**Social contact configurations of international students at school and outside of school: Implications for acculturation orientations and psychological adjustment**

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**Abstract**

Social contact has been widely investigated as a contributing factor to international students’ cross-cultural adaptation. Previous investigations have focussed largely on understanding the relation between distinct sources of social contact and adaptation-related outcomes. What is less understood is whether different combinations of social contact are associated with different outcomes for international students and if these effects vary across formal (school) and informal (outside of school) contexts. In the present study, we use a person-centred approach to explore international students’ social contact configurations based on frequency of contact with co-nationals, locals, and other internationals at school and outside of school. Data from 291 international students were subjected to latent profile analysis and five contact configurations were identified: 1) isolated (12.7%), 2) socializing with other internationals only (14.4%), 3) socializing with other internationals and Hungarians (12.4%), 4) socializing with co-nationals only (35.4%), and 5) socializing with co-nationals and Hungarians (24.7%). Patterns of interactions were largely consistent across contexts. Contact profiles reflected different acculturation orientations and showed differences in psychological outcomes. A stronger host culture orientation was associated with profiles characterized by frequent contacts with locals (Profiles 3 and 5), whereas home cultural orientation was greater in profiles characterized by frequent contacts with co-nationals (Profiles 4 and 5). The profile displaying frequent contacts with both co-nationals and locals reported the greatest psychological wellbeing, whereas the isolated profile was linked to poor psychological outcomes. Overall, findings highlight the importance of considering the configuration of social contacts as a whole.

*Keywords: flourishing, home country orientation, host country orientation, private and public acculturation, positive and negative affect, social contact*

**Social contact configurations of international students at school and outside of school: Implications for psychological adjustment and acculturation orientations**

Studying in a new country can be a great opportunity and an exciting adventure, but it also brings its own challenges. International students often report feelings of loneliness (Hunley, 2010; Wang, Wei, Zhao, Chuang, & Li, 2015), difficulties due to uprooting their life (Szabo, Ward, & Jose, 2016) and adjusting to cultural differences (Hirai, Frazier, & Syed, 2015), or experiences of discrimination (Poyrazli & Lopez, 2007; Ward & Leung, 2005). Establishing supportive relationships can help students to manage these stressful experiences during their acculturation and promote adjustment (Smith & Khawaja, 2011; Zhang & Goodson, 2011b). However, social support can come from many sources and research suggests that not all social interactions are equally beneficial for international students (Hendrickson, Rosen, & Aune, 2011). In the present study, we explored social contact profiles of international students studying in Hungary based on frequency of contact with locals (Hungarians), co-nationals, and other international students, using a person-centred approach. Further, we differentiated between contact frequency and source *at school* and *outside of school* to investigate whether the configuration of social contacts changed depending on the context. Finally, we examined the association of contact profiles with psychological adjustment and acculturation orientations.

**Social Contact and Adaptation**

According to the stress and coping framework of acculturation, social contact (and the support derived from these interactions) is a key contributing factor to psychological adaptation and resilience during cross-cultural transitions (Ward & Szabó, 2019). Research with international students commonly distinguishes between three types of social connections: 1) host nationals, i.e., local students and other members of the host society; 2) co-nationals, i.e., students and other people from one’s country of origin living in the host society; and 3) internationals, i.e., international students and people from a third country living in the host society (Bochner, Mcleod, & Lin, 1977). Host national connectedness has been suggested as a key mechanism through which international students achieve adaptation (Bethel, Szabo, & Ward, 2016). Having more local friends increases socio-cultural adjustment by providing opportunities for culture learning, and it can promote psychological adjustment by reducing the negative effects of acculturative stress. Previous studies have consistently found that having more connections with host nationals is indeed associated with greater socio-cultural and psychological adjustment (Chapdelaine & Alexitch, 2004; Cheung & Yue, 2013; Hechanova-Alampay, Beehr, Christiansen, & Van Horn, 2002; Li & Gasser, 2005; Major, 2005; Wilson, Ward, Fetvadjiev, & Bethel, 2017; Ying & Han, 2006).

While there is relative consensus in the literature regarding the benefits of host national connectedness, findings regarding contact with co-nationals and other international students are mixed. For example, Poyrazli, Kavanaugh, Baker, and Al-Timimi (2004) investigated the role of social interactions in acculturative stress among international students in the United States. They found that those who interacted mainly with other international students reported more stress than those who interacted primarily with locals or with both international and local students. Another study with international students found that having more co-national friends was linked to less life satisfaction, whereas having more international friends was unrelated to adjustment outcomes (Hendrickson et al., 2011). Similarly, in a 2-year longitudinal study, having more interactions with co-nationals was associated with reduced cultural adaptation and increased levels of stress, especially later in the exchange program (Geeraert, Demoulin, & Demes, 2014). In contrast, Kashima and Loh’s (2006) research revealed a positive association between psychological adjustment and connections with other international students, but no relationship with co-national ties. These results were supported by other investigations in Australia and Canada that found no significant association between co-national support and psychological adjustment (Sawir, Marginson, Deumert, Nyland, & Ramia, 2008; Yang, Noels, & Saumure, 2006).

**Social Contact and Acculturation Orientations**

Whether international students interact with locals, seek contact with other international students, or stick with their co-national friends is determined by not only the availability of support but also their own attitudes. In his bidimensional framework of acculturation, Berry (1997) has proposed host and home culture orientation as dimensions underpinning the acculturation process. When applied to social interactions and participation, host culture orientation refers to the extent to which acculturating individuals are willing to interact with locals and participate in the host society. Home culture orientation, on the other hand, refers to the extent to which they wish to maintain contact with and participate in their cultural heritage community. Based on one’s position on each dimension, four acculturation strategies can be derived: integration (high host and home culture orientation), assimilation (high host but low home culture orientation), separation (low host but high home culture orientation), and marginalization (low host and home culture orientation).

Sullivan and Kashubeck-West (2015) investigated the relationship between acculturation strategies and social support from co-nationals, locals and internationals in a sample of international students studying in the United States. Those with an assimilationist attitude reported more social support from locals than their peers with a strategy of separation or marginalization. Furthermore, those with an integration strategy received more support from both locals and other international students. However, there were no differences between the groups based on support received from co-nationals. Kashima and Loh (2006) reported similar findings, such that having stronger ties with local Australians was associated with higher host culture orientation in Asian international students. In the same sample, reporting stronger relationships with other international students was positively related to both home and host cultural orientation, whereas co-national connections were unrelated to cultural orientation. A more recent study with exchange students in Spain and Germany, on the other hand, found no significant association between acculturation orientations of integration, separation and assimilation and contact with ingroup (international and co-national) and outgroup members (Berger, Safdar, Spieß, Bekk, & Font, 2019)

A longitudinal study provides further insights into the role of cultural orientations in social participation at the early stages of acculturation (Doucerain, Deschênes, Gouin, Amiot, & Ryder, 2017). In two independent samples of newly arrived international students in Canada, Doucerain and colleagues found that a more positive cultural orientation towards the mainstream Canadian culture upon arrival predicted more frequent interactions with local Canadians a few months later. However, early social interaction was not predictive of cultural orientation over time, which suggests mainstream cultural orientation as an important antecedent of social participation. While the associations between social contact and different acculturation orientations are not completely conclusive, a positive relationship between host culture orientation and interactions with host nationals has been widely reported in the literature in cross-sectional and longitudinal studies, emphasizing the role of international students’ attitudes toward the destination country in their contact behaviour.

**A Person-centred Approach to Social Contact, Acculturation and Adaptation**

As reviewed above, most previous studies have focussed on the relationship between different forms of social contact and acculturation outcomes in isolation from each other (using variable-centred approaches), without considering how their unique combinations might be associated with differential outcomes. For example, someone who reports regular contact with their co-national friends might also frequently socialize with other local and international students. Alternatively, it can also mean that the person is relying exclusively on co-national interactions without having any other form of contact. There are a number of possible combinations and it is fair to assume that different configurations have different consequences for adaptation. In the former case, relying on contact from a variety of sources is likely to facilitate adjustment across domains. On the other hand, living in a bubble of ethnic peers might provide a sense of security, but it can hinder socio-cultural adjustment as it limits one’s opportunities for culture learning. Indeed, a recent qualitative study with expatriates has shown that different sources of support promote cross-cultural adjustment through different mechanisms, and that they function in a complementary fashion (Bayraktar, 2019).

There is a great deal of heterogeneity within samples of international students in terms of how they engage with various sources of social contact. Understanding this heterogeneity is important, as it can provide new insights into how different combinations of social contact might promote positive outcomes for international students. Such approaches can also bring us closer to unpacking some of the inconsistent results reported to date, such as the mixed findings regarding the relationship between co-national contact and psychological outcomes discussed above. In the present study, we employed a person-centred data analytic strategy (latent profile analyses) to investigate the social contact types in a sample of international students. This allowed us 1) to identify groups of individuals with similar social contact behaviours based on frequency of interactions with host nationals, co-nationals and other international students, and 2) to examine whether particular combinations are linked to specific acculturation orientations and psychological adaptation outcomes.

In addition to the source of contact, it is also important to consider the context in which it occurs and the opportunities for developing social relationships. Arends-Tóth and van de Vijver (2004, 2007) made a distinction between acculturation in public (e.g., work) and private (e.g., family) domains of life. Contact with locals is more frequent in public domains, such as education, and it can provide substantial benefits for cross-cultural success to engage with members of the host society. In private settings, however, the advantages of host national contact might be less pronounced, and thus people put a greater emphasis on nurturing relationships with their ethnic peers. This distinction can also be applied to international students, who divide their time mostly between school (public domain) and home (private domain). The source and frequency of social interactions can vary greatly across these two contexts. For example, students might have frequent contacts with host nationals at the university where they receive study-related help, but these interactions do not necessarily extend to outside of the university context where they might engage mostly with co-national or other international peers. Consequently, when exploring contact profiles, we also took into account whether patterns of interactions with host nationals, co-nationals, and other internationals differed based on the context.

**Hypotheses**

Our primary goal was to explore configurations of social contacts of international students based on both the source of contact (i.e., locals, co-nationals, and other internationals) and the context (i.e., at school and outside of school) in which it occurs. We expected to find contact configurations characterized by predominantly co-ethnic, predominantly local, predominantly international, and mixed engagement patterns, such as a combination of regular host and co-national contact (Hypothesis 1a). Since our analyses were exploratory, we did not rule out the possibility of other configurations to emerge from the data. Based on the public-private acculturation distinction by Arends-Tóth and van de Vijver (2004), we also predicted that within profiles, host national contact would be more frequent in the school domain and co-national contact would be more prevalent outside the school context (Hypothesis 1b).

Another goal for the study was to investigate the implications of contact profiles for psychological adjustment and their associations with acculturation orientations. With respect to cultural orientations, we expected that high home and host culture orientation would be linked to contact profiles characterized by mixed engagements; i.e., contact with locals and co-national peers or contact with locals and internationals (Hypothesis 2a). High home culture orientation combined with low host culture orientation was predicted to be linked to profiles characterized by frequent contact predominantly with co-ethnic peers (Hypothesis 2b). In contrast, we predicted that high host culture orientation and low home country orientation would be associated with profiles characterized by frequent contacts predominantly with locals (Hypothesis 2c). Finally, having a low home and host culture orientation was hypothesized to be linked to profiles characterized by low overall frequency of contact (Hypothesis 2d).

In terms of psychological adjustment, we expected that profiles characterized by frequent engagement from a variety of sources would be associated with greater psychological adjustment than profiles characterized by frequent interactions with a single source (Hypothesis 3a). Considering the robust findings in the literature regarding the positive relation between host national connectedness and wellbeing, we predicted that profiles characterized predominantly by local contact or mixed contact (a combination of local and co-national or international) would be linked to better psychological outcomes than profiles characterized predominantly by co-national or international engagement (Hypothesis 3b).

Further, previous research highlights a number of contextual and personal factors, such as proficiency in the language of the host society (Kudo & Simkin, 2003), time or length of stay in the host country (Hendrickson, 2018; Rienties & Nolan, 2014), gender (Ying & Han, 2006), perceived cultural distance (Jose, Ward, & Liu, 2007), and experiences with discrimination (Duru & Poyrazli, 2011; Karuppan & Barari, 2010; Wadsworth, Hecht, & Jung, 2008) that influence social network formation in international students. Consequently, we investigated these socio-demographic and contextual factors as correlates of contact profiles.

**Method**

**Participants and Design**

Data were analysed from 291 international students (67.8% female; *M*age = 23 years, *SD* = 4.2 years) studying at various universities in the capital city of Hungary. The majority of students (80.5%) had been in Hungary for less than one year at the time of data collection. Around half of them (53.1%) were studying at the Bachelor level, 35.2% were studying towards a master’s degree, and 11.8% were pursuing another type of qualification (e.g., PhD). Students originated from countries in Western Europe and North America (40%), South and South-East Asia (19%), the Middle East (17%), Eastern Europe (11%), Africa (9%), and Latin America (4%). Most students were completing a whole degree program in Hungary (55%), 33% participated in a short-term exchange program, and 12% did not identify the nature of the program they participated in. More than half of the sample (53%) had previous experience living abroad and 30% had visited Hungary before. Half of the students (50%) considered themselves visibly different from majority Hungarians.

Students completed the survey online or on paper in class. Instructors of different courses where the adaptation of sojourners was one of the topics (e.g. Anthropology, Intercultural Communication) distributed the questionnaires to students in the last third of the class. Participation was voluntary and anonymous. No personal information was collected that would enable the identification of participants, and participants were free to skip questions they did not want to answer. Students received no compensation. Ethical approval was granted by the Research Ethics Committee of the Eötvös Loránd University.

**Measures**

---Please insert Table 1 here---

**Demographic and contextual control variables**

Demographic control variables included age, gender (0 = male, 1 = female), and whether the person perceived themselves visibly different from the Hungarian majority (0 = not visibly different, 1 = visibly different). English language competency was measured on a 5-point scale (anchored at 1 = poor and 5 = excellent/native speaker). Length of stay was measured in days. As most participants were new students, the scale had a strongly positively skewed distribution. Therefore, we further categorized length of stay into ‘less than a year’ or ‘more than a year’ since moving to Hungary. Students were asked to indicate whether they were learning or planning to learn Hungarian (0 = not learning, nor planning to learn, 1 = learning or planning to learn). Further, perceived cultural distance was measured with a single item: How much difference do you see between the culture of your country of origin and that of Hungary?, on a 5-point scale (anchored at 1 = none and 5 = a great deal). Perceived discrimination was also measured with a single item. Students indicated their agreement with the following statement on a 5-point scale (anchored at 1 = never happened and 5 = a lot of the time): I was discriminated against because of my ethnicity or nationality.

**Contact frequency**

Participants were asked to indicate on a 5-point scale (anchored at 1 = almost never and 5 = almost always) how often they spend their free time *at school* and *outside of school* with 1) co-nationals (people from their home country), 2) other nationals (other international students), and 3) Hungarians. Average contact frequency was calculated for *at school* and *outside of school* across each source (range: 1-5). An overall contact frequency variable was also created by averaging all forms of contact across both contexts. This allowed us to control for individual differences in one’s overall tendency to interact with others.

**Acculturation orientations**

Home and host country orientations were measured with four items (adapted from Safdar, Struthers, & van Oudenhoven, 2009), assessing the importance of maintaining heritage cultural practices, adopting Hungarian cultural practices, maintaining relationships with members of one’s own national/ethnic group, and developing relationships with Hungarians. Responses were given on a 5-point scale (anchored at 1 = not at all important and 5 = very important). An average score was created for both home and host culture orientation (range: 1-5).

**Psychological wellbeing**

Two measures were used to assess psychological wellbeing. The Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988) asks participants to indicate the frequency with which they experienced feelings, such as happy and sad, in the past week on a 5-point scale (anchored at 1 = very rarely or never and 5 = very often or always). Average scores were created for both positive and negative affect (range: 1-5). The 8-item Flourishing Scale (Diener et al., 2010) assesses satisfaction with relationships, self-esteem, purpose in life, and optimism. Items, such as ‘I lead a purposeful and meaningful life’, were rated on a 7-point scale (anchored at 1 = strongly disagree and 7 = strongly agree). An average score was created (range: 1-7).

**Data Analysis**

Descriptive statistics and bivariate correlations among study variables were calculated. Next, latent profile analysis (LPA) was performed in Mplus7 on responses to contact frequency both at school and outside of school. Models with increasing number of profiles were estimated and compared using the following indices: Bayesian Information Criterion (BIC), Bootstrapped Likelihood Ratio Test (BLRT), entropy, posterior membership probabilities, and class size. Lower BIC, a significant BLRT (Nylund, Asparoutiov, & Muthen, 2007), a higher entropy and higher posterior membership probabilities (Clark & Muthén, 2009) were considered to indicate good fit. In addition, each profile was expected to account for at least 5% of the total sample (Ram & Grimm, 2009). Predictors and distal outcomes of profile membership were estimated using multinomial regressions and a 3-step approach (R3STEP and DE3STEP) in Mplus7 (Asparouhov & Muthén, 2013). In the first step, a full model was estimated including all covariates and predictors. Variables that showed no significant association with profile membership in any of the pairwise comparisons were later excluded to obtain a more parsimonious model. Results from the final model are reported.

**Results**

**Descriptive analyses and bivariate correlations**

Descriptive analyses and reliability coefficients are reported in Table 1. On average, students perceived the Hungarian host culture moderately different from their heritage culture (*M* = 3.26, *SD* = 1.01). Students rated their English language proficiency high (*M* = 3.92, *SD* = 1). The majority (62%) were either learning or planning to learn Hungarian. Perceived discrimination was low (*M* = 1.48, *SD* = 1.15) with 83.7% reporting no experiences with discrimination.

Correlation coefficients are reported in Table 2. Older age was positively and weakly related to contact with Hungarians outside of school. Length of stay had a moderately strong, negative correlation with contact frequency with other internationals outside of school. Better English proficiency was related to more contact with other internationals in both contexts with a weak to medium effect size, and it was weakly and negatively related to co-national contact at school. Frequency of co-national contact was weakly and negatively related to the frequency of contact with other internationals and Hungarians in both contexts. International contact was weakly and positively associated with frequency of contact with Hungarians at school, but not outside of school.

Home culture orientation was weakly and positively associated with co-national contact frequency and showed a weak, negative correlation with frequency of contact with internationals. Contact frequency with Hungarians had a moderately strong and positive correlation with host culture orientation. All these effects were consistent across contexts. With respect to psychological adaptation, contact frequency with other internationals was moderately strongly and positively related to positive affect and flourishing in both contexts. Co-national contact frequency outside of school was associated with more positive affect, although the effect size was small. Contact frequency with Hungarians outside of school was weakly associated with flourishing.

---Please insert Table 2 here----

**Social Contact Types (Hypothesis 1)**

We compared models with profiles ranging from 2 to 6. Model fit showed gradual improvement with a lower BIC and significant BLRT with the inclusion of additional profiles (Table 3). The 6-profile model, however, yielded an uninterpretable group that represented only 2% (n = 7) of the total sample. Therefore, we decided to retain the 5-profile model. Prototypical profile configurations are displayed on Figure 1. Profile 1 (*n* = 37, 12.7%) included students who had low frequency of contact with all their peers both at school and outside of school (labelled as ‘Isolated’). While contact was generally low in both contexts, they socialized with co-national peers more outside of school compared with at school; *t*(34) = -4.15, p < .001. Profile 2 (*n =* 42, 14.4%) reported socializing with other international students both at and outside of school (labelled as ‘Socializing with other internationals’). Contact with co-nationals and Hungarians was very low in both contexts. However, they were more likely to interact with co-nationals outside of school compared with at school; *t*(39) = -3.02, *p* = .004. Profile 3 (*n* = 36, 12.4%) was characterized by socializing with groups other than their own both at school and outside of school. Co-national contact in this group was very low in both contexts but was more likely to happen outside of school; *t*(35) = -3.17, *p* = .003. In contrast, contact frequency with internationals and Hungarians was high in both contexts (labelled as ‘Socializing with internationals and Hungarians’). Engagement with Hungarians was significantly higher outside of school; *t*(35) = -2.21, *p* = .034. Profile 4 (*n* = 104, 35.4%) represented students who mainly socialized with their co-national peers, both at and outside of school (labelled as ‘Socializing with co-nationals’). Interactions with other international students and Hungarians were low. Engagement with Hungarians was more likely to occur at school compared with outside of school; *t*(100) = 2.07, *p* = .042. Profile 5 (*n* = 72, 24.7%) consisted of students who socialized with Hungarians and co-ethnic peers with no significant differences across contexts (labelled as ‘socializing with co-nationals and Hungarians’).

---Please insert Table 3 here ---

---Please insert Figure 1 here ---

**Characteristics of Contact Profiles**

Results of the multinomial logistic regression are reported in Table 4. First, Profile 1 ‘Isolated’ was set as the reference group. Those in Profile 1 ‘Isolated’ reported lower overall frequency of interactions than the other four profiles. Further, those in Profile 2 ‘Socializing with internationals’ were more likely to had been living in Hungary for less than a year. Pairwise comparison with Profile 2 ‘Socializing with internationals’ indicated that those in Profile 3 ‘Socializing with internationals and Hungarians’, Profile 4 ‘Socializing with co-nationals’ and Profile 5 ‘Socializing with internationals and Hungarians’ were more likely to report greater overall frequency of interactions. Those in Profile 4 ‘Socializing with co-nationals’ and Profile 5 ‘Socializing with internationals and Hungarians’ were more likely to report lower English language proficiency. Further, those in Profile 4 ‘Socializing with co-nationals’ were more likely to had been in Hungary longer than a year.

Compared with Profile 3 ‘Socializing with internationals and Hungarians’, those in Profile 4 ‘Socializing with co-nationals’ were less likely to learn or plan to learn Hungarian and to experience discrimination, and more likely to report lower English language proficiency. Those in Profile 5 ‘Socializing with co-nationals and Hungarians’ were more likely to report poorer English language proficiency, less perceived discrimination, and greater overall frequency of interactions. Compared with Profile 4 ‘Socializing with co-nationals’, those in Profile 5 ‘Socializing with co-nationals and Hungarians’ were more likely to report lower English language proficiency and greater overall frequency of interactions.

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**Acculturation Orientations and Contact Profiles (Hypothesis 2)**

Multinomial logistic regressions with socio-demographic and contextual control variables indicated significant associations between acculturation orientations and profile membership. Results of the multinomial regression are reported in Table 4. Acculturation orientations were not significantly associated with being assigned to Profile 1 ‘Isolated’. Compared with Profile 2 ‘Socializing with internationals’, those in Profile 3 ‘Socializing with internationals and Hungarians’ reported higher host culture orientation, those in Profile 4 ‘Socializing with co-nationals’ reported higher home culture orientation, and those in Profile 5 ‘Socializing with internationals and Hungarians’ reported both higher host and home culture orientation.

Compared with Profile 3 ‘Socializing with internationals and Hungarians’, those in Profile 4 ‘Socializing with co-nationals’ were more likely to report higher home culture orientation and lower host culture orientation. Those in Profile 5 ‘Socializing with co-nationals and Hungarians were more likely to report higher home culture orientation. Finally, compared with Profile 4 ‘Socializing with co-nationals’, those in Profile 5 ‘Socializing with co-nationals and Hungarians’ were more likely to report higher host culture orientation.

**Psychological Wellbeing and Contact Profiles (Hypothesis 3)**

Equality tests of means across profiles indicated significant differences in positive affect and negative affect. With respect to positive affect, Profile 1 ‘Isolated’ scored significantly lower than the other four profiles: Profile 2 ‘Socializing with internationals’ (χ2(4) = 6.15, *p* = .013), Profile 3 ‘Socializing with internationals and Hungarians’ (χ2(4) = 6.05, *p* = .014), Profile 4 ‘Socializing with co-nationals’ (χ2(4) = 9.66, *p* = .002), and Profile 5 ‘Socializing with co-nationals and Hungarians’ (χ2(4) = 6.90, *p* = .009). There were no other significant differences across Profiles in positive affect. With respect to negative affect, Profile 2 ‘Socializing with internationals’ scored significantly higher than Profile 3 ‘Socializing with internationals and Hungarians’ (χ2(4) = 3.84, *p* = .050), Profile 4 ‘Socializing with co-nationals’ (χ2(4) = 4.70, *p* = .030), and Profile 5 ‘Socializing with co-nationals and Hungarians’ (χ2(4) = 4.36, *p* = .037). There were no other significant differences across Profiles in negative affect. There were no significant differences across Profiles in flourishing. Means and standard errors by Profile are reported in Table 5.

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**Discussion**

The present study explored international students’ social contact profiles based on both the frequency of contact with different groups and the context in which these interactions occurred. The main objective of our investigation was to address some of the inconsistent findings in the literature by highlighting the importance of considering the configuration of social contacts as a whole and to demonstrate the potential of person-centred approaches for advancing the literature on social contact. The five contact profiles identified by latent profile analysis were associated with distinctive acculturation orientations and psychological outcomes. Below we discuss main findings and outline directions for future research.

**Contact Types and Acculturation Orientation**

As expected based on Hypothesis 1a, contact profiles were characterized by predominantly co-national, predominantly international, and mixed engagement patterns. Two of the contact profiles were characterized by a single source of contact. The largest group (Profile 4) represented international students who relied mainly on co-national friends and had fewer interactions with other internationals and very rare engagement with local Hungarians. Students in this group adopted separation as their acculturation strategy, which confirms Hypothesis 2b. This is in line with the wider literature linking strong home country orientation to frequent co-ethnic peer contact (Berry, Phinney, Sam, & Vedder, 2010). The other group (Profile 2) included students who showed a strong preference to interacting with other internationals. Their acculturation orientation indicated a marginalizing strategy. This was an unexpected finding; however, their low cultural orientation might explain why they had little engagement with either locals or their co-national peers.

Two configurations displayed mixed sources of social contact (Hypothesis 1a). Around one quarter of the sample actively interacted with their co-national peers and local Hungarians (Profile 5), both at school and outside of school, but had less frequent contacts with other internationals. Students in this group endorsed an integration strategy, which supports Hypothesis 2a. The second profile characterized by a mixed source of contact engaged frequently with other internationals and Hungarians (Profile 3), but their network did not include frequent contacts with co-nationals. Members of this profile adopted a more assimilationist cultural orientation, which supports our predictions (Hypothesis 2c) and previous research demonstrating that international students with a strong host culture orientation are more likely to interact with locals (Kashima & Loh, 2006; Sullivan & Kashubeck-West, 2015).

Students in the profile characterized by frequent contacts with internationals and local Hungarians (Profile 3) were also more likely to be learning (or planning to learn) Hungarian. Other studies have also highlighted the crucial role of knowing the local language in contact initiation and friendship formation with domestic students (Kudo & Simkin, 2003). A main difference between the two profiles characterized by frequent contact with Hungarians (Profiles 3 and 5) was their experiences with discrimination. Those who had frequent interactions with internationals and Hungarians (Profile 3) were more likely to report perceived discrimination. Increased social contact has been shown to promote positive intergroup outcomes, especially when optimal conditions are fulfilled (Pettigrew & Tropp, 2006). We only collected information about the frequency of the interaction, but not the nature of it. It is possible that students in this group had frequent, but not necessarily pleasant or cooperative, interactions with other groups (including Hungarians). This highlights the need to consider not only the frequency of contact but also if these interactions are positive.

Finally, a group emerged displaying an isolated contact profile (Profile 1). Students in this profile reported infrequent contact with each group. Scores on home and host country orientation were average with no clear preference towards either culture. It is likely that the development of an isolated contact profile is influenced by other individual or contextual factors. Previous research highlights the role of personality in friendship formation among international students, suggesting that extroverted students have more friends and better cross-cultural relationships (Ying, 2002). Indeed, we found that those in the isolated profile reported significantly less overall frequency of contact regardless of context and source than the other four profiles. Another potential reason for withdrawing from social engagement is negative experiences, such as discrimination (Duru & Poyrazli, 2011; Karuppan & Barari, 2010; Wadsworth, Hecht, & Jung, 2008). However, perceived discrimination was not significantly associated with being assigned to the isolated profile. Neither was perceived cultural distance or being a visible ethnic minority related to this contact configuration.

Students on average interacted with host nationals more frequently at school compared with outside of school, which partially supports Hypothesis 1b. However, interaction patterns at school and outside of school were fairly consistent across profiles, suggesting that students engaged with their peers in a similar way in both contexts. There were slight decreases or increases in the frequency of contact with different groups across contexts, but the interaction patterns remained the same, which is inconsistent with predictions based on domain-specific contact behaviours (Arends-Tóth & van de Vijver, 2004, 2007).

**Contact Types and Wellbeing Outcomes**

As expected based on Hypothesis 3a, students with mixed social contact, i.e. those who socialized with both co-national peers and local Hungarians (Profile 5) or internationals and Hungarians (Profile 3), reported positive wellbeing outcomes. Studies with international students and other acculturating individuals consistently show that participation in both one’s heritage culture and the host community is conducive to positive outcomes (Nguyen & Benet-Martinez, 2013). Students who socialized mostly with co-national peers reported similarly positive outcomes, which further emphasizes the potential role of co-ethnic support. In contrast, students with an isolated contact profile (Profile 1) demonstrated poor psychological adaptation with very low levels of positive affect. Similarly, students who mostly interacted with other international students (Profile 2) reported greater negative affect than the other profiles. Loneliness and isolation have been commonly linked to depression and other psychological problems in international students (Hunley, 2010; Oei & Notowidjojo, 1990). Our findings also suggest that lacking social contact can have negative effects on mental health.

Interesting differences were found when considering results from bivariate correlations between contact frequency and psychological functioning. Frequent contact with other internationals both at school and outside of school was related to more positive affect and flourishing. However, when we examined the associations between contact profiles and psychological outcomes, a different picture emerged. Students who socialized predominantly with other internationals (Profile 2) scored much below the sample average on flourishing. In contrast, the profile characterized by frequent contacts with both other internationals and Hungarians scored above the sample average on flourishing. Further, Profile 2 ‘Socializing with internationals’ reported significantly more negative affect than Profile 3 ‘Socializing with internationals and Hungarians’. This supports our argument that simple bivariate correlations can mask important differences between contact configurations. A particular type of contact might be adaptive or maladaptive for psychological adjustment depending on what other contact is available in one’s social network.

**Strengths, limitations, and future directions**

The study contributes to the literature in a number of ways. First, it highlights the importance of considering not only the frequency of contact with different groups but also whether these contacts are simultaneously available in one’s social network. This enables researchers to identify different combinations of social contact that reflect qualitatively different networks. Further, a person-centred approach to investigate social contacts can help us unpack some of the inconsistent results obtained using variable-centred data analytic techniques (e.g., correlations and regressions). It also highlights that some types of social contact (e.g., interactions with other international students) might be less beneficial on their own but can promote positive adjustment if combined with other sources of social contact (e.g., interactions with locals).

Second, we made a distinction between social contact at school and outside of school and found that although interacting with locals was generally more prevalent in the school context, interaction patterns were the same across contexts. We used a broad measure of informal contact (i.e., outside school) that can encompass a wide range of contexts (e.g., home, supermarket, gym). More nuanced differences are likely to exist across different types of formal and informal contexts and this should be considered in future studies.

While our analyses indicated five distinct profiles, some of the contact types (i.e., Profile 1, 2 and 3) included a relatively small number of students. This limits the power of the study to detect significant differences between these groups. Despite this limitation, the identification of these smaller groups is important, as they can highlight important social contact structures that might be overlooked in studies investigating contact frequency averaged across the sample. An important question for future research is whether these contact profiles replicate in other samples and contexts.

Profiles were derived from cross-sectional data. We found no differences based on length of stay, but previous research suggests that social contacts change over time, although findings are inconclusive as to how these changes might come about. In Hendrickson’s (2018) longitudinal study withinternational students in Argentina, friendship ties with co-nationals were stronger than friendship ties with other international students or host nationals upon arrival. However, both international and host national friendships increased over time and these friendship ties became stronger. In contrast, Rienties and Nolan (2014), who followed international students throughout their degree programme in the United Kingdom, found that Asian students became more segregated from local students over time, while other international students integrated well into both groups. They suggested that when there is a low number of co-national peers available, students are more motivated to form friendships with other internationals and locals. This points to the significance of considering the availability of co-national peers in addition to the frequency of contact. Overall, more longitudinal studies are needed to understand how contact types develop and change over time.

We assessed international students’ orientations toward their heritage and host culture as key influencing factors in how they organize their social contacts. Here it is important to point out that the home orientation scale used in the study yielded a relatively low reliability. Although it is not unusual for scales consisting of a small number of items (Nunnally, 1978), it should be considered when interpreting findings. Further, whileindividual orientations are undeniably important, social contact is a two-way process. Therefore, we need to consider the challenges students might experience when trying to connect with locals or other students. International students generally desire more contact with host nationals but often fail to achieve this mainly because of the lack of interest from host nationals (Bethel et al., 2016; Brown, 2009; Campbell & Li, 2008). Campbell (2012) evaluated the effectiveness of a Buddy Project in New Zealand, where each new international student was paired up with a domestic student for a semester. One of the main challenges identified was students’ differing expectations. While international students wanted to make friends, for domestic students, friendship formation was not the primary motivation to join the program. Importantly, both international students’ orientations and domestic students’ attitudes can change, which highlights the need for interventions and training provided for both groups of students (Sakurai, McCall-Wolf, & Kashima, 2010). Future studies should also differentiate between actual and desired contact frequency and assess opportunities for contact, which would help us gain a more nuanced understanding of international students’ social contact formation.

Finally, it is important to note that the study assessed three sources of social contact. International students are likely to have other forms of social contact, such as family and friends from one’s home country or online support networks (Shu et al., 2020). It is possible that students in the isolated contact profile relied mainly on support from their family and friends in their home country. We did not have information about frequency of contact with others in one’s home country or their interactions through online platforms, but research shows that these ties are also influential for international students’ cross-cultural adjustment and cultural orientation (Hofhuis, Hanke, & Rutten, 2019).

**Practical Implications**

University services and programmes should be designed to enable international students to interact with a variety of groups and develop a diverse network with all-around support. Our results suggest that this could have benefits for psychological adaptation. This requires programmes fostering intergroup contact with local students under optimal conditions (Pettigrew & Tropp, 2006). In Hungary, some degree programs are integrated, such that local and international students study together, while others are offered only for international students. Offering integrated courses could be particularly useful in contexts, like Hungary, where international students learn in a language different to the language of the host culture through English Mediated Instruction (Tsuneyoshi, 2005). As such, in integrated courses, local students also study in a language other than their native tongue, which could promote cooperation and empathy towards international students, thus fostering more positive intergroup relationships. Further, interventions should focus on helping students build relationships that extend beyond the university environment, as international students are more likely to experience discrimination, prejudice and negative attitudes off campus (Marginson, Nyland, Sawir, & Forbes-Mewett, 2010).

Our findings also indicate that strengthening co-ethnic ties have benefits and promoting relationships with locals does not need to be at odds with helping students maintain their ethnic ties. When designing programmes, it is also important to consider how differences in cultural factors might impact students’ ability to initiate contact. For example, Güzel and Glazer’s (2019) study has shown that differences in cultural values of uncertainty avoidance and power distance influence social interaction adaptation, particularly for female students. Building cultural and language competency both in domestic and international students serves as a good foundation for providing students the necessary skills to initiate, develop and maintain social relationships (Young et al., 2013).

**Conclusions**

The role of social contact in the acculturation and cross-cultural adaptation of international students has received substantial attention in the literature. Previous investigations have mainly focussed on exploring associations between different sources of contact and acculturation outcomes. Our study used a person-centred approach and posed two additional questions to advance this line of research: “Are there combinations of social contact that facilitate or hinder psychological adjustment?” and “Does the context in which social contact occurs matter?”. Our findings highlight that a combination of co-national and local contact might be particularly beneficial. Further, frequent interactions with other international students can be associated with both positive and negative outcomes, depending on what sources of contact are available. While interactions with some groups might promote adaptation to a greater extent than contact with others, the two profiles with lower interaction frequency (i.e., Profile 1 ‘Isolated’ and Profile 2 ’Socializing with internationals’) were the only contact configuration with negative effects on psychological outcomes. This points to the overall importance of social engagement in the cross-cultural adaptation of international students.

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Table 1. *Descriptive statistics and scale reliability*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | *M* | *SD* | *%* | *Cronbach’s alpha (95% CI)* |
| Age | 22.99 | 4.22 |  |  |
| Gender |  |  |  |  |
| Male |  |  | 32.2% |  |
| Female |  |  | 67.8% |  |
| Ethnic visibility |  |  |  |  |
| Not visibly different |  |  | 50.3% |  |
| Visibly different |  |  | 49.7% |  |
| Length of stay categorized |  |  |  |  |
| Less than a year |  |  | 80.5% |  |
| More than a year |  |  | 19.5% |  |
| English language proficiency | 3.92 | 1.00 |  |  |
| Motivations to learn Hungarian |  |  |  |  |
| Not learning, nor planning to |  |  | 38.2% |  |
| Learning or planning to |  |  | 61.8% |  |
| Perceived cultural distance | 3.26 | 1.01 |  |  |
| Perceived discrimination | 1.48 | 1.15 |  |  |
| **Contact frequency at school** |  |  |  |  |
| Co-nationals | 3.08 | 1.48 |  |  |
| Internationals | 3.82 | 1.07 |  |  |
| Hungarians | 2.29 | 1.15 |  |  |
| **Contact frequency outside of school** |  |  |  |  |
| Co-nationals | 3.36 | 1.42 |  |  |
| Internationals | 3.71 | 1.13 |  |  |
| Hungarians | 2.23 | 1.20 |  |  |
| **Acculturation orientations** |  |  |  |  |
| Home country orientation | 3.24 | 0.98 |  | 0.55 (.43-.64) |
| Host country orientation | 3.34 | 0.93 |  | 0.72 (.65-.78) |
| **Psychological wellbeing** |  |  |  |  |
| Positive Affect | 3.77 | 0.79 |  | 0.89 (.87-.91)  |
| Negative Affect | 2.56 | 0.70 |  | 0.80 (.76-.83) |
| Flourishing | 5.94 | 0.83 |   | 0.92 (.91-.94) |

Table 2. *Bivariate correlations among the study variables*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* | *11* | *12* | *13* | *14* | *15* | *16* |
| 1. Age | .21\*\* | .12 | .21\*\* | -.03 | -.04 | -.08 | .09 | -.07 | -.09 | .15\* | -.08 | .14 | -.09 | .01 | .07 |
| 2. Length of stay |  | .17\* | .30\*\* | .00 | -.02 | -.12 | -.07 | .09 | -.27\*\* | -.06 | .06 | -.15\* | -.28\*\* | .18\* | -.11 |
| 3. English proficiency |  |  | .10 | -.03 | -.15\* | .29\*\* | -.03 | -.03 | .21\*\* | .03 | -.15\*\* | -.09 | .18\*\* | .08 | .24\*\* |
| 4. Perceived cultural distance |  |  |  | .20\*\* | -.01 | -.04 | -.02 | .01 | -.07 | -.03 | .07 | -.01 | -.11 | .13\* | -.04 |
| 5. Perceived discrimination |  |  |  |  | -.03 | .03 | -.01 | -.07 | -.12\* | .02 | .04 | .06 | -.09 | .13\* | -.01 |
| **Contact frequency at school** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6. Co-nationals  |  |  |  |  |  | -.15\* | -.17\*\* | .65\*\* | -.16\*\* | -.21\*\* | .23\*\* | -.03 | .11 | -.11 | .09 |
| 7. Internationals  |  |  |  |  |  |  | .13\* | -.18\*\* | .59\*\* | .04 | -.16\*\* | .02 | .22\*\* | .03 | .20\*\* |
| 8. Hungarians  |  |  |  |  |  |  |  | -.16\*\* | .00 | .60\*\* | -.08 | .29\*\* | -.05 | -.02 | .11 |
| **Contact frequency outside of school** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9. Co-nationals  |  |  |  |  |  |  |  |  | -.16\*\* | -.24\*\* | .24\*\* | -.10 | .17\*\* | -.08 | .11 |
| 10. Internationals |  |  |  |  |  |  |  |  |  | .10 | -.21\*\* | -.08 | .31\*\* | -.01 | .20\*\* |
| 11. Hungarians  |  |  |  |  |  |  |  |  |  |  | -.07 | .32\*\* | .06 | -.06 | .19\* |
| **Acculturation orientations** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12. Home country orientation |  |  |  |  |  |  |  |  |  |  |  | .14\* | .02 | -.04 | .03 |
| 13. Host country orientation |  |  |  |  |  |  |  |  |  |  |  |  | .01 | -.11 | .08 |
| **Psychological wellbeing** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14. Positive affect |  |  |  |  |  |  |  |  |  |  |  |  |  | -.35\*\* | .66\*\* |
| 15. Negative affect |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -.47\*\* |
| 16. Flourishing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

*Note.* \*\*, *p* < .01; \*, *p* < .05

Table 3. *Latent profile analysis model fit*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *n per profile* | *BIC* | *BLRT* | *Entropy* | *PMP* |
| 2 profiles | 200, 91 | 5470 | 232.44\*\*\* | .853 | .95-.96 |
| 3 profiles | 62, 81, 148 | 5411 | 99.87\*\*\* | .819 | .83-.96 |
| 4 profiles | 70, 38, 73, 110 | 5334 | 115.47\*\*\* | .860 | .91-.93 |
| 5 profiles | 37, 42, 36, 104, 72 | 5290 | 84.24\*\*\* | .861 | .89-.95 |
| 6 profiles | 45, 30, 102, 36, 7, 71 | 5278 | 51.85\*\*\* | .881 | .87-.95 |

*Note.* \*\*\*, *p* < .001; BIC = Bayesian Information Criterion; BLRT = Bootstrapped Likelihood Ratio Test; PMP = Posterior membership probabilities range

Table 4. *Result of the multinomial logistic regression using the 3-step procedure (R3STEP) in Mplus*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|   | Profile 2 |   | Profile 3 |   | Profile 4 |   | Profile 5 |
|   | log odds | s.e.  | p |   | log odds | s.e.  | p |   | log odds | s.e.  | p |   | log odds | s.e.  | p |
| **Reference Group: Profile 1 'Isolated'** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| English proficiency | 0.28 | 0.47 | .548 |  | 0.48 | 0.60 | .424 |  | -0.33 | 0.53 | .529 |  | -1.07 | 0.62 | .082 |
| Hungarian (1 = learning/planning to learn) | -0.56 | 0.69 | .420 |  | 0.69 | 0.84 | .408 |  | -0.85 | 0.73 | .247 |  | 0.23 | 0.91 | .798 |
| Perceived discrimination | 0.28 | 0.23 | .216 |  | 0.41 | 0.29 | .164 |  | -0.09 | 0.27 | .738 |  | -0.20 | 0.34 | .555 |
| Length of stay (1 = more than a year) | -2.23 | 1.05 | .034 |  | -0.36 | 0.96 | .710 |  | -0.20 | 0.85 | .815 |  | -0.58 | 1.03 | .578 |
| Overall contact frequency | 2.26 | 0.93 | .015 |  | 7.13 | 1.32 | <.001 |  | 7.47 | 1.41 | <.001 |  | 10.58 | 1.45 | <.001 |
| Home orientation | -0.53 | 0.47 | .255 |  | -0.65 | 0.50 | .196 |  | 0.37 | 0.46 | .418 |  | 0.23 | 0.51 | .648 |
| Host orientation | -0.48 | 0.39 | .216 |  | 0.65 | 0.47 | .163 |  | -0.25 | 0.41 | .537 |  | 0.74 | 0.50 | .142 |
| **Reference Group: Profile 2 'Socializing with internationals'** |  |  |  |  |  |  |  |  |  |  |  |  |
| English proficiency |  |  |  |  | 0.20 | 0.45 | .659 |  | -0.62 | 0.30 | .038 |  | -1.36 | 0.41 | .001 |
| Hungarian (1 = learning/planning to learn) |  |  |  | 1.25 | 0.70 | .076 |  | -0.29 | 0.57 | .609 |  | 0.79 | 0.78 | .313 |
| Perceived discrimination |  |  |  |  | 0.12 | 0.29 | .668 |  | -0.37 | 0.24 | .119 |  | -0.48 | 0.33 | .146 |
| Length of stay (1 = more than a year) |  |  |  |  | 1.87 | 1.07 | .079 |  | 2.03 | 0.97 | .037 |  | 1.65 | 1.14 | .148 |
| Overall contact frequency |  |  |  |  | 4.87 | 1.19 | <.001 |  | 5.21 | 1.27 | <.001 |  | 8.31 | 1.36 | <.001 |
| Home orientation |  |  |  |  | -0.12 | 0.36 | .747 |  | 0.91 | 0.29 | .002 |  | 0.77 | 0.37 | .041 |
| Host orientation |  |  |  |  | 1.13 | 0.35 | .001 |  | 0.23 | 0.27 | .407 |  | 1.22 | 0.42 | .004 |
| **Reference Group: Profile 3 'Socializing with internationals and Hungarians'** |  |  |  |  |  |  |  |  |  |
| English proficiency |  |  |  |  |  |  |  |  | -0.82 | 0.36 | .025 |  | -1.55 | 0.45 | .001 |
| Hungarian (1 = learning/planning to learn) |  |  |  |  |  |  |  | -1.54 | 0.58 | .008 |  | -0.46 | 0.76 | .546 |
| Perceived discrimination |  |  |  |  |  |  |  |  | -0.50 | 0.23 | .028 |  | -0.61 | 0.26 | .020 |
| Length of stay (1 = more than a year) |  |  |  |  |  |  |  |  | 0.16 | 0.66 | .813 |  | -0.22 | 0.85 | .794 |
| Overall contact frequency |  |  |  |  |  |  |  |  | 0.34 | 0.79 | .669 |  | 3.45 | 0.94 | <.001 |
| Home orientation |  |  |  |  |  |  |  |  | 1.02 | 0.30 | .001 |  | 0.88 | 0.32 | .006 |
| Host orientation |  |  |  |  |  |  |  |  | -0.91 | 0.29 | .002 |  | 0.09 | 0.37 | .813 |
| **Reference Group: Profile 4 'Socializing with co-nationals'** |  |  |  |  |  |  |  |  |  |  |  |  |
| English proficiency |  |  |  |  |  |  |  |  |  |  |  |  | -0.74 | 0.30 | .015 |
| Hungarian (1 = learning/planning to learn) |  |  |  |  |  |  |  |  |  |  |  | 1.08 | 0.56 | .054 |
| Perceived discrimination |  |  |  |  |  |  |  |  |  |  |  |  | -0.11 | 0.25 | .655 |
| Length of stay (1 = more than a year) |  |  |  |  |  |  |  |  |  |  |  |  | -0.38 | 0.67 | .575 |
| Overall contact frequency |  |  |  |  |  |  |  |  |  |  |  |  | 3.11 | 0.83 | <.001 |
| Home orientation |  |  |  |  |  |  |  |  |  |  |  |  | -0.14 | 0.29 | .624 |
| Host orientation |   |   |   |   |   |   |   |   |   |   |   |   | 0.99 | 0.33 | .003 |

Table 5. *Equality tests of means across profiles using the 3-step procedure (DE3STEP) in Mplus*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | Profile 1 ‘Isolated’ |   | Profile 2 ‘Socializing with internationals’ |   | Profile 3 ‘Socializing with internationals and Hungarians’ |   | Profile 4 ‘Socializing with co-nationals’ |   | Profile 5 ‘Socializing with co-nationals and Hungarians’ |
|   | *M* | *SE* |  | *M* | *SE* |  | *M* | *SE* |  | *M* | *SE* |  | *M* | *SE* |
| Positive Affect | 3.27a | 0.17 |  | 3.83b | 0.13 |  | 3.83b | 0.14 |  | 3.89b | 0.09 |  | 3.82b | 0.10 |
| Negative Affect | 2.62ab | 0.14 |  | 2.86b | 0.16 |  | 2.50a | 0.10 |  | 2.49a | 0.07 |  | 2.48a | 0.10 |
| Flourishing | 5.49 | 0.36 |   | 5.69 | 0.18 |   | 6.09 | 0.10 |   | 6.03 | 0.14 |   | 6.15 | 0.16 |

*Note.* Values in the same row not sharing the same subscript are significantly different at *p* < .05.

**Figure Legends**

*Figure 1.* Prototypical profile configuration. The Y-axis represents standardized z scores with *M* = 0 and *SD* = 1. Higher scores indicate greater contact frequency. Longer bars represent greater deviation from the mean. Error bars represent standard error of the mean.

