Acculturative Stress or Resilience? A Longitudinal Multilevel Analysis of Sojourners' Stress and Self-Esteem

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Abstract

Intercultural contact may lead to temporary phases of acculturative stress but is also associated with personal growth. While this topic has been well studied, we argue that there has been a lack of systematic investigation in the form of panel data studies. The present article examines the temporal pattern of stress and self-esteem, with measures for sojourners and controls prior to, during, and post intercultural contact. The sojourner sample consisted of a group of Belgian adolescents who took part in a 1 year intercultural exchange program. Sojourners reported lower levels of stress and higher levels of self-esteem during the sojourn compared to pre-departure levels and controls. These findings were explained in terms of personal growth and acculturative resilience. Subsequent analyses also investigated whether stress and self-esteem could be predicted by intrapersonal (i.e., homesickness), interpersonal (i.e., social support), intergroup (i.e., identity, prejudice), and cultural distance measures. Stress was indeed associated with intrapersonal, interpersonal, and intergroup measures, but not with cultural distance. Self-esteem was associated with intrapersonal and intergroup predictors.

Scholars have long acclaimed the benefits of intercultural contact in terms of cultural learning (Masgoret & Ward, 2006; Ward, Bochner, & Furnham, 2001), personal development (Adler, 1975; Oppedal, 2006), and intergroup contact (Allport, 1954; Pettigrew, 1998). Despite these positive effects, it has also been widely acknowledged that intercultural contact can lead to phases of psychological pressure, known as acculturative stress (Berry, 1997, 2006) or culture shock (Church, 1982; Oberg, 1960; Ward et al., 2001). This notion of stress or shock coincides with well-documented evidence of stress after major change and transition (Fisher & Cooper, 1990). Importantly, however, this pressure is not conceptualized as a purely negative phase, but rather as part of a process of adaptation or coping with a challenging experience (Lazarus &

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Folkman, 1984). In this light, acculturative stress becomes part of an effective process to get individuals acculturated or integrated into a new cultural environment (Berry, 2006; Boski, 2008). This framework of acculturative stress has received broad attention, but there is still some debate on its exact temporal occurrence and boundary conditions or predictors.

In the current study, we examine both acculturative stress and self-esteem with a sample of international exchange students. Such international students are among the most common sojourner groups (Bochner, 2006). All sojourners in our sample took part in a 1-year overseas exchange program with AFS Intercultural Programs,[1] an international not-for-profit organization providing intercultural exchange opportunities. These exchange students typically stay with a host family and are enrolled in full-time education in a local school. AFS is particularly renowned for its level of support to students and host families. Study abroad programs of this nature have typically been associated with personal growth (Bennett, 2004; Kim, 2012; Ward et al., 2001). For instance, student sojourning has been shown to correlate with creativity (Maddux & Galinsky, 2009). Although often associated with positive outcomes, studying abroad has its challenges too. For instance, adaptation to living in the host country may lead to acculturative stress.

Temporal Pattern

Historically, scholars have put forward the idea of a standard temporal course of acculturation. In an early account of culture shock (Oberg, 1960), sojourners are believed to experience initial enchantment or euphoria, next crises, then recovery and adjustment. Put more generally, a U-shaped function of psychological adjustment has been proposed (Lysgaard, 1955), which was extended to a W-shaped function as the U-curve is believed to be repeated upon return home (Gullahorn & Gullahorn, 1963). In terms of acculturative stress, this approach would thus predict an opposite pattern to emerge, namely an ∩-shaped curve (inversed U). Alternative models predict an absence of entry euphoria (Ward et al., 2001); sojourners are thought to experience acculturative stress immediately upon entry, followed by gradual adaptation, thus describing a J-shaped curve of adaptation (Ward, Okura, Kennedy, & Kojima, 1998). In sum, a number of models argue for the existence of a fixed pattern of adaptation but disagree on its exact course.

Although a standard course of acculturation may be intuitively appealing, such a unified theory may not be entirely justified. First, the empirical data are largely inconclusive. Although several studies have found evidence of acculturative stress, others have not. Evidence for stress was reported in a study by Zheng and Berry (1991); Chinese sojourners in Canada reported more problems and poorer health than participants from various control conditions. Others have found stress to occur within 24 h of arrival in the country (Ward et al., 1998). However, more erratic patterns of stress have also been reported. For instance, Ward and Kennedy (1996) observed an actual drop in stress among sojourners. Equally problematic is that many of these studies suffer from methodological problems such as the inappropriate use of cross-sectional designs (Davis, 1971; Searle & Ward, 1990) or the lack of a control condition (Furukawa & Shibayama, 1993; Ward & Kennedy, 1999; Ward et al., 1998). Others have used longitudinal design for sojourners but not for controls (Zheng & Berry, 1991).

Second, a standard model of acculturation ignores the existing variability among acculturating individuals. For sure, different populations such as student sojourners and economic migrants may both find the process of acculturation challenging, but there will also be important differences between them. Considering, for instance, our population of exchange students, these sojourners are typically highly motivated, they are placed in local families, and they receive support from the exchange organization throughout the experience. Clearly, these circumstances will be very different from many other migrant populations. Thus, a certain pattern

of stress that applies to one group does not necessarily apply to another. To summarize, it is unclear whether a unified theory of acculturation is warranted given the empirical and theoretical difficulties.

In contrast to this dominant focus on the challenges and negative consequences of acculturation, such as stress, scholars have also emphasized its positive long-term impact. Adaptation in the context of living abroad has been linked to language learning, cultural learning, increased psychological health, and creativity (Kim, 2012; Maddux & Galinsky, 2009; Masgoret & Ward, 2006). Research has also suggested a link between acculturation and self-esteem (Berry, Phinney, Sam, & Vedder, 2006). Thus, to the extent that cultural adaptation leads to personal growth, it may gradually impact upon sojourners self-esteem.

Predictors of Acculturation

Another emerging question is what different factors influence acculturation. This question is not fully independent from the issue of temporal course. After all, if every single sojourner describes the exact same pattern of adaptation, then there is little if no room for personal or contextual variation. However, under substantial variability, then the temporal pattern can no longer be completely identical. Factors that have been identified as predictors for acculturation include demographical (e.g., age, gender), intrapersonal (e.g., motivation, psychological adjustment), interpersonal (e.g., social support), intergroup (e.g., identity, prejudice), and intercultural factors (e.g., cultural distance).

Intrapersonal factors. A number of individual factors have been identified that are thought to influence the level of stress and adaptation, such as personality (van der Zee & Van Oudenhoven, 2000; Ward, Leong, & Low, 2004) but also predeparture levels of preparation and motivational aspects (Masgoret & Ward, 2006). Other factors are believed to play a role during the actual cultural contact, such as homesickness (Zheng & Berry, 1991) and the level of psychological adjustment (Ward & Kennedy, 1996).

Interpersonal support. One obvious strategy in dealing with stress is seeking support from a social network (Cohen & Wills, 1985; Snyder, 2001). Indeed, a number of acculturation studies (Furnham & Alibhai, 1985; Vega & Rumbaut, 1991) have highlighted the importance of social support, which can originate from both the host and home society (Kealey, 1989). Obviously, social support from the host society is more proximal than support from the home front, which is likely to affect the effectiveness of the support. Specifically, distal support may be less effective than proximal support (Cemalcilar, Falbo, & Stapleton, 2005).

Intergroup factors. Next to intra- and interpersonal factors, sojourning is by definition also characterized by intergroup contact (Allport, 1954; Pettigrew, 1998). Within the context of sojourning and migration, the concept of social identity may be particularly relevant (Phinney, 1990; Tajfel & Turner, 1979). While maintaining their identification with the home country, sojourners may also develop some level of host culture identity. Both types of social identity have been shown to interact with adaptation and well-being (Berry, 1997; LaFromboise, Coleman, & Gerton, 1993). Whereas social identification with the host culture is undoubtedly central to adaptation, the relevance of ethnic identity also has an important role in determining sojourners' well-being and self-esteem (Liebkind, 2006; Phinney, 1990).

Equally important is intergroup affect (i.e., prejudice; Haddock, Zanna, & Esses, 1993). The way sojourners feel toward members of their host culture is very likely to play a role in adjustment. Positive affect would make interactions with individuals from the host society easier, thereby facilitating adjustment. Therefore, positive affect toward the host culture is expected to be associated with lower levels of stress and higher levels of self-esteem. In addition to this, the way sojourners are themselves perceived by host society members is also likely

to influence adaptation. Particularly, sojourners who experience prejudice or social exclusion will be less culturally adapted (Clark, Anderson, Clark, & Williams, 1999; Liebkind & Jasinskaja-Lathi, 2000).

Cultural distance. Acculturation may also be influenced by cultural distance—that is, the distance between cultures with respect to their sociocultural properties (Babiker, Cox, & Miller, 1980). Specifically, the cultural distance hypothesis predicts that intercultural contact becomes increasingly difficult (in terms of stress and adaptation) as the cultural distance gap widens. Empirical data have provided some support for this claim (Dunbar, 1992; Searle & Ward, 1990; Torbiorn, 1982; Ward & Searle, 1991). For instance, Searle and Ward (1990) investigated how expectations and attitudes of Malay and Singaporean students impacted upon their adaptation in New Zealand. Students rated how distant they perceived their Asian home culture to be from the New Zealand culture. The authors found that as participants perceived greater cultural distance, they also reported more difficulty adjusting to their host culture. Importantly however, most of these studies have operationalized cultural distance as a subjective measure (Babiker et al., 1980; Searle & Ward, 1990)—that is, participants' self-reported perceived distance between their home and host culture. This measure, however, is not without problems. Those sojourners who face difficulties acculturating will also be more likely to perceive, remember, or emphasize differences to a greater extent. Thus, previous studies addressing the cultural distance hypothesis cannot rule out attentional and/or cognitive biases.

Interestingly, scholars in other areas have approached the question of cultural distance in a more objective manner. In an attempt to demonstrate how cultural distance affects choice of strategy for overseas investment, Kogut and Singh (1988) devised a cultural distance score based on Hofstede's (1980) cultural dimensions. The score is a weighted average of differences between country values on each of Hofstede's four dimensions. Similarly, Ng, Lee, and Soutar (2006) proposed to use a cultural distance score based on the cultural values of Schwartz (1992). Gross Domestic Product (GDP) and the UN's Human Development Index (HDI) are also seen as good proxies for cultural distance.

Recent research has shown that cultural values predict the choice of sojourners' coping strategies (Bardi & Guerra, 2011). However, to our knowledge, no study has directly investigated the impact of cultural distance scores on acculturative stress. In accordance with the cultural distance hypothesis (Babiker et al., 1980), we would predict cultural distance to be positively associated with acculturative stress.

Overview of Present Study

In the present study, we sought to investigate the temporal course and predictors of acculturative stress and self-esteem by means of a panel data design. Sojourners were compared to a control group at four different time points; prior to intercultural contact (t1), at the start of the sojourn (t2), at the end of the sojourn (t3), and 1 year post intercultural contact (t4). All sojourners were Belgian adolescents participating in a 1-year overseas exchange program with AFS Intercultural Programs. The education authorities in Belgium do not typically accredit this type of studying abroad. Consequently, the sojourn normally takes places in between secondary and tertiary education. Thus, sojourners completed high school before the exchange and they typically enroll into higher education following the sojourn.

The control group, equivalent to the sojourner sample in age, gender distribution, and academic background, consisted of students who were to enroll in higher education.[2] The transition to tertiary education has its own challenges (Hamilton & Hamilton, 2006), thus both sojourners and controls were to experience significant change. However, for sojourners this transition also had an intercultural component (Ward et al., 2001). This control group thus allowed for a unique

yet more stringent test for a standard model of acculturative stress and an investigation of the personal growth hypothesis.

The main outcome variables were stress and self-esteem. Further measures in the study include knowledge of the host country, homesickness, psychological adjustment, social support (from various sources), social identity (with the home and host culture), intergroup affect (toward the home and host culture), and perceived social exclusion. Cultural distance was not measured but was computed for each home-host country pair.

The first purpose of this study is to examine the temporal variation of acculturative stress and self-esteem. Whether U-shaped or J-shaped, if a standard model of acculturation applies, we would expect sojourners to experience some level of stress at the early stages of the sojourn (at t2). This approach would thus predict sojourners at t2 to display more stress than at t1 and to display more stress than the control group at t2. This presumed occurrence of stress is predicted to decay over time, such that toward the end of the sojourn, sojourners should be well adapted to their host culture, and thus we would no longer expect elevated stress to occur at t3 or thereafter.

Given that the sojourn occurs in a very controlled setting, however, there may actually be little or no evidence of acculturative stress. Instead, in as far as self-esteem is a measure of personal growth, we anticipate that self-esteem will gradually increase for sojourners. This difference is perhaps less likely to emerge at the early stages of the sojourn but will be especially likely to develop near the end of the sojourn. If self-esteem does indeed differ between sojourners and controls during the sojourn, then we should also be able to investigate whether this effect is short (t3) or long lived (t3 and t4).

Next to the temporal pattern of stress and self-esteem, this study also aims to examine the predictive validity of intrapersonal, interpersonal, intergroup, and cultural distance factors. In terms of acculturative stress, we hypothesize that stress will be positively associated with homesickness, perceived social exclusion, and cultural distance, and negatively related to knowledge about the host culture, psychological adjustment, social support from proximal sources, identity, and affect toward the host culture. Less clear is what the influence of distal sources of social support will be, as well as identity and affect toward the home culture. With regard to self-esteem, it is hypothesized that this will be positively related to psychological adjustment, social support, identity, and positive affect toward both cultures, and negatively related to homesickness and perceived social exclusion. We have no particular hypotheses with regard to the relationship between self-esteem and cultural distance.

Occasionally, a number of sojourners do not complete the exchange program. Instead these sojourners terminate the exchange prematurely and return to the home country. Often these *sojourn terminations* are the outcome of maladjustment or mal-adaptation. These sojourn terminations will also be examined to investigate whether their occurrence can be predicted by the level of stress at the start of the sojourn.

Method

Design

The study was longitudinal and relied on a 2 (Group: Sojourners vs. Control) × 4 (Time: t1 vs. t2 vs. t3 vs. t4) quasi-experimental mixed model design. The between-subjects factor group was recorded rather than manipulated. All participants were approached four times over a period of 24 months.

The timewaves were anchored around both sojourners' year abroad (August 2005 to June 2006) and controls' first year of higher education (September 2005 to July 2006). The first questionnaire was distributed a couple of months before the year abroad or academic year (summer

2005). The second measure was recorded at the start of the year, about 6 weeks into the sojourn and about 3 weeks into the university term (autumn 2005). The third measure occurred toward the end of the year abroad or academic year (spring 2006). Finally, all participants were contacted again a year later (spring 2007).

Participants

Sojourners were approached at a national meeting of AFS Belgium-Flanders prior to their departure. They were invited to participate in the study and to provide the names of two non-sojourner peers who consented to participate as control subjects in the study. We indicated that these peers should be friends or classmates of similar age, planning to start Higher Education during the following academic year. Participants (sojourners or controls) who successfully completed each survey at all time points were entered into a prize draw offering six travel vouchers ranging from 500€ to 250€. A total of 162 sojourners and 182 controls participated in the study.

Measures and Procedure

For each survey, sojourners and controls were sent an invitation by e-mail, and if necessary were sent a reminder 2 weeks later.

At each timewave (t1 to t4), we administered Dutch versions of the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983; Smolderen, Vingerhoets, Croon, & Denollet, 2007) and Rosenberg's Self-Esteem Scale (Rosenberg, 1965). The stress scale consists of 14 statements assessing the level of stress experience during the past month. Specifically, for such statements as "During the past month, how often have you felt nervous and 'stressed'?" participants were to indicate frequency (1 = *never* to 7 = *frequently*). Scale reliability for stress was good at each timewave (α_{t1} = .81, α_{t2} = .84, α_{t3} = .87, and α_{t4} = .90). The self-esteem scale consists of 10 items, such as "On the whole, I am satisfied with myself," for which participants indicated their agreement (1 = *strongly disagree* to 7 = *strongly agree*). Scale reliability for self-esteem was excellent (α_{t1} = .87, α_{t2} = .91, α_{t3} = .92, and α_{t4} = .93).

In addition to these recurrent measures, a number of questions were timewave specific. At t1, sojourners and controls were asked some demographical questions (gender, age, etc.). Sojourners also rated their level of knowledge regarding the host country (4 items, α = .85, see the appendix) and their level of social identification (1 = *not a lot* to 7 = *a lot*) with their native country (I like being a Belgian) and their host country (I like being a member of my host country).

During the sojourn (t2 to t3), sojourners were asked questions about psychological adaptation (cf., Searle & Ward, 1990; 5 items, α_{t2} = .80, α_{t3} = .82) and homesickness (5 items, α_{t2} = .70, α_{t3} = .76). The interpersonal questions prompted them (t2 to t3) to indicate the extent of perceived support (1 = *not at all* to 7 = *very much*) received from different sources: the natural family (at home), the host family, friends at home, friends in the host country, and the exchange organization (AFS). Finally, sojourners rated their perceived social exclusion (5 items, α_{t2} = .86, α_{t3} = .83) and intergroup affect by means of a "feeling thermometer" (Haddock et al., 1993), which asked them to indicate how warm or cold they felt toward members of their home country and their host country on a scale from 0° (cold/negative) to 100° (warm/positive), with higher scores meaning more positive affect.

Control participants received equivalent questions regarding their adaptation to tertiary education, social support (from family and friends), and intergroup affect. Apart from the items on social support, no other measure is of theoretical interest for controls, and thus, these will not be analyzed.

Table 1. Sojourners' Different Destinations Broken Down by Continent.

Destination	Countries	N Countries	N Sojourners	Percentage
Latin America	ARG[a], BOL[b], BRA[a], CRC[a], DOM, ECU[c], GUA[c], HON, MEX[a], PAN[c], PAR, PER[a]	12	89	54.9%
North America	USA[a]	1	26	16.0%
Europe	FIN[a], HUN[a], ISL, ITA[a], LAT[b], NOR[a], TUR[a]	7	21	13.0%
Asia	INA[a], MAS[a], PHI[a], THA[a]	4	14	8.6%
Africa	GHA[a], RSA[a], TUN	3	6	3.7%
Australasia	AUS[a], NZL[a]	2	6	3.7%
Total		29	162	100.0%

Note. For each continent, the countries International Olympic Committee (IOC) codes, number of countries, and the number and percentage of sojourners for that destination are shown.
a. Both cultural values data (Schwartz, 1992) and cultural dimensions data (Hofstede, 1980) available for this country.
b. Cultural values data (Schwartz, 1992) available for this country.
c. Cultural dimensions data (Hofstede, 1980) available for this country.

Results

A total of 162 sojourners and 182 controls completed the survey at t1. We analyzed whether these groups were different with respect to age, gender distribution, their education level, and that of their parents (as a proxy for socioeconomic status). Starting with age, there was no difference between sojourners (17 years, 11 months) and controls (17 years, 11 months; $t < 1$). The sample consisted of more females (70.2%) than males (29.8%), but a χ^2 test showed that this distribution did not differ between groups ($p > .10$). Looking at educational level next, all participants were in secondary education at the start of the study, and there was no difference between parents' levels of education ($p > .10$). Groups were thus similar with regard to age, gender, and education level. Sojourners travelled to 1 of 29 destinations, spread over six continents (see Table 1).

Next, we analyzed participants' attrition. A total of 10 sojourners left the exchange program at some point after t2, thus effectively terminating their sojourn. We will come back to these sojourn terminations later. A respectable 61.7% (100) of sojourners and 58.8% (107) of controls completed all surveys. Importantly, attrition was not statistically different across groups, age, gender, or educational level (p's $> .10$).

Temporal Analyses

The data were analyzed through a longitudinal multilevel regression model.[3] All multilevel analyses were conducted with MLwiN 2.1 (Rasbash, Charlton, Browne, Healy, & Cameron, 2009). The primary unit of analysis (Level 1) was completed timewaves ($N = 1,150$), with individuals as units at Level 2 ($N = 344$). For the multilevel regression, time (1 to 4) was recoded (0 to 3), and the outcome variables for the multilevel regression were z-scored (Hox, 2010).

Temporal pattern of stress. Average stress scores were plotted for sojourners and controls as a function of time (solid lines in Figure 1). Visual inspection of the data suggests that groups had similar stress scores at t1 but diverged over time. Interestingly, however, sojourners' level of stress seemed to drop during the sojourn, which is contrary to predictions of an acculturative stress model (Ward et al. 1998; Zheng & Berry, 1991).
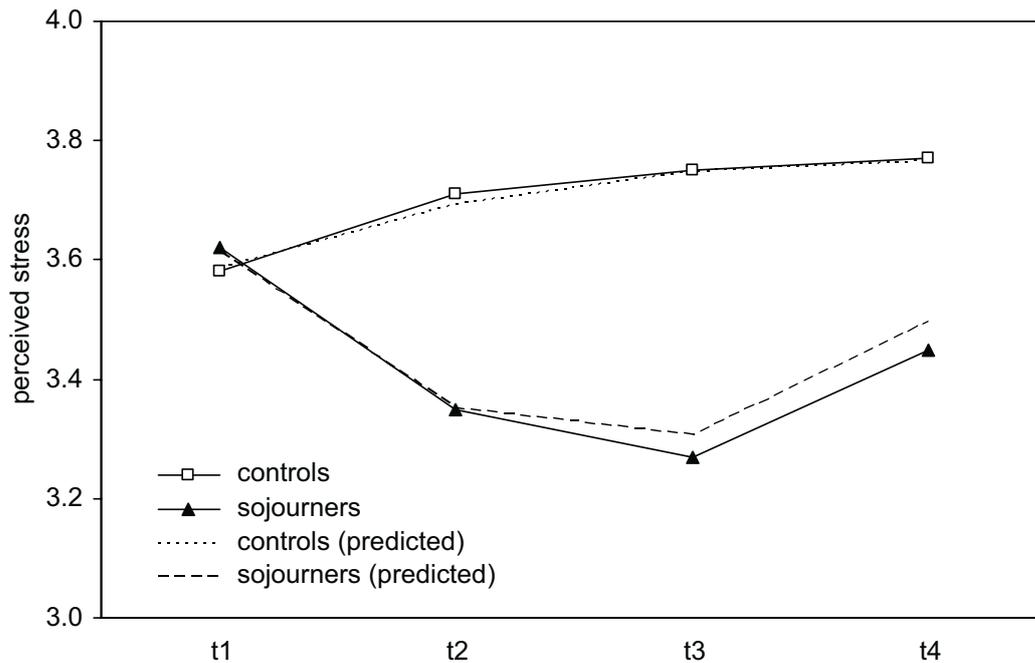
Figure 1. Actual (Solid Lines) and Predicted (Dotted Lines) Mean Perceived Stress Scores for Both Sojourners and Controls Over Time.
Note. Predicted scores are based on the final (quadratic) multilevel model.

This temporal pattern of stress was further examined through a series of multilevel models (see Table 2). The null model (Model 1) allowed us to calculate the intraclass correlation, showing that 42% of the variance was at the individual level (Level 2) and the remaining 58% at the repeated measures level (Level 1). In Model 2, we added a linear function of time as a predictor, but this did not statistically improve the model, $\chi^2(1) < 1$, suggesting that there was no general change in stress scores across sojourners and controls. In Model 3, a dummy coded variable for sojourning was added (0 = control, 1 = sojourner), along with the interaction of sojourning by time. Overall, this model showed a significant improvement, $\chi^2(2) = 17.27, p < .001$. In terms of individual predictors, the linear effect of time was now significant, but this was qualified by the two-way interaction of sojourning by time. Importantly, the main effect of sojourning was not significant, suggesting that there was no difference between sojourners and controls at the intercept (i.e., t1). A quadratic function of time (Model 4) further improved the model, $\chi^2(2) = 15.90$, $p < .001$. Both interactions of sojourning by time (linear and quadratic) were significant, suggesting that there was a difference in stress over time and a difference in acceleration over time. The quadratic model was adopted as the final multilevel model. Based on this quadratic model, predicted mean scores of perceived stress were computed and plotted for each group and timewave (dotted lines in Figure 1). The overlap between the solid and dotted lines gives an indication of model fit.

A series of follow-up tests were conducted next. Sojourners and controls were compared at each timewave through a series of independent sample *t* tests. Although there was no difference in stress at t1 ($t < 1$), sojourners had significantly lower stress scores during the sojourn (p's $< .001$) and afterward ($p < .01$). To further investigate at which time points the divergence emerged, three separate multilevel regressions were conducted for adjacent timewave pairs (t1 vs. t2, t2 vs. t3, and t3 vs. t4). Only the first analysis comparing t1 vs. t2 revealed a significant interaction of sojourning by time ($\beta = -.44, SE = .11, p < .001$), thus showing that a difference emerged between t1 and t2. The same interaction was not significant in the analyses contrasting t2 vs. t3, and t3 vs.

Table 2. Multilevel Analysis of Perceived Stress for Sojourners and Controls Over Time.

	Model 1 Null Model			Model 2 + Time			Model 3 + Sojourner Group			Model 4 + Time-Squared		
	β	SE	p	β	SE	p	β	SE	p	β	SE	p
Intercept	.01	.04	.44	−.01	.05	.44	.04	.07	.29	.02	.07	.41
Repeated measures												
Time				.01	.02	.29	.07	.03	<.01	.15	.10	.06
Time-squared										−.03	.03	.19
Time-invariant covariates												
Sojourn							-.10	.10	.16	.04	.10	.36
Cross-level interaction												
Time × Sojourn							-.12	.04	<.01	−.57	.14	<.001
Time-Squared × Sojourn										.15	.05	<.001
Residual variance												
Repeated measures (σ^2_e)	.58	.03	<.001	.58	.03	<.001	.58	.03	<.001	.57	.03	<.001
Interindividual (σ^2_{u0})	.41	.05	<.001	.41	.05	<.001	.39	.04	<.001	.39	.04	<.001
Deviance		3044.0			3043.7			3026.4			3010.5	

Note. The repeated measures variable *time*, coded 0 to 3, corresponds to Timewaves 1 to 4. The *sojourn* variable was coded 0 for controls and 1 for sojourners. The residual variance gives an indication of unexplained error variance for both the repeated (Level 1) or individual level (Level 2). The deviance statistic (-2 Log-Likelihood) gives an indication of model fit, such that lower values indicate better fit. Successive models can be tested by subjecting differences in deviance scores to a χ^2-test.

t4 (*p*'s > .10). Post hoc tests further confirmed that whereas sojourners' stress dropped between t1 and t2 (*p* < .01), stress for controls did not significantly differ between these time points (*p* = .19).

As a set, these findings suggest that although there was no pre-existing difference in stress levels at t1, a drop in perceived stress for sojourners occurred at the start of the sojourn and remained relatively constant thereafter.

Temporal pattern of self-esteem. To investigate the temporal pattern of self-esteem, an identical set of analyses was conducted. First, visual inspection of the means (solid lines in Figure 2) showed little or no difference in self-esteem between groups at t1 but some level of divergence over time. Specifically, sojourners' self-esteem seemed to increase over time, markedly at around t3. This fits with the idea that intercultural contact may lead to personal growth (Kim, 2012; Masgoret & Ward, 2006; Oppedal, 2006).

Subsequently, the data were again analyzed through a series of multilevel models (see Table 3). The intraclass correlation of the null model revealed that 66% of the variance was at the individual level. The inclusion of a linear time component (Model 2) clearly improved the model, $\chi^2(1) = 17.55, p < .001$, suggesting that overall, across groups, self-esteem increased over time. Importantly, however, this effect was qualified by the next model. The inclusion of the sojourning variable and the interaction term (Model 3) significantly improved the model, $\chi^2(2) = 9.97, p < .01$. The absence of an effect of sojourning at the intercept suggests there was no difference between groups at t1. However, the significant interaction of sojourning by time clearly shows that, over time, sojourners diverged from controls. Further analyses showed that a
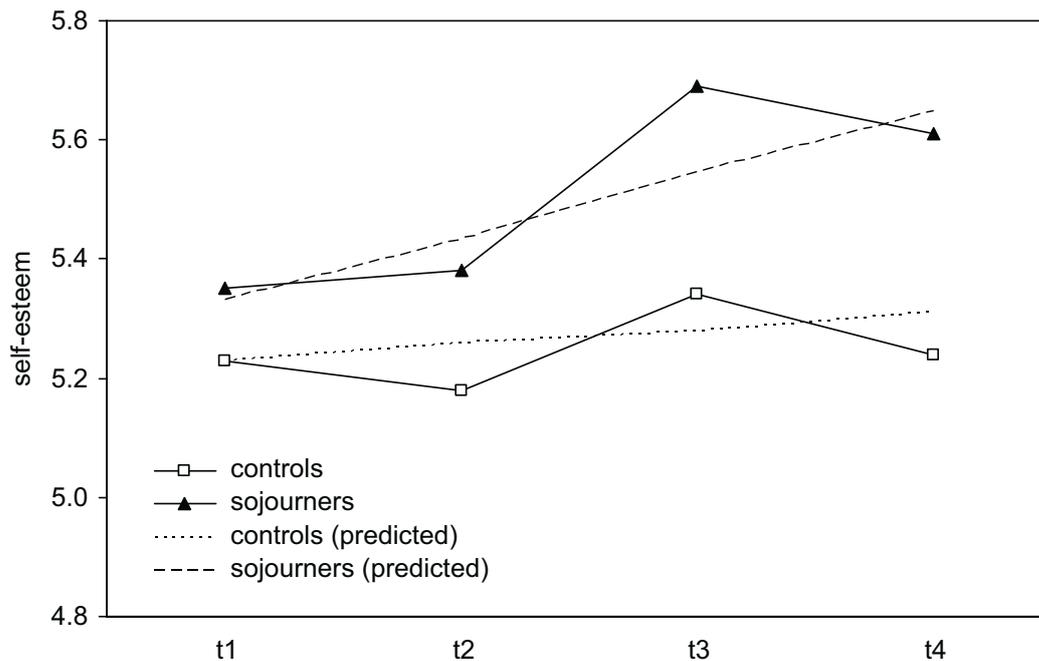
Figure 2. Actual (Solid Lines) and Predicted (Dotted Lines) Mean Scores of Self-Esteem for Both Sojourners and Controls Over Time.
Note. Predicted scores are based on the final (linear) multilevel model.

quadratic function of time (Model 4) did not significantly improve the model, $\chi^2(2) < 1$, so the quadratic model was not retained. Based on the linear model, predicted mean scores of self-esteem were computed and plotted (dotted lines in Figure 2). The figure suggests an upward linear trend for sojourners but not for controls.

Follow-up tests showed there to be no difference between sojourners and controls in self-esteem scores at t1 ($p = .26$) or at t2 ($p = .10$). However, scores were different at t3 and t4 (p's < .01). Again, three separate multilevel regressions were conducted for adjacent timewave pairs. The interaction of sojourning by time turned out significant in the analysis comparing t2 vs. t3 ($\beta = -.17$, $SE = .09$, $p < .05$), but there was no significant interaction in the analyses contrasting t1 vs. t2, and t3 vs. t4 (p's > .20). Importantly, the increase in self-esteem from t2 to t3 emerged for sojourners ($p < .01$) but not for controls ($p = .23$).

Taken together, these analyses suggest that sojourners were not significantly different in their self-esteem scores prior to intercultural contact. However, a difference gradually emerged (linear) and became significant near the end of the sojourn (at t3), and this difference remained over time (at t4), indicating the effect to be long lived.

Predictors

The previous analyses demonstrated how the intercultural sojourn impacted on participants' levels of stress and self-esteem. Next, the relationship between the outcome variables was examined by means of correlation coefficients. Stress and self-esteem were negatively correlated across each timewave ($r_{t1} = -.42$, $r_{t2} = -.45$, $r_{t3} = -.54$, and $r_{t4} = -.64$, all p's < .001). Furthermore, we examined whether change in stress was correlated with a change in self-esteem.[4] A negative correlation was found between change in stress and self-esteem ($r_{t2} = -.30$, $r_{t3} = -.30$, and $r_{t4} = -.42$, all p's < .001), suggesting that an increase in stress was moderately associated with a drop in self-esteem and vice versa.

Table 3. Multilevel Analysis of Self-Esteem for Sojourners and Controls Over Time.

	Model 1 Null Model			Model 2 + Time			Model 3 + Sojourner Group			Model 4 + Time-Squared		
	β	SE	p	β	SE	p	β	SE	p	β	SE	p
Intercept	.00	.05	.47	−.09	.05	.05	−.13	.07	.03	−.14	.07	.02
Repeated measures												
Time				.07	.02	<.001	.03	.02	.09	.06	.07	.20
Time-squared										−.01	.02	.32
Time-invariant covariates												
Sojourn							.10	.10	.15	.10	.11	.17
Cross-level interaction												
Time × Sojourn							.07	.03	<.01	.08	.11	.23
Time-Squared × Sojourn										.00	.04	.49
Residual variance												
Repeated measures (σ_e^2)	.34	.02	<.001	.33	.02	<.001	.33	.02	<.001	.33	.02	<.001
Interindividual (σ_{u0}^2)	.66	.06	<.001	.66	.06	<.001	.65	.06	<.001	.65	.06	<.001
Deviance	2,694.6			2,677.0			2,667.1			2,666.6		

To examine the relationship between the predictor and outcome variables for sojourners during the sojourn, bivariate correlations were subsequently computed for timewaves 2 and 3 (see Table 4). As predicted, there were significant associations between the outcome variables and the intrapersonal, interpersonal, and intergroup variables. However, no significant relationship emerged between the cultural distance measures and stress or self-esteem. Next, multilevel regression was employed to predict sojourners' level of stress and self-esteem by the intrapersonal, interpersonal, intergroup, and cultural distance variables. Focusing on sojourners during the actual intercultural contact (t2 to t3), the primary unit of analysis (Level 1) was completed timewaves ($N = 249$), with individuals as units at Level 2 ($N = 147$).[5]

Predictors of stress. First, a basic model (Model 1) was constructed with time and baseline stress (at t1) as predictors (see Table 5). Unsurprisingly, baseline stress was a significant predictor of stress during the sojourn. Subsequent models will be compared against this basic model. The next model included intrapersonal variables (Model 2.1) of predeparture knowledge of the host country, psychological adjustment during the sojourn and homesickness. The addition of the intrapersonal predictors significantly improved the model, $\chi^2(3) = 76.81$, $p < .001$, such that homesickness was positively associated with higher stress, while both psychological adjustment and predeparture host country knowledge were associated with lower stress during the sojourn.

The next model examined the predictive ability of the interpersonal variables (i.e., social support, Model 2.2). Overall, the interpersonal model was significantly better than the basic model, $\chi^2(5) = 32.83$, $p < .001$. Social support from the host family, friends in the host country, and the exchange organization were all independently associated with lower levels of stress. Distal social support from the home country did not seem to predict stress levels.

Intergroup variables were entered in Model 2.3, including identity with both home and host country, intergroup affect toward home and host country, and perceived social exclusion. The intergroup variables improved the model, $\chi^2(5) = 48.32$, $p < .001$. Perceived social exclusion was independently associated with higher levels of stress. On the other hand, both predeparture

Table 4. Bivariate Correlations Between Perceived Stress, Self–Esteem, and Predictor Variables.

	Stress		Self–Esteem	
	t2 (N = 141)	t3 (N = 108)	t2 (N = 141)	t3 (N = 108)
Intrapersonal factors (mixed)				
Host country knowledge (t1)	−.28**	−.07	.24**	.19*
Psych adjustment (t2/t3)	−.54**	−.42**	.29**	.37**
Homesickness (t2/t3)	.46**	.28**	−.10	−.10
Social support (time varying)				
Natural family at home (t2/t3)	−.14†	−.06	.11	.15
Host family at host (t2/t3)	−.25**	−.29**	.05	−.04
Friends at home (t2/t3)	−.11	−.05	.20*	.05
Friends at host (t2/t3)	−.32**	−.15	.17*	.20*
Exchange organization (t2/t3)	−.28**	−.30**	.16†	.10
Intergroup measures (mixed)				
Home identity (t1)	.07	.00	−.07	−.18†
Host identity (t1)	−.22**	−.13	.02	−.10
Home country affect (t2/t3)	.10	−.09	.08	.06
Host country affect (t2/t3)	−.44**	−.15	.20*	.13
Perceived social exclusion (t2/t3)	.41**	.42**	−.40**	−.37**
Cultural distance (invariant)				
GDP distance	−.04	−.05	.03	.00
GDP distance–squared	.07	.05	−.08	.00
HDI distance	−.04	−.02	.05	.03
HDI distance–squared	.01	−.04	−.03	−.05
Hofstede's dimensions distance[a]	.13	.08	−.15	−.08
Schwartz's values distance[a]	−.07	−.10	.03	.06

a. Different sample sizes apply for correlations with Hofstede's dimensions (N_{t2} = 112, N_{t3} = 88) and Schwartz's values (N_{t2} = 111, N_{t3} = 85).
†$p < .10$. *$p < .05$. **$p < .01$.

identity with the host country and affect toward the host country members were predictive of lower levels of stress during the sojourn. No other intergroup variable was significant.

Looking at cultural distance next (Model 2.4), we operationalized cultural distance based on the distance between the home country (Belgium) and host country in terms of Gross Domestic Product per capita and the Human Development Index.[6] For each country pair, we created an absolute distance score and a squared distance score of GDP and HDI. Overall, the cultural distance model did not significantly improve the basic model, $\chi^2(4) = 1.47$, $p = .83$, nor were any of the distance scores independently associated with stress. Two additional multilevel models were constructed to analyze the influence of cultural distance based on Hofstede's (1980) cultural dimensions and Schwartz's (1992) cultural values. Different host countries were represented for each dataset (see Table 1). Where data were available, a cultural distance score[7] was computed to provide a weighted average for each home-host country pair. Compared to a basic model, neither the Hofstede nor Schwartz cultural distance models significantly improved the fit (both χ^2s < 1).

Finally, a model was constructed incorporating all intrapersonal, interpersonal, intergroup, and cultural distance predictors. Overall, the model was significantly better than the basic model, $\chi^2(17) = 113.32$, $p < .001$, and better than any of the other models (all p's < .001). Predictors that

Table 5. Multilevel Analysis for Predictors of Sojourners' Stress.

	Model 1 Basic Model			Model 2.1 Intrapersonal			Model 2.2 Interpersonal			Model 2.3 Intergroup			Model 2.4 Cultural Distance			Model 3 Full Model		
	β	SE	p	β	SE	p	β	SE	p	β	SE	p	β	SE	p	β	SE	p
Intercept	−.24	.15	.06	.36	.55	.26	1.37	.45	<.01	1.84	.59	<.001	−.36	.19	.03	1.95	.86	.01
Repeated measures effects																		
Baseline stress (t1)	.30	.08	<.001	.18	.07	<.01	.29	.07	<.001	.29	.07	<.001	.30	.08	<.001	.19	.06	<.001
Time	−.01	.09	.44	.07	.08	.18	−.07	.10	.24	−.01	.09	.47	−.01	.09	.46	.01	.09	.47
Intrapersonal factors (mixed)																		
Host country knowledge (t1)				−.12	.05	<.01										−.06	.05	.08
Psych adjustment (t2/t3)				−.40	.07	<.001										−.31	.07	<.001
Homesickness (t2/t3)				.18	.05	<.001										.19	.05	<.001
Social support (time varying)																		
Natural family at home (t2/t3)							.03	.06	.32							−.01	.05	.42
Host family at host (t2/t3)							−.13	.04	<.001							−.08	.03	.01
Friends at home (t2/t3)							.01	.04	.40							.00	.04	.48
Friends at host (t2/t3)							−.10	.05	.01							.02	.04	.35
Exchange organization (t2/t3)							−.11	.03	<.001							−.07	.03	.01
Intergroup measures (mixed)																		
Home identity (t1)										.04	.04	.14				.05	.04	.09
Host identity (t1)										−.18	.06	<.001				−.19	.06	<.001
Home country affect (t2/t3)										.00	.00	.23				.00	.00	.31
Host country affect (t2/t3)										−.01	.01	.02				.00	.01	.21
Perceived social exclusion (t2/t3)										.34	.07	<.001				.19	.07	<.01
Cultural distance (time invariant)																		
GDP distance													−.03	.19	.44	−.10	.15	.26
GDP distance − squared													.03	.08	.36	−.01	.06	.44
HDI distance													−.06	1.03	.48	.45	.82	.29
HDI distance − squared													−.11	.39	.39	.25	.32	.22
Residual variance																		
Repeated measures (σ^2_e)	.48	.07	<.001	.35	.05	<.001	.47	.07	<.001	.49	.07	<.001	.48	.07	<.001	.33	.05	<.001
Interindividual (σ^2_{u0})	.43	.09	<.001	.30	.08	<.001	.30	.08	<.001	.31	.08	<.001	.43	.09	<.001	.23	.06	<.001
Deviance	658.9			582.1			626.1			610.6			657.4			545.6		

were significantly and positively associated with stress, thus causing more stress, were homesickness and perceived social exclusion. In contrast, psychological adjustment, social support from the host family, social support from the exchange organization, and level of identification with the host culture were all associated with lower levels of stress.

Predictors of self-esteem. We repeated the same sequence of multilevel regression analyses for self-esteem (see Table 6). In the basic model (Model 1), both baseline stress (at t1) and time were significantly predicting self-esteem during the sojourn. The intrapersonal variables (Model 2.1) improved the model significantly, $\chi^2(3) = 24.16$, $p < .001$. This time, only psychological adjustment was an independent predictor. Higher psychological adjustment was related to higher self-esteem.

Turning to the interpersonal variables next (Model 2.2), the model did not seem to improve over and above the basic model, $\chi^2(5) = 7.41$, $p = .19$. Still, social support from the exchange organization was independently associated with higher self-esteem. None of the other interpersonal variables were.

We then looked at Model 2.3 including the identity, affect, and perceived social exclusion variables. Overall, the model was significantly better than the basic model, $\chi^2(5) = 38.50$, $p < .001$. Three predictors emerged as significant. Perceived social exclusion was associated with lower self-esteem and positive home country affect with higher self-esteem. Somewhat surprisingly, higher levels of social identification with the home culture were associated with lower self-esteem.

Again, we examined the role of cultural distance (Model 2.4) operationalized by distance scores based on GDP and HDI. Cultural distance did not improve the basic model, $\chi^2(4) = 5.85$, $p = .21$, although the squared distance of the Human Development Index did approach significance ($p = .051$). Two additional multilevel models were built to investigate the predictive ability of cultural distance based on Hofstede's (1980) cultural dimensions and Schwartz's (1992) cultural values. Neither of the Hofstede or Schwartz models significantly improved compared to their relative basic model (p's > .10).

Finally, a model was constructed including all intrapersonal, interpersonal, intergroup, and cultural distance predictors. This model was significantly better than the basic model, $\chi^2(17) = 63.67$, $p < .001$, and also improved all the separate models (p's < .02). Controlling for all other predictors, higher self-esteem was associated with higher psychological adjustment, social support from the natural family, and home country affect. On the other hand, lower levels of self-esteem were predicted by perceived social exclusion, social identity with the home culture, and social support from the host family (in the host country). Both negative associations of home identity and social support from the host family had not been hypothesized.

Sojourn Termination

Finally, we analyzed early sojourn terminations ($N = 10$ out of 151 participants), by means of a logistic regression with t2 stress as a predictor. The analysis revealed that t2 stress was indeed a significant predictor for sojourn termination, Wald $\chi^2(1) = 9.52$, $p < .01$. An odds ratio of 3.61 indicated that for each one unit step along the stress scale, the odds of early termination increase by a multiple of 3.6. For instance, participants with a 10 percentile stress score have a 1% risk of early termination, compared with a 16% risk for participants at the 90th percentile for t2 stress.

Importantly, this pattern of results was identical when controlling for baseline stress (at t1). This suggests that sojourn terminations can be partially predicted by levels of stress at the start of the sojourn, but not by levels of stress predeparture. As interesting as these results may be, their implications are somewhat limited due to the small sample size of the early return group.

Table 6. Multilevel Analysis for Predictors of Sojourners' Self–Esteem.

	Model 1 Basic Model			Model 2.1 Intrapersonal			Model 2.2 Interpersonal			Model 2.3 Intergroup			Model 2.4 Cultural Distance			Model 3 Full Model		
	β	SE	p	β	SE	p	β	SE	p	β	SE	p	β	SE	p	β	SE	p
Intercept	−.30	.11	<.01	−.07	.42	.44	−.87	.33	<.01	−1.00	.42	<.01	−.26	.13	.02	−.62	.66	.17
Repeated measures effects																		
Baseline stress (t1)	.75	.05	<.001	.69	.05	<.001	.74	.05	<.001	.75	.05	<.001	.77	.05	<.001	.68	.05	<.001
Time	.32	.07	<.001	.27	.07	<.001	.34	.07	<.001	.32	.07	<.001	.32	.07	<.001	.28	.07	<.001
Intrapersonal factors (mixed)																		
Host country knowledge (t1)				.04	.04	.14										.02	.03	.24
Psych adjustment (t2/t3)				.23	.05	<.001										.18	.05	<.001
Homesickness (t2/t3)				−.01	.04	.37										.00	.04	.46
Social support (time varying)																		
Natural family at home (t2/t3)							.05	.04	.11							.08	.04	.02
Host family at host (t2/t3)							−.01	.03	.39							−.05	.03	.02
Friends at home (t2/t3)							−.01	.03	.41							.00	.03	.50
Friends at host (t2/t3)							.02	.03	.30							−.05	.03	.09
Exchange organization (t2/t3)							.05	.03	.02							.02	.02	.17
Intergroup measures (mixed)																		
Home identity (t1)										−.08	.03	<.01				−.09	.03	<.001
Host identity (t1)										.02	.04	.28				.01	.04	.37
Home country affect (t2/t3)										.01	.00	.02				.01	.00	.02
Host country affect (t2/t3)										.00	.00	.37				.00	.00	.23
Perceived social exclusion (t2/t3)										−.24	.05	<.001				−.22	.05	<.001
Cultural distance (time invariant)																		
GDP distance													−.12	.12	.15	−.12	.11	.14
GDP distance–squared													−.02	.05	.33	.00	.05	.47
HDI distance													.67	.67	.16	.78	.60	.10
HDI distance–squared													.42	.26	.05	.38	.23	.05
Residual variance																		
Repeated measures (σ^2_e)	.26	.04	<.001	.24	.03	<.001	.26	.04	<.001	.27	.04	<.001	.26	.04	<.001	.23	.03	<.001
Interindividual (σ^2_{u0})	.17	.04	<.001	.13	.04	<.001	.15	.04	<.001	.12	.04	<.001	.15	.04	<.001	.09	.03	<.01
Deviance	477.3			453.1			469.9			438.8			471.4			413.6		

Discussion

The present study examined the occurrence of acculturative stress and/or personal growth in a sojourning context. A panel data design was utilized to make a comparison between sojourners and controls, both of which were experiencing an important transition, cultural and academic, respectively. This design allowed us to examine the variations of stress and self-esteem in a controlled fashion. We also examined the role of intrapersonal, interpersonal, intergroup, and cultural distance predictors on stress and self-esteem.

Cultural Transition

As hypothesized, sojourners' level of self-esteem gradually increased over time. In other words, there was an upward trend for sojourners, but not for controls. This emerging discrepancy was stable, as differences lasted up to a year postsojourn (t4). This pattern of results fits with the view that sojourning may lead to personal growth (Kim, 2012; Masgoret & Ward, 2006). The temporal pattern of stress was more erratic. Contrary to predictions made by the standard temporal view of acculturation, sojourners reported lower levels of stress at the start of the sojourn and up to a year thereafter. Importantly, this effect was driven by a drop in stress in sojourners, as opposed to an increase in the control group. Clearly, this finding is at odds with the view that all acculturating individuals experience stress (Berry, 2006; Ward et al., 2001). Interestingly, however, other scholars have also reported findings similar to ours—that is, the absence of acculturative stress (Ward & Kennedy, 1996).

How can these findings be reconciled with a large body of research that does find evidence for the occurrence of acculturative stress? Apart from methodological problems that plague many an acculturation study, there are also (legitimate) differences between studies. For instance, studies have varied the window of measurement. Whereas previous studies have reported time frames as narrow as 24 h upon arrival (Ward et al., 1998), our first postentry measure was about 6 weeks into the sojourn. Hence, it is conceivable that our sojourners did experience stress early on but that we failed to capture it. Even if this were to be the case, it still fails to explain the apparent and long-lasting drop in sojourners' stress.

An alternative explanation is that these students may have approached the whole experience as a holiday. However unlikely, they may never have tried to culturally adapt in the first place, and consequently they would not have experienced acculturative stress. This account is unlikely on a number of levels. Exchange organizations, such as AFS, will typically screen exchange students for this kind of behavior. Secondly, enrolled in a local school, sojourners would have been under a school regime. Finally, this account also fails to explain why sojourners show lower levels of stress 1 year after the exchange.

A more likely explanation for our findings is the specific population of sojourners. Exchange students are typically highly motivated, and the whole experience takes place in a well-controlled environment. Under these optimal conditions, the experience of cultural adaptation may have effectively changed sojourners actual stress levels, or their construal of stress, making them more resilient in the long run. Although this explanation is perhaps somewhat speculative, it could be empirically tested in future research. More importantly, these findings clearly highlight that any attempt to approach the acculturation process with a single unifying theory is deeply problematic.

In terms of predictors, we found that a series of variables were indeed associated with stress and self-esteem. Starting with stress, all intrapersonal variables turned out significant, positively for homesickness (Zheng & Berry, 1991) but negatively for psychological adjustment (Ward & Kennedy, 1996) and knowledge of the host country. The interpersonal support variables were negatively associated with stress (Cohen & Wills, 1985; Kealey, 1989), but it was mainly the

proximal sources of support that seemed most effective (Cemalcilar et al., 2005). Furthermore, stress was also predicted by our intergroup variables, such that higher levels of social identity with and affect toward the host culture was associated with lower levels of stress (LaFromboise et al., 1993; Phinney, 1990), but perceived social exclusion was associated with higher levels of stress (Clark et al., 1999).

With regard to self-esteem we found that only one of the intrapersonal variables was predictive of self-esteem. Specifically, higher levels of psychological adjustment during the sojourn were associated with high self-esteem. There seemed to be some link between social support (from the host family) and self-esteem, but this was quite weak. Furthermore, self-esteem was also associated with the intergroup measures, such that social exclusion was related to lower self-esteem (Clark et al., 1999) and positive affect toward the home culture to higher self-esteem. Somewhat intriguingly, higher levels of social identification with the home culture were associated with lower levels of self-esteem.

Interestingly, none of the cultural distance measures (GDP and HDI; Hofstede, 1980; Schwartz, 1992) were predictive of either stress or self-esteem, seemingly contradicting the cultural distance hypothesis (Babiker et al., 1980). One possible explanation for this is that previous studies on the cultural distance hypothesis (Babiker et al., 1980; Searle & Ward, 1990) have a confound between perceived distance and stress scores. Alternatively, the present study may have lacked the necessary variability for the effect to emerge. After all, the home-host country pairs in the current study were constrained as each comparison involved the same home country. Clearly, future research is needed to shed light on the relationship between perceived cultural distance, more objective measures of distance (i.e., economically and psychologically), and their respective roles in sojourners' adaptation.

Finally, we analyzed participants who terminated the sojourn prematurely. Acculturative stress at the start of the sojourn (t2) clearly predicted sojourn terminations. Typically, stress has been conceptualized as an adaptive process (Lazarus & Folkman, 1984), signaling that the behavior, once appropriate in the home culture, no longer matches with the new cultural environment. As such, it becomes part of an effective process of adaptation (Berry, 1997). However, our findings also highlight the boundary conditions. Acculturative stress may indeed be adaptive, but excessive stress that does not get resolved may still have negative consequences.

Educational Transition

Thus far, our research has focused on the perspective of the sojourner. However, facing a challenging experience themselves, our data also allow consideration of the transition of the control participants. All but one of the control participants enrolled in college or university. This educational transition will typically present students with more freedom and responsibility. In addition, many students will also be living away from home for the first time (44% in our sample). The change in educational environment is a known stressor, which may lead to student dropout (Hamilton & Hamilton, 2006).

The timing of the measurements was matched between sojourners and controls, such that we have pre, during, and post measures for both groups. In other words, the design of the study allows us to examine whether the transition to higher education impacts on students levels of stress and self-esteem. Overall, the longitudinal data showed no impact for the control group whatsoever. Instead, the significant findings seemed to be driven by the sojourner group. Thus, there was no evidence of change in stress or self-esteem, but what about the predictors? Controls did respond to a number of questions, but of these, only few questions were theoretically relevant for a transition to higher education, namely the extent to which students received social support from family, friends, and the higher education institution. Social support is believed to ease the college transition (Mattanah et al., 2010), so we decided to conduct some additional analyses.

These post hoc analyses revealed that social support from friends and the college or university was negatively related to stress and positively related to self-esteem,[8] clearly indicating the usefulness of social support (Cohen & Wills, 1985; Snyder, 2001) in transition to tertiary education (Mattanah et al., 2010).

Strengths and Limitations

In terms of strengths, this study is perhaps unique in terms of its rigorous longitudinal design, inclusion of different outcome variables (stress and self-esteem), and richness of predictor variables. However, there are also a few limitations to the study, notably with some of the measures. First, we know from social identity theory that identities change with context, as such intercultural contact is likely to influence sojourners' identity. In light of this, it would have been preferable to measure social identity longitudinally. Second, cultural distance was operationalized at the country level. Perhaps this could have been supplemented with a measure of perceived cultural distance. Finally, other measures could have been included, such as sojourners' ability or fluency in the host language.

In summary, our results seem to indicate that acculturative stress may not be a universal construct of acculturation. Instead different populations are likely to react differently to cultural transitions. Furthermore, our sojourner sample demonstrated that sojourning may lead to personal growth in terms of heightened self-esteem and acculturative resilience. Such personal growth may be particularly powerful when the necessary intrapersonal, interpersonal, and intergroup conditions are met.

Appendix

Pre-knowledge (1 = *not a lot*, 7 = *a lot*)
  What do you know about the country's geography?
  What do you know about the country's history?
  What do you know about the country's politics?
  What do you know about the country's economy?
Psychological adjustment (1 = *strongly disagree*, 7 = *strongly agree*)
  I am very comfortable with my new environment.
  I think that I will never adjust to this new environment (rev).
  I feel well adapted to my new environment.
  I like to interact and mix with the people in my host country.
  It is a great effort to deal with my new environment (rev).
Homesickness (1 = *strongly disagree*, 7 = *strongly agree*)
  I would like to go back home.
  I long to contact people of my home country.
  I miss many of the customs of my home country.
  I love to listen to and/or speak my language.
  I think about my home country a lot.
Perceived social exclusion (1 = *strongly disagree*, 7 = *strongly agree*)
  I feel as if most of the people in my host country do not want to mix with me.
  I have the impression that most of the people in my host country prefer to avoid me.
  I think that most of the people in my host country do not care for me.
  I feel well accepted by most of the people in my host country (rev).
  I think that most of the people in my host country are very kind to me (rev).

Declaration of Conflicting Interests

Funding

Notes

1. AFS (originally the American Field Service) begun as a service of volunteer ambulance drivers in 1914; it has since evolved into an international youth exchange organization.
2. All but one of the control participants eventually enrolled in college or university (99.4%). About half of the sample lived in student residences (44.4%); the other half commuted from home (55.6%).
3. Because measures were collected over time and across different groups, a multilevel modeling approach was best suited to analyze the data. Conceptually similar to ANOVA and regression, multilevel models are particularly suitable for nested research data (Hox, 2010), such as completed timewaves within individuals. Repeated measures multilevel modeling can also easily deal with attrition or panel dropout.
4. Change scores (computed for t2, t3, and t4) are the difference between the value at one time point and the value from the preceding time point—that is, $\Delta stress_{t3} = stress_{t3} - stress_{t2}$.
5. Originally, there were a total of 265 units at the lowest level. Due to missing values, 11 units (at Level 1) were removed (4.1%). The data were also analyzed with imputation of missing values, leading to similar results.
6. Hofstede's (1980) dimensions and Schwartz's (1992) values are not available for every host country (see Table 1), resulting in missing values for certain countries. Because the deviance statistic in multilevel regression analysis (–2 Log-Likelihood) is based on the degrees of freedom, a full participant set is needed for model comparisons. Therefore, cultural distance based on Hofstede's dimensions and Schwartz' values were not used in the main multilevel analysis but are reported separately. Unfortunately, we were unable to use the Globe data (House, Hanges, Javidan, Dorfman, & Gupta, 2004), as the home country (Belgium) does not feature in the Globe dataset.
7. The cultural distance score is defined as:

$$CD_{ab} = \sum_{i}^{n} \{(D_{ia} - D_{ib})^2 / V_i\} / n$$

where CD_{ab} stands for the cultural distance between countries a and b, D_{ix} is the score for the ith cultural dimension (or cultural value) for country x (either a or b), V_i is the variance of the ith cultural dimension, and n is the total number of cultural dimensions (after Kogut & Singh, 1988).

8. Specifically, we conducted multilevel analyses of controls' stress and self-esteem during their first year in higher education (t2 and t3). The units at Level 1 were completed timewaves ($N = 272$), with individuals as units at Level 2 ($N = 156$). For stress, the multilevel model including the social support predictors was superior to the basic model, $\chi^2(3) = 29.69$, $p < .001$. Stress was negatively associated with social support from friends ($\beta = -.20$, $p < .001$) and the higher education institution ($\beta = -.13$, $p < .001$), but not with family ($\beta = .03$, $p = .26$). For self-esteem, the model including social support was better than the basic model, $\chi^2(3) = 28.80$, $p < .001$. Self-esteem was positively associated with social support from friends ($\beta = .18$, $p < .001$) and the school ($\beta = .08$, $p < .01$), but not with family ($\beta = .03$, $p = .19$).

References

Adler, P. S. (1975). The transitional experience: An alternative view of culture shock. *Journal of Humanistic Psychology*, *15*, 13-23.

Allport, G. W. (1954). The nature of prejudice. Reading, MA: Addison-Wesley.

Babiker, I. E., Cox, J. L., & Miller, P. (1980). The measurement of cultural distance and its relationship to medical consultations, symptomatology, and examination performance of overseas students at Edinburgh University. *Social Psychiatry*, *15*, 109-116.

Bardi, A., & Guerra, V. M. (2011). Cultural values predicting coping: Using culture as an individual difference variable in multicultural samples. *Journal of Cross-Cultural Psychology*, *42*, 908-927.

Bennett, M. J. (2004). Becoming interculturally competent. In J. S. Wurzel (Ed.), *Toward multiculturalism: A reader in multicultural education* (2nd ed., pp. 62-77). Newton, MA: Intercultural Resource Corporation.

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, *46*, 5-34.

Berry, J. W. (2006). Stress perspectives on acculturation. In D. L. Sam & J. W. Berry (Eds.), *The Cambridge handbook of acculturation psychology* (pp. 43-57). Cambridge, UK: Cambridge University Press.

Berry, J. W., Phinney, J., Sam, D., & Vedder, P. (Eds.). (2006). *Immigrant youth in cultural transition: Acculturation, identity and adaptation across national context*. Mahwah, NJ: Lawrence Erlbaum Associates.

Bochner, S. (2006). Sojourners. In D. L. Sam & J. W. Berry (Eds.), *The Cambridge handbook of acculturation psychology* (pp. 43-57). Cambridge, UK: Cambridge University Press.

Boski, P. (2008). Five meanings of integration in acculturation research. *International Journal of Intercultural Relations*, *32*, 142-153.

Cemalcilar, Z., Falbo, T., & Stapleton, L. M. (2005). Cyber communication: A new opportunity for international students' adaptation? *International Journal of Intercultural Relations*, *29*, 91-110.

Church, A. T. (1982). Sojourner adjustment. *Psychological Bulletin*, *91*, 540-572.

Clark, R., Anderson, N., Clark, V., & Williams, D. (1999). Racism as a stressor for African Americans: A biopsychosocial model. *American Psychologist*, *54*, 805-816.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 385-396.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, *98*, 310-357.

Davis, F. J. (1971). The two-way mirror and the U-curve: America as seen by Turkish students returned home. *Sociology and Social Research*, *56*, 29-43.

Dunbar, E. (1992). Adjustment and satisfaction of expatriate US personnel. *International Journal of Intercultural Relations*, *16*, 1-16.

Fisher, S., & Cooper, C. (1990). *On the move: Psychology of change and transition*. Chichester, UK: Wiley.

Furnham, A., & Alibhai, N. (1985). The friendship networks of foreign students. *International Journal of Psychology*, *20*, 709-722.

Furukawa, T., & Shibayama, T. (1993). Predicting maladjustment of exchange students in different cultures: A prospective study. *Social Psychiatry and Psychiatric Epidemiology*, *28*, 142-146.

Gullahorn, J. T., & Gullahorn, J. E. (1963). An extension of the U-curve hypothesis. *Journal of Social Issues*, *19*, 33-47.

Haddock, G., Zanna, M. P., & Esses, V. M. (1993). Assessing the structure of prejudicial attitudes: The case of attitudes toward homosexuals. *Journal of Personality and Social Psychology*, *65*, 1105-1118.

Hamilton, S., & Hamilton, M. (2006). School, work, and emerging adulthood. In J. Arnett & J. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st century* (pp. 440-473). Washington, DC: American Psychological Association.

Hofstede, G. (1980). *Cultural consequences*. Beverly Hills, CA: Sage.

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations. The GLOBE study of 62 societies*. Thousand Oakes, CA: Sage.

Hox, J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). New York: Routledge.

Kealey, D. (1989). A study of cross-cultural effectiveness: Theoretical issues, practical applications. *International Journal of Intercultural Relations*, *13*, 387-428.

Kim, Y. Y. (2012). Beyond cultural categories: Communication, adaptation and transformation. In J. Jackson (Ed.), *The Routlegde handbook of language and intercultural communication* (pp. 229-243). Oxford, UK: Routlegde.

Kogut, B., & Singh, H. (1988). The effect of national culture on the choice of entry mode. *Journal of International Business Studies*, *19*, 411-432.

LaFromboise, T., Coleman, H. L. K., & Gerton, J. (1993). Psychological impact of biculturalism: Evidence and theory. *Psychological Bulletin*, *114*, 395-412.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.

Liebkind, K. (2006). Ethnic identity and acculturation. In D. L. Sam & J. W. Berry (Eds.), *The Cambridge handbook of acculturation psychology* (pp. 78-96). Cambridge, UK: Cambridge University Press.

Liebkind, K., & Jasinskaja-Lathi, I. (2000). The influence of experiences of discrimination on psychological stress: A comparison of seven immigrant groups. *Journal of Community, Applied Social Psychology*, *10*, 1-16.

Lysgaard, S. (1955). Adjustment in a foreign society: Norwegian Fullbright grantees visiting the United States. *International Social Science Bulletin*, *7*, 45-51.

Maddux, W. W., & Galinsky, A. D. (2009). Cultural borders and mental barriers: The relationship between living abroad and creativity. *Journal of Personality and Social Psychology*, *96*, 1047-1061.

Masgoret, A.- M., & Ward, C. (2006). Cultural learning approach to acculturation. In D. L. Sam & J. W. Berry (Eds.), *The Cambridge handbook of acculturation psychology* (pp. 58-77). Cambridge, UK: Cambridge University Press.

Mattanah, J. F., Ayers, J. F., Brand, B. L., Brooks, L. J., Quimby, J. L., & McNary, S. W. (2010). A social support intervention to ease the college transition: Exploring main effects and moderators. *Journal of College Students Development*, *51*, 93-108.

Ng, S. I., Lee, J. A., & Soutar, G. N. (2006). Are Hofstede's and Schwartz's value frameworks congruent? *International Marketing Review*, *24*, 164-180.

Oberg, K. (1960). Cultural shock: Adjustment to new cultural environments. *Practical Anthropology*, *7*, 177-182.

Oppedal, B. (2006). Development and acculturation. In D. L. Sam & J. W. Berry (Eds.), *The Cambridge handbook of acculturation psychology* (pp. 97-112). Cambridge, UK: Cambridge University Press.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology*, *49*, 65-85.

Phinney, J. (1990). Ethnic identity in adolescents and adults. *Psychological Bulletin*, *108*, 499-514.

Rasbash, J., Charlton, C., Browne, W. J., Healy, M., & Cameron, B. (2009). *MLwiN Version 2.1*. Bristol, UK: Centre for Multilevel Modelling, University of Bristol.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol.25, pp. 1-65). New York: Academic Press.

Searle, W., & Ward, C. (1990). The prediction of psychological and sociocultural adjustment during cross-cultural transitions. *International Journal of Intercultural Relations*, *14*, 449-464.

Smolderen, K. G. E., Vingerhoets, A. J. J.M., Croon, M. A., & Denollet, J. (2007). Personality, psychological stress, and self-reported influenza symptomatology. *BMC Public Health*, *7*, 339.

Snyder, C. R. (2001). *Coping with stress: Effective people and processes*. Oxford, UK: Oxford University Press.

Tajfel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In W. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Monterey, CA: Brooks/Cole.

Torbiorn, I. (1982). *Living abroad: Personal adjustment and personnel policy in the overseas setting.* Chichester, UK: Wiley.

van der Zee, K. I., & van Oudenhoven, J.- P. (2000). The multicultural personality questionnaire: A multi-dimensional instrument of multicultural effectiveness. *European Journal of Personality*, *14*, 291-309.

Vega, W., & Rumbaut, R. (1991). Ethnic minorities and mental health. *Annual Review of Sociology*, *17*, 56-89.

Ward, C., Bochner, S., & Furnham, A. (2001). *The psychology of culture shock.* East Sussex, UK: Routlegde.

Ward, C., & Kennedy, A. (1996). Crossing cultures: The relationship between psychological and socio cultural dimensions of cross-cultural adjustment. In J. Pandey, D. Sinha, & D. P. S. Bhawuk (Eds.), *Asian contributions to cross-cultural psychology* (pp. 289-306). New Delhi, India: Sage.

Ward, C., & Kennedy, A. (1999). The measurement of socio-cultural adaptation. *International Journal of Intercultural Relations*, *23*, 659-677.

Ward, C., Leong, C.- H., & Low, M. (2004). Personality and sojourner adjustment: An exploration of the Big Five and the Cultural Fit proposition. *Journal of Cross-Cultural Psychology*, *35*, 137-151.

Ward, C., Okura, Y., Kennedy, A., & Kojima, T. (1998). The U-curve on trial: A longitudinal study of psychological and sociocultural adjustment during cross-cultural transition. *International Journal of Intercultural Relations*, *22*, 277-291.

Ward, C., & Searle, W. (1991). The impact of value discrepancies and cultural identity on psychological and sociocultural adjustment of sojourners. *International Journal of Intercultural Relations*, *15*, 209-224.

Zheng, X., & Berry, J. W. (1991). Psychological adaptation of Chinese sojourners in Canada. *International Journal of Psychology*, *26*, 451-470.