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# RUNNING HEAD: PERSONALITY DEVELOPMENT OF SOJOURNERS

Do We Become a Different Person When Hitting the Road?

Personality Development of Sojourners.

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#### Abstract

International mobility is a prevalent life event that particularly affects university students. The aim of this longitudinal study was twofold: first, we examined the impact of international mobility on personality (Big Five) change, separating self-selection effects from socialization processes. Second, we extended prior analyses on the association between life events and personality development by investigating the mechanisms that account for socialization processes. In particular, we assessed whether individual differences in the fluctuation of support relationships serve as an explanatory link. We used a prospective control group design with three measurement occasions. A sample of university students, containing both short-term (i.e., one semester) and long-term (i.e., one academic year) sojourners (N = 527) along with control students (N = 607), was tracked over the course of an academic year. Multivariate latent models revealed three main findings: first, initial (pre-departure) levels of Extraversion and Conscientiousness predicted short-term sojourning and Extraversion and Openness predicted long-term sojourning. Second, both forms of sojourning were associated with increases in Openness and Agreeableness and a decrease in Neuroticism above and beyond the observed self-selection. Third, the acquisition of new international support relationships largely accounted for the sojourn effects on personality change. These findings help to fill the missing link between life events and personality development by establishing social relationship fluctuation as an important mediating mechanism.

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Keywords: personality development, international mobility, social relationships, young adulthood

# Do We Become a Different Person When Hitting the Road? Personality Development of Sojourners.

Internationalization has wide ranging effects on various fields of contemporary living, including academic education and professional life. As a consequence, the number of student sojourners (i.e., university students who pursue some of their academic education on campuses abroad) increased from a few hundred sojourners per year in the 1980s to about 25% of Germany's enrolled students in the 2010s (Heublein, Schreiber, & Hutzsch, 2011). Recent publications on the psychological conditions and consequences of students' international sojourn experiences characterized them as major life events and showed that the effects of sojourning went far beyond academic benefits and had long-term personal and social consequences (Andrews, Page, & Neilson, 1993; Leong & Ward, 2000; Searle & Ward, 1990; Ying, 2002).

Against the background of these findings, international mobility qualifies as an optimal setting to extend previous research on personality-environment transactions. With the longitudinal study "PEDES – Personality Development of Sojourners" we assessed sojourn effects on personality development. The implementation of a prospective control group design with three measurement occasions allowed us to separate the effects of personality determined self-selection from socialization processes. In addition, we extended previous research on the dynamic interplay between life events and personality development by examining the fluctuation of support relationships as a mechanism which accounts for socialization processes.

#### Always on the Road? International Mobility of Young Academics.

We argue that international mobility is a relevant life event for the personality development of young adults. First, international sojourns have become increasingly important as both European educational boards and employers have strong expectations regarding young academics' international experiences and their subsequent readiness for global job mobility (Bundesministerium für Bildung und Forschung, 2009; Council of the European Union, 2009; Deutscher Akademischer Austauschdienst, 2011). Second, conceptual commonalities between international mobility and other life transitions (Roberts, Wood, & Smith, 2005; Roberts & Wood, 2006) become obvious once we consider the particular role of social relationships. It has been argued that social relationships are the most important sources of environmental continuity and change (Caspi, 2000); so much so that "[life] transitions reflect, first and foremost, relationship transitions" (Neyer & Lehnart, 2007, p. 536). From this perspective, the most important transitions of young adulthood, such as leaving the parental home, entering the world of work, engaging in romantic relationships or becoming a parent, may be understood as changes in social relationships.

Accordingly, recent studies on residential mobility experiences have provided evidence for their causal effect on social relationships and the self (Lun, Oishi, & Tenney, 2012; Oishi, Rothman, Snyder, Zehm, Hertel et al., 2007) and have suggested that the residential mobility effects on the self are mediated in large parts by the changes in social networks (Oishi, 2010; Oishi & Talhelm, 2012). Even though temporary international sojourn experiences differ from permanent residential moves, we contend that these experiences likewise promote fundamental changes of social relationships.

In particular, the large spatial distance from familiar acquaintances and the changed living conditions whilst studying abroad are likely to put a strain on sojourners' preexisting relationships. Simultaneously, sojourning individuals are confronted with the challenge to establish and maintain new social relationships within a foreign and intercultural context. Bochner, McLeod and Lin (1977) observed that international sojourns promote, primarily, the international diversity of support relationships. For example, sojourners turn to fellow international students or host country students for companionship or help with academic matters. Surprisingly, despite the tremendous increase of student sojourners over the last decades, the changes and challenges of sojourners' social relationships have not yet been systematically researched.

Summarizing, we suggest that international mobility as an important event in numerous students' lives is best characterized in terms of the associated relationship dynamics. On the one hand, it shares common ground with age-related transitions, such as leaving the parental home or starting a romantic relationship, and with residential mobility experiences in general. All these transitions and experiences involve social relationship changes (Neyer & Lehnart, 2007; Oishi, 2010; Oishi & Talhelm, 2012), which provide the social contingencies for personality development (Caspi & Roberts, 1999; Roberts & Wood, 2006). On the other hand, international mobility experiences differ from most life transitions as they do not only expose sojourners to a new but, first of all, internationally diverse social environment. Consequently, we hypothesize that international sojourns affect personality development and that these socialization effects are best explained by social relationship changes that refer to new international relationships (Bochner et al., 1977; Oishi, 2010; Oishi & Talhelm, 2012).

#### Stability or Change? Personality Traits in Young Adulthood.

The last decades of research on personality development have been dominated by a controversy on both the general changeability of the Big Five traits (Costa & McCrae, 1988; Srivastiva, John, Gosling, & Potter, 2003), and the age limit that constrains personality development (Costa & McCrae, 2006; Roberts, Walton, & Viechtbauer, 2006). In the meantime, several meta-analyses and large-scale studies have shown that both rank-order dynamics and mean-level changes extend far into old age (Lucas & Donnellan, 2011; Roberts & DelVecchio, 2000; Roberts et al., 2006; Specht, Egloff, & Schmukle, 2011), and have identified young adulthood as the most dynamic period of personality development (Roberts et al., 2006; Robins, Fraley, Roberts, & Trzesniewski, 2001). The universal mean-level trends during this developmental time-span illustrate that most individuals become more

conscientious, agreeable, and emotionally stable during the passage from adolescence to adulthood.

The trends observed for Openness and Extraversion are diverse. All recent studies have reported some form of mean-level change in Openness; however, results are contradictory since they advocate either trends of decrease (Lucas & Donellan, 2011; Specht et al., 2011) or increase (Roberts et al., 2006; Robins et al., 2001). With respect to Extraversion, there is evidence that the developmental trajectories differ depending on the facet under study (Roberts et al., 2006).

There is a consensus that the mechanisms accounting for these Big Five mean-level changes can be traced back to both genetic and environmental influences (Bleidorn, Kandler, Riemann, Angleitner, & Spinath, 2009; Kandler, Bleidorn, Riemann, Angleitner, & Spinath, 2012; Roberts, Caspi, & Moffitt, 2003), and the decisive role of age-graded life transitions is broadly acknowledged (Roberts & Wood, 2006; Roberts, Wood & Caspi, 2008). According to the Social Investment Principle, the course of these developmental trajectories is primarily explained in terms of age-graded social investments, that is to say, commitments to social roles which are typically adopted in young adulthood (Lodi-Smith & Roberts, 2007; Roberts & Wood, 2006).

However, besides these mean-level patterns of personality development, many studies of young adults have documented individual deviations from these trajectories and showed that some individuals may show an increase pertaining to a certain personality trait, while others decrease (Donnellan, Conger, & Burzette, 2007; Lüdtke, Trautwein, & Husemann, 2009; Vaidya, Gray, Haig, & Watson, 2002). These individual deviations have been discussed in terms of interindividual differences in the accomplishment of age-graded life transitions (Hudson, Roberts, & Lodi-Smith, 2012; Lehnart, Neyer & Eccles, 2010; Neyer & Lehnart, 2007; Roberts & Caspi, 2003; Roberts et al., 2003) or consequences of rather nonnormative life events (Löckenhoff, Terracciano, Patriciu, Eaton, & Costa, 2009; Lüdtke, Roberts, Trautwein, & Nagy, 2011; Mroczek & Spiro, 2003).

#### What Makes the Difference? Life Events and Individual Differences in Change.

Life events open up contexts of individual differences in personality development and were for a long time understood as randomly arising incidents (Sarason, Johnson, & Siegel, 1978). However, there is growing evidence for systematic interindividual differences in the occurrence of these events, and that these differences are linked to personality traits (Jokela, 2009; Lüdtke et al., 2011; Specht et al., 2011). This mechanism is also referred to as "self-selection." Based on previous findings pertaining to personality traits and mobility within one's own country (Jokela, 2009; Jokela, Elovainio, Kivimäki, & Keltikangas-Järvinen, 2008), we expected to find sustainable self-selection effects for Extraversion. However, some previous studies have found that increased levels of Openness (Jokela, 2009; Lüdtke et al., 2011), and either reduced or elevated levels of Agreeableness (Jokela, 2009; Lüdtke et al., 2011) and Neuroticism (Jokela et al., 2008; Lüdtke et al., 2011; Silventoinen, Hammar, Hedlund, Koskenvuo, Rönnemaa, & Kaprio, 2008) predict mobility experiences. Hence, we were particularly interested in clarifying the contribution of these three trait domains to self-selection effects.

Above and beyond self-selection effects, the occurrence of life events is related to distinct patterns of subsequent personality development, which are referred to as "socialization" (Mroczek & Spiro, 2003; Löckenhoff et al., 2009). Earlier studies (Lüdtke et al., 2011; Ying, 2002) identified sojourn effects on the trajectories of Openness, Extraversion, Agreeableness and Neuroticism. Apart from that, the Corresponsive Principle suggests that selection and socialization are not independent of each other, rather "the most likely effect of life experience on personality development is to deepen the characteristics that lead people to those experiences" (Roberts et al., 2003, p. 583). As only a few studies have embarked upon a systematic empirical examination of such corresponsive developmental patterns, we endeavored to investigate whether the Corresponsive Principle holds in the context of international mobility experiences. This would require the exclusive identification of socialization processes which match the pattern of self-selection effects.

Likewise, the mechanisms that account for socialization processes as well as the time it takes for these processes to unfold have not yet been thoroughly investigated. For the case of international mobility, we propose the mechanisms of relationship fluctuation as being particularly relevant. Caspi and Roberts (1999) suggested that the role of relationships in personality development can be conceived of as learning from relevant others by either modeling their behaviors or by incorporating their feedback. Accordingly, personality change may occur in response to qualitative changes in established relationships, or as a consequence of quantitative changes such as relationship fluctuation, that is the replacement of established relationships by new ones (Feld, Suitor, & Gartner Hoegh, 2007; Sturaro, Denissen, van Aken, & Asendorpf, 2008).

Individuals who move to another country are particularly faced with relationship fluctuation (Degenne & Lebeaux, 2005; Lubbers, Molina, Lerner, Brandes, Ávila, & McCarty, 2010). Social relationships that provide emotional support, instrumental support or companionship are particularly important for people on the move (Bochner et al., 1977; de Miguel Luken & Tranmer, 2010). Staying abroad offers plenty of opportunities to engage in new social relationships with either other sojourners from the country of origin (national relationships) or members of the host country and other international sojourners (international relationships) (Bochner et al., 1977). The available support relationships will thus be partly replaced by new and most likely international relationships. Therefore, we suggest that international relationship gains constitute an important mediator in explaining possible sojourn effects on personality development.

Regarding the timing of sojourn effects, recent studies on psychological and sociocultural adaptation suggest that adjustment difficulties are greatest during the early

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phases of the foray into the new culture, but then decrease until they reach a stable level (Furukawa & Shibayama, 1993, 1994; Ward, Okura, Kennedy, & Kojima, 1998). It seems to take sojourners about four to six months to overcome any mood disturbances related to their entrance into a new cultural context (psychological adaptation) and to settle down and get along with everyday matters of work, life, and social communication (sociocultural adaptation). Based on this observation, we assume that sustainable sojourn effects on personality development might at earliest be identified once these initial adaptation stages have been accomplished. We thus implemented a first follow-up measurement approximately five months after sojourners' arrival in their host countries (T2) and scheduled another occasion of data collection by the end of the academic year (T3). With these measurement intervals we were further able to compare socialization trajectories of sojourners who stayed abroad for one academic term of about five months (i.e., short-term sojourners) and sojourners who spent the full academic year of about eight months (i.e., long-term sojourners) abroad.

#### The present study

A sample of N = 1134 students (containing N = 527 sojourners and N = 607 control students) was tracked over the course of an academic year. Participants were approached several weeks before the academic year started and presented with an introductory questionnaire, which asked them about their future international mobility plans and accordingly assigned them to either the control or the sojourner groups. Waves of data collection included an initial assessment at the beginning of the academic year, a second approximately five months later, and a third around eight months after that. Members of the control group were approached on pre-arranged dates, but, for the sojourner groups, we established regular intervals between the times of data collection by coordinating all further measurements based on their proposed dates of departure and return.

As outlined above, we investigated three research questions. First, we aspired to identify contingencies between (pre-departure) personality traits and the self-selection into international mobility experiences (selection hypothesis).

Secondly, we addressed sojourn effects on personality development (socialization hypothesis), and assessed incidents of corresponsive personality development in the context of international mobility experiences. We further aimed to clarify if a), the intended time to stay abroad or b), the actual duration of the sojourn experience had any effects on patterns of trait development. To investigate the effects of the intended time to stay abroad, we first compared socialization patterns of short-term (i.e., one semester) and long-term (i.e., one academic year) sojourners during the measurement interval of the first five months (T1-T2), where both groups lived abroad. Secondly, to learn about the impact of the actual sojourn duration, we compared socialization patterns of long-term sojourners across two measurement intervals; their first five months abroad (T1-T2), or the full observation period of an academic year (T1-T3).

Thirdly, we set out to clarify the mechanisms that account for the socializing effects of life experiences (mediation hypothesis). To meet this challenge, we examined indicators of relationship fluctuation (i.e., the respective numbers of lost and new national and international support relationships) as mediators of socialization effects. We supposed international mobility experiences as promoting a general increase in relationship fluctuation, but in particular to bring about new international contacts and thus increase the international diversity of sojourners' support networks. As a consequence, we expected international relationship gains to play a major role in the explanation of sojourn effects. However, we were eager to assess all particular effects of losses and gains with respect to both national and international support relationships.

#### Method

#### **Participants and procedure**

Participants of the PEDES (Personality Development of Sojourners) longitudinal study were recruited nationwide using various strategies, for example postings via the mailing lists of faculties and university clubs or on target group relevant online social network sites. Additionally, the international offices of all German universities (of applied sciences) and art academies were requested to forward our invitation email to students registered for international exchange programs starting in the winter term of 2009. Participants from approximately 200 different institutions of higher education accepted our invitation.

We implemented an online study with a personalized research design that prevented multiple registrations by the same individual. As a feature of this design, participants could interrupt and continue the completion of the online questionnaires at their convenience. Furthermore, it allowed us to track participants' progress in completing the questionnaires and enabled us to remind them of any outstanding questions whenever necessary. The personalized design was used throughout the study (i.e., for the introductory questionnaire and the three subsequent occasions of data collection).

In the introductory questionnaire, participants provided some basic demographic information and declared their international mobility plans with regard to any possible trips abroad lasting more than two months that were expected to happen within the next twelve months. Participants who did not indicate any international mobility intentions were assigned to the control group; sojourners with concrete international mobility plans were asked to specify their destination and date of departure. The declared date of departure was used to plan regular measurement intervals for all three following measurement occasions. More specifically, all sojourners received an email with their personalized link to their first full questionnaire two weeks before their individual date of departure (T1), the second one 20 weeks (T2) after the transition abroad. The timing of the third occasion of data collection was further dependent upon the individual duration of stay as recorded at T2. Sojourners who indicated they would further stay abroad for a residual time of more than 12 weeks were categorized as long-term sojourners and received their third questionnaire 32 weeks after their individual date of departure (T3) while they were still living abroad. By contrast, sojourners who either indicated a return to Germany within the next twelve weeks (short-term sojourners) or had already returned to Germany at the second occasion of data collection (visitors) were classified in different groups and separated from the regular measurement circle, as they would either cease their experience abroad in the near future (short-term sojourners) or had already left their foreign destination (visitors).

Measurement occasions for participants of the control group were established at intervals comparable to the long-term sojourners, more precisely at 20 weeks (6<sup>th</sup> April 2010) and 32 weeks (12<sup>th</sup> July 2010) after the first occasion of data collection at the beginning of the academic year 2009/10 (26<sup>th</sup> October 2009).

To prevent any untimely completion, all questionnaires were only available for participants' input once the respective invitation email had been sent out. Participants were only invited to subsequent waves of data collection when they had completed the preceding questionnaire on time. Participation in the study was voluntary and not financially remunerated. However, interested individuals were offered to participate in a lottery game with a non-cash prize and to receive individual feedback after the completion of the longitudinal study as a reward for their services.

From the individuals who initially registered for participation in the study (N = 5317), N = 3427 completed the first measurement, and a panel sample of N = 1836 provided Big Five personality data at all measurement occasions.<sup>1</sup> According to Rubin's (1976) missing data typology, missing values can be completely at random (MCAR), missing at random (MAR) or missing not at random (MNAR), with MCAR and MAR being considered to constitute ignorable non-response. Little's MCAR test assesses the assumption that MCAR can be assumed instead of MAR which means that missing values are independent of observed values in a defined set of other variables. First, we conducted MCAR tests as implemented in SPSS Version 20.0 (IBM Corporation, 2011) using the data of all participants who accomplished the first measurement (N = 3427), and we found no indication that participants' age, sex, initial Big Five trait levels, or the home university would predict panel attrition ( $\chi^2 = 1.69$ , df = 5, p = .890). Secondly, we repeated the MCAR tests with the data of all sojourners and were able to rule out host country effects on panel attrition ( $\chi^2 = .27$ , df = 5, p = .998).

Additionally, to ensure optimal data quality and to enable a strict test of our hypotheses, we precluded several datasets from the main analyses based on the following reasons. First, to obtain a strictly defined internationally inexperienced control group, we did not consider the data of N = 331 control students who had either indicated previous experiences of more than two months spent abroad or spontaneous mobility plans that coincided with the study period. Secondly, we excluded participants from the sojourner sample who either had not fully completed the first (pre-departure) questionnaire before their departure (N = 108), or numbered more than one country of residence for the succeeding months abroad (N = 7). This was necessary to both ensure stable baseline measures, since assessments in the aftermath of a transition abroad may have already been affected by the event's experience, and comparable nonrecurring transition experiences. Third, we would enhance the comparability of the international mobility experiences by restricting our analyses to sojourners who spent at least five months (one semester) abroad [i.e., short-term sojourners (N = 230) and long-term sojourners (N = 297)]. The data sets of visitors (N = 256) who had already moved back to Germany before the second assessment had taken place, were not taken into account for the current analyses. Repeated MCAR tests revealed that the cleansing procedures did not produce any systematic sample bias ( $\chi^2 = 1.74$ , df = 5, p = .884).

The overall analysis sample (N = 1134) comprised 21.8% male participants, almost equally distributed across the three groups (21.7% male short-term sojourners, 25.3% male

long-term sojourners, and 20.1 % male control students). Similarly, the mean age was largely comparable [22.8 years (SD = 1.9), 22.6 years (SD = 1.9), and 22.5 years (SD = 3.0)].

Comparing initial Big Five trait scores to those of a representatively selected sample of young German adults (N = 160, mean age = 30.7, SD = 5.7) compiled by Lang, Lüdtke, and Asendorpf (2001), we found that our sample was to a large extent comparable to the representative sample, as differences in Openness, Conscientiousness, Extraversion and Agreeableness reached only negligible to small effect sizes. However, our sample was characterized by a higher level of Neuroticism (Cohen's d = .50). Against the background of a known consistent and substantial decrease in Neuroticism across the years of young adulthood (Roberts et al., 2006; Robins et al., 2001; Specht et al., 2011) these differences are likely to be explained by the fact that our participants were on average about eight years younger than the representative sample.

The vast majority of sojourners (82%) spent their year abroad on EU-European campuses, which further contributed to the comparability of mobility experiences. Almost all sojourners indicated the intention to study in their host countries (94%). Only a handful of participants intended to use their sojourn to do an internship (4%) or had some other unspecified plans (2%). On average, sojourners were quite confident in their ability to manage everyday encounters regarding their host countries' languages, the average self-rating about pre-departure language competence on a 7-point-likert scale was M = 4.5 (SD = 1.9).

In both the short-term and long-term group, Spain was the most popular country of destination (33% and 19%), followed by France (18% and 17%) and the United Kingdom (11% and 15%). In other words, 62% of short-term sojourners and 51% of long-term sojourners went to one of the three most favored countries. These numbers are in line with the national averages among all German students who moved abroad on EU sponsored ERASMUS grants during the academic year 2009/10. According to official statistics, about 52% of all 28.854 German ERASMUS-Outgoings moved to Spain (20.4%), France (17.3%),

or the United Kingdom (13.8%) (European Commission, 2013). In terms of travel destinations, the present sojourn groups compare well to the national average.

We assessed possible influences of the host countries by the inspection of Intraclass Correlation Coefficients for the Big Five (T1, T2, and T3) and relationship measures (i.e., number of support relationships at T1, numbers of lost and gained relationships). The majority of coefficients were small to negligible (Hox, 2010) which points to the irrelevance of country-level differences with respect to the sojourners' trait constellations.

Social relationship data was provided by N = 569 control students and N = 487sojourners. MCAR test including age, sex, and initial Big Five trait levels were not significant  $(\chi^2 = 9.11, df = 6, p = .168)$  and thus the necessary conditions for using FIML procedures to deal with the missing data were approved (Schafer & Graham, 2002).

#### Measures

*Big Five trait measures*. The German version of the Big Five Inventory (BFI, Lang et al., 2001) was employed at all three measurement occasions to assess personality traits. The 42 items were rated on 5-point scales (1 = strongly disagree, 5 = strongly agree). Coefficient alpha reliabilities at the three measurement occasions were .83, .83, and .84 for Openness, .83, .83, and .83 for Conscientiousness, .88, .89, and .90 for Extraversion, .73, .72, and .74 for Agreeableness and .82, .84, and .84 for Neuroticism, respectively.

*Social relationship measures.* We developed a research design that allowed for the precise quantification of support relationship gains and losses. These requirements were met by the utilization of a personal network approach (Milardo, 1992) with three different name eliciting questions, referred to in the literature as *name generators* (Burt, 1984; Campbell & Lee, 1991). Short characteristic descriptions of support needs with respect to either emotional, instrumental or companionship matters (Thibaut & Kelley, 1959) were used to direct the naming of each and every relevant support relationship (van der Poel, 1993).

The three name eliciting questions were presented on three successive pages of the online questionnaire, with relationship entries being automatically transmitted from one page to the following. Thus, all relationships named in reply to former questions were listed at the top of the subsequent page and could be reused as answers to the present question by clicking. This design feature was implemented to prevent the same relationship partner's repeated denomination with different spellings or name references (e.g., Maximillian M. or Max M.), which would prevent clear identification and thus distort the relationship data (Fung, Yeung, Li, & Lang, 2009). Participants were required to identify their support relationships with full first names, surnames' initials, age, sex and role relationship to guarantee unambiguous recognition on the next occasion of data collection. Once participants had worked through all three name generating questions, they were presented with the full list of their support relationships along with the request to check for possible unintentional repetitions, missing information or misspellings and edit their entries if necessary. Once the lists were shown to be unambiguous and valid, they were stored online and saved as recognition stimuli for the next wave of data collection. In the next step, participants moved on to the interpreters' section (Burt, 1984; Campbell & Lee, 1991), where the relationship list was used to gather further qualifying information on the respective relationship partners' nationalities.

As a feature of the recognition design we used (Marsden, 1990; Neyer, 1997; Sudmann, 1985), all subsequent waves of relationship data collection endorsed the same name eliciting questions. However, from the second data collection on, participants were no longer required to start their listings from scratch, but were presented with the complete support relationship list of the previous measurement occasion as an *aide memoire* and point of reference. A new use of former entries was achieved by clicking on the respective name to activate it as a response to the currently presented generator. In this way, we were able to keep track of each and every formerly named relationship and to confirm whether it was still relevant. At the same time, participants still had the possibility to add any new contacts to the established support relationship list.

Showing consistency across groups and assessment intervals, the largest proportion of all three groups' supportive relationships were made up of non-family relationships, including such relationship categories as "friend", "acquaintance", "fellow student" and "colleague", that is, averaged across all three measurement occasions, the amount of peer relationships was 68% for short-term sojourners, 70% for long-term sojourners, and 71% for control students. In contrast, averages of only 22% of short-term sojourners', 21% of long-term sojourners' and 23% of control students' support relationships belonged to the family (e.g., "parent", "grand-parent", "(step)brother/(step)sister", "aunt/uncle", or "cousin"). The remaining percentages comprised relationships classified as "romantic partner", which refer to 5% in short-term sojourners', 4% in long-term sojourners', and 6% in control students' networks. This pattern of network composition validates our network generating procedure, as we intended to map broader social support networks rather than networks of close relationships restricted to family members and romantic partners.

Finally, we summarized the data on relationship fluctuation. We distinguished between national relationships (i.e., all relationship partners with German nationality) and international relationships (i.e., all relationship partners who hold any but German citizenship). Furthermore, we coded relationship losses and gains. In this manner, we ended up with a total of four different relationship indices that reflected the numbers of lost national relationships, lost international relationships, gained national relationships and gained international relationships. These indices served as mediators in the latent change mediation models described below. In the present case, the use of manifest aggregation (i.e., count scores) seemed more appropriate than latent aggregation procedures as individual fluctuation rates were assumed to represent formative rather than reflective measures (Marsh et al., 2009).

### **Analytical strategy**

To get the most reliable personality estimates we modeled the personality factors as latent constructs to control for measurement errors at the indicator level (Bollen & Curran, 2006). However, instead of directly implementing all 42 BFI items as manifest indicators in the latent models, we used two parcels per factor (Bandalos & Finney, 2001; Little, Cunningham, Shahar, & Widaman, 2002; cf. Allemand, Zimprich, & Hertzog, 2007), which reflected the means of several single items. To derive equally balanced parcels in terms of their difficulty and discrimination, we used the item-to-construct method (Little et al., 2002) to assign the items to the respective parcels. All latent analyses were carried out using Mplus Version 6 (Muthén & Muthén, 1998 – 2010).

*Selection effects.* To assess self-selection effects, we implemented multivariate probit regressions with the Big Five personality factors as latent predictors and the sojourn status as dependent dummy coded variables (0 = control group, 1 = sojourner). To illustrate differences between univariate and multivariate designs, we subsequently performed univariate analyses for all Big Five personality traits, and a multivariate model considering all traits simultaneously. Age and gender were controlled in all analyses. We used Bayesian estimators as they have been proven to outperform the commonly implemented WLSMV estimators in structural equation models with categorical outcome variables in many incidences (Asparouhov & Muthén, 2010).

Socialisation effects and mediation analyses. To assess initial levels and to measure changes in the latent personality constructs over time, we used latent change models (McArdle, 1988; McArdle & Nesselroade, 1994; Steyer, Eid, & Schwenkmezger, 1997; Steyer, Partchev, & Shanahan, 2000), which are also frequently referred to as *true change models* (Geiser, 2010). In these models, latent change variables are used to represent the change between two measurement occasions which is uncontaminated by random measurement error. More precisely, time specific latent factors that represent a construct at each time point are defined. The crucial idea is that the latent measure for the second time point can be decomposed into the initial intercept, and a latent change factor representing growth or decline from one time point to the other (Reuter et al., 2010; Steyer et al., 1997, 2000). The variance of the latent change factor points to interindividual differences in change. To confirm the reliability of change, it is crucial to ensure that changes are not due to modifications in the relation between manifest indicators and their latent counterparts (Bollen & Curran, 2006; Horn & McArdle, 1992; Vandenberg & Lance, 2000). Thus so, the specified models implied strict factorial invariance by constraining factor loadings, measurement intercepts, and error variances to be equal across time (Meredith, 1993). We allowed for correlations between residuals of the same indicators across time to account for residual effects that cannot be ascribed to the latent factors under study (Brown, 2006; Marsh & Hau, 1996). If strict factorial invariance is established, changes in average indicator scores unequivocally reflect changes in the latent variables (Geiser, 2010; Lüdtke et al., 2011).

A further advantage of latent change models is their flexible extensibility, due to the fact that the latent change variables can serve as both endogenous and exogenous variables that can be related to other constructs (Steyer et al., 2000). In the present study, we took advantage of these possibilities with respect to three analytical features. First, we estimated all latent change models as multivariate models (Reuter et al., 2010; Steyer et al., 2000), which simultaneously endorsed all five personality traits. In the context of the present study, this was particularly important as only the simultaneous incorporation of all initial trait levels allowed for a differentiation between selection and socialization effects since initial trait level differences (selection effects) were controlled. Importantly, the five latent change variables were restricted so as not to correlate with each other.

Secondly, treating latent change factors as endogenous variables enabled us to assess the extent to which their variances were explained by sojourn effects. To perform these analyses, the uncorrelated change variables were regressed on dummy variables that indicated the participants' sojourn status. We analyzed change patterns in two distinct but analogous models with respect to two measurement intervals: the first five months interval (T1-T2) and the full observation period of an academic year (T1-T3). Given the multivariate control of selection effects, significant effects of sojourn status on trait change variables can be interpreted as socialization effects above and beyond the impact of initial trait constellations.

And third, in order to assess the mechanisms that account for the sojourn effects on personality change, we also extended the latent change models by incorporating relationship fluctuation indices as mediators into the models and tested for the significance of these mediation effects (see Figure 1). The outcome variables and mediators were controlled for age, gender, initial trait constellations and the respective numbers of national and international support relationships at T1. To account for non-normality of item distributions, we estimated all latent change models using the Satorra-Bentler method for model estimations. This approach provides maximum likelihood parameter estimates and a mean-adjusted chi-square, which are robust to violations of normality (Muthén & Muthén, 2004). Missing values in the relationship indices were treated using the FIML procedure as implemented in Mplus Version 6 (Muthén & Muthén, 1998 – 2010).

#### **Results**

To begin, we present results on self-selection, and then turn to the results of multivariate latent change models to seize socialization effects. Here, we first investigated direct sojourn effects on personality trait change across T1-T2 and T1-T3 in two separate models (path c, Figure 1). Next, we extended each of these two latent change models by including indices of relationship fluctuation as mediators. We present the results from these two latent change mediation models in three steps. First, we report on sojourn effects on relationship fluctuation (path a, Figure 1). Secondly, we show the effects of relationship fluctuation on personality trait change (path b, Figure 1). And thirdly, we illustrate how relationship fluctuations mediated the socialization effects. Please note, that the three related

paths (i.e., path a, path b, and path c') are modeled within one latent change mediation model. For reasons of comprehensibility, we present findings path by path.

#### Self-Selection Hypothesis: Personality Traits as Predictors of International Mobility

Self-selection effects were examined separately for short-term and long-term sojourners using probit regression analyses as described above. The inspection of univariate and multivariate probit coefficients revealed substantial differences between both forms of analyses (Table 1). In the univariate analyses for short-term sojourners, all Big Five traits were identified as predictors of sojourning; similarly, all the traits apart from Agreeableness predicted long-term sojourning. In contrast, the multivariate models showed a different pattern. While Extraversion was consistently classified as a positive predictor for short-term ( $\beta = .23$ , p = .002) and long-term sojourning ( $\beta = .26$ , p = .000) above and beyond the impact of all other traits, higher initial Conscientiousness predicted short-term ( $\beta = .38$ , p = .001), and higher Openness long-term sojourning ( $\beta = .24$ , p = .003). Proportions of explained variance were  $R^2 = .12$ , p = .000, in the multivariate analyses of short-term sojourners, and  $R^2 = .09$ , p= .000, in the multivariate analyses of long-term sojourners. Direct sojourn group comparisons substantiated the group differences between self-selection effects.

#### Socialization Hypothesis: Direct Sojourn Effects on Personality Trait Change

We first specified two multivariate latent change models referring to the two measurement intervals of one academic term (T1-T2) and the full academic year (T1-T3). In each model, we regressed the five uncorrelated latent trait change variables on dummy-coded sojourn status variables to distinguish between effects for control students, short-term, and long-term sojourners. Both models obtained a good fit to the data with CFIs > .95, RMSEAs < .07, and SRMRs < .06. As can be seen in the first two columns of Table 2, the first model revealed a comparable pattern of results for T1-T2 across both sojourning groups. Although some of the effects were only substantiated as a tendency, effect comparisons using Cohen's *ds* suggested genuine sojourn effects on developmental trajectories of Openness ( $d_{short} = .23$ ,

 $d_{long} = .12$ ), Agreeableness ( $d_{short} = .10$ ,  $d_{long} = .13$ ), and Neuroticism ( $d_{short} = -.13$ ,  $d_{long} = -$ .16). Indeed, a Wald-Test confirmed that there were no significant differences between socialization patterns of short-term and long-term sojourners ( $\chi^2 = 6.43$ , df = 5, p = .266)<sup>2</sup>. In order to reduce model complexity we repeated the analysis with the pooled sojourner sample (the 3rd column in Table 2). The socialization pattern for the pooled sample across T1-T2 substantiated the sojourn effects on personality change in the domains of Openness, Agreeableness, and Neuroticism.

The same pattern of results was identified in the second model addressing socialization effects across T1-T3 (fourth column in Table 2). We compared the effect sizes (Cohen's ds) obtained for the long-term sojourners across T1-T2 and T1-T3 to evaluate how the duration of stay affected socialization patterns. Effect sizes for Openness ( $d_{12} = .12$ ,  $d_{13} = .14$ ) and Agreeableness ( $d_{12} = .13$ ,  $d_{13} = .18$ ) were comparable across both intervals, indicating that sojourn effect on Openness and Agreeableness development were relatively independent of the time spent abroad. A considerable increase in effects on Neuroticism ( $d_{12} = .16$ ,  $d_{13} = .27$ ) suggests that the sojourn duration played an influencing role for this domain.

Figure 2 summarizes the results by exemplarily illustrating the multivariate selection and socialization effects obtained for the long-term sojourners for the full measurement period (T1-T3). As can be seen, the sojourn effect on Openness change translates in differential developmental trends for sojourners and control students. While the sojourners' change patterns are characterized by an increasing tendency, the contrary trend is observed in the control group. With respect to Agreeableness, the sojourn effect on trait change is shown by sojourners' more pronounced increases. The impact of international mobility on Neuroticism change is consistently demonstrated by the sojourners' steeper Neuroticism decline. It is worth noting that sojourning did not directly relate to changes in Conscientiousness and Extraversion in any of the models, hence there are no significant differences between sojourners and controls with respect to the change patterns of these traits.

# Mediation Hypothesis: Relationship Fluctuation as Mechanism of Personality Development

In the next step, we extended the two latent change models (T1-T2, T1-T3) for mediation analyses by including fluctuation indices of national and international relationship losses and gains as mediators to explain sojourn effects on trait change (see Figure 1). For the T1-T2 interval, we started with a model that distinguished between the indirect paths for the short-term and long-term sojourners. As the pattern of results was comparable for short-term and long-term sojourners, we next tested a model with all indirect paths set equal across both sojourn groups. As the result of a Wald-Test confirming that there were no significant differences between the indirect paths of short-term and long-term sojourners ( $\chi^2 = 2.82$ , df =20, p = 1.000)<sup>3</sup>, we pooled the indirect paths for the two sojourn groups.

Sojourn Effects on Relationship Fluctuation (paths a). To begin, we introduce descriptive findings to illustrate the dynamic pattern of change in support relationships (Table 3). The first three columns show the total numbers of relationships reported at each measurement occasion and the numbers of lost and gained relationships across T1-T2 and T1-T3, respectively. At each measurement occasion, participants of both sojourn groups reported comparable numbers of relationship partners which were greater than those reported by control students. In addition, short-term and long-term sojourners reported more relationship losses and gains compared to the control students. All in all, the pattern of relationship fluctuation was comparable between both sojourner groups, though long-term sojourners tended to lose more supportive relationships than the short-term sojourners from T1 to T2.

The overall numbers of reported international support relationships including gains and losses are also reported in Table 3, both in numbers and percentages. Both sojourn groups were involved in more international relationships at each measurement occasion, and added about ten times more international relationships than control students. The composition of international relationships was nominally the same in both sojourn groups; that is around one third of these relationship partners were host country natives, and about two thirds were other international sojourners.

This descriptive pattern of relationship fluctuation was confirmed by the tests of paths a of the latent change mediation models. For the T1-T2 interval, we observed substantial sojourn effects on losses of both national ( $\beta = 2.02$ , p = .000) and international relationships ( $\beta = 0.52$ , p = .022), as well sojourn effects on international relationship gains ( $\beta = 2.46$ , p = .000). This indicates that sojourners lost more national and international relationships, while at the same time gaining many more new international relationships than control students during the same time interval.

Regarding the T1-T3 interval, effects of long-term sojourning on relationship fluctuation were shown to be significant with respect to national relationships losses ( $\beta$  = 2.15, p = .000) and international relationship gains ( $\beta$  = 2.91, p = .000). Therefore it can be seen that long-term sojourning led to both higher rates of national relationship losses and international relationship gains. Importantly, all these effects were independent of initial network constellations as the respective numbers of national and international relationships at the first measurement occasion were controlled.

*Effects of Relationship Fluctuation on Big Five Trait Change (paths b).* Table 4 summarizes the results of the b paths for the latent change mediation models. As the direct effects of sojourn status were controlled (paths c'), the coefficients reflect the effects of relationship fluctuation on trait change above and beyond any sojourn effects.

Notably, all relationship effects on trait change across both T1-T2 and T1-T3 referred to relationship gains. With the exception of a negative effect of national relationship gains on Agreeableness change which only manifested across T1-T3, all relationship effects on trait change variables were replicated across both measurement intervals. Both gains of national and international contacts affected Openness change. By contrast, only international relationship gains had substantial impact on change in Neuroticism and Extraversion.

Relationship Fluctuations as Mechanisms of Trait Change. We completed the mediation analyses by examining the significance of the total indirect effects, and their power to explain the socialization effects that had been substantiated for Openness, Neuroticism, and Agreeableness. With respect to Openness, only the indirect effect of international relationship gains was significant for T1 –T2 ( $\beta_{international} = .04$ , p = .000;  $\beta_{national} = .00$ , p = .380) and T1-T3 ( $\beta_{international} = .05$ , p = .008;  $\beta_{national} = -.00$ , p = .126). In both cases, the direct sojourn effect on Openness change was no longer sustained (c'<sub>12</sub> = .02, p = .343; c'<sub>13</sub> = .00, p = .921). The indirect effect explained about 65 % (T1-T2) and 94 % (T1-T3) of the direct effect's variance.

Regarding Neuroticism, only the indirect effect of international relationship gains was significant for both T1-T2 ( $\beta_{international} = -.05$ , p = .002;  $\beta_{national} = .00$ , p = .527) and T1-T3 ( $\beta_{international} = -.05$ , p = .028;  $\beta_{national} = .00$ , p = .650). The direct sojourn effects on Neuroticism became insignificant once mediation terms were included ( $c'_{12} = -.03$ , p = .382;  $c'_{13} = -.07$ , p = .068) which accounted for 69 % (T1-T2) and 39% (T1-T3) of the direct effect.

For Agreeableness, none of the indirect effects was significant for T1-T2 ( $\beta_{international} = .02, p = .275; \beta_{national} = .00, p = .451$ ) or T1-T3 ( $\beta_{international} = .03, p = .059; \beta_{national} = .00, p = .169$ ). As the insignificance of b paths had already indicated (see Table 4), there were no substantial effects for relationship losses, imputing that overall relationship losses did not account for any sojourn effects on trait change.

To sum up, these results illustrate that both the sojourn effect on change in Openness and Neuroticism can be explained in terms of sojourners' more extensive international relationship gains.

#### Discussion

The aim of the present study was to investigate self-selection and socialization processes in the context of international mobility experiences, and to explore the mediating

mechanisms that account for socialization effects. We based our classification of international mobility as a life event with the potential to influence personality development on two grounds: first, its increasing importance in young adults' lives, and, second, the idea that sojourning compares to other live events in facilitating relationship dynamics as a social framework for personality development (Caspi, 2000; Lang, Reschke, & Neyer, 2006; Roberts & Wood, 2006). The pattern of self-selection and socialization effects speaks notably in favor of international mobility's classification as a life event that catalyzes personality development (Roberts et al., 2005). Furthermore, the establishment of relationship gains as a mechanism that accounts in large parts for the sojourn effects on personality development validated our assumption of a strong theoretical explanation for personality change.

#### Self-selection: Personality Traits as Predictors of International Mobility

As expected, we observed substantial self-selection effects in both univariate and multivariate analyses. However, there were substantial differences between the two analyses strategies. While univariate analyses revealed all Big Five traits as determinants of short-term sojourning, and all traits but Agreeableness as being predictors of long-term stays abroad, multivariate analyses restricted the pattern to substantial effects for Extraversion (short-term and long-term sojourning), Openness (long-term sojourning) and Conscientiousness (shortterm sojourning). While higher levels of Extraversion and Openness had already been related to both intra- and international mobility experiences in recent studies (Camperio Ciani, Capiluppi, Veronese, & Sartori, 2007; Jokela, 2009; Jokela et al., 2008; Lüdtke et al., 2011; Silventoinen et al., 2008), the effect of Conscientiousness on sojourning was unexpected. Additionally, the Openness effect was substantiated for long-term sojourners only and did not generalize across both study abroad schemes.

Our conclusions on self-selection are threefold. First, the divergent pattern of univariate and multivariate results demonstrates the pitfalls of univariate self-selection analyses, as these are likely to suggest extensive selection effects that are, on closer

(multivariate) inspection, carried by traits' covariances, while lacking unique predictive value. Secondly, with the impact of the Big Five traits on young adults' international mobility engagement, we complemented the existing knowledge on the relevance of traits with respect to life events in general, and provided insights into the psychological prerequisites that foster one of the most important forms of current geographical mobility (King & Ruiz-Gelices, 2003). And thirdly, the fact that self-selection effects differed between short-term and longterm sojourns suggests that these two study abroad schemes represent different points of focus. The engagement in short-term sojourns may rather reflect an aspiration to accumulate career relevant experiences that are valued by many employees (Bundesministerium für Bildung und Forschung, 2009), which would explain the unexpected Conscientiousness effect. In contrast, long-term sojourns may rather respond to a desire for more extensive experiences with a foreign culture, which is reflected in the Openness effect. However, few studies have investigated the motives and the goals that are pursued by students when they decide to spend some of their academic education abroad, which prompts the presented findings towards interesting perspectives for future research. These differences in selfselection notwithstanding, it is all the more noteworthy that the patterns of socialization were indeed comparable between short-term and long-term sojourners.

#### Socialization: Direct Sojourn Effects on Personality Trait Change

Latent change analyses on trait socialization confirmed a coherent pattern of substantial differences between sojourners and control students with respect to change in Agreeableness, Neuroticism and Openness. Notably, the overall socialization pattern was consistently identified for both short-term and long-term sojourners, which highlights that sojourn effects on personality development were independent of the intended time to stay abroad, whether the experience was for one semester, or for a full year stay abroad.

In particular, sojourners exhibited an accentuated increase of Agreeableness and a steeper decline of Neuroticism. Against the background of the mean-level trends towards

higher agreeableness and emotional stability across the life span (Lucas & Donellan, 2011; Roberts et al., 2006; Roberts & Wood, 2006; Robins et al., 2001; Specht et al., 2011), these socialization patterns corroborate the conceptualization of international mobility experiences as a life event that expedites personality maturation in young adulthood.

As only few previous studies have revealed substantial contingencies between life experiences and Openness trajectories (Asendorpf & Wilpers, 1998; Neyer & Asendorpf, 2001), we regard the identified sojourn effect on Openness change as an important achievement. If we consider both socialization and self-selection effects obtained for that domain, the claim of the Corresponsive Principle that "the most likely effect of life experiences on personality development is to deepen those characteristics that lead people into those experiences" (Roberts et al., 2003, p. 583) would seem to be validated for the case of long-term sojourning. In this regard, the present study extended the Corresponsive Principle to fields other than professional experiences.

Other than the socialization effects observed for Openness and Agreeableness, the sojourn effect on Neuroticism increased over time. Several studies have shown that the first four to six months abroad are frequently associated with adaptation hassles, which result in mood disturbances and poor psychological adaptation when compared with pre-departure measures and subsequent dates (Furukawa & Shibayama, 1993, 1994; Ward et al., 1998). For example, a longitudinal study by Andrews et al. (1993) tracked trait vulnerability of adolescent sojourners and control students over the course of one school year. Their results indicated a non-linear decline of trait vulnerability scores which the authors ascribed to the interference of acculturation stressors and trait maturation processes during the first six months. In other words, the temporal coincidence of acculturation stress and sojourn effects on vulnerability change obscured the trait effects during these initial sojourn stages. Similar processes might apply to our sample and explain the increased Neuroticism effect for T1-T3.

We did not observe any socialization effects for Conscientiousness and Extraversion. While recent findings have corroborated the idea that sojourn experiences are unrelated to Conscientiousness change (Lüdtke et al., 2011), the Corresponsive Principle would suggest that sojourning has an effect on Extraversion. Earlier studies indicated that developmental patterns of Extraversion strongly depend upon the facet under study, and that antagonistic tendencies of different facets might neutralize each other at trait level (Roberts et al., 2006). However, one can only speculate concerning such effects when considering the present study.

Nevertheless, the observed socialization processes genuinely validated international sojourns as a life event which catalyzes personality maturation. The replication of socialization effects on Openness, Agreeableness, and Neuroticism across different sojourn groups and time intervals provided a strong case for the validity of the results.

#### **Relationship Fluctuations as Mechanism of Personality Development**

Both control and sojourner students reported having considerable numbers of concrete relationships; people who responded to their needs for emotional support, instrumental support, and companionship. These numbers, ranging from about ten to twelve support relationships, were thoroughly in line with earlier findings on personal support networks of young adults (Wrzus, Hänel, Wagner, & Neyer, 2013) and sojourners (Domínguez & Maya-Jariego, 2008). With respect to relationship fluctuation over time, we identified the expected accentuation in the social network dynamics of sojourners that was most apparent in their more than tenfold increased international relationship gains. Importantly, the aim of the present study was not to compare the general effects of national and international relationship fluctuation. We rather aspired to precisely describe the particular pattern of relationship fluctuation that occurs in the context of international sojourns, and investigate its role in socialization processes.

Latent change mediation models revealed international relationship gains as a powerful mediator to explain sojourn effects on Openness change. This finding agrees with

the assumption of the culture learning framework, that international sojourns facilitate behavior change by intercultural relationship experiences which offer first-hand experiences of cultural differences (Furnham & Bochner, 1982; Ward & Kennedy, 1993). That way, the cultural learning framework corresponds with the sociogenomic model of personality development, which would assume that such relationship experiences result in concrete behavior changes, which, in turn, promote trait development by bottom-up processes (Roberts & Jackson, 2008).

In line with our expectations, the quantity of new support relationships with international partners also provided a powerful explanatory link for sojourn effects on decline in Neuroticism. As mentioned above, earlier studies suggested that the successful handling of acculturative stressors may set in motion declines in trait anxiety (Andrews et al., 1993). In addition, several studies characterized the successful handling of multicultural social encounters as a major challenge of international sojourns (Eshel & Rosenthal-Sokolov, 2000; Gong & Fan, 2006; Ward & Kennedy, 1999). The successful integration of international relationships can therefore be considered to be an important step in mastering acculturation challenges, leading to reduced stress and anxiety, which finally translates into change in Neuroticism.

Further research is needed to understand sojourn effects on Agreeableness change. None of the assessed indirect effects were significant, however, the indirect effect via international relationship gains appeared as a tendency across T1-T3. We can only speculate that change in Agreeableness was related to other social experiences not captured by the mechanism of relationship fluctuation. For example, it was empirically shown that continuous experiences of specific relationship qualities, such as closeness or security, are associated with personality change (Neyer & Lehnart, 2007; Parker, Lüdtke, Trautwein, & Roberts, 2012; Sturaro et al., 2008). Agreeableness may rather be sensitive to such qualitative relationship changes during sojourn experiences. It is worth remarking that mediation analyses did not substantiate any effects for lost support relationships. The reason may be that lost relationships are of minor importance to the individual person. Given the advanced communication and travel facilities in today's world, it seems unlikely that social relationships are broken up for no reason other than increased geographical distances. Hence, relationship losses may rather pertain to the least relevant social relationships, where termination does not profoundly affect individuals, and therefore has minor consequences with respect to personality development.

#### **Limitations and Future Directions**

This study has limitations. First, as in most non-experimental research, it cannot be precluded that other unknown variables account for the observed effects. However, we contend that, with the implementation of a prospective control group design, we were able to control for trait-determined self-selection effects in our analyses of trait development. We believe that this approach supports our interpretation of the socialization effects obtained.

Secondly, the sustainability of observed developmental tendencies cannot be assessed with the available data as they pertain only to the limited observation period of one academic year, and do not allow for the extrapolation of trait development after return to the home country.

However, the cumulative continuity principle (Roberts et al., 2008) underlines the importance of intermediate changes in trait development, as they were observed in the present study. Such intermediate changes characterize the flux and flow of self-selection and socialization processes as the most crucial mechanism behind the cumulative pattern of personality development over the life course. George, Helson, and John (2011) for example, showed that the effects of professional experience on trait development may accumulate over several decades.

With respect to the particular case of international sojourning, the clear delineation of sustainable sojourn effects is particularly challenging, given that the experience of moving

and living abroad is closely linked to another event, the return to the country of origin. There is broad agreement that the return to the country of origin constitutes a challenging life event on its own that should not be confounded with the preceding experiences of departure and living abroad (Martin, 1986; Rogers & Ward, 1993). Such effects were beyond the scope of the present study. A research design that is powerful enough to disentangle the effects of sojourn and return would require an observation period of at least three years, including fine-grained measurement occasions timed with reference to individual dates of return. We consider this to be an interesting challenge for future research.

Third, the sample in our study has two limitations. On the one hand, most sojourners moved to European destinations, thus limiting the ability to generalize the observed selection and socialization effects. We cannot rule out that moving to Non-European destinations may be associated with different selection and socialization patterns. On the other hand, we concentrated on the very particular case of international student mobility, and as such, the question of whether or not our conclusions can be generalized into other groups subjected to inter- and intra-national mobility challenges remains open. Validating our results by studying international mobility experiences in foreign environments of variant cultural distances (Suanet & Van De Vijver, 2009; Ward & Chang, 1997; Ward, Leong, & Low, 2004) makes an appealing objective for future research.

Fourth, despite the successful approval of the Corresponsive Principle with respect to the coherent selection and socialization patterns in the trait domain of Openness, further trait domains miss corresponsive result patterns. However, it is important to bear in mind that we applied multivariate self-selection analyses, and thus implemented stricter tests of corresponsive patterns than previous studies, which may explain the discrepancy between favorable findings on the Corresponsive Principle (e.g., Roberts et al., 2003) and our results.

Finally, the theoretical and empirical substantiation of idiosyncratic trait change in response to rather non-normative life experiences, like international mobility, merits further

consideration. With respect to normative age-graded life transitions, trait changes are assumed to be driven by unique reward contingencies bound to normatively defined social roles (Roberts & Wood, 2006). However, as non-normative events are less likely to be furnished with predefined normative expectations, they allow for more flexible individual accomplishments. The pattern of trait changes may then depend more on the concrete social environment, such as the context-specific rewards that are communicated in social relationships, in the form of behavior feedback or role models for example. Further research is required however, to clarify the concrete mechanisms that occur during social interactions with (new) relationship partners in order to thoroughly unravel how the new relationships work upon individuals.

To conclude, with the present study we showed that hitting the road has substantial effects on who we are. The difference is made by the international people we meet on that road and with whom we form new relationships. We hope that future research will continue to explore this road of personality-relationship transaction and its impact on personality development.

#### References

- Allemand, M., Zimprich, D., & Hertzog, C. (2007). Cross-sectional age differences and longitudinal age changes of personality in middle adulthood and old age. *Journal of Personality*, 75(2), 323-358. doi:10.1111/j.1467-6494.2006.00441.x
- Andrews, G., Page, A. C., & Neilson, M. (1993). Sending your teenagers away: Controlled stress decreases neurotic vulnerability. Archives of General Psychiatry, 50(7), 585-589.
- Asendorpf, J. B., & Wilpers, S. (1998). Personality effects on social relationships. Journal of Personality and Social Psychology, 74(6), 1531-1544. doi:10.1037/0022-3514.74.6.1531
- Asparouhov, T. & Muthén, B. (2010). *Bayesian analysis of latent variable models using Mplus*. Technical Report. Version 4. Retrieved from: http://www.statmodel.com/papers.shtml
- Bandalos, D. L., & Finney, S. J. (2001). Item parceling issues in structural equation modeling.
  In G. A. Marcoulides & R. E. Schumacker (Eds.), *New developments and techniques in structural equation modeling* (pp. 269-296). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Bleidorn, W., Kandler, C., Riemann, R., Angleitner, A., & Spinath, F. M. (2009). Patterns and sources of adult personality development: Growth curve analyses of the NEO PI-R scales in a longitudinal twin study. *Journal of Personality and Social Psychology*, 97(1), 142-155. doi:10.1037/a0015434
- Bochner, S., McLeod, B. M., & Lin, A. (1977). Friendship patterns of overseas students: A functional model. *International Journal of Psychology*, 12(4), 277-294. doi:10.1080/00207597708247396
- Bollen, K. A., & Curran, P. J. (2006). *Latent curve models: A structural equation perspective*. New York, NY: Wiley.

- Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York, NY: Guilford Press.
- Bundesministerium für Bildung und Forschung (2009). Der berufliche Ertrag der ERASMUS-Mobilität. Retrieved from: <u>http://www.bmbf.de/pub/erasmus\_mobilitaet.pdf</u>
- Burt, R. S. (1984). Network items and the General Social Survey. *Social Networks*, 6(4), 293-339. doi:10.1016/0378-8733(84)90007-8
- Campbell, K. E., & Lee, B. A. (1991). Name generators in surveys of personal networks. Social Networks, 13, 203–221. doi: 10.1007/s10964-011-9709-8
- Camperio Ciani, A. S., Capiluppi, C., Veronese, A., & Sartori, G. (2007). The adaptive value of personality differences revealed by small island population dynamics. *European Journal of Personality*, 21(1), 3-22. doi:10.1002/per.595
- Caspi, A. (2000). The child is father of the man: Personality continuities from childhood to adulthood. *Journal of Personality and Social Psychology*, 78(1), 158-172. doi:10.1037/0022-3514.78.1.158
- Caspi, A., & Roberts, B.W. (1999). Personality continuity and change across the life course.In L. A. Pervin & O. P. John (Eds.), *Handbook of personality theory and research* (2nd ed., pp. 154-196). New York, NY: Guilford.
- Costa, P. T., Jr., & McCrae, R. R. (1988). Personality in adulthood: A six-year longitudinal study of self-reports and spouse ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology*, 54, 853–863. doi:10.1037/0022-3514.54.5.853
- Costa, P. T., Jr., & McCrae, R. R. (2006). Age changes in personality and their origins: Comment on Roberts, Walton, and Viechtbauer (2006). *Psychological Bulletin*, 132(1), 26-28. doi:10.1037/0033-2909.132.1.26
- Council of the European Union (2009). Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training ('ET 2020').

Retrieved from: <u>http://ec.europa.eu/education/lifelong-learning-policy/policy-</u> framework\_en.htm

- de Miguel Luken, V., & Tranmer, M. (2010). Personal support networks of immigrants to Spain: A multilevel analysis. *Social Networks*, 32(4), 253-262. doi:10.1016/j.socnet.2010.03.002
- Degenne, A., & Lebeaux, M. (2005). The dynamics of personal networks at the time of entry into adult life. *Social Networks*, 27(4), 337-358. doi:10.1016/j.socnet.2004.11.002
- Deutscher Akademischer Austauschdienst (2011). Bachelor und Master auf dem Arbeitsmarkt. Bonn: Köllen Druck und Verlag.
- Domínguez, S., & Maya-Jariego, I. (2008). Acculturation of host individuals: Immigrants and personal networks. American Journal of Community Psychology, 42(3-4), 309-327. doi:10.1007/s10464-008-9209-5
- Donnellan, M., Conger, R. D., & Burzette, R. G. (2007). Personality development from late adolescence to young adulthood: Differential stability, normative maturity, and evidence for the maturity-stability hypothesis. *Journal of Personality*, 75(2), 237-263. doi:10.1111/j.1467-6494.2007.00438.x
- Downey, R. G., & King, C. V. (1998). Missing data in Likert ratings: A comparison of replacement methods. *Journal of General Psychology*, 125(2), 175-191. doi:10.1080/00221309809595542
- Eshel, Y., & Rosenthal-Sokolov, M. (2000). Acculturation attitudes and sociocultural adjustment of sojourner youth in Israel. *The Journal of Social Psychology*, 140(6), 677-691. doi:10.1080/00224540009600509
- European Commission (2013). Outgoing and incoming ERASMUS student mobility (studies + placements) in 2009/10. Retrieved from:

http://ec.europa.eu/education/erasmus/doc/stat/0910/students.pdf

- Feld, S. L., Suitor, J., & Hoegh, J. (2007). Describing changes in personal networks over time. *Field Methods*, 19(2), 218-236. doi:10.1177/1525822X06299134
- Fung, H. H., Yeung, D.Y., Li, K.-K., & Lang, F. R. (2009). Benefits of negative emotional exchanges for emotional closeness. *Journal of Gerontology: Psychological Sciences*, 64B(5), 612-621. doi: 10.1093/geronb/gbp065
- Furnham, A., & Bocher, S. (1982). Social difficulty in a foreign culture: an empirical analysis of culture shock. In S. Bochner (Ed.), *Cultures in Contact: Studies in Cross-Cultural Interactions* (pp. 161-198). Oxford: Pergamon.
- Furukawa, T., & Shibayama, T. T. (1993). Predicting maladjustment of exchange students in different cultures: A prospective study. *Social Psychiatry and Psychiatric Epidemiology*, 28(3), 142-146. doi:10.1007/BF00801745
- Furukawa, T., & Shibayama, T. (1994). Factors influencing adjustment of high school students in an international exchange program. *Journal of Nervous and Mental Disease*, 182(12), 709-714. doi:10.1097/00005053-199412000-00006
- Geiser, C. (2010). Datenanalyse mit Mplus: Eine anwendungsorientierte Einführung. Wiesbaden: Verlag für Sozialwissenschaften.
- George, L. G., Helson, R., & John, O. P. (2011). The "CEO" of women's work lives: How Big Five Conscientiousness, Extraversion, and Openness predict 50 years of work experiences in a changing sociocultural context. *Journal of Personality and Social Psychology*, 101(4), 812 - 830. doi:10.1037/a0024290
- Gong, Y., & Fan, J. (2006). Longitudinal examination of the role of goal orientation in crosscultural adjustment. *Journal of Applied Psychology*, 91(1), 176-184. doi:10.1037/0021-9010.91.1.176
- Heublein, U., Schreiber, J., & Hutzsch, C. (2011). Entwicklung der Auslandsmobilität deutscher Studierender (HIS Projektbericht). Retrieved from: http://www.goout.de/de/14799/

- Horn, J. L., & McArdle, J. J. (1992). A practical and theoretical guide to measurement invariance in aging research. *Experimental Aging Research*, 18(3-4), 117-144.
- Hox, J. J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). New York, NY: Routledge/Taylor & Francis Group.
- Hudson, N. W., Roberts, B. W., & Lodi-Smith, J. (2012). Personality trait development and social investment in work. *Journal of Research In Personality*, 46(3), 334-344. doi:10.1016/j.jrp.2012.03.002
- IBM Corp. Released 2011. *IBM SPSS Statistics for Windows, Version 20.0*. Armonk, NY: IBM Corp.
- Jokela, M. (2009). Personality predicts migration within and between U.S. States. *Journal of Research in Personality*, 43(1), 79-83. doi:10.1016/j.jrp.2008.09.005
- Jokela, M., Elovainio, M., Kivimäki, M., & Keltikangas-Järvinen, L. (2008). Temperament and migration patterns in Finland. *Psychological Science*, *19*(9), 831-837. doi:10.1111/j.1467-9280.2008.02164.x
- Kandler, C., Bleidorn, W., Riemann, R., Angleitner, A., & Spinath, F. M. (2012). Life events as environmental states and genetic traits and the role of personality: A longitudinal twin study. *Behavior Genetics*, 42(1), 57-72. doi:10.1007/s10519-011-9491-0
- King, R. & Ruiz-Gelices, E. (2003). International student migration and the European "Year Abroad": Effects on European identity and subsequent migration behaviour. *International Journal of Population Geography*, 9, 229-252.
- Lang, F. R., Lüdtke, O., & Asendorpf, J. B. (2001). Testgüte und psychometrische Äquivalenz der deutschen Version des Big Five Inventory (BFI) bei jungen, mittlalten und alten Erwachsenen. *Diagnostica*, 47(3), 111-121. doi:10.1026//00121924.47.3.111
- Lang, F. R., Reschke, F. S., & Neyer, F. J. (2006). Social relationships, transitions, and personality development across the life span. In D. K. Mroczek & T. D. Little (Eds.),

Handbook of personality development (pp. 445-466). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

- Lehnart, J., Neyer, F. J., & Eccles, J. (2010). Long-term effects of social investment: The case of partnering in young adulthood. *Journal of Personality*, 78(2), 639-670. doi:10.1111/j.1467-6494.2010.00629.x
- Leong, C., & Ward, C. (2000). Identity conflict in sojourners. International Journal of Intercultural Relations, 24(6), 763-776. doi:10.1016/S0147-1767(00)00030-4
- Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, 9(2), 151-173. doi:10.1207/S15328007SEM0902\_1
- Löckenhoff, C. E., Terracciano, A., Patriciu, N. S., Eaton, W. W., & Costa, P. T, Jr. (2009).
  Self-reported extremely adverse life events and longitudinal changes in Five-Factor
  Model personality traits in an urban sample. *Journal of Traumatic Stress*, 22(1), 53-59. doi:10.1002/jts.20385
- Lodi-Smith, J., & Roberts, B. W. (2007). Social investment and personality: A meta-analysis of the relationship of personality traits to investment in work, family, religion, and volunteerism. *Personality and Social Psychology Review*, 11(1), 1-19. doi:10.1177/1088868306294590
- Lubbers, M. J., Molina, J., Lerner, J., Brandes, U., Ávila, J., & McCarty, C. (2010). Longitudinal analysis of personal networks: The case of Argentinean migrants in Spain. Social Networks, 32(1), 91-104. doi:10.1016/j.socnet.2009.05.001
- Lucas, R. E., & Donnellan, M. (2011). Personality development across the life span: Longitudinal analyses with a national sample from Germany. *Journal of Personality* and Social Psychology, 101(4), 847-861. doi:10.1037/a0024298
- Lüdtke, O., Roberts, B. W., Trautwein, U., & Nagy, G. (2011). A random walk down university avenue: Life paths, life events, and personality trait change at the

transition to university life. *Journal of Personality and Social Psychology*, 101(3), 620-637. doi:10.1037/a0023743

- Lüdtke, O., Trautwein, U., & Husemann, N. (2009). Goal and personality trait development in a transitional period: Assessing change and stability in personality development. *Personality and Social Psychology Bulletin*, 35(4), 428-441.
  doi:10.1177/0146167208329215
- Lun, J., Oishi, S., & Tenney, E. R. (2012). Residential mobility moderates preferences for egalitarian versus loyal helpers. *Journal of Experimental Social Psychology*, 48(1), 291-297. doi:10.1016/j.jesp.2011.09.002
- Marsden, P.V. (1990). Network data and measurement. *Annual Review of Sociology*, 16, 435-463. doi: 10.1146/annurev.so.16.080190.002251
- Marsh, H. W., & Hau, K.-T. (1996). Assessing goodness of fit: Is parsimony always desirable? *Journal of Experimental Education*, 64, 364–390.
- Marsh, H. W., Lüdtke, O., Robitzsch, A., Trautwein, U., Asparouhov. T., Muthén, B, & Nagengast, B. (2009). Doubly-latent models of school contextual effects: Integrating multilevel and structural equation approaches to control measurement and sampling error. *Multivariate Behavioral Research*, 764-802.
- Martin, J. N. (1986). Communication in the intercultural reentry: Student sojourners' perceptions of change in reentry relationship. *International Journal of Intercultural Relations*, 10(1), 1-22. doi:10.1016/0147-1767(86)90031-3
- McArdle, J. J. (1988). Dynamic but structural equation modeling of repeated measures data. In J. R. Nesselroade & R. B. Cattell (Eds.), *Handbook of multivariate experimental psychology* (2nd ed., pp. 561-614). New York, NY: Plenum Press. doi:10.1007/978-1-4613-0893-5\_17
- McArdle, J. J., & Nesselroade, J. R. (1994). Using multivariate data to structure developmental change. In S. Cohen & H. Reese (Eds.), *Life-span developmental*

*psychology: Methodological contributions* (pp. 223-267). Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.

- Meredith, W. (1993). Measurement invariance, factor analysis and factorial invariance. *Psychometrika*, 58(4), 525-543. doi:10.1007/BF02294825
- Milardo, R. M. (1992). Comparative methods for delineating social networks. *Journal of Social and Personal Relationships*, 9(3), 447-461. doi:10.1177/0265407592093007
- Mroczek, D. K., & Spiro, A. (2003). Modeling intraindividual change in personality traits:
  Findings from the Normative Aging Study. *The Journals of Gerontology: Series B: Psychological Sciences And Social Sciences*, 58B(3), P153-P165.
  doi:10.1093/geronb/58.3.P153
- Muthén, L. K., & Muthén, B. O. (1998–2010). *Mplus user's guide* (6thed.). Los Angeles, CA: Muthén & Muthén.
- Muthén, L. K., & Muthén, B. O. (2004). *Mplus: The comprehensive modeling program for applied researchers. User's guide* (3rd ed.). Los Angeles, CA: Muthén & Muthén.
- Neyer, F. J. (1997). Free recall or recognition in collecting egocentered networks: The role of survey techniques. *Journal of Social and Personal Relationships*, 14(3), 305-316. doi:10.1177/0265407597143002
- Neyer, F. J., & Asendorpf, J. B. (2001). Personality-relationship transaction in young adulthood. *Journal of Personality and Social Psychology*, 81(6), 1190-1204. doi:10.1037/0022-3514.81.6.1190
- Neyer, F. J., & Lehnart, J. (2007). Relationships matter in personality development: Evidence from an 8-year longitudinal study across young adulthood. *Journal of Personality*, 75(3), 535-568. doi:10.1111/j.1467-6494.2007.00448.x
- Oishi, S. (2010). The psychology of residential mobility: Implications for the self, social relationships, and well-being. *Perspectives on Psychological Science*, 5(1), 5-21. doi:10.1177/1745691609356781

- Oishi, S., Rothman, A. J., Snyder, M., Su, J., Zehm, K., Hertel, A. W., et al. (2007). The socioecological model of procommunity action: The benefits of residential stability. *Journal of Personality and Social Psychology*, 93(5), 831-844. doi:10.1037/0022-3514.93.5.831
- Oishi, S., & Talhelm, T. (2012). Residential mobility: What psychological research reveals.
   *Current Directions in Psychological Science*, 21(6), 425-430.
   doi:10.1177/0963721412460675
- Parker, P. D., Lüdtke, O., Trautwein, U., & Roberts, B. W. (2012). Personality and relationship quality during the transition from high school to early adulthood. *Journal of Personality*, 80(4), 1061-1089. doi:10.1111/j.1467-6494.2012.00766.x
- Reuter, T., Ziegelmann, J. P., Wiedemann, A. U., Geiser, C., Lippke, S., Schüz, B., & Schwarzer, R. (2010). Changes in intentions, planning, and self-efficacy predict changes in behaviors: An application of latent true change modelling. *Journal of Health Psychology*, 15(6), 935-947. doi:10.1177/1359105309360071
- Roberts, B. W., & Caspi, A. (2003). The cumulative continuity model of personality development: Striking a balance between continuity and change in personality traits across the life course. In U. M. Staudinger & U. Lindenberger (Eds.), *Understanding human development: Dialogues with lifespan psychology* (pp. 183-214). Dordrecht, Netherlands: Kluwer Academic Publishers.
- Roberts, B. W., Caspi, A., & Moffitt, T. E. (2003). Work experiences and personality development in young adulthood. *Journal of Personality and Social Psychology*, 84(3), 582-593. doi:10.1037/0022-3514.84.3.582
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, 126(1), 3-25. doi:10.1037/0033-2909.126.1.3

- Roberts, B. W., & Jackson, J. J. (2008). Sociogenomic personality psychology. Journal of Personality, 76(6), 1523-1544. doi:10.1111/j.1467-6494.2008.00530.x
- Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 132(1), 1-25. doi:10.1037/0033-2909.132.1.1
- Roberts, B. W., & Wood, D. (2006). Personality development in the context of the Neo-Socioanalytic Model of Personality. In D. K. Mroczek & T. D. Little (Eds.), *Handbook of personality development* (pp. 11-39). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Roberts, B. W., Wood, D., & Caspi, A. (2008). The development of personality traits in adulthood. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 375-398). New York, NY: Guilford Press.
- Roberts, B. W., Wood, D., & Smith, J. L. (2005). Evaluating Five Factor Theory and social investment perspectives on personality trait development. *Journal of Research in Personality*, 39(1), 166-184. doi:10.1016/j.jrp.2004.08.002
- Robins, R. W., Fraley, R., Roberts, B. W., & Trzesniewski, K. H. (2001). A longitudinal study of personality change in young adulthood. *Journal of Personality*, 69(4), 617-640. doi:10.1111/1467-6494.694157
- Rogers, J., & Ward, C. (1993). Expectation experience discrepancies and psychological adjustment during cross-cultural reentry. *International Journal of Intercultural Relations*, 17(2), 185-196. doi:10.1016/0147-1767(93)90024-3
- Sarason, I. G., Johnson, J. H., & Siegel, J. M. (1978). Assessing the impact of life changes: Development of the Life Experiences Survey. *Journal of Consulting and Clinical Psychology*, 46(5), 932-946. doi:10.1037/0022-006X.46.5.932

- Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7, 147-177. doi:10.1207/S15328007SEM1001\_4
- Searle, W., & Ward, C. (1990). The prediction of psychological and sociocultural adjustment during cross-cultural transitions. *International Journal of Intercultural Relations*, 14(4), 449-464. doi:10.1016/0147-1767(90)90030-Z
- Silventoinen, K., Hammar, N., Hedlund, E., Koskenvuo, M., Rönnemaa, T., & Kaprio, J. (2008). Selective international migration by social position, health behaviour and personality. *European Journal of Public Health*, 18(2), 150-155. doi:10.1093/eurpub/ckm052
- Specht, J., Egloff, B., & Schmukle, S. C. (2011). Stability and change of personality across the life course: The impact of age and major life events on mean-level and rank-order stability of the Big Five. *Journal of Personality and Social Psychology*, *101*(4), 862-882. doi:10.1037/a0024950
- Srivastava, S., John, O. P., Gosling, S. D., & Potter, J. (2003). Development of personality in early and middle adulthood: Set like plaster or persistent change?. *Journal of Personality and Social Psychology*, 84(5), 1041-1053. doi:10.1037/0022-3514.84.5.1041
- Steyer, R., Eid, M., & Schwenkmezger, P. (1997). Modeling true intraindividual change: True change as a latent variable. *Methods of Psychological Research*, 2(1), 21-33.
- Steyer, R., Partchev, I., & Shanahan, M. J. (2000). Modeling true intradindividual change in structural equation models: The case of poverty and children's psychosocial adjustment. In T. D. Little, K. U. Schnabel, & J. Baumert (Eds.), *Modeling longitudinal and multilevel data: Practical issues, applied approaches, and specific examples* (pp. 109-126, 269-281). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

- Sturaro, C., Denissen, J. A., van Aken, M. G., & Asendorpf, J. B. (2008). Person-environment transactions during emerging adulthood: The interplay between personality characteristics and social relationships. *European Psychologist*, 13(1), 1-11. doi:10.1027/1016-9040.13.1.1
- Suanet, I., & Van De Vijver, F. R. (2009). Perceived cultural distance and acculturation among exchange students in Russia. *Journal af Community and Applied Social Psychology*, 19(3), 182-197. doi:10.1002/casp.989
- Sudman, S. (1985). Experiments in the measurement of the size of social networks. *Social Networks*, 7(2), 127-151. doi:10.1016/0378-8733(85)90002-4

Thibaut J., & Kelley, H. (1959). The Social Psychology of Groups. New York, NY: Wiley.

- Vaidya, J. G., Gray, E. K., Haig, J., & Watson, D. (2002). On the temporal stability of personality: Evidence for differential stability and the role of life experiences. *Journal of Personality and Social Psychology*, 83(6), 1469-1484. doi:10.1037/0022-3514.83.6.1469
- Vandenberg, R.J., & Lance, C.E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices and recommendations for organizational research. Organizational Research Methods, (3), 4-70.
- van der Poel, M. G. (1993). Delineating personal support networks. *Social Networks*, 15(1), 49-70. doi:10.1016/0378-8733(93)90021-C
- Ward, C., & Chang, W. C. (1997). 'Cultural fit': A new perspective on personality and sojourner adjustment. *International Journal of Intercultural Relations*, 21(4), 525-533. doi:10.1016/S0147-1767(97)00023-0
- Ward, C., & Kennedy, A. (1993). Where's the 'culture' in cross-cultural transition? Comparative studies of sojourner adjustment. *Journal of Cross-Cultural Psychology*, 24(2), 221-249. doi:10.1177/0022022193242006

- Ward, C., & Kennedy, A. (1999). The measurement of sociocultural adaptation. *International Journal of Intercultural Relations*, 23(4), 659-677. doi:10.1016/S0147-1767(99)00014-0
- Ward, C., Leong, C., & Low, M. (2004). Personality and sojourner adjustment: An exploration of the Big Five and the cultural fit proposition. *Journal of Cross-Cultural Psychology*, 35(2), 137-151. doi:10.1177/0022022103260719
- 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(3), 277-291. doi:10.1016/S0147-1767(98)00008-X
- Wrzus, C., Hänel, M., Wagner, J., & Neyer, F. J. (2013). Social network changes and life events across the life span: A meta-analysis. *Psychological Bulletin*, doi:10.1037/a0028601
- Ying, Y. (2002). The effect of cross-cultural living on personality: Assimilation and accommodation among Taiwanese young adults in the United States. American Journal of Orthopsychiatry, 72(3), 362-371. doi:10.1037/0002-9432.72.3.362

#### Footnotes

<sup>1</sup>We only included datasets with a maximum of 20% missing data per scale (Downey & King, 1998). However, as the online questionnaire was based, for the most part, on forced choice items, only scattered missings occurred.

<sup>2</sup> We additionally computed separate Wald tests for each socialization effect but did not substantiate significant differences between short-term and long-term sojourners.

<sup>3</sup> We additionally computed Wald tests for path-by-path comparisons of indirect effects but did not substantiate significant differences between short-term and long-term sojourners.

Personality Trait	Big Five T1					Univariate Analyses					Multivariate Analyses				
	Short-term Long-term		term	Controls		Short-term		Long-term			Short-term		Long-term		
	М	SD	М	SD	М	SD	Coeff <sup>a</sup>	р	Coeff <sup>a</sup>	p	(	Coeff <sup>a</sup>	р	Coeff <sup>a</sup>	р
Openness	3.78	.56	3.84	.55	3.67	.61	.17	.022	.35	.000		.03	.353	.24	.003
Conscientiousness	3.82	.43	3.70	.45	3.66	.52	.50	.000	.16	.035		.38	.001	.07	.246
Extraversion	3.58	.70	3.58	.69	3.29	.71	.35	.000	.34	.000		.23	.002	.26	.000
Agreeableness	3.50	.43	3.45	.48	3.39	.56	.26	.004	.11	.138		.06	.306	05	.340
Neuroticism	2.73	.71	2.82	.75	2.96	.70	44	.000	24	.001		14	.060	04	.294

Table 1. Personality and Self-selection: Prediction of Sojourn Status.

*Note*. Short-term = short-term sojourner, long-term = long-term sojourner, controls = control students. <sup>a</sup> Unstandardized probit coefficients.

Personality Trait		Model for T1 – T3							
	Short-term Sojourners		Long-term Soj	ourners	All Sojourr	ners	Long-term Sojourners		
	Coeff	р	Coeff	р	Coeff	p	Coeff	р	
Change Openness	.08	.002	.04	.067	.06	.004	.05	.039	
Change Conscientiousness	.02	.337	00	.863	01	.723	00	.906	
Change Extraversion	.04	.263	03	.354	.00	.993	05	.104	
Change Agreeableness	.04	.187	.05	.049	.04	.042	.07	.009	
Change Neuroticism	06	.087	08	.018	07	.013	13	.000	

Table 2. Sojourn Effects on Trait Change: Socialization Patterns.

Note. Coefficients are the unstandardized effects of sojourn status on trait change (i.e., paths c in Figure 1).

Number of Relationships	All	Relationship	ps	International Relationships								
	Short-term	Long-term	Controls	Short-term	Long-term	Controls	Short-term	Long-term	Controls			
	M(SD)	$M\left(SD\right)$	M(SD)	M(SD)	$M\left(SD\right)$	M(SD)	%	%	%			
T1	11.9 (5.3)	12.2 (5.9)	10.6 (5.4)	0.6 (1.2)	0.7 (1.3)	0.2 (0.8)	5.0	5.7	1.9			
T2	11.4 (5.3)	11.2 (6.1)	9.7 (5.3)	2.9 (2.8)	3.3 (3.5)	0.3 (0.9)	25.4	29.5	3.1			
Т3	-	10.8 (5.7)	9.4 (4.9)	-	3.5 (3.3)	0.2 (0.8)	-	32.4	2.1			
Lost Relationships												
T1 - T2	5.4 (4.6)	6.3 (5.1)	3.1 (3.3)	0.3 (0.6)	0.4 (0.8)	0.1 (0.4)	5.6	6.3	3.2			
T1 - T3	-	6.9 (5.3)	3.7 (3.6)	-	0.4 (0.9)	0.1 (0.5)	-	5.8	2.7			
Gained Relationships												
T1 - T2	4.8 (3.4)	5.2 (4.1)	2.1 (2.7)	2.6 (2.7)	2.9 (3.4)	0.1 (0.6)	54.2	55.8	4.8			
T1 - T3	-	5.5 (3.9)	2.4 (2.6)		3.2 (3.2)	0.1 (0.5)	-	58.2	4.2			

Table 3. Amounts of Support Relationships and Support Relationship Fluctuation.

*Note.* Short-term = short-term sojourner, long-term = long-term sojourner, controls = control students. The numbers of national relationships (reported, lost, gained) result from the differences between all and international relationships plus small amounts of unclassified relationships (maximum = 5.8%).

Predictors of Personality Change	Change O		Change C		Change E		Change A		Change N	
	Coeff	р								
					T1 –	T2				
National Relationship Loss	.00	.782	00	.744	.00	.685	00	.611	.00	.973
International Relationship Loss	05	.050	02	.401	05	.206	01	.873	.06	.175
National Relationship Gain	.02	.002	01	.091	.00	.525	01	.167	.01	.366
International Relationship Gain	.02	.000	.01	.182	.02	.000	.01	.281	02	.002
					T1 –	T3				
National Relationship Loss	.00	.534	00	.348	.01	.253	01	.069	00	.839
International Relationship Loss	03	.255	00	.869	06	.070	02	.406	.01	.851
National Relationship Gain	.01	.011	01	.075	.01	.082	01	.032	00	.637
International Relationship Gain	.02	.007	.01	.184	.02	.015	.01	.062	02	.025

# Table 4. Effects of Relationship Fluctuation on Big Five Trait Change for Both Measurement Intervals.

*Note*. Coefficients are the unstandardized b paths from latent change mediation models.



*Figure 1*: Conceptual model to assess processes of trait change in the context of international mobility experiences. Fluctuation indices (national relationship loss, international relationship loss, national relationship gain, international relationship gain) were assessed as mediators of sojourn effects on uncorrelated latent trait change variables. For reasons of parsimony and comprehensiveness this illustration is restricted to exemplary univariate latent trait and change variables.



Measurement Occasions

*Figure 2*: Multivariate self-selection and socialisation effects for control students and longterm sojourners (T1-T3). To illustrate multivariate selection effects, probit coefficients derived from the multivariate self-selection analyses were used to illustrate intercept differences between control students and long-term sojourners. Coefficients for both groups' Big Five trait change over time, i.e., socialisation effects, were deferred from the latent change model and for illustrative purposes standardized relative to the first measurement.