

# **Cultural Identity Dynamics: Capturing Changes In Cultural Identities Over Time And Their Intraindividual Organisation**

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## **ABSTRACT**

Important life transitions – such as migration – have the potential to enrich one’s sense of self, but they are also demanding and challenging. The current research investigates how cultural identities change and become configured over time among newly arrived international students and the social factors that predict these longitudinal changes. A four-wave longitudinal study was conducted during international students’ first year in their new country (N=278). Multivariate hierarchical linear modeling analyses allowed to unpack both baseline (between-person) and intraindividual change (within-person) effects. Whereas increased psychological need satisfaction via both the new and one’s heritage cultural group predicted increased identity integration, greater discrimination (i.e., both at baseline and an increase over time) predicted increased compartmentalisation and the predominance (categorisation) of one identity over the others. Results are discussed in light of novel theoretical developments in the acculturation and identity change literatures.

## **Introduction**

When people join new social groups – such as a new culture, nation, or organization –, what makes them endorse the new identity such that it comes to represent them as a person? And when this new identity develops and changes, how does one negotiate the potential clashes that may exist between past and present identities; in other words, how do people configure and come to reconcile these multiple identities within themselves? Migration is a prime example of an important yet stressful life transition that triggers fundamental identity changes (Ellis,

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MacDonald, Lincoln, & Cabral, 2008). With many industrialised countries experiencing significant increases in immigration (e.g., US, France, Germany, Canada; United Nations, 2015) and more than 232 million people worldwide residing in a country other than that of their birth (United Nations, 2013), understanding the change processes underpinning this life transition is of great social and theoretical interest.

To this end, the current research has two main goals: First, to uncover how international students, as a particular subgroup of migrants (Smith & Khawaja, 2010), organise and configure relevant cultural identities in their sense of self throughout an important life transition. And second, to identify how changes in two social factors (i.e., need satisfaction and discrimination) predict the development of these cognitive configurations over time. These goals are timely and important. Indeed, acculturation is by definition a process of change (Oppedal, 2006; Ryder & Dere, 2010). Yet, the norm in acculturation research, and in social psychology more generally, is still to investigate self-related processes cross-sectionally rather than longitudinally (see Demes & Geeraert, 2015, for a recent overview). Importantly, the understanding of who changes in the acculturation process, how, and in which direction remains unclear. Going beyond previous longitudinal investigations (e.g., Jasinskaja-Lahti, Liebkind, & Solheim, 2009; Tartakovsky, 2007, 2009; Wang et al., 2012), the current research seeks to understand how identities change over time and to unpack this process. Specifically, we investigate how the social factors that international students have access to upon arrival (a between-participant effect) – predict the way they identify with different cultural groups – i.e., their identity configurations. In addition, we test how the changes in these social factors over time (a within-participant effect) also shape these identity configurations. In this sense, the current research is the first, to our knowledge, to combine within a single study: (a) an intensive 4-wave longitudinal design over the course of international students' first year within their new country; (b) a refined approach to multiple identities and their organisation in the self; and (c) multivariate hierarchical linear analyses (Raudenbush & Bryk, 2001) modelling both within- and between-person effects (see Curran & Bauer, 2011). To set the stage for the current study, we first review relevant literature pertaining to how multiple identities are configured in the self-concept over time, which types of changes are involved in this process, and the social factors likely to predict these changes.

### *Capturing Identity Configurations and Changes over Time: The CDSMII*

To systematically account for how migrants configure their multiple identities within themselves and the different changes they experience when immigrating to a new country, we rely on the cognitive-developmental model of social identity integration (CDMSII; Amiot, de la Sablonnière, Smith, & Smith, 2015; Amiot, de la Sablonnière, Terry, & Smith, 2007). The CDMSII builds on developmental principles, according to which the self develops by becoming increasingly complex (Fischer, 1980). According to these principles, as people change and develop, their self-representation involves an increasing number of self-dimensions that are better integrated into an increasingly complex self-concept (Demetriou, Kazi, & Georgiou, 1999). It is through the establishment of cognitive associations that various self-components (such as cultural identities; Markus & Kitayama, 1991; Taylor, 2002) become organized in the self-concept.

**The CDSMII's Configurations of Identification.** An important feature of the CDMSII is that it proposes four configurations that characterize how identities are organized within the self. The first configuration – anticipatory categorization – takes place before the person joins a new group. When preparing to join a group, future group members may already feel a sense of belonging and identification with their new group. This takes place through the process of self-anchoring, whereby newcomers project their own personal characteristics onto this new group (Otten & Wentura, 2001; for a review, see van Vellen, Otten, Cadinu, & Hansen, 2016). For example, a Russian international student planning to immigrate to Canada for her university studies might imagine that Canadians (as a group) are as agreeable as she is herself. In the current research, because we recruited participants upon migration (not prior to migration) and followed them during their first year in the new country, we did not focus on the anticipatory categorization configuration.

The categorisation configuration implies identifying with one group over the others and seeing one identity

as predominant within the self, compared to the other identities (see also Roccas & Brewer, 2002). With this configuration, differences and discontinuities between the person's original groups and the new group he/she is in the process of joining are likely to be salient. When endorsing categorisation, new migrants may therefore more strongly identify with their heritage cultural group, to the detriment of the new cultural group. Among immigrants for example, categorization is illustrated by the phenomenon of "culture clash", where they feel torn between different cultures as they confront diverging sets of cultural demands (Brown & Holloway, 2008; Leong & Ward, 2000). This clash often includes an all-or-none tendency, such that the person does not identify with the new group at this point, but identifies very strongly with their heritage group (Tartakovsky, 2009). With categorization, the Russian international student might find that Canadians are totally different from the Russian people back home as she finds them unfriendly and tense. At this point, she cannot imagine considering herself a Canadian; she identifies predominantly with her heritage culture.

With time, exposure to, and experiences in the new social group, the newcomer will come to identify both with his/her original (heritage) group and also with the new group. The compartmentalization configuration allows one to endorse such multiple identities. Still, this configuration requires that one's different identities – i.e., identification with the heritage culture and with the new cultural group – are kept in distinct "compartments" in the self and remain fragmented, such that the cognitive similarities and linkages between these identities are not yet established. These identities are also context-dependent and activated depending on the social context (Benet-Martinez, Leu, Lee, & Morris, 2002; Roccas & Brewer, 2002). This context-dependency of identities aligns with self-categorization theory's classic propositions (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). For example, the Russian international student at this stage identifies as a Canadian in certain contexts, such as when speaking English with Canadian university students, and as a Russian in other contexts, such as when eating typically Russian foods with her Russian friends in Canada. While she identifies with both cultures, these multiple identities are not yet linked to one another cognitively within the self-structure.

It is when one's identities are integrated that the person feels that he/she belongs to different social and cultural groups, and importantly, that these different identities all contribute to his/her self-definition. Based on the social cognition and developmental literatures, the CDMSII defines social identity integration as taking place when multiple social identities are organized within the self-structure such that they are simultaneously important to the overall self-concept. When integrated, connections are established between these different identities so that they do not feel fragmented. As a result, the self feels coherent rather than conflicted. When identities are integrated, it is also possible for the individual to identify with all of his/her cultural groups. While other definitions of identity integration exist (e.g., Benet-Martinez & Haritatos, 2005; Berry, 1997), we believe this particular definition accounts for how multiple social identities, as particular elements of the self (Tajfel, 1981), are configured intraindividually and come to fit cognitively within the more general self-concept (Markus, 1977).

By proposing these configurations, the CDSMII hence accounts for a broader range of identification patterns compared to other existing models of cultural identification and participation (Berry, 1997; Downie, Mageau, Koestner, & Liodden, 2006; Nguyen, Huynh, & Benet-Martinez, 2009). For example, in their bicultural identity integration (BII) model, Benet-Martinez and Haritatos (2005; see also Nguyen et al., 2009) also capture how two cultural identities (e.g., identification with one's original "minority" cultural group and with the mainstream cultural group) are subjectively organized. The BII specifically proposes that cultural identities are integrated when they are compatible; compatibility between one's cultural identities occurs when identities are perceived to be similar (instead of different), and harmoniously related to one another (instead of conflicting). While these two dimensions of the BII reflect how integrated one's cultural identities are (low vs. high integration), the BII focuses only on the configuration of identity integration. Furthermore, these other integration models leave open the important question of how novel cultural identities become integrated in the self and develop over time. In contrast, the CDMSII directly accounts for the factors and processes that predict these changes.

**Temporal and Developmental Changes.** When a person moves from one cultural context to another, many aspects of his/her self-concept change to accommodate information about and experiences within a new cultural context. This raises questions about how exactly individuals' self-concept will accommodate this information over time and organise their diverse cultural identities intraindividually – within their sense of self (Cervone, 2005). Using the CDMSII as a guide, the current study aims to explore how the specific configurations of categorisation, compartmentalization, and integration change over time, throughout international students' first year into a new country. We also seek to test how the variations in two important social factors – i.e., the extent to which needs are satisfied by one's cultural groups and the experience of discrimination – shape the development of these configurations.<sup>1</sup>

Indeed, a goal of acculturation research is to understand the changes that take place as a result of continuous and direct contact between individuals having different cultural origins (Redfield, Linton, & Herskovits, 1936). Since this formulation, some studies have employed longitudinal designs to capture the changes experienced by immigrants (see Demes & Geeraert, 2015, for a review). Such studies are still relatively rare, and empirical findings have yielded mixed results for the specific change patterns occurring over time. Some research has revealed that identification with the mainstream (new) group increased over time, but not linearly (e.g., Jasinskaja-Lahti & Liebkind, 1998). Others provided support for the hypothesized U-shape pattern of change (Lysgaard, 1955), whereby identification with the new cultural group is initially relatively high, then decreases during the first year, and then increases subsequently (Hechanova-Alampay, Beehr, Christiansen, & Van Horn, 2002; Tartakovsky, 2008). However, other longitudinal studies do not support such a U-shape pattern of change per se (e.g., Geeraert & Demoulin, 2013; Ward, Okura, Kennedy, & Kojima, 1998). We hence need to systematically account for these temporal processes and also investigate idiosyncratic change patterns.

**Uncovering specific changes and effects.** The current research aims to do so by focusing on two types of effects hypothesized to take place when migrating into a new country. These two types of effects – which are theoretically and socially relevant to migrant adaptation – include: (1) the effect of the baseline measures (at Time 1) on the subsequent changes experienced over time (a between-person effect); and (2) the overall change taking place within each individual, from baseline up to the end of the study (a within-person effect; Raudenbush & Bryk, 2001; see also Brown et al., 2013; Demes & Geeraert, 2015).

Concretely, capturing the first effect – how baseline measures predict subsequent changes over time – allows testing of which factors and resources present initially in one's environment upon arrival are particularly important in determining the pattern of change that will be experienced afterwards (Ramelli, Florack, Kasic, & Rohmann, 2013; Tartakovsky, 2007). This between-person effect hence has significant social implications for how to best support immigrant newcomers immediately upon arrival in their new country, and what is most likely to be beneficial for them over time (e.g., Tartakovsky, 2007; Ying, 2002). Returning to our Russian international student, a significant baseline effect would imply that the more her cultural group supports her needs within the very first months upon arrival (i.e., at baseline) for example, the more likely this may then shape and taint how she will conceive and configure her own identities over the entire course of the study (i.e., throughout her first year upon arrival).

The second type of effect – the within-person change approach – accounts for the fact that newcomers arriving into a country can experience different trajectories of change, with some individuals showing increases over time while others experience decreases. This within-person effect hence allows to capture these unique

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1 In the original theoretical formulations of the CDMSII, the identity configurations were expected to operate as stages and to follow a temporal sequence from anticipatory categorisation to integration over time. Yet, and based on developmental principles, these configurations do not represent mutually exclusive, rigid stages. At any point in time, a person may shift in terms of the identity configuration he/she endorses, and dynamically alternate between his/her preferred identity configurations over time (Amiot et al., 2007). Empirically, while the configurations of categorisation, compartmentalisation, and integration have been found to cluster on distinct factors, both in exploratory and in confirmatory factor analyses, some configurations also presented moderate intercorrelations (Yampolsky et al., 2016).

trajectories and to predict them. More specifically, a significant within-person change implies that the person has shown a significant overall variation (either positive or negative) over the duration of the study. The Russian international student might report experiencing significant increases in discrimination from the mainstream cultural group over the course of the study. Such a change would imply that her experiences of discrimination increased from the beginning to the end of the study period. This pattern of within-person change is also then likely to predict the type of identity configuration she will develop over the course of the study (i.e., possibly one which does not fully embrace a new cultural identity). This within-person effect hence has social implications given that it allows us to pinpoint the social factors that need to be sustained/increased or decreased over time so as to benefit immigrants' adjustment (see also Stoessel, Titzmann, & Silbereisen, 2014).

### *Antecedents of Identity Change: The Role of Social Factors*

While the development of the identity configurations occurs cognitively, the CDMSII also directly accounts for the social factors that facilitate the development, change, and complexification of identities vs. those that impede this developmental process over time. To this aim, the current research investigates: (1) the extent to which fundamental psychological needs for autonomy, competence, and relatedness are satisfied (Deci & Ryan, 2000), both via the novel group and the heritage group; and (2) experiences of discrimination encountered in the new group setting. While the roles of these social antecedents have been investigated in prior work in social psychology and acculturation (Wang, & Atwal, 2015; Weinstein, Khabbaz, & Legate, 2016), in this article we specifically unpack how two types of effects (i.e., baseline and intraindividual changes) in these two factors predict, in turn, the identity configurations that will develop during a cross-cultural transition.

**Need satisfaction via the heritage and new cultural groups.** Developmentalists have long acknowledged the role of social support as a crucial social factor that facilitates the development of identities (Harter, 1999). Herein we investigate need satisfaction via social groups (Bettencourt & Sheldon, 2001; Sheldon & Bettencourt, 2002) as a specific social nutriment that should facilitate the development and integration of one's multiple identities (see also La Guardia, 2009). While both social support and need satisfaction received via one's new social group have been found to predict social identity changes over time (Amiot, Terry, Wirawan, & Grice, 2010), herein we focus on need satisfaction given that it also plays a potent role in intercultural contexts per se (Chirkov, Ryan, Kim, & Kaplan, 2003; Chirkov, Vansteenkiste, Tao, & Lynch, 2007).

Overall, social support is important for immigrants (Smith & Khawaja, 2010) and multicultural individuals (e.g., Jasinskaja-Lahti, Liebkind, Jaakkola, & Reuter, 2006; Kim, & Noh, 2016), as it promotes greater well-being. Social support can be achieved through participation in the mainstream (or new) culture by connecting to the majority groups or in the heritage culture by connecting with the other immigrants from one's country. Social participation in the mainstream culture deserves special attention as it has been related to a variety of positive outcomes. For example, forming friendship links with members of the new cultural community has been found to facilitate adjustment among international students (Smith & Khawaja, 2010; Duru & Poyrazli, 2011). Perception of receiving social support from the mainstream culture has been linked to lower stress, lower perception of racial discrimination, and posttraumatic stress symptoms, such as feeling upset or having disturbing memories related to discrimination (Wei, Wang, Heppner, & Du, 2012). In terms of social participation, taking part in activities with members of the mainstream culture has also been found to predict increased adjustment and to a more full acknowledgement of being a member of the mainstream group (Ryder, Alden, & Paulhus, 2000). Based on this prior work, in the current research, we expect that an intraindividual increase in need satisfaction via the new cultural group should lead to an increase in identity integration per se (H1).

As for the support originating from one's heritage group, this source of social support has been found to play a more ambiguous role in predicting the adjustment of immigrants (Ryder et al., 2000). Indeed, whereas support from one's heritage group has been found to be useful to migrants upon arrival, in providing them with useful concrete information and helping them establish a social network (which is likely to expand and diversify



afterwards; e.g., Simich, Beiser, & Mawani, 2003), this support could also block the migrant from developing a broader and more diverse social network over time. Nguyen, Messé, and Stollak (1999) also showed that involvement with the heritage cultural groups was related to better family relationships in Vietnamese students but also to greater psychological distress. Participation in the activities with heritage cultural group was inconsistently or weakly linked to adjustment (Ryder et al., 2000). Because of these ambiguous and potentially contradictory effects, we do not put forward specific hypotheses with regards to need satisfaction via one's heritage group; we still account for this form of support for exploratory purposes.

**Discrimination.** In contrast to need satisfaction, experiencing discrimination, a form of social threat, should impede the development of new identities over time (Amiot et al., 2007, 2015). Indeed, experiencing social isolation, disapproval, rejection, and discrimination has been found to generate stress, decrease identification with the mainstream national group (Jasinskaja-Lahti et al., 2009), and block the integration of multiple identities (Benet-Martínez & Haritatos, 2005; Sam & Berry, 2006; Tadmor & Tetlock, 2006). Among international students as well, discrimination has detrimental effects on different adjustment outcomes (i.e., higher depression, lower well-being; Smith & Khawaja, 2010). In terms of multiple identification specifically, feeling that one's cultural groups and identities are unequally socially valued produces an imbalance within the individual's self-concept, such that the valued identity takes center stage while the devalued identity becomes less important to the self (de la Sablonnière et al., 2016; Lalonde, Taylor, & Moghaddam, 1992).

In the current research, we build on yet extend these prior findings by expecting that discrimination experienced upon arrival (at baseline) should be quite impactful as a first immigration experience and should predict: Higher categorisation – as a less complex and more restrictive configuration; (H2) and higher compartmentalisation – as a means to strategically showcase (vs. hide) particularly valued (vs. devalued) aspects of the self across specific contexts (H3). In contrast, baseline discrimination should predict lower identity integration (H4). We also expect these links to emerge over time, among individuals who experience an intraindividual increase in discrimination. In this case, a within-person increase in discrimination should predict: Higher categorisation (H5), higher compartmentalisation (H6), and lower identity integration over time (H7).

## *The present research*

In this article, we present findings from a 4-wave longitudinal study conducted among international students in Montréal. Taking advantage of the longitudinal nature of this study's design and of advanced statistical techniques, we investigate a number of research questions that are central to social psychology and acculturation. We also rely on the CDMSII for this research, given that the CDMSII accounts for a wider range of identity configurations and for the temporal processes through which individuals develop a new identity and come to embed it into their self-concept. We specifically seek to examine how both between-person (baseline levels) and within-person (intraindividual increases/decreases) effects in the social factors (i.e., need satisfaction via one's new cultural group, discrimination) predict changes in the identity configurations of integration, compartmentalisation, and categorisation over the course of the study.

Methodologically, following international students from their first months into their new country throughout the first year upon arrival was considered an appropriate time frame to capture significant variations in the constructs of interest based on prior work that had also investigated changes in need satisfaction, social support, and identity processes over time (e.g., Amiot et al., 2010; Amiot, Terry, & McKimmie, 2012; de la Sablonnière et al., 2016; Smith, Amiot, Callan, Terry, & Smith, 2012). This timeframe also ensured that our participants already had some knowledge of their new country when they completed the first questionnaire. We focus here on international students as a specific population of immigrants. This population was targeted because: (1) when migrating, international students also confront issues of stress and adjustment, social participation, and discrimination (Cemalcilar & Falbo, 2008; Poyrazli & Lopez, 2007; Searle & Ward, 1990); (2) identity processes operate among this population (Schmitt, Spears, & Branscombe, 2003), even if they are not planning on immigrating to their new country permanently; (3) international students are more accessible compared to other

migrants, in that they can be reached through the internet to participate in the research, which allows us to minimise drop-out over time in a longitudinal design; and (4) international students typically arrive at a predictable time, just before the start of the academic year. This last feature is crucial as it allows us to obtain systematic and equivalent baseline effects, which is one of the key effects investigated in the current research.

The study took place in Montréal, a highly multicultural and multilingual city located in the majority French-speaking Province of Québec, Canada (Statistics Canada, 2011). Given that our sample includes participants who are from a diversity of cultural backgrounds, we can generalize our findings more broadly than has been possible in previous research (e.g., Wang et al., 2012). To account for the multiple cultural and linguistic groups that co-habit in Montréal, we also allowed our participants to nominate and chose which new cultural identity they are in the process of joining. This novel methodological procedure allowed each participant to select a new cultural identity that is relevant and meaningful to him/her.

Statistically, and to capture the hypothesized between- and within- person effects, multivariate longitudinal mixed effects modeling analyses are employed (HLM; Raudenbush & Bryk, 2001). Such analyses also allow us to account for the hierarchical nature of longitudinal data (time points nested within a person) and simultaneously take into account the interrelations that exist between the dependent variables tested in each analysis. In all analyses, we accounted for levels of identification with both participants' own new and heritage cultural groups. Doing so allowed to confirm that the identity configurations are associated with the expected patterns in levels of identification, also over time.

In addition, to further validate the MULTIIS's three configurations, also with longitudinal data, we explore the associations between the levels of identification variables and each of these configurations. Based on prior findings (Yampolsky et al., 2016), we expect that the categorisation configuration will be predicted by the baseline effect (upon arrival) of identification with one's heritage group (but not by identification with one's new cultural group. In contrast, both the compartmentalisation and integration configurations – as multiple identity configurations – should be predicted by the baseline effects of identification with the heritage and with the new cultural groups. Identity integration should also be predicted by an intraindividual increase in identification with the new cultural group per se.

## **Methods**

### *Participants and procedure*

Participants were international students living and studying in the Montréal area, newly arrived just before the start of one of three academic years: 2011-2012, 2012-2013, or 2013-2014. Recruitment was conducted in two universities, one French-speaking and one English-speaking, both of which have a large contingent of international students. At the beginning of each academic year in August and September, a team of research assistants (RAs) attended student orientation events organized by these universities in order to recruit eligible students. In terms of inclusion criteria, participants needed to: (1) have lived less than three months in Québec; (2) plan to attend a university in Montréal for at least one year; and (3) hold a student visa. If students met all three criteria, the RAs handed out a flyer and explained the research objectives and procedures to them. RAs also emphasized to potential participants that participation was completely voluntary and there was no penalty or harm for not participating. Interested students were then invited to provide their contact information to complete online questionnaires four times (in September, November, January and March) throughout their first year of study in Montréal. Participants then received a link to each online questionnaire via e-mail at these four time points. At each time point, participants who completed the online questionnaire received a \$10 online bookstore gift certificate via e-mail. At the end of each academic year, we also conducted raffles for participants who completed all four online questionnaires in that academic year, with three cash prizes of \$100, \$150, and \$250 given each year.

The same recruitment procedure was used for all three years of data collection, thus yielding three cohorts of participants. Across the three years, 492 eligible international students participated in the Time 1 (September) assessment. A total of 278 participants completed at least one assessment in addition to Time 1 (i.e., our criterion for including them in the main analyses), as follows: 263 participants returned to complete the Time 2 questionnaire, 171 returned for the Time 3 questionnaire, and 189 returned to complete the Time 4 questionnaire. Participants who skipped one assessment were still invited again at the subsequent time point: e.g., a person could complete Times 1, 2, and 4. In summary, 68 participants completed two assessments, 75 participants completed three assessments, and 135 participants took part in all four assessments. Attrition rates (i.e., participants who did not continue after the Time 1 questionnaire) were similar across the three years of data collection (44% in year 1, 40% in year 2, and 49% in year 3).

To test whether attrition could have impacted the results, we used logistic regression on the complete data (i.e., including all three cohorts) to predict the probability of completing only the first questionnaire ( $N = 214$ ) vs. completing more than one questionnaire ( $N=278$ ), with all study variables entered as predictors. None of the predictors were statistically significant (all  $p$  values  $> .05$ ), indicating that there were no statistically significant differences between participants who completed only one questionnaire vs. two, three or four questionnaires, on any of the study variables. When we also entered demographic variables as predictors, namely, cohort, age, sex, university (French-speaking vs. English-speaking), and native language (French vs. Other) in addition to the study variables in these analyses, we found that males and younger participants were more likely to leave the study after the first assessment than females ( $\beta=.47$ ,  $SE=.21$ ,  $t = 2.28$ ,  $p=.02$ ) and older participants ( $\beta=-.31$ ,  $SE=.12$ ,  $t=-2.62$ ,  $p=.01$ ; for similar effects, see also Demes & Geeraert, 2015; Karsenti, & Thibert, 1994).

As there were also no differences across the three cohorts of students (tested with logistic regressions with Bonferroni correction), the main analyses included participants who had completed at least two questionnaires and the data were collapsed across the cohorts. A total of 278 international students (65.8% females) were included in the analyses. They came from 44 different countries: 68.7% came from a European country, 11.2% from an Asian country, 7.2% from North America, 5.4% from Central and Latin America, 3.6% from the Middle East, and 3.6% from Africa, with one person who did not indicate his/her country of origin.

About 51% of the participants were pursuing an undergraduate degree and 49.4% were pursuing a graduate degree. The mean age among our participants at Time 1 was 22.43 years (range=16-59). A majority (58.3%) of the participants were attending a French-speaking university. A majority of participants reported either English (10.8%) or French (57.6%) as their native language.<sup>2</sup> Other native languages identified by our participants included Arabic (3.2%), Baoulé (0.4%), Bengali (0.7%), Bini (0.4%), Bulgarian (0.4%), Chinese (5%), Mauritian Creole (0.4%), Danish (0.4%), Ewe (0.4%), Farsi (0.4%), Fefe (0.4%), German (2.9%), Gujarati (0.4%), Hindi (0.7%), Japanese (0.4%), Konkani (0.4%), Marathi (0.4%), Mina (0.4%), Norwegian (0.4%), Pashto (0.4%), Persian (1.1%), Portuguese (1.8%), Punjabi (0.4%), Serbian (0.4%), Spanish (6.5%), Tamil (0.4%), Telugu (0.7%), Urdu (1.1%), Vietnamese (1.1%), and Wolof (0.4%).

## **Measures**

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2 Given that French is the official language of the province of Québec, where the study was conducted, settling in Montréal with French as a native language may represent a different experience than arriving with other native languages. We explored this possibility, which was not central to the current investigation, by running supplementary analyses. Namely, we examined whether native language (French vs. Other) moderated the effect of predictors of identity configurations by adding interaction terms between native language and all the predictors. The only statistically significant moderation effect concerned the role of discrimination from the new group, such that compared to native speakers of French, higher discrimination was associated with less identity integration for speakers of other languages. Native French speakers face less challenges adapting to life in Québec because they already master the mainstream language, and as such, discrimination may jeopardize identity integration to a lesser extent than for native speakers of other languages.



Each of the following measures was taken at each of the four time points.

**Identification variables.** Identification with one's heritage cultural group and with the new cultural group was derived from the cognitive and affective dimensions of social identification (Jackson, 2002; see also Leach et al., 2008), using a 7-point rating scale, ranging from 1="Doesn't correspond at all" to 7="Corresponds exactly". Identification with the heritage cultural group was assessed by averaging the 4 cognitive identification items ( $\alpha$ s=.88, .89, .92, .91 for Times 1 to 4, respectively; e.g., "I identify myself as a member of the heritage cultural group") and the 4 affective identification items ( $\alpha$ s=.91, .92, .93, .93, for Times 1 to 4, respectively; e.g., "I am proud to be a member of the heritage cultural group"). Similarly, identification with the new cultural group was assessed by averaging the cognitive (4 items;  $\alpha$ s=.90, .92, .92, .93, for Times 1 to 4, respectively; e.g., "I identify myself as a member of the new cultural group.") and affective (4 items;  $\alpha$ s=.84, .86, .85, .89, for Times 1 to 4, respectively; e.g., "I am proud to be a member of the new cultural group.") dimensions of identification with the new cultural group. At each time point, before answering these questions participants were asked to specify their own heritage cultural group and new cultural group. Using the features of our online survey software, these group labels were then embedded into the identification measure so that each participant would respond to items tailored to their specific identities.<sup>3</sup> Doing so allowed participants to respond to the questionnaire with relevant identities in mind.

**Identity configurations.** Based on the CDMSII described above, the three identity configurations of categorisation, compartmentalisation, and integration were measured with the Multicultural Identity Integration Scale (MULTIIS; see Yampolsky, Amiot, & de la Sablonnière, 2016, for the full list of items). The MULTIIS extends beyond previous bicultural identity integration scales (i.e., Benet-Martinez & Haritatos, 2005; Downie, Koestner, ElGeledi, & Cree, 2004; Tadmor & Tetlock, 2006) by: (1) measuring three distinct multicultural identity configurations instead of focusing on degree of integration alone (high vs. low); (2) accounting for any number of cultural identities instead of being limited to two identities, thereby allowing researchers to capture the cultural diversity experienced by a growing number of individuals in our societies; and (3) accounting for how exactly these multiple identities are reconciled and organized by individuals within the self.

The MULTIIS has been found to have adequate factorial, discriminant, and convergent validity, as well as high reliability; the integration subscale of the MULTIIS has also shown positive associations with some well-being indicators (i.e., positive affect, vitality, personal growth) over and above the predictive power of other established identity integration scales such as the BII (Yampolsky et al., 2016). Using a 7-point rating scale ranging from 1="Not at all" to 7="Exactly", three configurations were assessed: (1) Categorisation (7 items;  $\alpha$ s=.70, .75, .77, .83, for Times 1 to 4, respectively; e.g., "I identify with one culture more than another"); (2) Compartmentalisation (11 items;  $\alpha$ s=.81, .85, .89, .89, for Times 1 to 4, respectively; e.g., "Each my cultural identities fits separately within my self"); and (3) Integration (11 items;  $\alpha$ s=.85, .86, .87, .88, for Times 1 to 4, respectively; e.g., "My cultural identities complement each other").

**Social factors.** Psychological need satisfaction received via one's new cultural group and via one's heritage

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3 New cultural identities nominated by participants throughout the study could be grouped into four broad categories: Canadian (18%), Montréalais (28%), Québécois (30%), and Other (24%). Exploring patterns of new identity nominations was not the focus of the current investigation (see Arias-Valenzuela, Amiot, & Ryder, 2016). Nonetheless, as supplementary analyses, we examined whether the new cultural identity participants nominated was related to outcomes of interest. The only difference that emerged revealed that, in comparison to participants who nominated the "Montréalais" or "Other" as their new identity, those who nominated "Canadian" as their new identity reported less identity integration. This difference could be explained by the relative ease of integrating a more proximal new identity (e.g., "Montréalais") which is also less abstract but more salient and likely to be associated with concrete interpersonal relationships they are developing in their city. The Canadian identity in the context of Québec is still contested; while the sovereignist movement in Québec (in favour of a strong Provincial identity and a non-existent Canadian identity) has weakened substantially over the past decade (Changfoot, & Cullen, 2011), the Canadian identity may represent a superordinate identity that's relatively foreign from and imposed onto the Québécois people (Lalonde, Cila, & Yampolsky, 2016).

cultural group was assessed by adapting Sheldon and Bettencourt's (2002) measure (using two sets of three items with mirror wording) to specifically assess how the needs for autonomy ("To what extent do you feel free to express who you are in this group?"), relatedness ("To what extent do you feel a positive and strong relationship with members of this group?"), and competence ("To what extent do you feel like a competent member of this group?") were satisfied by each of these groups (Deci & Ryan, 2000; see also Amiot et al., 2010). Responses were made using a 7-point rating scale: 1="Not at all" to 7="Very true" ( $\alpha$ s=.90, .91, .91, .93, for Times 1 to 4, respectively, for the needs satisfied via the heritage cultural group;  $\alpha$ s=.86, .88, .90, .91, for Times 1 to 4, respectively, for the needs satisfied via the new cultural group).

The 6-item scale for discrimination was an in-house measure to assess perceived discrimination by the new cultural group participants were joining (e.g., "To what extent do members of the new cultural group insult you because you belong to a specific social group?";  $\alpha$ s= .91, .92, .95, .94, for Times 1 to 4, respectively). Responses were based on a 7-point rating scale, ranging from 1="Never" to 7="Always".

## Results

Table 1 presents the descriptive statistics and bivariate correlations for each time point. For all HLM analyses, variables were entered hierarchically, with predictors of interest entered in the second and third steps. Please note that we eliminated one multivariate outlier from these main analyses (based on Mahalanobis distances evaluated at  $p < .001$ , Meyers, Gamst, & Guarino, 2006).<sup>4</sup> Tables with unstandardized coefficients are available from the authors upon request.

### *Summary of hypotheses*

We expect that the more needs are increasingly satisfied by one's new cultural group (intraindividually), the more identity integration should increase (H1). In terms of the discrimination experienced, the baseline discrimination encountered should predict increased categorisation (H2) and compartmentalisation (H3) but lower identity integration (H4). Experiencing a significant within-person increase in discrimination over time should also predict an increase in categorisation (H5) and in compartmentalisation (H6), but a decrease in identity integration (H7). In terms of identification, we expected that baseline effects (upon arrival) of identification with one's heritage (but not the new cultural) group would predict categorisation configuration (H8); that baseline effects of identification with the heritage and the new cultural groups would predict compartmentalisation and integration configurations (H9); and that intraindividual increase in identification with the new cultural group would predict identity integration (H10).

To further validate the MULTIIS's three configurations, also with longitudinal data, we explore the associations between the levels of identification variables and each of these configurations. Based on prior findings (Yampolsky et al., 2016), we expect that the categorisation configuration will be predicted by the baseline effect (upon arrival) of identification with one's heritage group (but not by identification with one's new cultural group; H8). In contrast, both the compartmentalisation and integration configurations – as multiple

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4 Given that French is the official language of the province of Québec, where the study was conducted, settling in Montréal with French as a native language may represent a different experience than arriving with other native languages. We explored this possibility, which was not central to the current investigation, by running supplementary analyses. Namely, we examined whether native language (French vs. Other) moderated the effect of predictors of identity configurations by adding interaction terms between native language and all the predictors. The only statistically significant moderation effect concerned the role of discrimination from the new group, such that compared to native speakers of French, higher discrimination was associated with less identity integration for speakers of other languages. Native French speakers face less challenges adapting to life in Québec because they already master the mainstream language, and as such, discrimination may jeopardize identity integration to a lesser extent than for native speakers of other languages.

identity configurations – should be predicted by the baseline effects of identification with the heritage and with the new cultural groups (H9). Identity integration should also be predicted by an intraindividual increase in identification with the new cultural group per se (H10).

### *Predicting Changes in Identity Configurations*

Preliminary HLM analyses with only time as a predictor showed that identification with the new cultural group increased significantly over time ( $\beta(\text{SE})=0.19$  (0.03),  $t(227.70)=6.41$ ,  $p<.001$ , 95% CI=[0.13; 0.25]), but that identification with the heritage cultural group remained stable ( $\beta(\text{SE})=-0.02$  (0.02),  $t(254.94)=-0.90$ ,  $p=.37$ , 95% CI=[-0.07; 0.03]). Similarly, discrimination from the new cultural group and need satisfaction from the heritage cultural group did not statistically change over time ( $\beta(\text{SE})=.02$  (0.03),  $t(227.42)=0.64$ ,  $p=.52$ , 95% CI=[-0.03; 0.07]; and  $\beta(\text{SE})=-0.04$  (0.03),  $t(229.32)=-1.45$ ,  $p=.15$ , 95% CI=[-0.09; 0.01], respectively). However, need satisfaction from the new cultural group increased significantly over time ( $\beta(\text{SE})=0.19$  (0.03),  $t(239.45)=7.04$ ,  $p<.001$ , 95% CI=[0.14; 0.24]).

Table 2 presents the results of the multivariate mixed effect modeling of changes in identity configurations over time – with categorisation, compartmentalisation, and integration as the dependent variables. A random effect was specified for both intercept and slope, but no random effect for their covariance, based on results from simulation-based exact likelihood ratio tests of the presence of variance components. Results (Step 1) indicate that levels of identity integration increased over time significantly, whereas categorisation and compartmentalisation levels did not notably change. Overall, introducing time in the model accounted for 14% of residual variance.

**Role of social factors.** As shown in Table 2 (Step 2), there were both between- and within-person effects of need satisfaction from the cultural group on integration. This indicates that people whose needs were more fully met by their new cultural group upon arrival experienced greater identity integration over time. Similarly, greater increases in the degree to which one's needs were met by the new group over time were related to a greater integration of one's identities (confirming H1). In addition, greater baseline need satisfaction in the new cultural group (between-person effect) was significantly associated with lower levels of compartmentalisation over time. Interestingly, with regards to needs satisfaction via the heritage group, greater increases in the degree to which one's needs were met by the heritage group over time were also associated with a greater identity integration. However, an intraindividual increase in need satisfaction by the heritage group over time did not predict a significant increase in categorization or compartmentalisation.

Both between- and within- effects of discrimination on categorisation and on compartmentalisation were also positive and statistically significant: Participants who experienced more discrimination in the new cultural group at the beginning of the study categorised (supporting H2) and compartmentalised (H3) their identities more over time. Greater increases in discrimination over time were also related to greater categorisation (H5) and compartmentalization (H6). There were no statistically significant associations between perceived discrimination and identity integration, both in terms of the baseline and the within-person effects (which fails to support H4 and H7, respectively). The introduction of the social factors accounted for an appreciable proportion of intercept and slope variance in identity configurations (intercept  $R^2 = .08$  and slope  $R^2=.14$  for categorisation; intercept  $R^2=.09$  and slope  $R^2=.07$  for compartmentalisation), in particular for identity integration (intercept  $R^2=.14$  and slope  $R^2=.61$ ).

**Table 1 | Descriptive Statistics and Bivariate Correlations**

Variable	Time	1	2	3	4	5	6	7	8
1. Categorization	1	3.44(1.02)	0.59****	-0.12*	0.06	-0.12	0.19**	0.34****	-0.06
	2	3.63(1.1)	0.71****	-0.04	0.17**	-0.08	0.20**	0.32****	0.13*
	3	3.49(1.09)	0.75****	-0.12	0.13	-0.13	0.13	0.41****	-0.01
	4	3.52(1.17)	0.72****	-0.19**	0.08	-0.15*	0.26****	0.30****	-0.05
2. Compart-mentalization	1		3.22(0.96)	-0.13*	-0.07	-0.13*	0.26****	0.20****	0.11
	2		3.26(1.01)	-0.11	0.01	-0.12	0.27****	0.22****	0.23****
	3		3.22(1.1)	-0.23**	-0.08	-0.20**	0.21**	0.19*	0.09
	4		3.21(1.11)	-0.26****	-0.10	-0.17*	0.30****	0.18*	0.03
3. Integration	1			4.88(0.93)	0.15*	0.24****	-0.07	0.22****	0.22****
	2			5.02(0.92)	0.14*	0.27****	-0.18**	0.17**	0.20**
	3			5.13(0.93)	0.32****	0.39****	-0.07	0.19*	0.28****
	4			5.14(0.95)	0.30****	0.35****	-0.13	0.14	0.27****
4. Need satisfaction from heritage group	1				5.96(1.08)	0.08	-0.18**	0.24****	-0.03
	2				5.89(1.12)	0.19**	-0.34****	0.33****	-0.08
	3				5.88(1.11)	0.23**	-0.19*	0.40****	-0.06
	4				5.83(1.16)	0.30****	-0.23**	0.37****	-0.05
5. Need satisfaction from new group	1					4.64(1.27)	-0.12	0.04	0.21****
	2					4.92(1.29)	-0.22****	0.06	0.25****
	3					5.11(1.28)	-0.29****	0.13	0.25**
	4					5.2(1.21)	-0.33****	0.04	0.27****
6. Discrimination	1						1.56(0.59)	-0.10	0.01
	2						1.6(0.63)	-0.11	0.07
	3						1.52(0.61)	-0.07	-0.06
	4						1.59(0.65)	0.02	-0.08
7. Identification with heritage cultural group	1							5.52(1.23)	0.00
	2							5.49(1.29)	0.10
	3							5.26(1.38)	0.15
	4							5.43(1.38)	0.17*
8. Identification with new cultural group	1								3.94(1.47)
	2								4.30(1.40)
	3								4.37(1.39)
	4								4.64(1.47)

Note. Entries in the diagonal represent mean values (SD). \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Table 2 | Modeling Changes in Identity Configurations Over Time**

Predictors	Criterion variable									LRT(df)
	Categorisation			Compartmentalisation			Integration			
	$\beta$ (SE)	$p$	95% CI	$\beta$ (SE)	$p$	95% CI	$\beta$ (SE)	$p$	95% CI	
Step 1										72.94(6)***
Time <sup>a</sup>	0.04(0.03)	0.154	[-0.01;0.09]	0.01(0.03)	0.830	[-0.05;0.06]	0.07(0.03)	0.005	[0.02;0.13]	
Step 2										158.04(18)***
Baseline need satisfaction - heritage culture (between-person effect)	0.09(0.05)	0.081	[-0.01;0.19]	-0.02(0.05)	0.773	[-0.12;0.09]	0.14(0.05)	0.007	[0.04;0.25]	
Change from baseline need satisfaction – heritage culture (within-person effect)	0.06(0.04)	0.091	[-0.01;0.13]	0.04(0.04)	0.324	[-0.04;0.11]	0.10(0.04)	0.004	[0.03;0.17]	
Baseline need satisfaction – new culture (between-person effect)	-0.07(0.05)	0.160	[-0.17;0.03]	-0.11(0.05)	0.036	[-0.21;-0.01]	0.25(0.05)	0.000	[0.15;0.35]	
Change from baseline need satisfaction – new culture (within-person effect)	0.00(0.04)	0.953	[-0.07;0.07]	-0.05(0.04)	0.126	[-0.12;0.01]	0.16(0.04)	0.000	[0.09;0.23]	
Baseline discrimination (between-person effect)	0.26(0.05)	0.000	[0.16;0.36]	0.27(0.05)	0.000	[0.17;0.38]	0.02(0.05)	0.687	[-0.08;0.12]	
Change from baseline discrimination (within-person effect)	0.14(0.03)	0.000	[0.08;0.20]	0.16(0.03)	0.000	[0.09;0.22]	-0.03(0.03)	0.330	[-0.10;0.03]	
Step 3										126.45(12)***
Baseline identification with heritage culture (between-person effect)	0.35(0.05)	0.000	[0.25;0.45]	0.26(0.05)	0.000	[0.16;0.37]	0.16(0.05)	0.003	[0.06;0.26]	
Change from baseline identification with heritage culture (within-person effect)	0.17(0.04)	0.000	[0.09;0.25]	0.08(0.04)	0.078	[-0.01;0.16]	0.07(0.04)	0.087	[-0.01;0.15]	
Baseline identification with new culture (Between-person effect)	-0.03(0.05)	0.562	[-0.12;0.07]	0.12(0.05)	0.021	[0.02;0.21]	0.17(0.05)	0.001	[0.08;0.27]	
Change from baseline identification with new culture (within-person effect)	0.00(0.03)	0.947	[-0.06;0.07]	0.06(0.03)	0.081	[-0.01;0.13]	0.13(0.03)	0.000	[0.07;0.20]	

Note.  $\beta$  = standardized coefficients; SE = standard error; CI = confidence interval; LRT = Likelihood Ratio Test, df = degrees of freedom; \*\*\* $p < .001$



**Role of the levels of identification variables: Further validating the MULTIIS' configurations.**

Controlling for the social factors (Table 2, Step 3), greater baseline identification with the heritage cultural group was positively associated with all three identity configurations: categorisation, compartmentalisation, and integration (supporting H8 and H9). However, the differences in effect sizes are noteworthy: The relation appears strongest for categorisation ( $\beta = .35$ ) and weakest for integration ( $\beta = .16$ ), with almost no overlap in the confidence intervals of these two between-person effects. These results highlight the importance of heritage identification levels shortly after migration (baseline values) for all identity configurations and the particularly strong tie between heritage identification and categorisation.

In terms of identification with the new cultural group, higher baseline values were positively associated with both compartmentalisation and integration of one's identities (supporting H9). However, within-person effects were statistically significant only for integration (consistent with H10), indicating that greater increases in identification with the new cultural group were related to greater integration of one's identities over time. Overall, the introduction of the levels of identification variables when predicting the identity configurations accounted for an appreciable additional proportion of intercept and slope variance in these configurations (intercept  $\Delta R^2 = .18$  and slope  $\Delta R^2 = .02$  for categorisation; intercept  $\Delta R^2 = .12$  compartmentalisation; and intercept  $\Delta R^2 = .05$  and slope  $\Delta R^2 = .11$  for integration).<sup>5</sup>

## Discussion

The objectives of the current research were to: (1) examine how international students, as a particular subgroup of migrants (Smith & Khawaja, 2010), organise and configure multiple relevant cultural identities over time, and (2) to identify how the changes in two social factors (i.e., need satisfaction and discrimination) predict the development of these cognitive configurations over time. We specifically tested how the social factors of need satisfaction and discrimination predict the identity configurations. To do so, we relied on the theoretical postulates of the cognitive-developmental model of social identity integration (CDMSII). The CDMSII accounts for a wider range of configurations through which multiple identities are organized in the self-concept and for some of the temporal processes through which identities become integrated over time (Amiot et al., 2007). We presented analyses from a 4-wave longitudinal study of international students during their first year into a new country. The methodological procedures employed allowed our participants to focus on a relevant new cultural identity. Multivariate HLM analyses that account for both baseline (between-person) and intraindividual change (within-person) effects were employed to examine a number of central research questions to acculturation and social psychology. To our knowledge, this represents the first study to employ such analyses to uncover identification patterns during an important life transition. The results of these examinations present a number of theoretical and applied contributions which are discussed below.

Analyses tested how identification with one's new cultural and heritage groups as well as need satisfaction via these groups and the experience of discrimination predict the three identity configurations. Findings revealed that the more psychological needs were satisfied upon arrival (at baseline) via the mainstream (H1) and heritage cultural groups, and the more these two sources of need satisfaction increased over time, the greater the identity integration, suggesting that these sources can be beneficial to the development of a more complex and inclusive self. We also found that intraindividual increase in needs satisfied via one's heritage group predicted lower

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5 As a supplementary analysis, we examined a fuller model with university (English-speaking vs. French-speaking) entered in addition to the variables included in the model reported in Table 2. Attending the French-speaking university was only associated with greater identity integration ( $\beta(\text{SE}) = 0.24(0.10)$ ,  $t(262.4) = 2.47$ ,  $p = .01$ ). The pattern of results remained the same upon inclusion of the university variable. We also examined the role of participants' intentions to stay in the new country (measured with a single item on a scale ranging from 1 to 5, with higher scores indicating greater intentions to stay) in a fuller model that included this variable in addition to the variables included in the model reported in Table 2. Intentions to stay were not statistically associated with any of the identity configurations and the pattern of results remained the same upon inclusion of this variable.

compartmentalisation. This pattern of findings (i.e., whereby needs satisfied via the heritage group was adaptive for identity development rather than detrimental) could be due to the time span of the current study: In the first year upon arrival, it is possible that need satisfaction via one's heritage group remains beneficial to identity development and integration. Perhaps it is only over a longer time period (e.g., 5 years or more after migration) that such an intraindividual increase could become detrimental, especially if it is accompanied by decreasing levels of need satisfaction via the new cultural group.

We also found, as expected, that baseline discrimination predicted higher categorisation (H2) and compartmentalisation (H3). And the more discrimination increased over time intraindividually, the more this type of change also predicted increased categorisation (H5) and compartmentalisation (H6). No effects of discrimination were found on the identity integration configuration however (which neither supports H4 nor H7); this could be due to the fact that discrimination – as a form of threat – does promote the more restrictive and context-specific configurations (i.e., categorisation and compartmentalisation), but is not necessarily detrimental to identity integration. In prior cross-sectional work, we also found that being aware of discrimination did not impede identity integration per se, suggesting that such an experience may not be counter to the process of reflecting upon the broader social environment, being aware of such problems, and clearly positioning oneself in this environment (see Yampolsky, Amiot, & de la Sablonnière, 2013). Nevertheless, our supplementary analyses suggested that participants' native language (possibly as a proxy for ease of adaptation) may modulate the extent to which discrimination influences identity integration. Such moderation effects were outside the scope of the current study, but should be considered in future investigations.

Intriguingly, we also found that only identity integration (but neither categorisation nor compartmentalisation) changed significantly over time. This effect may be partly due to the broader context in which the study took place. Indeed, Montréal is a highly diverse city, located in a country where multiculturalism is embraced and enshrined in its constitution (Banting & Kymlicka, 2010). As a result, the cultural environment that participants were learning to navigate may have encouraged the development of integrated cultural identities specifically. Future research should be conducted in other cultural contexts to test if other configurations change significantly. It is possible that contexts which endorse a different (e.g., assimilationist) acculturation orientation would trigger changes in other configurations over time (e.g., increase in compartmentalization).

When exploring the associations between the levels of identification variables and the changes in the three identity configurations – also to further test the validity of the MULTIIS' subscales longitudinally – we found that the categorisation configuration was predicted by the baseline effect (upon arrival) of identification with one's heritage group, but not by identification with one's new cultural group (H8). In contrast, both the compartmentalisation and integration configurations – as multiple identity configurations – were predicted by the baseline effects of identification with the heritage and with the new cultural groups (H9). Identity integration was also uniquely associated with an intraindividual increase in identification with the new cultural group (H10). This finding directly attests to the identity dynamics that take place over time. More specifically, it confirms that developing an integrated identity configuration is underpinned by changes in the new identity over time; as the self makes cognitive 'space' for this new identity and the new identity is linked to pre-existing ones, this new identity also grows in importance in the overall self. Together, these findings provide longitudinal evidence for the validity of these configurations.

### *Future Research Directions*

Theoretically, studying social and cultural identity change and integration processes provides an entry into further questions about the nature and the multiplicity of the self per se; i.e., how extensible the self is and what happens when some identities become less useful in defining oneself over time. Future work is needed to understand what happens cognitively when we come to add a new identity to our self-concept. Is there also a need to let go of certain "old" identities? Or, are the new identities simply added up on top of the old ones, with old identities never completely disappearing from the self? More research is needed to directly test what happens

to cultural identities that have become less important to the person over longer periods of time.

Methodologically, the measurement of identity change and integration represents a challenge, both in terms of measuring instruments and in terms of the statistical analysis of change. The current research employed sophisticated statistical analyses to capture changes over time. Building on the current work, future research could dwell deeper into these dynamic processes by testing the possible recursive processes involved in identity integration. For instance, by investigating if the identity configurations in turn shape the needs people will be able to satisfy and to pro-actively confront discrimination. Future work could also test how short-term changes in identification over time accumulate to produce longer-term changes (e.g., Smith, 1996). To this end, diary and experience sampling methods will be particularly useful (Doucerain, Dere, & Ryder, 2013). Whereas the current study focalized on social factors and identity variables, other longitudinal work could focus on alternative variables, including personality, which also plays a role in the acculturation experience (Chen, Benet-Martínez, & Bond, 2008). Longitudinal research could specifically test the between-person (baseline) effects of these variables in predicting short- and longer-term adjustment outcomes.

Finally, future work could employ longer longitudinal designs, possibly conducted over multiple years. Whereas we observed significant between-person and within-person variations in our variables over time, the change processes involved in immigration can take place over many years, if not decades and even generations (Heine & Lehman, 2004). Social psychological and acculturation research is just beginning to engage with these timeframes. Researchers should work toward developing systematic and integrated theoretical frameworks to explain these temporal effects, as well as (in parallel), gathering empirical evidence on these temporal effects. The current work contributed to this general effort by relying on a model of identity integration and change (the CDSMII) that puts forward testable predictions about the social factors that should predict significant changes in identities over time, and by using sophisticated statistical techniques that capture socially relevant types of changes.

Clearly, a wide array of important and exciting questions regarding the identity dynamics involved in important life transitions such immigration into a new country await investigation. It is hoped that our theorizing regarding the processes involved as people develop a sense of identification with new and multiple cultural groups, in conjunction with our use of a longitudinal design and sophisticated hierarchical linear analyses, will facilitate future efforts to answer these questions and will continue raising interest in cultural identity dynamics as a consequential domain in the life of many people.

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