



# The development of multicultural effectiveness in international student mobility

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## Abstract

International student mobility (ISM) is an important educational means to increase students' multicultural effectiveness and their (international) job market potential. In the present study, we investigated ISM effects by addressing the following three research questions: First, how do future sojourners differ from control students in terms of their pre-departure multicultural effectiveness? Second, how does ISM affect the development of multicultural effectiveness above and beyond effects of students' demographic characteristics, their cultural and educational background, and their previous international mobility experiences? And third, do any of these variables moderate ISM development effects and thus help to explain who benefits most from ISM? We used a sample of  $N=3070$  students at German higher education institutions who were assigned to three groups (i.e., *control students* with no mobility plans, *present sojourners* who participated in ISM during the study period, and a waiting group of *future sojourners* who participated in ISM in the semester sequencing the study period). The analyses with (moderated) latent change models showed substantially higher pre-departure multicultural effectiveness in present and future sojourners compared with control students as well as positive effects of ISM on the development of multicultural effectiveness. The strongest effects were observed amongst students without previous international mobility experiences. Theoretical implications for the understanding of adaptive development in a globalized world as well as practical inferences for ISM outreach and recruitment strategies are discussed.

**Keywords** International student mobility · Multicultural effectiveness · Sojourners · Study abroad · Personality development · Young adulthood

In times of globalization and cultural diversification, international student mobility (ISM) is considered an important educational means to increase students' multicultural effectiveness and their (international) job market potential. Not surprisingly, current statistics reflect a vital

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involvement of students in ISM (DAAD and DZHW 2019). In the present study, we focused on temporary international mobility experiences of students who were enrolled at German higher education institutions and moved abroad for a limited period of time, e.g., to complete some of their degree courses at a foreign university or to do an internship abroad. According to current statistics, almost 30% of the students in later semesters in Germany have engaged in this kind of ISM experiences during their study time (DAAD and DZHW 2019). These tremendous numbers (and the monetary and organizational resources that are aligned to their attainment) reinforce the question to what extent ISM, indeed, promotes individual characteristics that are essential in globalized (job) contexts. These characteristics include capacities to effectively deal with cultural differences and the ability to work with people from other cultures or backgrounds (Roy et al. 2018). One term that has frequently been used to summarize such abilities is *multicultural effectiveness* (Pedersen 2010; Van der Zee and Van Oudenhoven 2000).

With the present research, we assessed the development of multicultural effectiveness (i.e., multicultural self-efficacy, metacognitive intercultural competence, and intergroup anxiety) in the context of temporary international mobility experiences. Our research focus was threefold: First, we explored pre-departure differences in multicultural effectiveness between non-mobile and mobile students (i.e., *ISM selection effects*). Second, we investigated whether ISM affected the development of multicultural effectiveness (i.e., *ISM development effects*). Beyond that, we were also interested in finding out if ISM can affect individual development prior to the transition abroad (i.e., *ISM anticipation effects*). Such effects may occur, for example, as a result of the (behavioral) engagement with the prospective departure. Importantly, we also assessed if the described effects (i.e., ISM selection effects, ISM development effects, and ISM anticipation effects) persisted above and beyond the influence of students' demographic, educational, and cultural background, as well as their previous international mobility experiences. Third, in order to shed light onto the question of who benefits most from ISM, we explored if these covariates interacted with ISM development effects.

## Multicultural effectiveness

In view of the aforementioned phenomena of globalization and cultural diversification, a capacity to effectively deal with cultural differences is becoming increasingly important (Faniko et al. 2015). In the scientific literature, a variety of different constructs have been used to describe individual characteristics and competencies that are relevant to master intercultural interactions and to adapt to (professional) life in a multicultural context, such as cross-cultural adaptability (Kelley and Meyers 1987), intercultural sensitivity (Bennett 1986), and intercultural adjustment potential (Matsumoto et al. 2001). We decided to use multicultural effectiveness as a conceptual framework for the present research as the term has been established with reference to scientific and applied contexts (Van der Zee and Van Oudenhoven 2000). Moreover, it provides a broad and multifaceted umbrella concept that subsumes different, more specific aspects. In particular, what differentiates the term from many other constructs is that it not only refers to the interest in and the ability to engage in interactions with people from different cultural backgrounds or the capacity to successfully operate within a new cultural environment. It also endorses affective components, such as a sense of psychological well-being in multicultural contexts (Kealey and Protheroe 1996; Van der Zee and Van Oudenhoven 2000). However, to date, no conclusive agreement on the

individual characteristics that indicate multicultural effectiveness has been reached. In the present study, we decided to focus on three individual characteristics, which refer to the forenamed aspects of multicultural effectiveness: multicultural self-efficacy, metacognitive intercultural competence, and intergroup anxiety. These constructs have been validated in numerous studies on intergroup contact (Mazziotta et al. 2015; Turner et al. 2014), intercultural learning (Ng et al. 2009; Xu and Chen 2017), and sojourner adaptation (Ayoob et al. 2015; Presbitero 2016).

### **Multicultural self-efficacy**

Multicultural self-efficacy reflects individuals' personal judgment of their abilities to successfully engage in interactions with people who belong to another cultural group than their own (Mazziotta et al. 2015). Multicultural self-efficacy, thus, represents a domain-specific perspective as compared with general self-efficacy, which reflects a general optimistic assessment of one's skills to deal with challenges, and the expectation of positive outcomes in all fields of life (Bandura 1989). Previous research provided broad evidence for a strong association between self-efficacy and actual performance (Talsma et al. 2018). It, thus, is reasonable to assume that students with higher multicultural self-efficacy are able to operate more effectively in interactions with people from different cultural backgrounds and in new cultural environments.

### **Metacognitive intercultural competence**

One of the multitudinous approaches to operationalize intercultural competence is the cultural intelligence model (CQ model) suggested by Ang et al. (2007). According to this model, cultural intelligence is defined as "an individual's capability to function and manage effectively in culturally diverse settings" (Ang et al. 2007, p. 337), and it is suggested to endorse motivational, cognitive, behavioral, and metacognitive components. In the present study, we focused on the metacognitive component of the CQ model. It refers to higher-order cognitive processes that individuals use to organize and comprehend cultural knowledge. On that account, it reflects the extent to which people are aware of the ways in which culture may influence their own and others' behavior and thinking and how they reflect upon and adjust their cultural knowledge. We chose to focus on this aspect of intercultural competence for specific reasons. Most importantly, the metacognitive component of cultural intelligence has repeatedly been shown to be positively related to intercultural learning in the context of international mobility experiences (Ng et al. 2009; Xu and Chen 2017). In view of the educational goals of ISM (e.g., the internationalization of education, the personal development of mobile individuals, and the enhancement of their competencies; see EHEA Ministerial Conference 2012), success in intercultural learning is deemed an important indicator of students' effective operating in this particular intercultural setting.

### **Intergroup anxiety**

Intergroup anxiety is characterized by feelings of uncertainty and awkwardness when encountering people who belong to another (cultural) group (Turner et al. 2008). Given the constant exposure to (potential) situations of intercultural interactions in ISM, intergroup anxiety may be considered a relevant factor in sojourners' affective well-being and their psychological adaptation abroad. Previous studies also showed that lower levels of intergroup anxiety are

associated to more positive attitudes towards people who belong to different (cultural) groups (Paolini et al. 2004; Turner et al. 2007). As ISM programs, such as the Erasmus+ program, are also expected to contribute to the prevention of discrimination and prejudice (European Commission 2020), it is deemed particularly revealing to explore if prerequisites of these goals (e.g., decreases in intergroup anxiety) are sustained.

## What happens abroad? ISM and individual development

From a developmental perspective, participating in ISM can be viewed as a life event that promotes investments in day-to-day cognitive, affective, or behavioral changes (Greischel et al. 2016; Huttelman et al. 2015; Zimmermann and Neyer 2013). According to the *sociogenomic model* of personality, these changes may accumulate over time and, thus, facilitate individual development in a bottom-up fashion (Roberts and Jackson 2008). A complementary theoretical perspective on the development of multicultural effectiveness in ISM is offered by *experiential learning theory*. According to this theory, learning occurs when concrete real-life (intercultural) experiences are transferred to abstract conceptualizations (i.e., long-lasting learning results) by reflective observation and active experimentation (Kolb 1984). Hence, both theoretical perspectives emphasize the potential of ISM to promote multicultural development by day-to-day (intercultural) experiences and associated changes in thoughts, feelings, and behaviors that are expected to ultimately manifest in individuals' general dispositions. An important context of change is sojourners' social relationships (Bochner et al. 1977; Greischel et al. 2016, 2018; Zimmermann and Neyer 2013; Zimmermann et al. 2017). However, experiences in other life domains, such as study behavior or daily routines may also promote (ISM) development effects (Bleidorn 2012; Roberts et al. 2017).

Previous studies provided some evidence for the effects of ISM on the development of basic personality traits (Niehoff et al. 2017; Zimmermann and Neyer 2013), as well as on more specific (culture-related) individual characteristics (e.g., Jacobone and Moro 2015; Terzuolo 2018; Wolff and Borzikowsky 2018). However, our review of the literature suggested that, although numerous studies have set out to investigate ISM development effects, few of them implemented a longitudinal control group design based on reasonable sample sizes that allows a thorough assessment of ISM selection and ISM development effects.

With respect to the three constructs, we investigated in the present research, previous findings are also limited. To the best of our knowledge, there have been no studies on the development of multicultural self-efficacy during young adulthood in general and in the context of international mobility experiences in particular. There is, however, recent evidence that the development of general self-efficacy was positively affected by ISM (Jacobone and Moro 2015; Petersdotter et al. 2017). Similarly, development effects with regard to metacognitive intercultural competence and intergroup anxiety have not yet been longitudinally investigated in the context of prolonged ISM experiences. Previous studies did, however, confirm positive effects of short-term stays abroad (ranging from 7 to 12 days) on metacognitive intercultural competence (Engle and Crowne 2014).

Another research gap refers to the question whether ISM development effects hold above and beyond effects of students' demographic characteristics, their cultural and educational background, and their previous international mobility experiences on development. Wolff and Borzikowsky (2018) showed that controlling for age, gender, education background, and citizenship altered the pattern of their results on ISM development effects. In particular, the

effect of ISM on intercultural competence (measured with a situational judgment test) was no longer substantiated once these covariates were included in the analyses. However, further research is needed to explore the incremental value of sociodemographic characteristics and ISM for different developmental outcomes and measures.

### **Who moves abroad? Psychological and sociodemographic determinants of ISM participation**

With respect to psychological characteristics, the *corresponsive principle* states that effects of life events on individual development and the self-selection of individuals into these events are not independent, but that “the most likely effect of life experiences is to deepen the characteristics that lead people to those experiences” (Roberts et al. 2003, p. 583). Consequently, according to this principle, it can be expected that students who decide to participate in ISM reveal higher levels of multicultural effectiveness than non-mobile students even before moving abroad. However, empirical evidence for this pattern with regard to basic personality traits in the context of student sojourns is mixed (Greischel et al. 2016; Niehoff et al. 2017; Zimmermann and Neyer 2013). We are not aware of any studies that have already assessed pre-departure differences in multicultural effectiveness amongst (student) sojourners.

In contrast, a variety of studies in the fields of educational, sociological, and economic sciences provided evidence for substantial differences between mobile and non-mobile students with regard to sociodemographic characteristics. The investigated demographics included age (e.g., Netz 2015), gender (e.g., Salisbury et al. 2009, 2011), educational background (e.g., Kratz 2012; Netz and Finger 2016; Wiers-Jenssen 2011), cultural background (e.g., Lörz et al. 2016), and previous international mobility experiences (e.g., Lörz et al. 2016; Niehoff et al. 2017). Overall, students who are younger, female, without a migration background, and whose parents have attained higher educational degrees were more likely to engage in ISM (for an overview, see also Netz et al. 2020). In addition, previous (educational) international mobility experiences were repeatedly shown to increase the potential to move abroad.

To conclude, theoretical models and empirical findings suggest that ISM is selective with respect to students’ psychological as well as sociodemographic characteristics. However, we are not aware of any studies that have investigated the incremental selection effects of these characteristics. Beyond that, little is known about the way in which sociodemographic characteristics may moderate ISM development effects and, thus, determine who benefits most from ISM.

### **Who benefits most from ISM? Sociodemographic moderators of ISM development effects**

A prominent approach that addresses interindividual differences in intraindividual development during young adulthood is the *maturity-stability principle* (Donnellan et al. 2007; Roberts et al. 2001). It suggests that individuals with more mature personalities, that is, higher levels of adaptive characteristics, should experience fewer absolute changes over the course of this developmental period as they face a lower necessity for further normative development. A previous study on the development of self-esteem in the context of high school students’ international mobility experiences corroborated this assumption, as students with lower pre-departure levels in self-esteem showed stronger increases during the stay abroad (Hutteman et al. 2015).

Although originally developed to explain patterns of development in basic personality traits, the maturity-stability principle might also be informative with regard to the present research on within-sojourner differences in more specific (culture-related) individual characteristics. In view of the principle, it seems reasonable to expect opposing effects of the investigated sociodemographic characteristics on pre-departure levels and change in multicultural effectiveness. Put differently, sociodemographic characteristics that are related to higher levels of multicultural effectiveness at the study onset should be associated to less change in multicultural effectiveness over the course of time (development effects). These characteristics should also be associated to smaller effects of ISM on the development (moderation effects).

### The present study

As the previous sections illustrated, there are theoretical arguments and empirical evidence for the assumption of ISM effects on sojourners' multicultural effectiveness. However, there is a number of questions that require further clarification. First, little attention has been paid to pre-departure differences between sojourners and non-mobile control students in terms of their multicultural effectiveness. Furthermore, there is a lack of studies that disentangled ISM development effects and ISM selection effects. Related to that, the question of whether ISM selection and development effects persist above and beyond distinct sociodemographic characteristics has not yet been sufficiently addressed. In this regard, our extension of previous control-group designs, which mostly used two study groups (i.e., control students and present sojourners), by a third study group of students who will engage in ISM after the period of data collection (i.e., a *waiting group* of future sojourners) is deemed particularly valuable. On the one hand, this allows for the additional exploration of the question if forthcoming ISM experiences unfold developmental effects by ISM anticipation effects. On the other hand, as we may assume that students of the two mobile groups are more similar to each other in potential other (unobserved) variables than mobile and non-mobile students, comparing the developmental trajectories of both mobile student groups provides an opportunity to safeguard findings on ISM development effects against potential unobserved confounding effects. Finally, there is a substantial research gap with regard to the interplay of pre-departure (sociodemographic) characteristics and ISM effects on individual development, that is, regarding the question of who benefits most from ISM.

Against the background of the outlined theoretical assumptions and empirical findings, we expected substantial ISM selection effects on all three indicators of multicultural effectiveness, that is, higher levels of multicultural self-efficacy and metacognitive intercultural competence as well as lower scores on intergroup anxiety at the study onset (t1) amongst present and future sojourners as compared with the control students. Furthermore, we assumed substantial positive ISM development effects in all three domains of multicultural effectiveness, meaning stronger increases in multicultural self-efficacy and metacognitive intercultural competence and a steeper decline of intergroup anxiety amongst present sojourners as compared with control students (and future sojourners). The outlined theoretical approaches, which offer explanations for ISM development effects, emphasize the importance of day-to-day changes in thoughts, feelings, and behaviors that are related to learning and experiences in the new intercultural environment abroad. Hence, we did not expect to identify substantial ISM anticipation effects.

Finally, we investigated the effects of distinct sociodemographic characteristics, such as age, gender, educational background, migration background, and previous international

mobility experiences, as moderators of ISM development effects. In view of the assumption (and previous evidence) that ISM has positive effects on the development of multicultural effectiveness, we expected previous international mobility experiences (a) to reveal positive effects on the level of multicultural effectiveness at the study onset, (b) to yield negative effects on change in multicultural effectiveness over the course of the study period, and (c) to interact with ISM development effects by reducing their impact on the development of multicultural effectiveness. Previous studies also emphasized the general impact of intergroup contact experiences on the development of multicultural traits and competencies (e.g., Schwarzenthal et al. 2017). Since students with a migration background can be assumed to be exposed to intense experiences of intercultural contact in their daily life, they might also reveal higher levels of multicultural effectiveness than students without a migration background at the study onset. As a consequence, having a migration background might also imply less change in multicultural effectiveness across the study period. However, as it is an open question to what extent intercultural contact experiences of ethnic minorities in their countries of residence are comparable to those of sojourners abroad, we did not hypothesize on the moderation effects. In view of the lack of research on the effects of the other sociodemographic characteristics on the development of multicultural effectiveness in young adulthood, we also opted for an exploratory approach to these analyses.

## Methods

### Participants and procedure

To address the outlined research concerns, we used a sample of students at German higher education institutions ( $N=3070$ ) and implemented a longitudinal control group design with three study groups, i.e., *control students* with no mobility plans, *present sojourners* who engaged in ISM during the semester that defined the period of data collection (i.e., the winter term 2017/18), and *future sojourners* who had concrete mobility plans for the semester sequencing the period of data collection (i.e., the summer term 2018). Participants were recruited from all over Germany and were approached by different means from the beginning of July 2017. For example, e-mails were sent to the Erasmus+ coordinators of all German higher education institutions that take part in the European Erasmus+ program (i.e., about 350 institutions that represent the vast majority of higher education institutions in Germany) and local Erasmus student initiatives. In all cases, institutions were asked to circulate the information amongst students both with and without mobility plans by using mailing lists (e.g., mailing lists of the international offices to invite mobile students and of other university institutions and student associations to reach out to students without mobility plans), the universities' online social networking sites or any other means to access potential participants. In all cases, potential participants were presented with a short invitation text that contained general information about the aims and contents of the study, as well as a link to the online registration platform. In order to complete registration, participants had to fill in a short questionnaire (t0) that covered basic demographic background information, students' current country of residence, the status of their university enrollment, and potential ISM plans for the upcoming academic year 2017/18. Only participants who both lived in Germany at the time and confirmed being enrolled at a German university were admitted to the study sample. Information about ISM plans was used for a preliminary assignment of the registered participants to

one of the three study groups: control students (no ISM plans), present sojourners (ISM plans for the winter term 2017/18, i.e., the study period), and future sojourners (ISM plans for the summer term 2018, i.e., the semester sequencing the study period). Participants received the invitation to the first measurement (t1) depending on their preliminary group assignment. Invitation e-mails for control group members were automatically sent out 24 hours after the successful completion of the registration. Present sojourners were invited 2 weeks before the date of departure they reported in the registration questionnaire (t0). Invitation e-mails for future sojourners were sent out during the first weeks of the winter term 2017/18.<sup>1</sup> Besides general information on the questionnaire and instructions for its completion, all e-mails contained a personalized link that allowed participants to interrupt and continue the completion of the t1 questionnaire at their convenience. In case of non-response, participants were reminded of the pending questionnaire at 7 days after the first invitation by an automatized e-mail reminder. The t1 measurement was placed between July, 5th, 2017, and November, 19th, 2017.

All participants who at least started the t1 questionnaire were considered for the second measurement (t2). Again, invitation schedules depended on the respective group membership. Hence, members of the control group were invited at 22 weeks after the date of their t1 invitation. E-mails to present sojourners were sent out at 20 weeks after their individual (past) date of departure (i.e., 22 weeks after the t1 invitation). Future sojourners were invited to fill in the t2 questionnaire at 2 weeks before the (future) date of departure that was reported in the t1 questionnaire. Analogous to the procedure at t1, non-responders were reminded of the pending questionnaire at 7 days after the first invitation by an automatized e-mail reminder. The t2 measurement was carried out between January, 8th, 2018, and April, 23rd, 2018. On average, time intervals between t1 and t2 corresponded to  $M = 162.00$  days ( $SD = 28.70$ ) for controls,  $M = 156.03$  days ( $SD = 11.50$ ) for present sojourners, and  $M = 124.57$  ( $SD = 33.97$ ) for future sojourners. For an overview of the study design, please refer to Fig. 1.

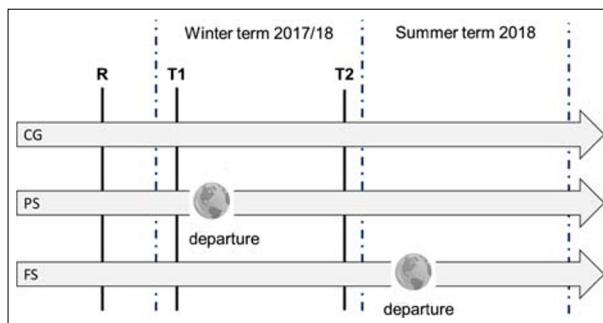
Overall,  $N = 7662$  participants successfully registered for the study. E-mail invitations for the first measurement (t1) were successfully distributed to  $N = 7569$  participants of whom  $N = 5105$  responded by at least starting the t1 questionnaire, while  $N = 4806$  of them completed it. At t2,  $N = 3709$  participants responded to the invitation, whereas  $N = 3576$  provided full measurement data, resulting in  $N = 3455$  participants who completed both questionnaires. In the next step, we verified the numbers of cases that complied with the criteria of the final study group assignment. In particular, all participants who indicated at the second measurement occasion (t2) that they currently lived in Germany, had not engaged in ISM during the winter term 2017/18, and did not intend to go abroad during the summer term 2018 were assigned to the control group ( $N = 1323$ ). By contrast, all participants who either stated at the second measurement occasion (t2) that they currently lived in Germany, but had been abroad for a period of more than 30<sup>2</sup> but less than 292<sup>3</sup> days during the winter term 2017/18 or who indicated to currently live abroad, to have arrived at their foreign residence more than 30 days ago, and to intend to stay abroad for a maximum duration of 792<sup>4</sup> days were classified as

<sup>1</sup> The first item in the t1 questionnaire asked for students' current place of residence. Participants who (no longer) lived in Germany could not answer the questionnaire and were, thus, excluded from the sample.

<sup>2</sup> A minimum duration of 30 days was used to distinguish between ISM and vacations.

<sup>3</sup> The maximum duration of 292 days was the longest duration that was technically possible given the time lag between the t1 and t2 measures.

<sup>4</sup> A maximum duration of 792 days was defined to distinguish between temporary ISM and permanent migration.



**Fig. 1** The study design. *CG* control group, *PS* present sojourners, *FS* future sojourners, *R* registration, *T1* first measurement occasion, *T2* second measurement occasion

present sojourners ( $N=1264$ ). An assignment to the future sojourners' group required the indication of current residence in Germany at the second measurement occasions (t2), no ISM experiences during the winter term 2017/18 but (confirmed) prospect ISM plans for the summer term 2018 that referred to a time period of more than 30 but less than 792 days ( $N=483$ ). This resulted in a full panel sample of  $N=3070$  participants who fulfilled the study criteria and were used in all further analyses. Comparisons between participants who completed t1 ( $N=4806$ ) and the panel sample ( $N=3070$ ) revealed only negligible differences for the three indicators of multicultural effectiveness (all  $ds < .05$ ), as well as all covariates (age ( $d=.045$ ), professional qualification of the mother ( $d=-.054$ ), professional qualification of the father ( $d=-.00$ ), sex ( $\varphi=.04$ ), migration background ( $\varphi=-.07$ ), previous international mobility experiences ( $\varphi=-.00$ )).<sup>5</sup>

The vast majority of sojourners spent their time abroad in European host countries (i.e., 85%), and almost 50% had chosen one of the top five favorite host countries (i.e., Spain, France, UK, Italy, and Sweden). An inspection of intraclass correlation coefficients did not reveal substantial between-country variance in all three indicators of multicultural effectiveness at either of the two measurement occasions.

## Measures

**Sojourn status** The sojourn status of participants was indicated by two dummy-coded variables that were used to compare present sojourners (0 = control group or future sojourner, 1 = present sojourner) and future sojourners (0 = control group or present sojourner, 1 = future sojourner) with control students.

**Demographic background information** Participants were asked to indicate their age and gender (0 = male, 1 = female), as well as their parents' highest professional qualification (1 = no professional qualification, 2 = vocational education, 3 = university degree) as an indicator of the family's educational background.

Furthermore, participants' migration background was inferred from information on the places of birth of both parents. Thus, in line with previous studies, participants with at least one

<sup>5</sup> An overview of the participant numbers in the different steps of the longitudinal research process, as well as further information on the panel sample (i.e., information on sociodemographic characteristics, fields of studies, ISM purposes, host countries, ISM funding, and forms of previous international mobility experiences) can be found in Tables A1-A7 in the online appendix.

parent born outside Germany were categorized as having a migration background (Willige et al. 2017). The item was dummy-coded (0 = no migration background, 1 = migration background).

**Previous international mobility experiences** At t1, previous international mobility experiences before the study onset were captured by asking participants if they had ever lived abroad for a period of at least 1 month. The information was captured by a dummy-coded variable (0 = no previous international mobility experiences, 1 = previous international mobility experiences). The most frequent forms were private stays abroad, such as leisure travel or family visits, previous ISM experiences, or (host family) school-related stays abroad.<sup>6</sup>

**Multicultural self-efficacy** We measured multicultural self-efficacy using a 6-item scale proposed by Mazziotta et al. (2015). A sample item is *I am confident that I am able to establish a good relationship with people from other cultural groups*. Answers were measured on a 7-point Likert-type scale ranging from 1 (*do not agree at all*) to 7 (*fully agree*). Cronbach's alphas were  $\alpha = .80$  at t1 and  $\alpha = .79$  at t2.

**Metacognitive intercultural competence** Metacognitive intercultural competence was measured using the 4 items of the meta-cognition subscale of the cultural intelligence scale (CQS) by Ang et al. (2007). A sample item is *I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me*. Answers were provided on a 7-point scale ranging from 1 (*do not agree at all*) to 7 (*fully agree*). Cronbach's alphas were  $\alpha = .81$  at t1 and  $\alpha = .80$  at t2.

**Intergroup anxiety** To capture intergroup anxiety, we used an adapted version of the intergroup anxiety scale by Stephan and Stephan (1985). Participants were instructed to imagine being in a room with people who all belonged to different cultural groups than the participant herself or himself. They were then asked to indicate on 7-point scale from 1 (*not at all*) to 7 (*very*) to what extent they felt accepted (reverse coded), secure (reverse coded), relaxed (reverse coded), comfortable (reverse coded), anxious, or uncomfortable in this situation. Cronbach's alphas were  $\alpha = .88$  at t1 and  $\alpha = .89$  at t2.

## Analytical strategy

To address the research questions regarding ISM effects, we used moderated latent change models (McArdle and Nesselroade 1994; Steyer et al. 1997). In these models, latent change variables are used to represent the change between two measurement occasions, whereas the latent intercept represents the initial level of the variable under study. As a feature of the latent modeling approach, both the intercept and change estimates are uncontaminated by random measurement error. The variances of the latent intercept and the latent change variable reflect interindividual differences in the initial level and the development of a construct. For a reliable interpretation of all latent parameters, it is crucial to ensure that changes are not due to modifications in the relation between the manifest indicators and latent factors (Bollen and Curran 2006; Vandenberg and Lance 2000). On that account, we implied strong measurement

<sup>6</sup> Additional information on the different forms of previous international mobility experiences is presented in Table A6 in the online appendix.

invariance, that is, equal factor structure, factor loadings, and intercepts over time in all models and evaluated the appropriateness of this assumption based on model fit indices for the restricted model (Meredith 1993). According to Hu and Bentler (1999),  $\text{RMSEA} \leq .06$ ,  $\text{CFI} \geq .95$ , and  $\text{SRMR} \leq .08$  provide criteria for a good model fit. 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 and Hau 1996).

In order to assess ISM selection effects, as well as effects of present and anticipated ISM experiences on the development of multicultural effectiveness, three analogous latent change models were specified (for an exemplary conceptual model see Fig. 2). Each of these models referred to one of the three investigated indicators of multicultural effectiveness (i.e., multicultural self-efficacy, metacognitive intercultural competence, and intergroup anxiety) and included data from control students and both sojourner groups. In these models, both the latent intercept and latent change variables were regressed on all covariates and the dummy-coded sojourn status variables. Within each model, the intercept and change variable were allowed to correlate. Effects of the exogenous variables on the latent intercepts can be interpreted as differences in the initial levels of the dependent variable between participants that are attributed to the respective exogenous variable. Effects of the exogenous variables on the latent change factors indicate that differences in the development can be attributed to the respective exogenous variable. Against this background, effects of the sojourn status variables on the intercept can be interpreted as pre-departure differences between control students and present sojourners or between control students and future sojourners, respectively. Similarly, effects of the sojourn status variables on the latent change variables inform on differences in the development between control students and present sojourners or between control students and future sojourners, respectively. Finally, in order to assess differences between the two sojourning groups, we repeated the analyses with the subsample of all sojourners and assessed if present and future sojourners differed in their initial levels or their development of multicultural effectiveness over the course of the study.

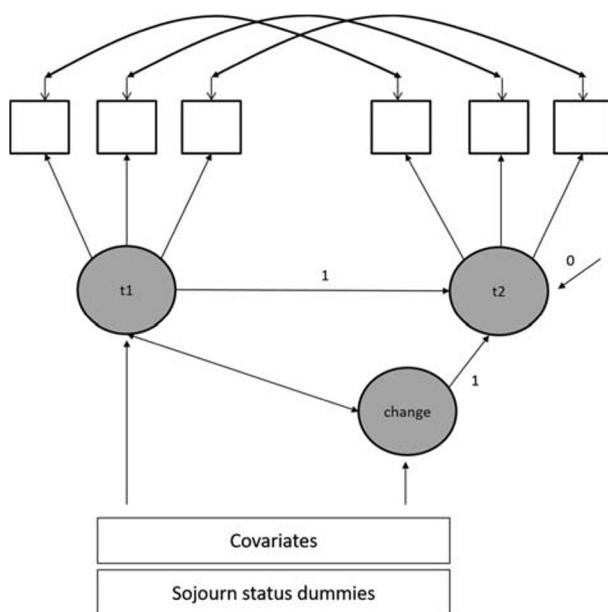
For the identification of potential moderators of sojourner development, we specified a similar set of models that, however, additionally included interaction terms between the covariates and the sojourn status variable. In these models, the latent change variables were regressed on all covariates, the sojourn status variables and the interaction terms. In this case, effects of any interaction terms on change indicate that the respective covariate moderated the effects of sojourn status on development. For example, effects of sojourn status on change might depend upon the sojourners' previous international mobility experiences, meaning students with and without previous international experiences might benefit differently from ISM.

All analyses of change were also controlled for the potential effects of interindividual differences in the measurement interval t1-t2 (i.e., the number of days between t1 and t2).

The analyses were carried out using SPSS 25 (IBM Corp Released 2017) and Mplus version 7 (Muthén and Muthén 2015). Due to the implementation of completeness checks in the online questionnaires, only few cases of missing values (mostly on the covariates) occurred. We dealt with missing information using the FIML procedure as implemented in Mplus.

## Results

Descriptive information on the three indicators of multicultural effectiveness in the three study groups are summarized in Table 1. In the following, we will present findings on ISM selection



**Fig. 2** Conceptual model to assess ISM selection and ISM development effects for each of the three indicators of multicultural effectiveness. For reasons of parsimony, only three manifest indicators per measurement are displayed. The number of indicators, however, varied between constructs (i.e., six items for multicultural self-efficacy, four items for metacognitive intercultural competence, and six items for intergroup anxiety)

effects and the effects of ISM on the development of multicultural effectiveness before we proceed with results on the moderators of ISM development effects.

### ISM selection effects

In order to analyze ISM selection and development effects, we performed separate moderated latent change models for all three indicators of multicultural effectiveness. All models revealed an adequate fit to the data with CFI $\geq .935$ , RMSEA $\leq .050$ , and SRMR $\leq .032$ .

Results on the selection effects are presented in the upper section of Table 2. Analyses of the covariates revealed two single effect patterns for age and gender. Older participants reported higher initial levels of multicultural self-efficacy ( $b = .012$ ,  $p = .006$ ), whereas women showed higher levels of metacognitive intercultural competence than men ( $b = .093$ ,  $p = .027$ ) at the study

**Table 1** Descriptive statistics for the three study groups (controls, present sojourners, and future sojourners) at the two measurement occasions (T1 and T2)

Construct	Controls				Present sojourners				Future sojourners			
	T1		T2		T1		T2		T1		T2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Multicultural self-efficacy	5.45	0.90	5.43	0.84	5.62	0.83	5.75	0.80	5.62	0.82	5.63	0.78
Metacognitive intercultural competence	5.40	0.99	5.41	0.95	5.60	0.90	5.76	0.84	5.62	0.92	5.56	0.91
Intergroup anxiety	3.23	1.12	3.17	1.12	3.09	1.02	2.79	0.99	3.05	1.03	3.01	0.98

onset (t1). No significant effects of students' educational background, that means their fathers' or mothers' level of professional education, could be identified. By contrast, having a migration background or previous international mobility experiences was associated with higher initial levels of multicultural self-efficacy ( $b = .164, p < .001$ ;  $b = .241, p < .001$ ) and metacognitive intercultural competence ( $b = .208, p < .001$ ;  $b = .426, p < .001$ ), as well as lower levels of intergroup anxiety ( $b = -.272, p < .001$ ;  $b = -.305, p < .001$ ). With respect to the sojourn status variables, consistent incremental effects of present and future ISM plans on multicultural self-efficacy ( $b = .125, p < .001$ ;  $b = .123, p = .001$ ), metacognitive intercultural competence ( $b = .185, p < .001$ ;  $b = .230, p < .001$ ), and intergroup anxiety ( $b = -.120, p = .001$ ;  $b = -.146, p = .002$ ) were obtained. That is, both immediate (present sojourners) as well as delayed (future sojourners) sojourn plans were associated with higher levels of multicultural self-efficacy and metacognitive intercultural competence, as well as lower levels of intergroup anxiety before the departure.

### ISM development effects and ISM anticipation effects

For a visual impression of the development effects, the manifest means of the three groups are plotted in Fig. 3. Results on the development effects of ISM from the latent change models are presented in the bottom section of Table 2. In line with expectations, ISM revealed substantial incremental effects on the development of all three indicators. In particular, present sojourners showed stronger increases in multicultural self-efficacy ( $b = .117, p < .001$ ) and metacognitive intercultural competence ( $b = .184, p < .001$ ) and a stronger decline in intergroup anxiety ( $b =$

**Table 2** ISM selection (effects on intercept) and ISM development and anticipation effects (effects on change)

Predictors	Multicultural self-efficacy			Metacognitive intercultural competence			Intergroup anxiety		
	<i>b</i>	$\beta$	<i>p</i>	<i>b</i>	$\beta$	<i>p</i>	<i>b</i>	$\beta$	<i>p</i>
<i>Effects on intercept</i>									
Age	.012	.058	.006	.007	.024	.234	-.010	-.037	.055
Gender	.014	.010	.611	.093	.042	.027	.057	.028	.138
PQ father	-.013	-.012	.564	.028	.017	.420	-.054	-.035	.087
PQ mother	.010	.009	.659	.029	.016	.439	-.028	-.018	.397
Migration background	.164	.096	< .001	.208	.081	< .001	-.272	-.115	< .001
IM experiences	.241	.181	< .001	.426	.213	< .001	-.305	-.168	< .001
Present ISM	.125	.094	< .001	.185	.092	< .001	-.120	-.066	.001
Future ISM	.123	.068	.001	.230	.085	< .001	-.146	-.059	.002
<i>Effects on change</i>									
Measurement interval	.000	.012	.530	.001	-.043	.044	.001	.039	.059
Age	-.003	-.020	.355	-.002	-.008	.747	-.007	-.030	.169
Gender	.017	.015	.479	-.039	-.024	.265	-.008	-.005	.806
PQ father	.038	.045	.053	-.011	-.009	.706	-.019	-.016	.497
PQ mother	-.010	-.011	.624	.020	.016	.520	-.008	-.006	.791
Migration background	.011	.008	.686	.033	.018	.421	.002	.001	.963
IM experiences	-.065	-.065	.002	-.077	-.054	.021	.075	.051	.014
Present ISM	.117	.118	< .001	.184	.128	< .001	-.219	-.148	< .001
Future ISM	.009	.007	.782	-.032	-.017	.517	.070	.035	.133

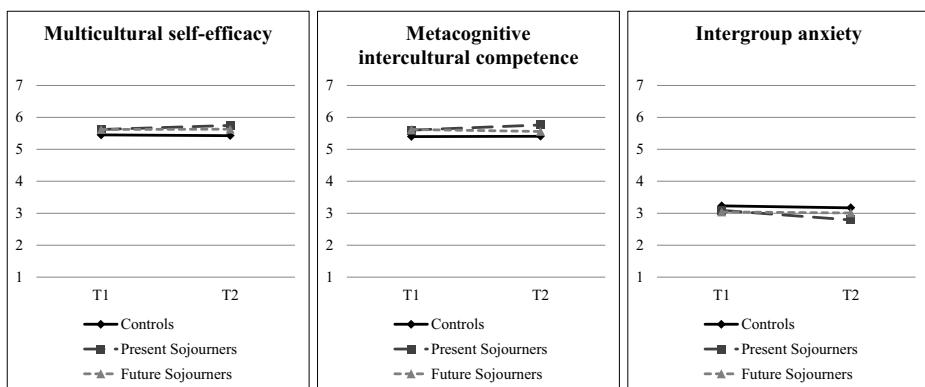
*Note.* PQ father professional qualification father, PQ mother professional qualification mother, IM experiences previous international mobility experiences, present ISM participation in international student mobility during the study period (present sojourners), future ISM participation in international student mobility in the semester after the study period (future sojourners), measurement interval number of days between the first and the second measurement. Non-binary covariates were centered previous to the analyses

$-.219, p < .001$ ) than students in the control group. However, future ISM did not reveal substantial anticipation effects on the development of multicultural effectiveness as no differences between the developmental trajectories of control students and future sojourners could be identified.

To add to these results, we repeated the moderated latent change analyses for all three indicators of multicultural effectiveness with a subsample that included all sojourners. With these analyses, we investigated whether ISM development effects can still be sustained when present sojourners are compared to future sojourners. All models showed an adequate fit to the data with CFIs  $\geq .938$ , RMSEAs  $\leq .051$ , and SRMRs  $\leq .036$ . The results on the intercept effects revealed that there were no substantial differences between the two sojourning groups with regard to the levels of multicultural self-efficacy ( $b = .003, p = .926$ ), metacognitive intercultural competence ( $b = -.47, p = .383$ ), and intergroup anxiety ( $b = .027, p = .574$ ) at the study onset (t1). However, the analyses confirmed the unique developmental effects of present sojourn experiences. When comparing present sojourners with their fellow students who waited for their departure, they showed stronger increases in multicultural self-efficacy ( $b = .092, p = .007$ ) and metacognitive intercultural competence ( $b = .169, p = .002$ ), as well as stronger decreases in intergroup anxiety ( $b = -.273, p < .001$ ).

### Who benefits most from ISM?

In order to analyze who benefits most from present ISM, we performed a third set of latent change models, which also included effects of the interaction terms between the covariates and the sojourn status variable that distinguished between present sojourners and the other groups (0 = control group or future sojourner, 1 = present sojourner). All models showed an adequate fit to the data with CFIs  $\geq .936$ , RMSEAs  $\leq .042$ , and SRMRs  $\leq .025$ . Intercept effects are summarized in the upper section of Table 3. Important to our research questions were, however, the effects on the development of multicultural effectiveness that are presented in the lower section of Table 3. In line with the findings presented in the former section, conditional effects of current ISM on the development of multicultural self-efficacy ( $b = .171, p < .001$ ), metacognitive intercultural competence ( $b = .318, p < .001$ ), and intergroup anxiety ( $b = -.219, p < .001$ ) were identified. In addition, these findings were complemented by substantial interaction effects between previous international mobility experiences and present ISM on the development of multicultural self-efficacy ( $b = -.083, p = .035$ ), metacognitive intercultural



**Fig. 3** Development in the three study groups (controls, present sojourners, and future sojourners) between the two measurement occasions (T1 and T2). The figures show the manifest means as displayed in Table 1

competence ( $b = -.128$ ,  $p = .030$ ), and intergroup anxiety ( $b = .122$ ,  $p = .029$ ). That is, the effects of present ISM were moderated by the previous international mobility experiences of sojourners. Sojourners with previous international mobility experiences revealed lower increases of multicultural self-efficacy and metacognitive intercultural competence and less decline in intergroup anxiety than inexperienced sojourners.<sup>7</sup> In other words, ISM turned out to be particularly beneficial for the development of multicultural effectiveness amongst students who had not yet participated in international mobility experiences before.

## Discussion

The goal of the present research was threefold. First, we were interested in ISM selection effects and explored their incremental value above and beyond the effects of various covariates, such as age, gender, and students' educational and cultural background, as well as their previous international mobility experiences. Analyses revealed substantial ISM selection effects as sojourners with immediate (present sojourners) and delayed (future sojourners) international mobility plans showed substantially higher levels of multicultural self-efficacy and metacognitive intercultural competence, as well as a lower level of intergroup anxiety at the study onset than the control students. In addition, complementary analyses yielded no substantial differences in the initial levels of the three examined variables between the two sojourner groups (i.e., present sojourners and future sojourners). These findings suggest that the identified selection effects do not result from short-termed anticipation effects that may occur immediately before the departure but instead reflect rather stable individual differences between students who plan to go abroad and those who do not.

Beyond these findings, further effects of the covariates on the initial levels of multicultural effectiveness were observed. In particular, having a migration background and having previously engaged in international mobility experiences were related to higher levels of multicultural self-efficacy and metacognitive intercultural competence, as well as lower levels of intergroup anxiety at the study onset. These findings are in line with assumptions on the positive effects of international mobility experiences and general intercultural (contact) experiences on the development of multicultural effectiveness. In addition, they provide a valuable perspective on the developmental implications of growing up between cultures. Multitudinous studies have addressed the developmental risks and challenges of adolescents and young adults with migration background (e.g., Belhadj Kouider et al. 2014; Titzmann et al. 2014). Our findings, however, suggest that growing up in a family with a recent migration history provides young people with an elemental environment for culture learning that also promotes adaptive multicultural development.

Furthermore, we investigated ISM development and ISM anticipation effects. In line with our assumptions and with previous findings on ISM effects on the development of basic personality traits (Niehoff et al. 2017; Zimmermann and Neyer 2013) and more specific culture-related traits (Jacobone and Moro 2015; Terzuolo 2018; Wolff and Borzikowsky 2018), ISM revealed substantial effects on change in all three investigated individual characteristics. In particular, students who engaged in ISM during the study period (i.e., present sojourners) showed stronger increases in multicultural self-efficacy and metacognitive intercultural competence, as well as a

<sup>7</sup> Following the suggestions of an anonymous reviewer we performed additional analyses to assess whether the effects of having a migration background differed when we distinguished between participants with one versus two parents born abroad. However, the supplemental analyses confirmed that this was not the case.

**Table 3** Differential analysis of ISM development effects

Predictors	Multicultural self-efficacy			Metacognitive intercultural competence			Intergroup anxiety		
	b	$\beta$	p	b	$\beta$	p	b	$\beta$	p
<i>Effects on intercept</i>									
Age	.012	.058	.006	.007	.024	.234	-.010	-.037	.055
Gender	.014	.010	.611	.093	.042	.027	.057	.028	.138
PQ father	-.013	-.012	.565	.028	.017	.419	-.054	-.035	.087
PQ mother	.010	.009	.658	.029	.016	.439	-.028	-.018	.397
Migration background	.164	.096	< .001	.208	.081	< .001	-.272	-.115	< .001
IM experiences	.241	.181	< .001	.426	.213	< .001	-.305	-.168	< .001
Present ISM participation	.125	.094	< .001	.185	.092	< .001	-.120	-.066	.001
Future ISM participation	.123	.068	.001	.230	.085	< .001	-.146	-.059	.002
<i>Effects on change</i>									
Measurement interval	.000	.012	.556	.001	.042	.052	.001	.038	.068
Age	-.003	-.020	.387	-.001	-.005	.853	-.008	-.034	.155
Gender	.019	.017	.499	.001	.000	.991	.038	.023	.362
PQ father	.031	.037	.207	-.015	-.013	.686	-.028	-.023	.437
PQ mother	.010	.011	.712	.030	.024	.428	-.024	-.018	.534
Migration background	.018	.014	.607	.017	.009	.750	-.021	-.011	.680
IM experiences	-.031	-.032	.228	-.023	-.016	.577	.025	.017	.499
Present ISM	.171	.171	< .001	.318	.221	< .001	-.219	-.148	< .001
Future ISM	.004	.003	.899	-.039	-.020	.438	.073	.036	.119
Age*present ISM	-.001	-.003	.871	-.005	-.011	.624	.006	.012	.579
Gender* present ISM	-.005	-.004	.915	-.096	-.062	.125	-.109	-.068	.076
PQ father* present ISM	.014	.011	.689	.005	.003	.919	.016	.008	.764
PQ mother*present ISM	-.046	-.034	.220	-.024	-.012	.664	.041	.020	.437
Migration background* present ISM	-.019	-.010	.701	.040	.014	.577	.058	.021	.433
IM experiences* present ISM	-.083	-.072	.035	-.128	-.078	.030	.122	.072	.029

Note. PQ father professional qualification father, PQ mother professional qualification mother, IM experiences previous international mobility experiences, present ISM participation in international student mobility during the study period (present sojourners), future ISM participation in international student mobility in the semester after the study period (future sojourners), measurement interval number of days between the first and the second measurement. Non-binary covariates were centered previous to the analyses

steeper decline of intergroup anxiety. The size of ISM effects was small but comparable with results that were obtained in earlier studies on the development of personality traits in ISM (Niehoff et al. 2017; Zimmermann and Neyer 2013). Previous research also pointed to the importance of even small intermediate changes as these may accumulate over the life span by persistent person-environment transactions (Roberts and Caspi 2003).

Importantly, these results were substantiated in two sets of analyses that compared present sojourners with control students without international mobility plans, as well as with future sojourners who were about to engage in ISM after the study period. From a methodological point of view, the inclusion of this *waiting group* provides an advancement of earlier research designs, as it reduces the risk that ISM development effects are deteriorated by effects of unobserved third variables (e.g., language competencies and further demographic or psychological characteristics). To conclude, the present results suggest that ISM consistently affected the assessed indicators of multicultural effectiveness, which further corroborates the consideration of ISM as an important life event in young adulthood with substantial developmental implications. From a labor market perspective, the promotion of adaptive multicultural

development may be considered as a contribution to the students' (international) job market potential. However, further studies that explicitly link these developmental gains to specific job-related outcomes such as earnings, promotions, or success during expatriate assignments are needed to be fully able to evaluate their (monetary) benefits in that regard.

By contrast, future ISM did not affect development. This is in line with theoretical approaches and empirical evidence, which suggest that ISM development effects are promoted by day-to-day (social) intercultural experiences (Greischel et al. 2016, 2018; Zimmermann and Neyer 2013). Nevertheless, there is still a need to more thoroughly explore the concrete mechanisms of change. For example, it would be beneficial to continuously monitor the day-to-day changes in thoughts, feelings, and behavior to learn more about the patterns of changes, their timing over the course of the sojourn, and the (individual and institutional) conditions that promote adaptive change. A better understanding of these mechanisms will not only contribute to the scientific understanding of individual development in young adulthood but may also help practitioners to develop and further adapt target-group-specific ISM program designs. Beyond that, the long-term developmental implications of ISM, that is, if sojourn effects on development persist after the sojourn, are attenuated or vanish, constitute another interesting objective to future research.

Third, in line with our expectations, analyses that considered the interaction between ISM status and the covariates revealed that students who had not yet participated in international mobility experiences benefitted most from ISM experiences. These students revealed stronger increases in multicultural self-efficacy and metacognitive intercultural competence and a stronger decline of intergroup anxiety than their mobility-experienced fellows. These results add to previous findings on differential development during high-school international exchange experiences (Hutteman et al. 2015). However, future studies that pursue a life-course approach and collect detailed information on the timing and sequence of different forms of (international) mobility experiences are needed to more thoroughly assess their long-term developmental interplay. Nevertheless, in view of previous research, which illustrated that ISM participation is less frequent amongst students without previous international mobility experiences (Lörz et al. 2016; Niehoff et al. 2017), practical implications for ISM outreach strategies can be inferred from the present findings. Against the background of our findings, it is deemed particularly important to intensify measures that reach out to students who are affected by figurative entry barriers such as a lack of information on ISM opportunities or constrained financial resources for the realization of international mobility endeavors (Netz 2015). If those who are less likely to participate in ISM are the ones who would benefit most, efforts to recruit this specific group are well invested.

## Limitations

The present research has some limitations that need to be considered. First, previous research suggested that not only numerous repetitions of independent tests but also tests of multiple parameters within (few) structural equation models may inflate Type I error rates (Cribbie 2017). A frequent method to accommodate these concerns is to only interpret effects that are significant at  $p < .01$  (e.g., Mund and Neyer 2014; Parker et al. 2012). With regard to the main findings from the present analyses, such an adjustment, would imply two changes in the pattern of results. First, in the analyses of ISM development effects (see Table 2), the effects of previous international mobility experiences on change in metacognitive intercultural competence and intergroup anxiety would no longer be interpreted as substantial (while the effect on change in multicultural self-efficacy would remain). Second, the interaction effects between previous international mobility experiences and current ISM on all three indicators fail the  $p$ -value of .01

(see Table 3). These limitations should be kept in mind when interpreting the results. However, in both cases, the highly consistent findings for all three indicators of multicultural effectiveness disprove these concerns and emphasize the trustworthiness of the presented results.

Furthermore, some limitations regarding the sample need to be addressed. We aimed at adequately representing the heterogeneity in both sojourning and non-mobile students by recruiting nationwide and across different fields of studies. However, it was not possible to obtain detailed information on how many institutions circulated our information, which means of communication they used, and which student groups they addressed. In order to accommodate concerns of data protection, no information on their higher education institutions (except for the type of the sending institution) was collected from the participants. Consequently, we cannot provide conclusive information on the distribution of participants across institutions and regions. As a consequence, further research is needed to investigate the potential influence of institutional factors with respect to students' multicultural development. Related to that, the question to what extent study subjects provide a socializing context that affects individual (multicultural) development beyond the effects of self-selection into these subjects may constitute an interesting objective to further research.

With regard to sojourners' host countries, future studies that include a more heterogeneous sample of European and, in particular, non-European host countries might provide interesting insights into the developmental implications of cultural differences with regard to sojourner adaptation and development. Further research is also needed to investigate the extent to which the present results apply to other student populations, for example, students who differ from the investigated sample in terms of their cultural or educational backgrounds or ISM modalities.

As in all research projects that are based on participants' voluntary engagement, effects of self-selection by psychological or sociodemographic characteristics cannot be precluded. We met this challenge by keeping the participant-directed information on the study purposes and content as general as possible and by including variables that are well-known to account for selective participation (e.g., gender) as covariates in all analyses. As the present research relied on self-report measures of multicultural effectiveness, the general limitations of self-report measures, for example, in terms of their susceptibility to socially desirable responding and peoples' limited abilities to accurately report on their own capacities for effective multicultural behaviors (Klaféhn et al. 2013; Schwarzenthal et al. 2017), have to be kept in mind. The implementation of further measurement methods such as situational judgment tests (e.g., Schwarzenthal et al. 2017; Wolff and Borzikowsky 2018) may be a worthy endeavor for future research. Finally, the present research does not allow concluding on the persistence of the observed developmental effects or their long-term implications for career choices and life paths. To that end, long-term studies that track participants over their student life cycle and beyond and that additionally consider career-related outcomes are essential.

## Conclusion

Despite these limitations, the present study provided methodological advances and meaningful insights into the role of ISM in the development of multicultural effectiveness amongst young adults. In addition, the results suggested that students who have not yet had the chance to engage in international mobility experiences benefitted most from ISM in terms of adaptive multicultural development. We hope that these findings encourage further research on the differential developmental implications of ISM and simultaneously provide practical impulses for the organization and implementation of ISM programs.

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## Compliance with ethical standards

Due to the non-controversial nature of the study content and design, an ethical approval for this research was not required as per the ethical guidelines of the German Psychological Society (DGPs). All subjects were adults, they were informed about the research purposes and procedure and that participation in this research was voluntary and anonymous. Furthermore, they were informed about the data protection standards and the possibility to withdraw from participation whenever they wanted. Informed consent of the participants was implied through survey participation.

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**Conflict of interest** The authors declare that they have no conflict of interest.

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