectations and time-specific LPA and thus emerged as the best solution. This model of configural similarity was thus retained for subsequent analyses.

[INSERT TABLE 2]

Before carrying out the interpretation of the profiles, we compared this model of configural similarity to constrained models of structural, dispersion, and distributional similarity (see Table 2). When comparing these models of profile similarity, we followed Morin et al.'s (2016) recommendations suggesting a decrease in at least two of the fit statistics for the model of similarity to be retained. Accordingly, results showed that the structural, dispersion, and distributional models yielded a better fit to the data. In other words, our results highlighted that the same number of profiles, with equivalent means, variances, and sizes could be identified across time. We thus retained this model of distributional similarity for interpretation and latent transition analyses (see Figure 1 and Table 3).

[INSERT FIGURE 1]

### **Description of profiles**

The first and largest profile (70.1%) was characterized by high levels of positive along with very low levels of negative anticipatory emotions. Compared to other profiles, this profile notably exhibited a compensatory pattern of positive and negative anticipatory emotions and was thus labeled *positive dominant*. The second profile exhibited both high levels of positive and negative anticipatory emotions. This *mixed* profile was composed of 18.8% of the total sample. The smallest and third profile (11.1%) was composed of students experiencing more negative anticipatory emotions and less positive anticipatory emotions than the other profiles. For these reasons, we labeled it the *negative dominant* profile. Two complementary observations are noteworthy when looking at the patterns of positive and negative anticipatory emotions across profiles. First, while students exhibited very low variability in positive anticipatory emotions as

demonstrated by their high proximity in Figure 1, negative anticipatory emotions displayed sharp differences across profiles. Second, the patterns of positive anticipatory emotions were very similar across profiles with high levels of enthusiasm and determination and lower levels of other emotions (e.g., strong). However, patterns of negative anticipatory emotions exhibited greater differences between profiles. Emotions such as scared, nervous, and afraid were higher for the *positive dominant* profile, whereas emotions such as jittery and upset were more prevalent in the *negative dominant* profile. As for the *mixed* profile, negative anticipatory emotions were less differentiated, except for the emotion afraid.

### **Latent transition analyses**

Even though the relative sizes of the profiles were stable across time points as demonstrated by the distribution similarity model previously retained, a relatively high proportion of transitions between profiles occurred across time (see Table 3). The *positive dominant* was the most stable profile over time, with a probability of .798 to remain in the same profile between the beginning and the end of grade 12. Among students who were in the *positive dominant* profile at the beginning of grade 12, 15.2% and 4.9% of those students transitioned to the *mixed* and the *negative dominant* profiles, respectively. Contrary to the *positive dominant* profile, the *mixed* and the *negative dominant* profiles were less stable, with only 36.4% and 37.0%, respectively of students who remained in the same profile across time. For students with a *mixed* profile at the beginning of grade 12, 43.5% of them transitioned to a *positive dominant* profile while 20% transitioned to a *negative dominant* profile. Interestingly, the majority of students who belonged to the *negative dominant* profile (50.6%) transitioned to the *positive dominant* profile while only 12.4% of them transitioned to the *mixed* profile.

[INSERT TABLE 3]

### **Antecedents of profiles**

Two complementary investigations of the impact of antecedents on profiles were endeavored. First, we modeled the impact of antecedents on profile membership at each time point. As suggested by Morin and Litalien (2017), we compared a model in which the antecedents freely predicted profile membership at each time point to a model in which the impact of antecedents on profile membership was equivalent in both time points. This last model yielded the best fit to the data (see the bottom part of Table 2) and was retained for interpretation. Our results showed that both career adaptability and career decidedness predicted profile membership. High levels of both career adaptability and career decidedness were associated with a higher probability to belong to the *positive dominant* compared to the *negative dominant* profile ( $\beta = 0.62$  and  $\beta = 0.98$  for career adaptability and career decidedness,  $p < .001$ ). A similar pattern was found when compared to the *mixed* profile ( $\beta = 0.81$  and  $\beta = 1.24$  for career adaptability and career decidedness,  $p < .01$ ). In contrast, neither career adaptability ( $\beta = -0.19$ ,  $p = .508$ ) nor career decidedness ( $\beta = -0.26$ ,  $p = .216$ ) differentiated membership between the *mixed* and the *negative dominant* profiles. To investigate the potential impact of socio-demographic variables (i.e., gender, grade repetitions, and parents' marital status), we compared a model in which these variables were allowed to predict profile membership (AIC = 18144.53, BIC = 18578.03, SABIC = 18254.26, CAIC = 18680.03) to a model in which the regression coefficients of these variables were constrained to zero (AIC = 18136.42, BIC = 18518.91, SABIC = 18233.24, CAIC = 18608.91). The latter model exhibited lower values on fit indices and was thus retained, suggesting that the impact of socio-demographic controls was negligible.

The impact of antecedents was also modeled on the within-person transitions between profiles. Differences in within-person transition probabilities for different values of the antecedents are displayed in Table 4. Our results showed that, compared to transition probabilities at the mean values of the antecedents, higher levels of both career adaptability and



career decidedness (1 SD above the mean) had a significant impact on transition probabilities between profiles. Following procedures developed by Muthén and Asparouhov (2011), differences in transition probabilities were also expressed in odds ratio (OR) describing the probability to transition to another profile compared to the probability to remain in the same profile. Compared to students who remained in a *positive dominant* profile, high levels of career adaptability were associated with a lower probability to transition to the *mixed* profile (OR = 0.609,  $p < .05$ ) and to the *negative dominant* profile (OR = 0.216,  $p < .05$ ). In other words, students with high levels of career adaptability had a higher probability of remaining in the *positive dominant* profile across time. However, career adaptability did not significantly influence transition probabilities for students who were in the *mixed* or the *negative dominant* profile at the beginning of Grade 12, as demonstrated by the small changes of transition probabilities for these profiles displayed in Table 4. Similarly, students in the *positive dominant* profile at the beginning of the year had lower probabilities of transitioning to the *mixed* (OR = .597,  $p < .001$ ) and to the *negative dominant* profile (OR = 0.546,  $p < .001$ ) when they had higher levels of career decidedness. No significant impact was found for the transitions of students who were in the *mixed* profile at the beginning of Grade 12. Finally, students who were in the *negative dominant* profile had a higher probability to transition to the *positive dominant* profile when they were career decided (OR = 6.795,  $p < .01$ ), but not to the *mixed* profile (OR = 5.958,  $p = .439$ ).

[INSERT TABLE 4]

### **Discussion**

The transition from high school to higher education is characterized by stressful challenges that adolescents anticipate to a considerable extent (Nurmi, 1991). The present study investigated the profiles of anticipatory emotions at the prospect of high school graduation, their stability, and transitions across the last year of high school. Additionally, we explored whether students' career

decidedness and career adaptability predicted profile membership and transitions between profiles. From a future-oriented perspective, investigating profiles of anticipatory emotions and their antecedents provides insights for helping students cope with and adapt to the transition.

Our results yielded three distinct profiles that differed in their combinations of positive and negative anticipatory emotions. The *positive dominant* profile comprised the vast majority of students and exhibited mainly positive anticipatory emotions with relatively low negative anticipatory emotions. A *mixed* profile composed of almost a fifth of the sample displayed both positive and negative anticipatory emotions. Higher levels of negative anticipatory emotions characterized the third and smallest *negative dominant* profile. Whereas the *positive dominant* profile exhibited some unipolarity between positive and negative anticipatory emotions, the pattern for the *negative dominant* profile suggested that negative anticipatory emotions do not come necessarily without positive anticipatory emotions. Thus, this profile also exhibited mixed emotions to some extent—even though negative anticipatory emotions were dominant in their emotional experience. Our results are consistent with research suggesting that people tend to report stable and moderate levels of positive anticipatory emotions across situations and individuals, what has been called the positive mood offset (Diener et al., 2015). Experience sampling studies also confirmed this pattern and further showed that negative emotions were less frequent and intense and that purely negative emotional experiences were less common than mixed emotions (Scott et al., 2014; Trampe et al., 2015). In a recent study, Barford and colleagues (2020) provided compelling evidence that mixed emotions generally arise with momentary upsurges of negative emotions against a relatively steady baseline of positive emotions. Thus, these studies are consistent with our finding that profiles were mostly differentiated upon negative anticipatory emotions, rather than distinct levels of positive anticipatory emotions.

The present study sheds light on the complexity of students' emotional experiences at the prospect of anticipated career events such as transitioning to higher education (Ersner-Hershfield et al., 2008; Larsen et al., 2001). Above responding to calls for research on the role of emotions in vocational psychology (Kidd, 2004), the future-oriented perspective adopted in the present study further highlights the importance of considering how individuals approach important future career events and the interrelations with career development processes before these events. Importantly, given the impact of future-oriented emotions on subsequent behavior and proactive coping (Baumeister et al., 2007; Baumgartner et al., 2008), future research should investigate the behavioral outcomes and proactive coping efforts of distinct profiles of anticipatory emotions.

The present study advances our understanding of the anticipation of future career events across time. Our second objective pertained to investigating the stability of—and the within-person transitions between—profiles. Our results showed that the 3-profile solution was very stable at the sample-level between the beginning and the end of the last year of high school. Specifically, the profiles displayed the same means, within-profile variances, and had the same relative sizes as demonstrated by our investigations of longitudinal profile similarity. This result conveys valuable implications for both research and practice as the stability over profiles is a prerequisite in establishing the content validity of profile solutions and substantiates the proper use of profiles for targeting specific or at-risk students based on their anticipatory emotions (Hofmans et al., 2020). When looking at the longitudinal within-person transitions between profiles, our results showed that, while most students in the *positive dominant* profile at the beginning of the year tended to remain in that profile across time, students in the two other profiles exhibited more changes in anticipatory emotions across time. Most students in the *mixed* and the *negative dominant* profiles tended to transition to the *positive dominant* profile, with few students remaining or transitioning to another profile. From a developmental perspective, this would

suggest that even though career-related tasks such as contemplating potential educational and career paths can lead to anxiety at first, these challenges represent necessary and normative tasks that, once accomplished and complete, can yield a positive pattern of anticipatory emotions (Porfeli & Lee, 2012; Vignoli, 2015). Additionally, the stability of the positive dominant profile further highlights the benefits of securing a positive outlook at the prospect of the transition to higher education as early as the beginning of the last year of high school. Overall, our results underscore the importance of considering the months that precede the transition to higher education as a critical developmental period for high school students.

Our third objective was to examine the impact of two career-related antecedents—career decidedness and career adaptability—on profile membership and latent transitions between profiles. On the one hand, the multinomial logistic regression results supported our hypotheses and showed that both career decidedness and career adaptability predicted profile membership. Overall, higher levels of career decidedness and career adaptability were associated with a higher probability of belonging to the positive dominant profile than the mixed or *negative profile*. On the other hand, results regarding the impact of antecedents on transitions between profiles were similar but only partially confirmed our hypotheses. High levels of career decidedness were associated with a higher probability to remain in the *positive dominant* profile and associated with higher probabilities to transition from a *negative dominant* profile to a *positive dominant* profile. However, career decidedness did not predict transitions from the *mixed* profile. These results are notable as they draw attention to career decision-making processes as normative and necessary developmental tasks directly linked to emotional anticipation of the transition to higher education (Hirschi & Läge, 2007). These results also echo previous research showing that being career decided provides students with meaning and purpose toward future career goals and contributes to personal growth and individual well-being (Uthayakumar et al., 2010).

High levels of career adaptability were associated with a higher probability of remaining in the positive dominant profile but did not significantly influence transitions from the *mixed* or the *negative dominant* profile, contrary to our hypotheses. This pattern of results is inconsistent with a conceptualization of career adaptability as self-regulatory resources that students can rely upon when facing and coping with stressful career tasks and transitions. In that sense, the activation of career adaptability resources is, therefore, argued to vary according to students' regulation needs (Rossier, 2015; Zacher, 2015). Despite this apparent inconsistency, our results are, in fact, reasonably consistent with the proactive coping literature (Aspinwall & Taylor, 1997). While, in many stress and coping models, resources act as moderators in coping with extant and online stressors, resources play a more central role in the first phases of proacting coping such that the accumulation of resources rather influence how one is appraising the future event and evaluating the need for proactive coping efforts. Consequently, higher levels of career adaptability should be associated with a lower probability to consider the transition as stressful but explain little for students who already consider the transition as stressful, as our results showed. This is mainly due to the temporal distance that makes any active coping with the anticipated stressor less useful, compared to the accumulation of resources, when the stressor is still temporally distant in the future. However, as the temporal proximity of the anticipated event comes closer, it is likely that students will make increasing use of their career adaptability resources to face with online stressful career tasks, as previously suggested (Rossier, 2015; Zacher, 2015). In this view, the timing of the coping process is critical for inferring the role of individual resources in coping with anticipated stressful events (Aspinwall & Taylor, 1997). Still, the measurement time points used in the present study limit our ability to disentangle such processes. A fine-grained longitudinal investigation of the use of career-related resources in anticipation of future career tasks provides important avenues for future research. Taken together, these results highlight both

career decidedness and career adaptability as important factors in adolescents' career development (Hirschi, 2009; Hirschi & Läge, 2007) and their role in successfully preparing and adapting to career transitions (Rudolph et al., 2017).

### **Limitations and future research**

Several limitations may have affected the quality of our findings. Some limitations pertained to the quality of our sampling, both in terms of composition and size. While we collected data in several schools and accounted for this nesting in our analyses, we nonetheless relied on a convenience sample, and we thus are cautious about generalizing our results to the population of high school students or to other countries—especially those with different prospects at the end of high school. Besides, our sample size may appear somewhat small with regards to reported standards in latent profile analysis (Nylund et al., 2007; Tein et al., 2013). Thus, replication efforts are needed to ascertain and confirm the profiles of anticipatory emotions found in this study, especially given the exploratory approach generally implied in person-centered studies (Hofmans et al., 2020; Spurk et al., 2020).

Second, though the design of our study may be longitudinal, emotions are defined as malleable and transactional constructs, and the large time span of our study might limit our ability to disentangle anticipatory emotional processes at stake. However, comparing the beginning and the end of the school year appeared to us as a preliminary and necessary step given the lack of prior evidence on anticipatory emotions. In this regard, investigating students' anticipatory emotions through daily diary studies and experience sampling studies might be interesting and might bring a more convincing and nuanced picture while addressing complex measurement issues associated with mixed emotions (Barford et al., 2020).

Third, it could be argued that our results might be highly dependent on the measure of emotions chosen in the present study (Russell & Carroll, 1999). Measures of emotions are

numerous and sometimes rely on different theoretical assumptions, as it is especially the case in the mixed emotions literature (Larsen & McGraw, 2014). However, it could be interesting to replicate the present study with different measures of emotions such as the state-form PANAS or with measures differentiating between valence and arousal as contended in the circumplex model of affect (Russell & Carroll, 1999; Watson & Tellegen, 1985). Interesting routes for future research also lie in investigating the combinations of both anticipatory and anticipated emotions as they have been identified as complementary but distinct antecedents of behavioral outcomes (Baumgartner et al., 2008).

Related to this, extending the range of antecedents and including behavioral outcomes of profiles of anticipatory emotions provide additional avenues for research. Variable-centered approaches have already shown the wide range of contextual, situational, and personal factors that determine the structure and the experience of emotions, but it is less certain how these relations occur when analyzed in a person-centered approach. For example, these research efforts could underscore the importance that school, peers, and family play in high school students' emotions towards anticipated transitions (Vignoli et al., 2020), as well as their role in the subsequent preparatory and vocational behaviors elicited by their anticipative reactions.

### **Implications for practice**

Apart from increasing the theoretical understanding of the nature of emotional anticipation, fruitful implications for practice emanate from the present study. By providing evidence for differentiated and distinct profiles of anticipatory emotions, this study brings critical insights in facilitating the detection of at-risk students and offers the lens of anticipatory emotions to work on several issues related to career decision-making and preparation for the transition. As such, the qualitative distinctions observed in our profiles underline the various ways that students emotionally anticipate the transition from high school to higher education. Therefore, teachers,

institutions, counselors, and parents should appreciate this diversity and escape attempts to prescribe specific standardized activities to help all students better prepare for the transition (e.g., telling all students to explore career options). As an example, the present study showed that negative emotions were more likely to come along with positive emotions for students in the *negative dominant* profile, contrary to students in the *positive dominant* profile who exhibited more exclusive patterns of emotions. In this specific example, counselors could, therefore, differentiate their approach in building resources for positive anticipatory emotions while at the same time, understanding what contributes to specific negative anticipatory emotions.

The investigation of transitions between profiles also adds knowledge for the implementation and the timing of interventions designed to help students to better anticipate the transition to higher education. First, our results indicate that interventions as soon as grade 11, for example, could be effective in helping students since the *positive dominant* profile was found to be very stable across time points. This suggests that students who have developed their resources in positively anticipating the transition at the beginning of grade 12 tended to keep their positive emotions throughout the last year of high school. Second, our results also indicate that interventions targeting students in the *mixed* or the *negative dominant* profile would be very effective, as demonstrated by the high proportions of transitions between profiles. These interventions could be specifically devoted to helping students to transition to the *positive dominant* profile. These avenues for practice are especially true as the present study identified career decidedness and career adaptability as antecedents of the transitions between profiles. Apart from emotion-focused interventions (Hodzic et al., 2018), interventions and counseling aimed at facilitating career decision-making and building self-regulatory resources are likely to help students to better prepare and cope with the transition, as it has already been suggested for the school-to-work transition (Koen et al., 2012).



**Conclusion**

When it comes to educational and career transitions, neither do we coldly envision and prepare for the future nor do we experience positive and negative emotions in isolation. Instead, we experience strong positive *and* negative emotions when anticipating how the transition will occur and its consequences for our well-being and career future. The present study sheds light on three distinct profiles of anticipatory emotions at the prospect of transitioning to higher education: a *positive dominant*, a *mixed*, and a *negative dominant* profile. These profiles were relatively stable in their shape and level across time, and students exhibited relatively high proportions of transitions between these profiles from the beginning to the end of the last year of high school. Finally, the present study showed that career decidedness and career adaptability predicted both profile membership and the transitions between profiles.

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### Tables

Table 1

#### *Longitudinal Latent Profile Enumeration Fit Statistics*

	# of profiles across time points	LL	fp	SCF	AIC	BIC	SABIC	CAIC	Entropy
1	1–1	–9603.32	68	1.0829	19342.63	19634.58	19418.73	19702.58	1
2	2–1	–9515.86	79	1.0926	19189.72	19528.90	19278.13	19607.90	.815
3	1–2	–9564.10	79	1.1348	19286.19	19625.37	19374.60	19704.37	.496
4	2–2	–9445.28	90	1.0966	19070.55	19456.96	19171.27	19546.96	.665
5	3–2	–9407.08	101	1.1082	19016.16	19449.80	19129.19	19550.80	.680
6	2–3	–9402.13	101	1.0662	19006.27	19439.90	19119.29	19540.90	.692
7	3–3	–9358.39	112	1.1102	18940.78	19421.64	19066.11	19533.64	.702
8	3–4	–9268.62	123	1.3326	18783.24	19311.34	18920.89	19434.34	.654
9	4–3	–9115.91	123	1.0870	18477.81	19005.90	18615.45	19128.90	.739
10	4–4	–9094.67	134	1.0926	18457.33	19032.65	18607.28	19166.65	.740

*Note.* LL = log likelihood ; fp = free parameters ; SCF = scaling correction factor; AIC = Akaike information criteria; BIC = Bayesian information criteria; SABIC = sample-size adjusted BIC; CAIC = consistent AIC.

Table 2

#### *Longitudinal Similarity Fit Statistics Between Profiles at Time 1 and Time 2*

Models of similarity	LL	fp	SCF	AIC	BIC	SABIC	CAIC	Entropy
Configural	–9358.39	112	1.1102	18940.78	19421.64	19066.11	19533.64	.702
Structural	–9397.05	82	1.0734	18958.11	19310.17	19049.87	19392.17	.693
Dispersion	–9420.04	70	1.0501	18980.08	19280.62	19058.42	19350.62	.692
Distributional	–9421.54	68	1.0599	18979.09	19271.04	19055.18	19339.04	.701
Predictive								
Free relations with predictors	–9256.02	94	1.2463	18700.04	19102.75	18804.36	19196.75	.738
Invariant relations with predictors	–9256.84	90	1.2841	18693.67	19079.24	18793.55	19169.24	.740

*Note.* LL = log likelihood; fp = free parameters; SCF = scaling correction factor; AIC = Akaike information criteria; BIC = Bayesian information criteria; SABIC = sample-size adjusted BIC; CAIC = consistent AIC.

Table 3

*Latent Transition Probabilities Between Profiles Across Time Points*

Beginning of Grade 12	End of Grade 12		
	Positive dominant	Mixed	Negative dominant
Positive dominant	.798	.152	.049
Mixed	.435	.364	.200
Negative dominant	.506	.124	.370

Table 4

*Latent Transition Probabilities Between Profiles Across Time Points for Different Values of the Antecedents*

<i>For career adaptability = 0</i>			
Beginning of Grade 12	End of Grade 12		
	Positive dominant	Mixed	Negative dominant
Positive dominant	.754	.212	.034
Mixed	.271	.403	.326
Negative dominant	.397	.147	.456

  

<i>For career adaptability = 1</i>			
Beginning of Grade 12	End of Grade 12		
	Positive dominant	Mixed	Negative dominant
Positive dominant	.847	.145	.008
Mixed	.350	.349	.302
Negative dominant	.407	.275	.318

  

<i>For career decidedness = 0</i>			
Beginning of Grade 12	End of Grade 12		
	Positive dominant	Mixed	Negative dominant
Positive dominant	.761	.177	.062
Mixed	.360	.384	.256
Negative dominant	.577	.301	.122

  

<i>For career decidedness = 1</i>			
Beginning of Grade 12	End of Grade 12		
	Positive dominant	Mixed	Negative dominant
Positive dominant	.845	.117	.038
Mixed	.391	.438	.171
Negative dominant	.672	.307	.021

*Note.* Latent transition probabilities are reported at the mean (i.e., 0) and 1 standard deviation above the mean (i.e., 1) for each predictor.

Figures

Figure 1

*Final Longitudinal LPA Solution with Distributional Similarity*

