



Identity

An International Journal of Theory and Research

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/hidn20>

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To cite this article: Rasmus Mannerström, Lauri Hietajärvi & Katariina Salmela-Aro (2021) A Two-wave Longitudinal Study of Identity Profiles Based on Eight Dimensions: Further Insight into Exploration and Commitment Quality as Well as Life Domains Central to Identity, *Identity*, 21:2, 159-184, DOI: [10.1080/15283488.2021.1903468](https://doi.org/10.1080/15283488.2021.1903468)

To link to this article: <https://doi.org/10.1080/15283488.2021.1903468>



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Published online: 30 Apr 2021.



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A Two-wave Longitudinal Study of Identity Profiles Based on Eight Dimensions: Further Insight into Exploration and Commitment Quality as Well as Life Domains Central to Identity

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ABSTRACT

It has been suggested that dual-cycle models of identity formation do not fit well with Erikson's identity theory and the identity status paradigm due to 1) contradictory statuses, 2) problems with discerning past exploration and 3) ambiguity or limitations of the life domains covered. The present study extended the Dimensions for Identity Development Scale (DIDS) with three additional dimensions suggested previously, examined identity profiles and their transitions over time, their links with psychological well-being and what life domain was associated with "future plans" (N=1294; T1: age=17, 60% female; T2: age=18, 65% female). The results showed that 1) the eight-dimensional model fit the data well longitudinally; 2) six previously reported profiles emerged at both time points with expected links to psychological well-being; 3) as previously speculated, individuals in the (early) closure status had undertaken identity exploration in the past; 4) the previously encountered high commitment-high exploration status (i.e., searching moratorium) seems to be "superficially committed"; and 5) future plans are commonly associated with work life/occupation. Future research would benefit from employing qualitative research to better understand the subjective meanings attached to high commitment-high exploration and by developing new ways to account for quality and different levels of commitment.

KEYWORDS

Personal identity; DIDS; longitudinal; person-oriented approach; searching moratorium

Forming a stable sense of identity is the key task of adolescence, although identity develops continuously and changes throughout life (Erikson, 1950; 1968). Identity, in the sense of a direction in life, is the foundation of psychological well-being. Two established measures of personal identity are the five-dimensional Dimensions of Identity Development Scale (DIDS; Luyckx et al., 2008) and the three-dimensional Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008). Both take as their starting point identity as a reiterative process, meaning that commitments in different life domains are continuously explored and reevaluated, some commitments growing stronger while others are discarded. Both have been used to detect and compare so-called identity statuses or profiles, meaning typical patterns or configurations of commitment and exploration dimensions (i.e., the person-oriented approach). However, in a methodological critique of both measures, Waterman (2015) insisted that their results do not fit well with Erikson's identity theory and the identity status paradigm because among other things, they 1) yield paradoxical results as in high commitment-high exploration statuses (i.e., searching moratorium), 2) do not discern between achievement and foreclosure statuses in terms of past exploration and 3) cover identity-related life domains insufficiently. That is, high commitment-high exploration statuses are paradoxical because one cannot simultaneously be confident about one's education and be uncertain and ruminative about

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it. In turn, the identity process measures cannot discern between achievement and foreclosure because they lack an indicator of past (and then ended) identity exploration. Finally, individuals can have commitments at different levels and of different quality. Waterman presented an eight-dimensional identity model that would resolve the shortcomings and shed light on the previous contradictory results.

The main objective of this study was to test the eight-dimensional identity model proposed by Waterman (2015) in a longitudinal study with two waves and investigate whether the model resolves the issues raised above. Due to similarities between the dimensions suggested by Waterman and the DIDS, we extended the DIDS by three dimensions introduced by Waterman (2015): *identification with significant others*, *past exploration in breadth* and *current commitment-related activity*. The purpose was specifically to examine the identity statuses that emerge, their associations with psychological well-being, specifically differences between foreclosure and achievement statuses and the characteristics of a high commitment-high exploration status, transitions between the statuses over time as well as to examine what life domains respondents were primarily thinking of when using the DIDS. We begin by presenting the identity status paradigm, the development of dual-cycle models and especially the DIDS followed by Waterman's critique of them.

Identity formation and the identity status model

Erikson regarded identity formation as the most important developmental task of adolescence (1950; 1968). At this point in the lifecycle, one is increasingly required to make individual choices and commit to certain ideals, roles, and future goals. These personal commitments and especially the stability of them yield *identity*, meaning a sense of oneself being distinct from others (distinctiveness), across several contexts (coherence) and across time (continuity) (Van Doeselaar et al., 2018). Identity is critical for well-being because it makes oneself, others, and one's future predictable (Erikson, 1950; 1968). Although identity is a life-long and constant process toward stability, failing at this task in adolescence leaves one confused over direction and purpose in life, and ill prepared to tackle later life challenges.

Building on Erikson's identity theory, Marcia (1966, 1993) argued that healthy development is not marked by the presence of commitments alone, but also the extent of having explored different options prior to these commitments. In his highly influential operationalization of identity development – the identity status model – respondents are assigned to one of four identity statuses depending on their level of exploration and commitments in the domains of occupation, politics, and religion. Individuals in the *achievement* status have arrived at firm commitments through exploration. *Foreclosure*, in turn, consists of individuals who, due to influence or pressure from authority figures such as parents, have commitments but without personal exploration of alternatives. By contrast, individuals in *moratorium* lack firm commitments but are currently exploring. Lastly, the *diffusion* status consists of individuals who might have explored alternatives at some previous point but currently lack commitments and the capability or will to explore different opportunities.

By now a wealth of research has shown the statuses to be differently associated with well-being, personality characteristics and cognitive processes, among other things (Kroger & Marcia, 2011). Most notably, in line with Erikson's theory, individuals in the high commitment statuses (achievement, foreclosure) show significantly stronger psychological well-being than individuals in the low commitment statuses (moratorium, diffusion) (Kroger & Marcia, 2011). In addition, although identity formation was first believed to follow a linear and complete developmental sequencing among most youth, from diffusion either to foreclosure or through moratorium to achievement (Marcia, 1993; Waterman, 1982), later longitudinal studies have shown status development to be both slower and more dynamic than initially thought. That is, although identity integration generally proceeds toward integration throughout adolescence and adulthood, stability is also common and diverse developmental trajectories exist (i.e., progression and regression) with often only one transition taking place over time (Fadjukoff et al., 2016; Kroger et al., 2010; Meeus, 2018; Meeus et al., 2010). Identity

development is also strongly moderated by several factors, including intraindividual factors such as personality (Luyckx et al., 2014) and structural factors such as family socioeconomic status (Mannerström et al., 2016).

Dual-cycle models of identity: the DIDS

Since their introduction, Erikson's theory and Marcia's empirical model have been further elaborated, conceptualized and extended in many ways (McLean & Syed, 2015). One line of research has developed so-called dual-cycle models which take as their starting point Erikson's observation of identity as an iterative, life-long process (see Crocetti, 2017 for a comparison). In other words, commitments are never completely solid but are continuously reflected on and revised, some being discarded depending on the life context. Discerning between different types of exploration and commitment, the assumption is that psychological well-being depends not on the mere presence of exploration and commitments, but on the degree to which they are reflected on and emotionally identified with.

The dual-cycle model by Luyckx et al. (2005) consists of two identity formation processes (*exploration in breadth* and *commitment making*) and two evaluation processes (*exploration in depth* and *identification with commitment*). That is, different life domains are explored and commitments made. However, whether the commitments grow strong or are discarded depends on how they are evaluated and emotionally identified with. Commitment processes can also be thwarted by *ruminative exploration*, which refers to anxious dwelling over alternatives (Luyckx et al., 2008). Rumination has been considered to be a core issue for late-modern youth struggling with uncertain labor markets and seemingly endless opportunities for self-realization (Côté, 2019; Salmela-Aro et al., 1991). Luyckx and colleagues' model is closely related to the other dual-cycle model that is often referred to, namely the three-dimensional model developed by Crocetti et al. (2008).

To measure the five identity processes Luyckx et al. (2008) developed The Dimensions of Identity Development Scale (DIDS). The DIDS has typically been used within the life domain of *general future plans* to examine associations between individual dimensions and external variables (i.e., the variable-oriented approach) or to assign identity statuses with clustering techniques based on the configurations of the dimensions (i.e., the person-oriented approach) (Crocetti & Meeus, 2015). In line with theory, studies with the former approach have shown identification with commitment and ruminative exploration to be most strongly associated with adjustment variables such as self-esteem, life satisfaction and depression symptoms (Mannerström et al., 2016; Sica et al., 2014). Person-oriented studies (e.g., Luyckx et al., 2014; Mannerström et al., 2016; Schwartz et al., 2011), in turn, have found four statuses resembling those identified by Marcia: achievement (high scores on commitment dimensions and exploration in depth, moderate to high scores on exploration in breadth and low scores on ruminative exploration); foreclosure (high scores only on the commitment dimensions and low scores on the others); moratorium (high scores on all exploration dimensions and low on commitments); diffusion (also called diffused or troubled diffusion; moderate to high scores on ruminative exploration and low scores on the others), but also revealed new statuses such as *carefree diffusion* (similar pattern with troubled diffusion but significantly lower scores on ruminative exploration) and *searching moratorium* (moderate to high scores on all dimensions). Longitudinal analyses with dual-cycle models in general, have shown achievement and early closure to be the most stable statuses over time (i.e., indicating "endpoints" of development), whereas searching moratorium is the least stable, often depicted as a mere temporary or transitory phase (Meeus, 2018; Meeus et al., 2010).

By now several studies employing the DIDS have shown identity statuses to be differently related to psychological well-being (e.g., Luyckx et al., 2010; Schwartz et al., 2011). The achievement group typically scores highest on well-being, followed by foreclosure (in some studies, equal to achievement) and searching moratorium, then carefree diffusion, troubled diffusion and lastly moratorium. Although some studies have indicated that the exploration in depth-dimension consists of a positive and negative side – *reflective exploration in depth* and *reconsideration of commitment* (Mannerström

et al., 2016; Skhirtladze et al., 2016) – today the DIDS is considered to be a well-established measure of personal identity (Crocetti, 2017).

Critique and recommendations for improvement

Notwithstanding the success of multidimensional dual-cycle models of identity formation, Waterman (2015) identified several shortcomings and contradictions in the models and associated results that run contrary to Erikson's identity theory and, according to Waterman, prevent a comparison with the identity status paradigm. Due to the purposes of this study, here we will focus on the following:

1) The idea of achieving identity (even temporarily) entails that you pass through an exploration (crisis) phase and then commit, certain of your choices. However, the dual-cycle models contradict this to some extent by taking continuous exploration of alternatives as their starting point. This allows the frequently observed combination of strong commitments and exploration in breadth (or ruminative exploration for that matter), typical of the searching moratorium status and in some cases also achievement. This perspective has been supported with theory on how contemporary society requires adolescents to be flexible and “keep all options open” while being committed, encouraging youth to continuously explore new alternatives (e.g., Gergen, 1991; Marcia, 1989). However, Waterman (2015) argues that this combination is contradictory because there is no reason or incentive to keep on exploring for better alternatives (nor to ruminate over the lack of them) if one is completely and fully content with one's commitments. And vice versa, if one explores alternatives, then one cannot be absolutely certain about one's existing commitments. This is supported by the fact that strong well-being typically goes hand in hand with high commitment and low exploration (see research above and Schwartz et al., 2015). In addition, longitudinal studies have shown the searching moratorium status to be the most unstable and temporary one, with “fast” transitions to other statuses (Meeus et al., 2010). Thus, Waterman (2015) suspects that reported commitments are superficial. Relatedly, he also considers the label searching moratorium “redundant and misleading” because by definition, all moratoriums are searching for commitments, and suggests using the term *searching while committed* instead.

2) The dual-cycle models cannot identify a pure foreclosure status and distinguish it from achievement because they do not cover past exploration (viz. Marcia, 1993). Meeus (2018) acknowledged that foreclosure is in fact misleading and preferred instead of the label (early) *closure* (see also Meeus et al., 2010). In other words, we do not know whether individuals in this category have explored at some point, just that they are not currently exploring. Meeus (2018) concluded that in this respect, closure is “a viable end-point of identity development”, the difference with achievement being that individuals in closure simply elaborate less on their commitments (i.e. far less exploration in depth).

3) Finally, research within the identity status paradigm has focused mainly on the life domains of occupation, relationships and ideology while many more have also been studied (Schwartz et al., 2015). However, the DIDS has typically been used only within the domain of general future plans. Although making plans for the future is the overarching task of adolescence (Nurmi, 1991) and in this respect is considered to be a “broad” marker of identity (Luyckx et al., 2008), general future plans as measured regularly with the DIDS, is rather vague. There is no way to tell if respondents were thinking of ideological domains such as education or interpersonal domains such as family, or something else. This question is related to a broader and deeper discussion on the fundamental problem of defining commitment quality particularly in surveys, namely the fact that people can have commitments on more abstract levels and lack them on more concrete levels or vice versa (Van Der Gaag et al., 2020).

To provide comprehensive coverage of the various dimensions of identity exploration and commitment, resolve aforementioned issues and improve the fit between the identity status paradigm and dual-cycle models, Waterman (2015) proposed the development and testing of an eight-dimensional identity model. This would consist of five dimensions tapping into the same constructs as the DIDS: 1) *identity commitments as labels*, assessing the mere presence of commitments (viz. commitment making) compared to 2) *commitment self-expression*, referring to the quality and motivation of

a commitment (i.e., important for distinguishing different subgroups of foreclosure and achievement; viz. identification with commitment), 3) *current exploration in breadth*, measuring the extent of exploring different options (viz. exploration in breadth) compared to 4) *current exploration in depth*, indicating the degree of reflecting on existing commitments (viz. exploration in depth) and 5) *emotional tone*, referring to the stress and negative emotions associated with exploration. Based on the definition used by Luyckx et al. (2008), Waterman (2015) argued that ruminative exploration captures emotional tone rather than a separate form of exploration. In addition, 6) *identification with significant others* would tap into the influence of others on one's commitments (i.e., important for distinguishing foreclosure from achievement), 7) *past exploration in breadth* would assess the extent of having explored options before but not doing it anymore (also for distinguishing foreclosure from achievement) and 8) *current commitment-related activity* would indicate the degree one is actually devoting any activity to one's commitments (as only commitments that play a significant role in the way in which a person actually lives can be counted as true commitments). Especially the latter three dimensions should differentiate between individuals in achievement and foreclosure (i.e., has there been exploration in the past and what roles do others play in one's choices) and shed further light on the high commitment-high exploration statuses (true commitments vs superficiality should be seen in activities).

Based on the outlined model, Waterman (2015) derived nine hypothetical identity statuses, several resembling previous statuses but split into two or three variants (see Table 1): *expressive* and *instrumental achievers* (the former showing stronger commitment self-expression), *expressive* and *instrumental foreclosures* (both scoring high on identification with significant others and low on past exploration in breadth compared to achievers, but the former showing higher commitment self-expression), *ruminative* and *untroubled moratorium* (both scoring low on commitments and high on exploration but the former experiencing more negative emotions) and three diffusion statuses; *superficially committed*, *untroubled* and *troubled diffusion* (all scoring low on commitments and exploration but with the untroubled and superficially committed groups experiencing less negative emotions and the latter even reporting higher levels of commitments as labels). The superficially committed diffusion would resemble the status previously labeled as searching moratorium. These individuals report having commitments due to different reasons (e.g., social norms) but they lack certainty and activity related to them, thus rendered as superficial commitments. To sum up, the nine statuses would predict identity development (i.e., transitions) and psychological well-being more reliably than previous models with 5–6 statuses had done. In addition, Waterman (2015) suggested using specific life domains or alternatively asking respondents what life domain they were thinking of in relation to future plans. To our knowledge, however, Waterman's (2015) critique and suggestions for improvement have not yet been addressed in any study.

Current study

The main objective of this study was to test the eight-dimensional identity model proposed by Waterman (2015) and investigate whether the model resolves the issues related to past exploration (i.e., high commitment statuses) and commitment quality (viz. searching moratorium) in identity statuses as well as provides new insights into life domains central to identity. However, instead of developing a completely new measure, we based our study on the DIDS (Luyckx et al., 2008). Doing this was partly due to practical reasons but above all because five dimensions of Waterman's model (i.e., identity commitments as labels, commitment self-expression, current exploration in breadth, current exploration in depth and emotional tone) tap into the same constructs as the five dimensions of the DIDS (i.e., commitment making, identification with commitment, exploration in breadth, exploration in depth and ruminative exploration, respectively). Hence, in this study we extended the DIDS by three additional dimensions not part of the DIDS and proposed by Waterman (2015): *identification with significant others*, *past exploration in breadth* and *current commitment-related*



Table 1. The nine identity statuses hypothesized by Waterman (2015).

Dimensions	Theory-based identity statuses								
	Expressive achievers	Instrumental achievers	Expressive foreclosures	Instrumental foreclosures	Ruminative moratorium	Untroubled moratorium	Superficially Committed Diffusion	Untroubled Diffusion	Troubled Diffusion
Identification	Intermediate to low	Intermediate to low	High	High	Low	Low	Intermediate to low	Intermediate to low	Intermediate to low
Past exploration in breadth	High	High	Low	Low	Low	Low	—	—	—
Current exploration in breadth	Low	Low	Low	Low	Low	Low	Low	Low	Low
Current exploration in depth	High to intermediate	High to intermediate	High to intermediate	High to intermediate	High to intermediate	High to intermediate	Low	Low	Low
Emotional tone	Positive	Positive	Positive	Positive	Negative	Positive to intermediate	Positive to neutral	Positive to neutral	Negative
Commitments as labels	High	High	High	High	Low	Low	High to intermediate	Low	Low
Commitment-related activity	High	High	High	High	Intermediate to low	Intermediate to low	Intermediate to low	Intermediate to low	Intermediate to low
Commitment expressiveness	High	Intermediate to low	High	Intermediate to low	Low	Low	Low	Low	Low

activity. The item wordings we used in these dimensions were identical to those suggested by Waterman (see section on measures below).

More specifically, we addressed four issues: First, building on the DIDS, we empirically tested the eight-dimensional identity model outlined by Waterman by investigating its factor structure and longitudinal invariance. Second, we examined what identity profiles (i.e. statuses) emerge from the eight dimensions and compare them in terms of life satisfaction, depression symptoms and school burnout. This is because psychological well-being is considered to be the core correlate and outcome of identity consolidation (Crocetti, 2017; Erikson, 1950; 1968). Life satisfaction and depression have regularly been used in previous research to differentiate between identity statuses (e.g., Luyckx et al., 2010; Mannerström et al., 2016; Schwartz et al., 2011; Sica et al., 2014). As mentioned above, high commitment statuses (i.e., achievement, foreclosure) have typically scored high on life satisfaction and low on depression symptoms but we do not know how the new and additional statuses suggested by Waterman compare with the standard statuses. In addition, we included school burnout in these comparisons. This was partly due to the lack of research on the interconnections between identity formation and school burnout in adolescence (exception by Erentaitė et al., 2018; and work burnout; Luyckx et al., 2010) but above all because previous research has linked school burnout to a lack of internal motivation and meaning (Cote & Levine, 1997; Korhonen & Rautopuro, 2019). We wanted to examine how the last year at high school, with all the extra work and stress the matriculation exam brings, is linked with statuses hypothesized to have superficial commitments. If commitments are not “real” once students’ intellectual capacity and perseverance are challenged, this will most likely have a greater negative effect on superficially committed individuals than on others with true commitments. Third, we examined transitions between the statuses. The purpose, here too, was to collect more information on the stability and change of different statuses over time. Fourth, provided that the domain of general future plans is regularly applied with the DIDS, we examined what domain respondents were thinking of when replying and whether there are differences between the identity profiles and processes in terms of domain considered.

Pertaining to our objectives, we hypothesized that:

H1: The eight-factor model consisting of the DIDS and the three additional dimensions will fit the data.

H2: Nine profiles (i.e., statuses) suggested by Waterman (2015) will be identified: expressive achievers, instrumental achievers, expressive foreclosures, instrumental foreclosures, ruminative moratorium, untroubled moratorium, superficially committed diffusion, untroubled diffusion and troubled diffusion.

H3: In line with Waterman’s (2015) hypotheses and reflecting previous findings with dual-cycle models (e.g., Mannerström et al., 2016; Schwartz et al., 2011), high commitment-low exploration statuses (i.e., subgroups of achievement and foreclosure) will score the highest on psychological well-being (in general). By contrast, the low commitment-high exploration statuses (i.e., subgroups of moratorium and diffusion) will show the opposite pattern. Superficially committed diffusion will score in between.

H4: Psychological well-being will drop among all statuses/students between measurement points because of the matriculation exams and related stress during the final year of high school. However, the drop will be the most dramatic for individuals in the superficially committed diffusion (high commitment-high exploration) and especially regarding burnout precisely because their (superficial) commitments do not support their academic engagement when put to the test.

H5: Respondents will generally remain in the same or a similar group through both time points. This is because previous research on adolescent identity development has shown stability to be more common

than change and transitions to be unlikely during one school year (Kroger et al., 2010; Meeus, 2018; Meeus et al., 2010). On the same grounds, we expected subgroups of achievement and foreclosure to show strongest stability (i.e., smallest probability of transitions to other groups) and the superficially committed diffusion status the greatest instability.

H6: Building on previous theory and results on the centrality of occupation for identity (Erikson, 1968; Kroger & Haslett, 1991; Nurmi, 1991), we expected work life/occupation to be the domain most associated with future plans among our respondents. By contrast, we had no hypotheses regarding the prevalence of different life domains (work life, education, relationship/family, lifestyle, friendships, leisure time, something else?) in relation to the profiles or the identity processes independently.

Method

Participants

The data were drawn from an ongoing longitudinal study on adolescents' psychological well-being, among other factors (Bridging the Gaps). The survey has been conducted for six consecutive years in the capital area of Finland, starting when the respondents were 12 years old. Participation is based on the research subjects' and their parents' informed consent. The study was approved by the Ethical Review Board in the Humanities and Social and Behavioral Sciences at the University of Helsinki. This study used two senior high school waves spanning from eleventh to twelfth grade during which the students were 17- to 18-years-old. There were 1294 participants (60% female, 38% male and 2% nonbinary/other, $n_{T1} = 1045$, $n_{T2} = 779$), out of which 42% participated in both waves. Attrition-wise, there was a significant difference in gender between those that participated in both measurements (1 = women, men = 2; $M = 1.32$, $SD = .47$) and those that dropped out after T1 ($M = 1.46$, $SD = .50$), with slightly more women taking part in both measurements than men (conditions; $t(1002) = 4.532$, $p < .000$). No significant differences were found in terms of satisfaction with life (both measurements: $M = 4.47$, $SD = 1.34$; only T2: $M = 4.42$, $SD = 1.31$, conditions; $t(1022) = -.605$, $p = ns$), depression symptoms (both measurements: $M = 1.84$, $SD = .68$; only T1: $M = 1.78$, $SD = .70$, conditions; $t(997) = -1.472$, $p = ns$) and school burnout (both measurements: $M = 3.09$, $SD = 1.02$; only T1: $M = 3.01$, $SD = 1.09$, conditions; $t(1077) = -1.282$, $p = ns$). However, the samples consisted of academically more successful students. In general, students who enter senior high school at age 16 (i.e., the academic track, appr. 50% of each age class) have significantly higher GPAs than their peers entering the vocational track. Finnish high school is completed with the matriculation exam, typically taken during the third year of senior high school.

Measures

Personal identity

The five original identity formation and evaluation processes (Luyckx et al., 2008) were measured with the Finnish 11-item version of the DIDS within the domain of *general future plans* (Marttinen et al., 2016). Respondents rate on a scale from 1 (strongly disagree) to 5 (strongly agree) commitment making (e.g., "I have decided on the direction I'm going to follow in my life"), identification with commitment (e.g., "My future plans give me self-confidence"), exploration in breadth (e.g., "I think actively about different directions I might take in my life"), exploration in depth (e.g., "I think about the future plans I already made") and ruminative exploration (e.g., "I worry about what I want to do with my future"). The short version of the DIDS has two items per dimension except for ruminative exploration with three items. In line with the original five-dimensional model by Luyckx et al. (2008), we intended to measure only reflective exploration in depth and not reconsideration of commitment.

The items were back translated and discussed within the research team to ensure the proper meaning of the items.

In addition, using the same response scale, we measured three identity dimensions (two items each) proposed by Waterman (2015): identification with significant others (“Members of my family and my friends have played an important role in helping me to make decisions with respect to my future plans” and “With respect to my future plans, I think it is important to live up to the expectations that others have of me”), past exploration in breadth (“There was a time when I was trying to make decisions about my future but that is not what I am doing now” and “It used to be that I would often talk to others about what alternatives there might exist for me with respect to my future plans but I no longer feel the need to do that”) and current commitment-related activity (“I spend a substantial amount of my time engaged in activities related to my future plans” and “I look for opportunities to share experiences with others involving my future plans”).

Identity domain

In relation to general future plans (the DIDS), we also asked the respondents to indicate what life domain they were thinking of (“What were you primarily thinking of when you just thought about your future plans?”). The alternatives were (1) studies, (2) work life/occupation, (3) relationships/family, (4) lifestyle, (5) friends, (6) leisure and (7) something else, what? Identity domain was assessed only at T2.

Satisfaction with life

Life satisfaction was assessed with the 5-item Satisfaction with Life Scale (SWLS; Diener et al., 1985). One such item is, “I am satisfied with my life”, and the response scale ranges from 1 (*completely disagree*) to 7 (*completely agree*).

Depression symptoms

Respondents’ depression symptoms were measured with the 10-item Depression Scale (DEPS) developed by Salokangas et al. (1995). Referring to the last month, respondents rate items such as “I have not got any fun out of life” on a scale from 1 (not at all) to 4 (extremely).

School burnout

School burnout was measured with the 9-item School Burnout Inventory (SBI; Salmela-Aro et al., 2009). Respondents’ rate items such as “I feel I am drowning in schoolwork” on a scale from 1 (completely disagree) to 6 (completely agree).

Data analysis strategy

The statistical analyses were undertaken using Mplus 8.2 (Muthén & Muthén, 1998–2020) in conjunction with R version 4.0.2 and RStudio 1.3.1073 (R Core Team, 2020) and Mplus Automation package (Hallquist & Wiley, 2018). First, to evaluate whether the eight identity dimensions fit the data, we conducted a Confirmatory Factor Analysis (CFA) with R SOFTWARE Mplus version 7.31. In line with Hu and Bentler (1999) suggestions, we used the Root Mean Square Error of Approximation (RMSEA; cutoff value for good fit close to .06), the Comparative Fit Index (CFI; cutoff value close to .95) and the Standardized Root Mean Square Residual (SRMR; cutoff value close to .08) as fit indices. Maximum likelihood with robust standard errors were used to estimate the models with Full information maximum likelihood (FIML) approach was used to handle missing data. Longitudinal measurement invariance across the factor structure (configural), factor loadings (metric), item intercepts (scalar) and residual variances (strict) of all variables were tested to ensure that the measures held the same meaning over time. Model fit indices are shown in [Appendix A](#) as part of the supplementary material. Similarly, all factor correlations and loadings for DIDS are found in [Appendix B](#) and [C](#), respectively.

Second, we conducted Latent Profile Analysis (LPA) to examine the identity profiles that emerged at both time points. A series of models with progressively increasing numbers of profiles were evaluated with statistical criteria. Model fit is typically evaluated with the sample-size adjusted Bayesian information criterion (SA-BIC; a low score indicates a better fit than a high score), the p -value of the Vuong-Lo-Mendell-Rubin likelihood ratio test (pVLMR; a score below .05 suggests that the model fits the data better than a model with one less profile) and the entropy index (a higher score indicates a clearer classification) (Bergman et al., 2003). However, we could not use the pVLMR because our data were collected from several schools. In cases when the data are nested, as in this case, it must be run as a complex mixture model which makes the pVLMR value misleading and futile. Another means for evaluating the optimal number of profiles is with the elbow criterion (Masyn, 2013). The elbow criterion refers to examining the SA-BIC-score-trajectories for “elbow plots”, points where the gains of increasing the number of profiles is diminished. More important, however, is the interpretability of the profiles, and that the configurations on the different dimensions make sense in light of theory (Bergman et al., 2003). Another related guideline used is parsimony, meaning that typically a “lighter” model with fewer profiles is preferable over a heavy one with a great number of profiles. This means that the profiles should be as unique as possible and not just similar, duplicated configurations differing in degree.

Third, stability and invariance of identity profiles between T1 and T2 was assessed with Latent Transition Analyses (LTA). Invariance of the profiles was tested comparing an LTA with mean-invariant profiles to an LTA with freely estimated profiles via a scaled likelihood ratio chi-square test (<https://www.statmodel.com/chidiff.shtml>), and the stability was analyzed by examining the latent transition probabilities (LTPs). LTPs indicate the likelihood (range 0–1) of an individual staying in the same profile and transitioning to other profiles between measurements. Fourth, differences in psychological well-being between the profiles at both points of measurement was examined with a Multivariate Analysis of Variance (MANOVA) with Tukey post-hoc tests. Gender was used as a control variable. Finally, at T2 the relationship between different identity domains and identity profiles was analyzed with contingency tables, chi-square tests and standardized Pearson residuals (a score greater than ± 1.96 indicates significant over-/underrepresentation of an identity profile in a profile).

Preliminary analyses

No outliers were removed from the samples. The Cronbach alphas (reliability score) for most measures used were either very good or within an acceptable range considering the low number of items per dimension: commitment making (T1 .85/T2 .86, respectively), identification with commitment (.83/.82), exploration in breadth (.61/.67), ruminative exploration (.79/.83), identification with significant others (.56/.59), past exploration in breadth (.72/.66) and commitment-related activity (.54/.53). Exploration in depth, however, proved to be unreliable (.25/.10). On closer inspection we noticed that this dimension was measured at both waves with two items tapping into the opposite sides of exploration in depth (reflective exploration in depth and reconsideration of commitment). This was due to an oversight in setting up this particular data collection, not a deficit of the short DIDS measure itself or anything encountered previously. After deliberation, we decided to go for a single-item measure and use only the item assessing reflective exploration in depth in subsequent analyses (in the following called exploration in depth). The test-retest reliabilities for the latent factors corresponding to the eight factor DIDS all indicated considerable stability (.45-.70) (see Appendix Table 2).

The scales assessing different aspects of well-being reached very good reliability: SWLS (.87/.88), depression (.93/.93) and school burnout (.89/.89). Correlation coefficients between all variables as well as their (raw) means and standard deviations at T1 and T2 can be found in Table 2.

Table 2. Zero-order correlations between all variables as well as means and standard deviations of all variables at T1 (N = 1045) and T2 (N = 779).

Dimensions	1	2	3	4	5	6	7	8	9	10	11
1. CM	—										
2. IC	.75***/.80***	—									
3. EB	.26***/.06	.32***/.17***	—								
4. ED	.50***/.53***	.55***/.54***	.51***/.40***	—							
5. RE	-.51***/-	-.46***/-	.16***/.18***	-.12***/-	—						
	.58***	.55***	.19***	.14***/.11***	.09**/.09*						
6. ISO	.17***/.18***	.23***/.17***	.10**/.06	.14***/.11***	.09**/.09*	—					
7. PEB	.14***/.22***	.12**/.17***	-.12***/-	-.11**/-	.06*/-	.13***	—				
			.19***	.19***	.28***/	.27***	.19***/				
8. CCRA	.486***/.46***	.50***/.49***	.35***/.28***	.44***/.46***	-.12***/-	.27***/	.16***	—			
					.16***	.32***	.16***	.22***/			
9. SWL	.28***/.33***	.31***/.35***	.15***/.11**	.16***/.15***	-.27***/-	.14***/.09*	-.06/.03	.22***/	—		
					.28***	.28***	.22***	.22***			
10. DS	-.25***/-	-.25***/-	-.06*/-	-.08**/-	.07*	.01/.06	.17***/	-.09**/-	-.54***/-	—	
	.23***	.24***					.13***	.59***			
11. SB	-.23***/-	-.23***/-	-.05/.00	-.09**/-	.07*	-.03/.14***	.17***/	-.06*/-	-.42***/-	.60***/.64***	—
	.22***	.24***					.14***	.45***			
12. Gender	.12***/.04	.10***/.05	.00/-	-.01/-	.11**	.15***/.08*	.08**/.12**	.09**/.01	.09**/.06	-.21***/-	-.27***/-
										.17***	.24***
T1 M(SD)	3.11 (1.15)	3.11 (1.09)	3.63 (.85)	3.67 (1.07)	3.31 (1.05)	2.68 (.93)	2.38 (1.02)	2.88 (.97)	4.44 (1.32)	1.81 (.69)	3.05 (1.06)
T2 M(SD)	3.13 (1.16)	3.11 (1.11)	3.65 (.88)	3.76 (1.07)	3.33 (1.11)	2.63 (.96)	2.34 (1.00)	2.92 (.97)	4.47 (1.33)	1.97 (.75)	3.27 (1.14)

CM = commitment making; IC = identification with commitment; EB = exploration in breadth; ED = exploration in depth; RE = ruminative exploration; ISO = identification with significant others; PEB = past exploration in breadth; CCRA = current commitment-related activity; SWL = satisfaction with life; DS = depression symptoms; SB = school burnout; Gender: women = 1, men = 2; T1/T2. ****p* ≤ .000, ***p* ≤ .01, **p* ≤ .05.

Table 3. Criterion values for the different profile solutions at T1 (N = 1045) and T2 (N = 777).

Number of profiles	SA-BIC	<i>p</i> VLMREntropy	Size of the latent profile group
1	23,921.039		1045
2	22,567.339	.016	.774
3	22,057.866	.163	.804
4	21,746.222	.425	.802
5	21,495.112	.423	.813
6	21,329.659	.398	.809
7	21,200.373	.460	.819
8	21,098.614	.622	.822
9	21,064.699	.703	.826
10	21,028.767	.746	.811

SA-BIC = Sample-size adjusted bayesian information criterion; VLMR = Vuong-Lo-Medell-Rubin likelihood ratio test. Selected solution is in italics.

Results

First, the CFA showed that the hypothesized eight-dimensional model (H1) fitted the data well at both measurement points (Sample 1: $\chi^2(77, N = 1045) = 356.816, p < .000, RMSEA = .059$ (90% CI = .053-.065), CFI = .951, SRMR = .053; Sample 2: $\chi^2(77, N = 779) = 299.309, p < .000, RMSEA = .061$ (90% CI = .054-.068), CFI = .948, SRMR = .051). Worthy of note though, the CFA was not a pure test of eight distinct factors because exploration in depth was indicated by only one item. Nonetheless, the confirmed factor structure meant that hypothesis 1 was supported by the results.

Second, contrary to our hypothesis (H2) regarding the number of profiles, the LPAs at T1 and T2 lent support to six profiles rather than the expected nine (see Table 3). Although the smallest SA-BIC score corresponded to more complex models at both waves (up to ten profiles) and the entropy scores of all tested models were nearly equal (indicating marginal differences in fit), there was evidence of “elbows” in the SA-BIC-score-trajectories. At T1, three elbows were observable in the three-, six- and eight-profile models. At T2, two pronounced elbows were observable in the three- and six-profile models. The six-profile model received the most support when examining the specific configurations of the profiles. Whereas the six-profile model consisted of six unique configurations, all models with seven or more profiles seemed to duplicate existing profile configurations to different degrees. Hence, in terms of meaningfulness and the guideline of parsimony, the model consisting of six groups was chosen for further analyses (Bergman et al., 2003). The T1 profile solution represents both time points here, as it was confirmed to be longitudinally invariant between measurements (see Figure 1;

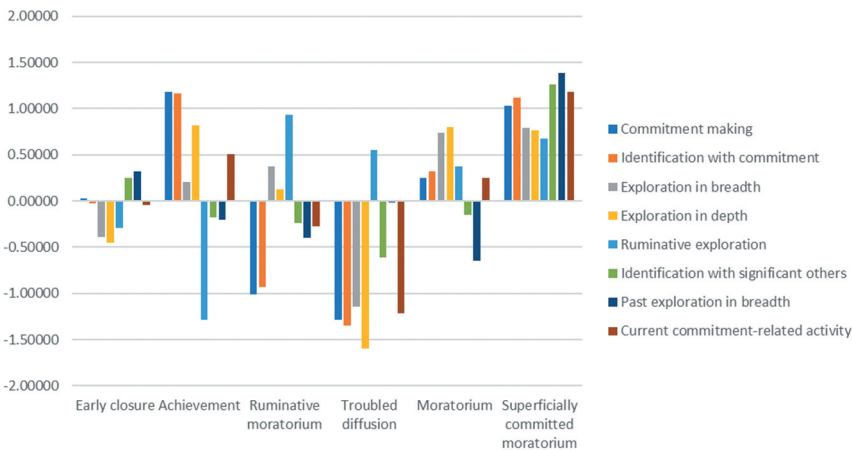


Figure 1. Final latent profile solution at T1 (N = 1045), identical at T2 (N = 779).

invariance results in the supplementary material: [Appendix D](#)). The y-axis represents z-scores (i.e., standard deviations) which were interpreted as effect sizes. Like Cohen's (1988), an SD of 0.2 is perceived as a small effect, an SD of 0.5 as a moderate effect, and an SD of 0.8 as a large effect. Hence, the word "status" will be used interchangeably with profile and group.

The largest profile was labeled *early closure* (T1: $N = 400, 30.9\%$; T2: $N = 384, 29.7\%$). This group had a relatively flat profile with commitment scores (including commitment-related activity) around the mean, moderately high scores on past exploration in breadth and identification with significant others, and moderately low scores on exploration in breadth and depth as well as ruminative exploration. The second largest profile was labeled *achievement* ($N = 244, 18.9\%$). This group showed strong commitments with commitment-related activity and in-depth exploration of these commitments. Individuals in this group also showed a somewhat heightened level of exploration in breadth combined with moderately low scores on past exploration in breadth and identification with significant others and very low scores on ruminative exploration. In turn, the third largest profile was labeled *ruminative moratorium* (T1: $N = 223, 17.2\%$; T2: $N = 271, 20.9\%$) (see Luyckx et al., 2008; Waterman, 2015). These group members scored very low on commitments combined with low scores on commitment-related activity, past exploration in breadth and identification with significant others. They also showed somewhat heightened exploration in breadth and very strong ruminative exploration. By contrast, the fourth profile was labeled *moratorium* (T1: $N = 190, 14.7\%$; T2: $N = 201, 15.5\%$). These individuals had commitment scores barely above the mean (including commitment-related activity) combined with strong exploration in breadth, exploration in depth, ruminative exploration and low past exploration in breadth. The fifth profile was labeled *troubled diffusion* (T1: $N = 151, 11.7\%$; T2: $N = 152, 11.7\%$) and consisted of individuals scoring low to very low on all dimensions except intermediate on past exploration in breadth and high on ruminative exploration. Finally, the smallest profile was labeled *superficially committed moratorium* (T1: $N = 86, 6.6\%$; T2: $N = 58, 4.5\%$). Members of this group scored high to very high on all dimensions. Although this specific configuration was identical to the searching moratorium group found in previous research (e.g., Schwartz et al., 2011), this label was chosen due to the group's very high score on identification with significant others and its over-time instability in terms of psychological well-being and transitions (see next section and discussion).

As expected (H3), the MANOVA showed that identity status had a main effect on psychological well-being at both waves, when controlling for gender (T1: $F(15, 2526.313) = 8.535, p \leq .000$; Wilk's $\Lambda = .872$; $\eta_p^2 = .044$; T2: $F(15, 1930.033) = 8.240, p \leq .000$; Wilk's $\Lambda = .98$; $\eta_p^2 = .056$). No significant interaction between status and gender regarding psychological well-being was recorded (T1: $F(15, 2526.313) = 1.076, ns$; Wilk's $\Lambda = .983$; $\eta_p^2 = .006$; T2: $F(15, 1930.033) = 1.226, ns$; Wilk's $\Lambda = .974$; $\eta_p^2 = .009$). Those assigned to troubled diffusion and ruminative moratorium scored the lowest on life satisfaction and highest on depression symptoms and school burnout (see [Table 4](#)). Those in the achievement status, by contrast, scored highest on psychological well-being followed by early closure. The moratorium group placed around the mean on all measures. Individuals in the superficially committed moratorium status made an exception to this overall pattern. At T1 they reported the highest life satisfaction combined with moderate scores on depression symptoms and school burnout. However, at T2 these group members scored even higher on life satisfaction but now also comparatively high on depression symptoms and the highest on school burnout.

Regarding differences in changes in psychological well-being between measurements (H4), our hypothesis received partial support. As expected, depression symptoms and school burnout increased for all statuses/students (see [Table 4](#)). Also as expected, individuals in the superficially committed moratorium experienced by far the greatest surge in scores on these variables, especially burnout. Concerning satisfaction with life only individuals in ruminative moratorium showed the expected drop in well-being. By contrast, the changes were marginal and, in some cases, even positive for the other statuses.

The latent transition analysis showed the profiles to be invariant over time as fixing the means to equality did not change the model fit ($\Delta\chi^2(48) = 61.25, p = .10$), in fact, the fit of the invariant model

Table 4. MANOVAs for profiles and psychological well-being at T1 (N = 1294) and T2 (N = 1294) as well as change in means, when controlling for gender.

Variables	Profiles						F-value	η^2
	Early closure	Expressive achievers	Ruminative moratorium	Moratorium	Troubled diffusion	Superficially committed moratorium		
<i>Satisfaction with life:</i>								
T1	4.53b (1.12)	4.99 c (1.33)	4.14b (1.31)	4.38b (1.21)	3.64a (1.35)	5.10 c (1.23)	15.55***	.08
T2	4.61b (1.04)	4.93bc (1.32)	3.80a (1.33)	4.55b (1.17)	3.90a (1.49)	5.16 c (1.50)	14.10***	.09
Δ Mean	+0.08	-.06	-.34**	+0.17	+0.26	+0.06		
<i>Depression symptoms:</i>								
T1	1.68ab (.63)	1.48a (.56)	2.01 cd (.71)	1.83bc (.57)	2.09d (.73)	1.89bcd (.75)	12.13***	.06
T2	1.88ab (.67)	1.66a (.64)	2.24 c (.80)	2.00bc (.61)	2.18 c (.77)	2.23 c (.97)	9.54***	.06
Δ Mean	+0.20***	+0.18***	+0.23**	+0.17**	+0.09	+0.34**		
<i>School burnout:</i>								
T1	2.92b (.93)	2.56a (1.01)	3.30 cd (1.00)	3.22bcd (1.03)	3.44d (1.18)	3.00bc (1.16)	10.33***	.05
T2	3.13ab (1.13)	2.79a (1.09)	3.53bc (1.11)	3.37bc (1.08)	3.62 c (1.09)	3.70 c (.95)	8.50***	.06
Δ Mean	+0.21**	+0.23*	+0.23*	+0.14	+0.18	+0.70***		

Note. A profile mean is significantly different from another mean within the same row if they have different superscripts. A mean without a superscript is not significantly different from any other mean. Standard deviations are in parentheses. Δ Mean was performed as two-tailed t-tests.

*** $p \leq .001$; ** $p \leq .01$, * $p \leq .05$

Table 5. Latent transition probabilities between the profiles between T1 and T2.

T1	T2					
	Troubled diffusion (12%)	Moratorium (16%)	Superficially committed moratorium (5%)	Ruminative moratorium (18%)	Early closure (30%)	Expressive achievers (21%)
Troubled diffusion (12%)	.52	.02	.00	.25	.19	.03
Moratorium (15%)	.00	.66	.03	.14	.07	.10
Superficially committed moratorium (6%)	.00	.00	.35	.00	.35	.31
Ruminative moratorium (17%)	.22	.22	.03	.53	.00	.00
Early closure (31%)	.08	.08	.05	.10	.58	.11
Expressive achievers (19%)	.01	.07	.03	.01	.15	.73

was better as indicated by SA-BIC

($\Delta_{SA-BIC} = -127.68$). Further, the latent transition probabilities supported our expectations (H5) regarding profile stability (see Table 5). That is, students tended to remain in the same or similar group through both time points (68%). Further, and as expected, the results showed that the achievement status was clearly the most stable one and the superficially committed moratorium status (viz. searching moratorium) the least stable one. Those in the latter group had a similar likelihood of transitioning to either achievement or early closure as staying in the same group through both time points.

Table 6. Contingency table between identity domains and profiles with standardized residuals (N = 779).

	Early closure	Expressive achievers	Moratorium	Ruminative moratorium	Troubled diffusion	Superficially committed moratorium	N = 779
Work life/occupation	90 (25.7%)	76 (21.7%)	57 (16.3%)	69 (19.7%)	47 (13.4%)	11 (3.1%)	100%
Education	-3 61 (21.8%)	.2 63 (22.5%)	-.8 58 (20.7%)	1.2 53 (18.9%)	.9 31 (11.1%)	-1.6 14 (5.0%)	100%
Lifestyle	-1.5 21 (28.8%)	.4 14 (19.2%)	1.0 23 (31.5%)	.8 6 (8.1%)	-.4 5 (6.8%)	-.1 4 (5.5%)	100%
Relationship/family	.4 20 (44.4%)	-.4 10 (22.2%)	2.7 3 (6.7%)	-1.8 2 (4.4%)	-1.2 1 (2.2%)	.1 9 (20.0%)	100%
Leisure	2.3 6 (46.2%)	.1 1 (7.7%)	-1.8 0 (0.0%)	-2.0 0 (0.0%)	-1.9 5 (38.5%)	4.4 1 (7.7%)	100%
Friendship	1.4 4 (50.0%)	-1.4 2 (25.0%)	-1.5 0 (0.0%)	-1.5 0 (0.0%)	2.8 1 (12.5%)	.4 1 (12.5%)	100%
Something else	1.3 5 (45.5%)	.2 0 (0.0%)	-1.2 1 (9.1%)	-1.2 3 (27.3%)	.1 2 (18.2%)	.9 0 (0.0%)	100%
	1.2	-1.5	-.7	.8	.6	-.8	

The standardized residual is indicated below the N and percentage values.

Finally, in line with our expectations regarding what life domain the concept “future plans” was associated with (H6), nearly half of the sample (45%) indicated that they were thinking of work life/occupation and roughly one-third (36%) that education was on their mind. Only one out of ten (9%) replied that they thought primarily about lifestyle and even less so were thinking of relationship/family (6%), leisure time (2%), friendship (1%) or something else (2%). Table 6, in turn, shows the distribution of identity domains in each profile. Chi-square tests indicated that there were no significant differences between the profiles in terms of work life/occupation and education. However, the results showed that individuals in ruminative moratorium thought significantly less about relationships/family than members of other groups (i.e., they were underrepresented). By contrast, relationships/family seemed to be a core domain for individuals in early closure and especially superficially committed moratorium because these two groups were overrepresented within this domain. Moreover, individuals in moratorium were overrepresented in the lifestyle domain whereas members of troubled diffusion were overrepresented in leisure time. Appendix D shows the associations between the domains and the identity processes in an ANOVA-table. The differences between the domains were mostly marginal, with the exception of identification with significant others. More precisely, respondents thinking about work life/occupation, education and lifestyle scored significantly lower on identification with significant others than those thinking about relationship/family.

Discussion

Our main objective in this study was to test the eight-dimensional identity model proposed by Waterman (2015), to examine and resolve some of the claimed shortcomings and contradictions related to the DIDS and its results. This was done by extending the existing DIDS with three dimensions suggested by Waterman: identification with significant others, past exploration in breadth and current commitment-related activity, examining the identity configurations that emerge and their associations with psychological well-being, the longitudinal invariance of the statuses and by asking the respondents what life domain they were primarily thinking of.

H1: on factor structure

The three dimensions suggested by Waterman (2015) and employed in this study to extend the DIDS showed satisfactory reliability considering that each dimension consisted of only two items. Further, the eight-dimensional extended DIDS showed good factorial validity and longitudinal invariance, although exploration in depth could not form a proper factor due to it being a single-item measure in this study. Nonetheless, improving the internal consistency of these dimensions requires closer attention in the future. Needless to say, the results also need to be replicated and with the full exploration in depth dimension included.

H2: identity statuses

Employing LPA, we identified six profiles across both waves rather than the hypothesized nine. In other words, despite the eight dimensions, we were unable to discern between different types of achievement, foreclosure or diffusion, and could only discern between different moratorium statuses. One explanation is that our sample was too small to detect enough variance and more profiles with eight dimensions. Another explanation is that the dimensions, especially the ones suggested by Waterman (2015), did not work as intended or at least not in conjunction with the DIDS. After all, we did not test the exact model proposed by Waterman (2015) with all the dimensions and exact item wordings he suggested, only the DIDS extended by three dimensions.

The DIDS being at the core of the study and only six profiles being identified may explain why all profiles resembled statuses found in previous research, adding nothing new in this respect (e.g., Luyckx et al., 2010; Mannerström et al., 2016; Schwartz et al., 2011; Zimmerman et al., 2013). Considering those same findings and contrary to them, the profile typically labeled searching moratorium (here labeled superficially committed moratorium) formed the smallest group in this study. This may be an outcome of the eight identity dimensions but here this has been left as an open question. Although only some six percent of the respondents were assigned with superficially committed moratorium, making it a somewhat unreliable “outlier profile” (Bergman et al., 2003), we decided to analyze the profile more closely because of Waterman’s (2015) claims about the contradictory nature and superficiality of this particular configuration (see below). Related to this, the exceptionally high score on identification with significant others among these group members might suggest that they report high commitment-high exploration due to social desirability. As mentioned, it is a common narrative in contemporary society that one must be passionately engaged in whatever one is doing (as part of self-realization) and at the same time one should “keep all options open” (Côté, 2019; Gergen, 1991; Marcia, 1989). That is, these individuals report what they believe is expected of them, not their “true” situation.

However, extending the DIDS with past exploration in breadth and identification with significant others gave further support to Meeus et al. (2010) depiction of the early closure status. Individuals in this profile had an average strength of commitments that seemed to be the result of some prior but not ongoing exploration of alternatives. Similarly, they also identified with their parents’ (and others) expectations more than their peers. That is, the largest group in our study consisted of late adolescents who, in relation to their peers, had not (yet) made firm and/or autonomous decisions regarding their future, but were relatively content. Relatedly, no pure foreclosure profile was found. This could be an effect of the additional dimensions and the large size of the early closure group but unfortunately our results did not allow us to verify this in any way. By contrast, the dimension of current commitment-related activity did not add anything to the profiles. In all profiles, the scores mirrored those of the two other commitment dimensions.

H3: differences in psychological well-being between the statuses

Our results on differences in psychological well-being between the statuses supported previous findings (e.g., Mannerström et al., 2016; Schwartz et al., 2011; Zimmerman et al., 2013). The achievement status scored the highest, troubled diffusion and ruminative moratorium scored the lowest and moratorium placed in between. The fact that superficially committed moratorium scored unevenly between measurements, that is, relatively high at T1 and very low at T2, points to instability which questions the quality of the group members' commitments. This result puts these individuals' very high score on life satisfaction at T1 also into doubt, possibly being bogus or at mirroring some form of social desirability. All in all, once again, strength in commitments seemed to determine well-being, while exploration was not such a significant factor.

H4: differences between statuses in mean changes related to psychological well-being

The surge in depression symptoms and school burnout among all statuses/students during the final school year was expected, as pressure on academic performance increases and students' vigor is tested. Why this was not the case for life satisfaction, with some statuses even showing slight improvement, is left as an open question. On the one hand, it could reflect the characteristic of the concept, capturing a more general form of well-being (i.e., "life"; Pavot & Diener, 2008) extending far beyond the school context in space and time than burnout and depression symptoms. On the other hand, ruminative moratorium showed the expected drop in life satisfaction. Nonetheless, the fact that school burnout rocketed among individuals in superficially committed moratorium suggests that their commitments are not "real". We discuss this in more detail below.

H5: stability and change in statuses

The results on status transitions also lend further support to previous findings (Meeus, 2018; Meeus et al., 2010). Most adolescents stay in the same status, especially so after a one-year interval. Similarly, achievement being the most stable group (i.e., with least transitions to other statuses) supports the notion that it is a relatively fixed endpoint of development. This is not to say that achievement is a once-and-for-all-conquered position but it is a coveted state of being related with high well-being. Further, the observation that individuals in superficially committed moratorium (cf. searching moratorium) showed the greatest instability is also in line with aforementioned studies.

Taken together, in line with Waterman's (2015) theory, we argue that *superficially committed moratorium* would be a more appropriate label for the profile than searching moratorium. The combination of strong identification with significant others, the great instability in psychological well-being and of the profile between measurement points, suggests that the commitments these individuals report are in fact very uncertain or non-existing because they are someone else's (i.e., other's expectations, social norms) future plans and that is also why these individuals are intensively exploring alternatives (therefore *moratorium*). The superficial personal investment of these individuals and lack of intrinsic motivation regarding their own future is precisely why their well-being drops so drastically (i.e., depression symptoms and school burnout increases) when they are confronted with the significant workload related to the matriculation exams during the final year of high school. That is, individuals with superficial commitments lack the sense of direction and meaning in their activity required to stay focused and healthy (see e.g., Cote & Levine, 1997; Korhonen & Rautopuro, 2019). For these reasons, the position is uncomfortable and difficult to maintain, with development proceeding either in the direction of stronger commitments and lower exploration or vice versa. Moreover, it is precisely commitments that are superficial and not exploration. If exploration was superficial, then there would not be a similar drop in well-being. On a further note, the high scores on commitment and life satisfaction could also be interpreted as related and indicative of an existing and expected (yet

temporary) future track which yields predictability, but precisely with the lack of internal motivation and stable well-being.

And yet, there are other explanations for the high commitment-high exploration configuration. One is that respondents knowingly or unknowingly reply according to a positive response pattern (i.e., high on all measures) because of fatigue or social desirability effects, for instance. One interpretation of our results supports this conclusion. Respondents in this profile scored high on all dimensions, including the three new ones. This could be compared in some ways with a lie detector because these respondents replied simultaneously and paradoxically that they are *currently exploring* future opportunities (exploration in breadth) and that they *did it before but not anymore* (past exploration in breadth). Although the response pattern appears biased, scores on psychological well-being were less contradictory, as already reported. In other words, the evidence for a positive response pattern was not conclusive. On the other hand, the items on past exploration in breadth (i.e., “I explored, but am not currently exploring”) may have been interpreted as double-barreled questions. That is, individuals who explored in the past and are currently also doing so might have had difficulties replying to these items. And yet, the consistent and expected associations between past exploration in breadth and exploration in breadth across the other profiles suggests that the overwhelming majority did not have issues with these items. Past exploration in breadth was interpreted as simply asking whether one had explored before and is not currently doing it anymore. On a further note, ruminative exploration also taps into a “ceaseless” and perpetual form of exploration.

Another explanation could be that there is no contradiction in indicating strong commitments and strong exploration because respondents are simply reflecting on different life domains when responding. By now there is ample evidence that identity should be studied within different life domains separately because identity development is not uniform across life domains (e.g., Goossens, 2001; Schwartz et al., 2015). After all, that is the core problem with having “general future plans” as the domain in the DIDS. Besides not knowing what specific domain the respondent is thinking of (occupation, relationship, etc.), there is no instruction saying that it is obligatory to refer to the same life domain when responding. So, although the point of the DIDS is to tap into a general sense of direction in life (viz. global identity), it still allows respondents to “switch” between life domains without the researcher knowing. In other words, respondents may be thinking that they are indeed very committed to some future plans (e.g., education/work life) but very uncommitted and exploratory regarding others (e.g., intimate relationships). This is possible even though we asked for the domain the respondent were thinking of (see below).

These inconsistencies, however, are not just a problem of domain specificity but a broader difficulty of assessing commitment level and quality in general and in surveys in particular (see e.g., Van Der Gaag et al., 2020). Namely, also those studies that apply a specific identity domain such as education/work and intimate relationships (both the DIDS and U-MICS measures) find a group with high commitment and exploration (e.g., Crocetti et al., 2008; Hatano et al., 2016; Luyckx et al., 2014). All this suggests that one might be committed within the same domain in some sense but not in another, at one level but not at another. After all, profiles that appear contradictory are not unusual in person-oriented research but are instead a product of the method (Bergman et al., 2003). For instance, in burnout and engagement research it is common to find a profile with high engagement and exhaustion (e.g., Salmela-Aro & Read, 2017). Relatedly, Waterman (1993) makes the distinction between different levels of identity crisis. That is, individuals in this case might be very certain about their choice of occupation (e.g., marketing) but uncertain and ruminative about whether to stay in this particular firm or field of marketing. Similarly, individuals might feel satisfied with their life overall, but still feel uncertain and anxious in relation to some more specific issues.

That is, commitments are complex, multi-layered and difficult to capture using surveys and statistics. However, instead of simply deleting contradictory statuses from analyses as Waterman suggests (Waterman, 2015), we encourage a more careful investigation of the identity

instruments in relation to all identity profiles. This is because the problem of profiles contradicting theory is not restricted to these profiles alone, but instead they remind us that we do not know how respondents interpret the questionnaire items. If we want to have a mass-sampling alternative to identity status interviews and further develop identity measures such as the DIDS, we need to scrutinize respondents' motives and the meanings they put into measurement items and certain response patterns. Cognitive interviews could offer more insight with the reservation, nonetheless, that one must be very cautious when interpreting subjective accounts (e.g., rationalizations) as motives are seldom transparent to respondents themselves (Potter & Hepburn, 2005).

H6: identity profiles and domains

As expected, our results revealed that the most common domains associated with future plans were work life/occupation followed by education. By contrast, only one out of ten thought about lifestyle while other domains were even more marginal. That is, although students on the academic track (compared to those on the vocational track) would perhaps be expected to think more about other issues (e.g., lifestyle), work life/occupation and education were the domains linked with future plans. Consequently, although “general future plans” can be criticized for ambiguity, these results nonetheless support previous theory and findings on the centrality of occupation (and related education) for planning for the future and identity development at this particular life stage (Erikson, 1968; Kroger & Haslett, 1991; Nurmi, 1991). Similarly, in terms of the individual identity processes, it is logical that those thinking of relationships/family scored significantly higher on identification with significant others than those thinking about work life/occupation or education. The category relationship/family entails other persons and dependence, requiring reciprocity unlike education or career plans.

Yet, an interesting question is what to make of the one fifth of students who thought about something else than occupation or education. In general, what are the relationships between the different domains? For instance, lifestyle was overrepresented among individuals in the moratorium profile, and leisure among individuals in the troubled diffusion profile, meaning proportionately many of these were primarily uncommitted, exploring and ruminating in lifestyle and leisure. An interesting question is what these individuals were thinking of – values, spare time, something else and why? Another open question is, can it be that they were simultaneously committed to work life/occupation or to some other domain? Unfortunately, our results do not provide a definite answer.

Examining scores on psychological well-being might give some indication. For instance, the moratorium group, scoring moderately high on commitments and high on exploration (i.e., contradictory according to Waterman) scored around the mean on well-being (viz. “untroubled”). This suggests that lifestyle, compared to work life/occupation, is a domain where commitments and exploration of other options can coexist in harmony. This makes sense considering that lifestyle might be much easier to choose, manage and influence than work life/occupation. That is, commitment and exploration do not exclude each other. Or it might also be that they were simultaneously firmly committed in the work life/occupation domain. By contrast, individuals in troubled diffusion scored very low on well-being despite the fact that many of them thought primarily about leisure, a domain in many ways comparable with the “lightness” of lifestyle. One possible explanation to this is that leisure does not fit well, or at least worse than lifestyle, with the age-specific developmental tasks (Elder & Giele, 2009). And yet, it is important to keep in mind that today work-life, education, lifestyle and leisure often fuse and overlap, which makes strict comparisons between these domains difficult. These issues would benefit from interviews with participants.

Finally, despite not being part of our focus, there was yet again not a single profile with significantly differing levels on the commitment dimensions (compare e.g., Mannerström et al., 2016; Schwartz et al., 2011; Zimmerman et al., 2013). On this point the DIDS clearly does not live up to its theory (Luyckx et al., 2008), being able to discern between commitment quantity and quality. In the future it would be important to evaluate carefully the added value of having commitment making as part of the

DIDS, when identification with commitment alone is the primary indicator of a sense of identity and a proxy for psychological well-being.

Limitations

Some limitations of the study must be taken into account. As stated before, we did not test the whole model proposed by Waterman (2015) because we employed the existing DIDS and extended it with three dimensions suggested by Waterman. Further, we did not perform a typical validation procedure where items are chosen from a pool based on factor analysis but instead we used directly the items suggested by Waterman. Similarly, criterion-related validity of the eight-dimensions was not examined and would be essential in future research. These might be reasons for why we were unable to detect the nine hypothesized profiles. Second, the exploration in depth dimension consisted of only one item in this study. Therefore, we were unable to assess its reliability and conduct a proper CFA. Finally, because identity interacts with the psychosocial context (Mannerström et al., 2016; Skhirtladze et al., 2016) and our sample consisted of voluntary Finnish high school students alone, the results are not necessarily generalizable to all Finnish adolescents, let alone to adolescents in other cultures.

Conclusion

Despite the limitations, this study contributes to our knowledge of the character of identity profiles and how *future plans* is interpreted by adolescents when using the DIDS. Above all, the study showed that 1) the eight-dimensional identity model consisting of the DIDS and three identity dimensions proposed by Waterman (2015), that is, identification with significant others, past exploration in breadth and current commitment-related activity, fit the data longitudinally well according to CFA, 2) six previously encountered profiles were replicated across both time points and with the expected associations with psychological well-being (achievement scoring highest and troubled diffusion and ruminative moratorium scoring lowest on psychological well-being, 3) as previously speculated, those in early closure had explored options in the past, 4) the status typically called searching moratorium would perhaps be better represented by the label superficially committed moratorium due to its instability as a profile and psychological well-being over time, and 5) high school students associate future plans primarily with work life/occupation, followed by education. All in all, then, this study sheds more light on identity statuses encountered in previous research as well as some of the issues and contradictions with these pinpointed by Waterman (2015). However, some of our conclusions related especially to the superficially committed moratorium status were speculative and definitely in need of more investigation. We recommend that future research employs interviews to dig deeper into the subjective meaning of high commitment-high exploration and improves coverage of identity concerns. Relatedly, it is also necessary to form a better understanding of differences in commitment domain, level and quality, and how these could better be captured by identity measures.

Disclosure statement

The authors have no conflicts of interest to declare that are relevant to the content of this article.

The data that support the findings of this study are available from the corresponding author, RM, upon reasonable request.

Funding

This research was supported by the Academy of Finland research grant [336138 and 320371] to Professor Katariina Salmela-Aro.

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Appendix A. Model fit indices in the measurement invariance testing (time)

	DF	χ^2	cf	p	RMSEA	CFI	TLI	SRMR
<i>DIDS:</i>								
Configural	331	906.042	1.0178	0	0.037	0.953	0.93	0.05
Metric	339	920.723	1.0187	0	0.036	0.952	0.93	0.051
Scalar	347	945.604	1.0143	0	0.037	0.951	0.93	0.052
Strict	362	948.705	1.0224	0	0.035	0.952	0.934	0.052
<i>SWLS:</i>								
Configural	159	162.993	1.0255	0	0.06	0.974	0.96	0.04
Metric	168	169.026	1.0092	0	0.057	0.974	0.964	0.041
Scalar	177	185.078	1.0242	0	0.056	0.971	0.965	0.042
Strict	187	204.175	1.0665	0	0.055	0.969	0.966	0.046
<i>Depression:</i>								
Configural	29	804.564	1.1583	0	0.056	0.951	0.941	0.04
Metric	33	820.999	1.153	0	0.055	0.95	0.944	0.042
Scalar	37	839.069	1.151	0	0.054	0.95	0.946	0.043
Strict	42	858.307	1.1645	0	0.053	0.949	0.948	0.045
<i>Burnout:</i>								
Configural	119	610.559	1.1049	0	0.056	0.947	0.932	0.061
Metric	127	641.191	1.0881	0	0.055	0.945	0.934	0.064
Scalar	135	714.585	1.088	0	0.057	0.938	0.93	0.065
Strict	144	743.176	1.0746	0	0.056	0.936	0.932	0.067

RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual.

Appendix B. Factor correlations of the DIDS across time

	CM1	EB1	RE1	IC1	ED1	ISO1	PEB1	CCRA1	CM2	EB2	RE	IC2	ED2	ISO2	PEB2	CCRA2
CM1	1.00															
EB1	0.37	1.00														
RE1	-0.64	0.19	1.00													
IC1	0.90	0.45	-0.59	1.00												
ED1	0.53	0.65	-0.15	0.60	1.00											
ISO1	0.23	0.13	0.13	0.32	0.16	1.00										
PEB1	0.25	-0.13	-0.01	0.24	-0.07	0.46	1.00									
CCRA1	0.71	0.63	-0.21	0.77	0.62	0.47	0.34	1.00								
CM2	0.67	0.26	-0.47	0.67	0.39	0.23	0.20	0.51	1.00							
EB2	0.12	0.58	0.12	0.17	0.33	0.09	-0.14	0.32	0.11	1.00						
RE	-0.54	-0.02	0.59	-0.54	-0.18	-0.08	-0.12	-0.28	-0.71	0.22	1.00					
IC2	0.64	0.35	-0.41	0.68	0.43	0.30	0.10	0.55	0.95	0.25	-0.68	1.00				
ED2	0.39	0.37	-0.22	0.40	0.45	0.06	-0.07	0.43	0.57	0.50	-0.24	0.60	1.00			
ISO2	0.20	0.09	0.01	0.14	0.08	0.59	0.22	0.26	0.22	0.09	0.13	0.24	0.15	1.00		
PEB2	0.26	0.01	-0.17	0.26	0.02	0.33	0.47	0.28	0.36	-0.22	-0.24	0.31	-0.10	0.42	1.00	
CCRA2	0.50	0.46	-0.22	0.57	0.46	0.42	0.09	0.70	0.70	0.49	-0.28	0.76	0.64	0.56	0.32	1.00

1 = T1; 2 = T2; CM1/2 = commitment making; EB1/2 = exploration in breadth; RE1/2 = ruminative exploration; IC1/2 = identification with commitment; ED1/2 = exploration in depth; ISO1/2 = Identification with significant others; PEB1/2 = past exploration in breadth; CCRA1/2 = Current commitment related activity

Appendix C. Standardized factor loadings of the DIDS across time

	CM1	EB1	RE1	IC1	ED1	ISO1	PEB1	CCRA1	CM2	EB2	RE2	IC2	ED2	ISO2	PEB2	CCRA2	R2
CM1_1	0.83																0.69
CM2_1	0.90																0.80
EB1_1		0.65															0.42
EB2_1		0.71															0.50
RE1_1			0.80														0.64
RE2_1			0.74														0.55
RE3_1			0.71														0.51
IC1_1				0.82													0.67
IC2_1				0.85													0.73
ED1_1					1.00												1.00
ISO1_1						0.59											0.34
ISO2_1						0.67											0.44
PEB1_1							0.61										0.37
PEB2_1							0.88										0.77
CCRA1_1								0.61									0.38
CCRA2_1								0.59									0.34
CM1_2									0.83								0.69
CM2_2									0.90								0.80
EB1_2										0.66							0.44
EB2_2										0.72							0.52
RE1_2											0.82						0.67
RE2_2											0.77						0.59
RE3_2											0.74						0.54
IC1_2												0.82					0.68
IC2_2												0.86					0.73
ED1_2													1.00				1.00
ISO1_2														0.60			0.36
ISO2_2														0.68			0.46
PEB1_2															0.60		0.36
PEB2_2															0.87		0.76
CCRA1_2																0.61	0.37
CCRA2_2																0.58	0.33

1 = T1; 2 = T2; CM1/2 = commitment making; EB1/2 = exploration in breadth; RE1/2 = ruminative exploration; IC1/2 = identification with commitment; ED1/2 = exploration in depth; ISO1/2 = Identification with significant others; PEB1/2 = past exploration in breadth; CCRA1/2 = Current commitment related activity

Appendix D. ANOVA for domains and identity processes at T2 (N = 779)

Variables	Domains							F-value	η^2
	Work life/ occupation	Education	Lifestyle	Relationship/ family	Leisure	Friendship	Something else		
Processes:									
CM	3.02 (1.19)	3.17 (1.13)	3.30 (1.06)	3.70b (.99)	2.77 (1.38)	3.25 (1.46)	2.55a (1.15)	3.39**	.03
IC	3.01 (1.15)	3.13 (1.08)	3.35b (.97)	3.66b (.87)	2.69 (1.18)	3.50b (1.25)	2.27a (.82)	4.54***	.03
EB	3.65 (.89)	3.72 (.85)	3.73b (.89)	3.46 (.88)	2.96a (1.18)	3.63 (.79)	3.18 (.75)	2.57*	.02
ED	3.69 (1.09)	3.85b (1.04)	4.00b (1.08)	3.78b (.90)	2.77a (1.30)	3.75b (1.16)	3.18 (1.12)	3.62**	.03
RE	3.39 (1.10)	3.34 (1.16)	3.27 (1.01)	3.04 (1.05)	2.85 (.83)	3.33 (1.14)	3.36 (1.12)	1.14	.00
ISO	2.52a (.92)	2.62a (.93)	2.53a (.95)	3.49b (1.03)	2.85 (.88)	3.06 (1.37)	2.64 (.60)	7.53***	.06
PEB	2.28 (.96)	2.26a (.99)	2.39 (1.05)	2.84 (1.11)	2.62 (1.00)	3.13b (.83)	2.59 (.94)	3.59**	.03
CCRA	2.81 (.96)	2.95 (.96)	3.27b (.97)	3.16 (.96)	2.54a (1.13)	3.00 (.96)	2.78 (.72)	3.31**	.03

CM = commitment making; IC = identification with commitment; EB = exploration in breadth; ED = exploration in depth; RE = ruminative exploration; ISO = Identification with significant others; PEB = past exploration in breadth; CCRA = current commitment-related activity. A profile mean is significantly different from another mean within the same row if they have different superscripts. A mean without a superscript is not significantly different from any other mean. Standard deviations are in parentheses. *** $p \leq .001$; ** $p \leq .01$, * $p \leq .05$