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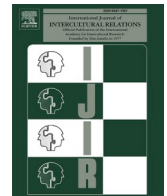
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How do students develop intercultural competence during international mobility?

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ABSTRACT

Developing students' intercultural competence is a key objective of international mobility programs in higher education. While it is widely accepted that studying abroad enhances students' competencies, little is known about the specific conditions and contexts that promote the development of intercultural competence during these experiences. This study draws on survey data from 499 students across five cohorts from a French higher education institution between 2017 and 2021. The analysis includes three distinct measures of intercultural competence and learning, along with a wide range of variables related to the mobility context, processes, personality traits and students' previous international experiences. The data were analyzed using an exploratory partial least squares structural equations model (PLS-SEM). The findings suggest that personality traits such as empathy, attributional complexity, and metacognition, positively influence the development of intercultural competence during international mobility. Additionally, encountering difficulties or conflicts positively impacts intercultural competence when students successfully manage to cope with them and overcome negative emotions. Furthermore, perceived learning from the international experience plays a central and mediating role in explaining both intercultural knowledge and ethnorelativism.

To prepare younger generations for a volatile, uncertain, complex and ambiguous (VUCA) world (Ruesga Rath et al., 2021), intercultural education has gained increasing attention and has been integrated into many student curricula. Intercultural competence is now regarded as a crucial skill in any type of international organization. While initially seen as essential for the adaptation of international managers or expatriates (Black et al., 1991), it is now recognized as a key performance factor for a broader range of roles, such as intercultural team leaders (Hajro & Pudelko, 2010).

Teaching intercultural competence presents notable challenges (Waxin & Barmeyer, 2008). Intercultural management education has shifted its focus from delivering knowledge to examining the conditions for knowledge creation (Szkudlarek et al., 2013). In this context, study abroad programs have become increasingly accessible to higher education students, especially in Europe through the Erasmus program. Such international mobility has been widely encouraged by public education policies due to its contribution to human capital in the contemporary global knowledge economy (Guruz, 2011). Intercultural encounters, which connect individuals from diverse cultural backgrounds, including national cultures (Davel et al., 2008), allow individuals to engage with the core cultural behaviors, values, and assumptions shared within their respective groups (Geertz, 1973). Extended stays abroad, such as expatriation, offer opportunities for profound personal development and learning (Cerdin & Dubouloy, 2004), often surpassing shorter intercultural

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training programs in terms of impact. Numerous studies have explored the effects of international study experiences on students' competencies and values (Deardorff & Van Gaalen, 2012). Recently, [Dolce et al. \(2023\)](#) provided further evidence of the positive impact of Erasmus mobility on students' cultural intelligence and resilience.

In their systematic literature review on international higher education, [Kosmutzky & Putty \(2016\)](#) highlight a gap in research regarding the impact of international student mobility, noting that identifying and measuring this impact is not a priority for many scholars. Consequently, it is difficult to draw general conclusions, as findings often vary across study contexts ([Deardorff & Van Gaalen, 2012](#)).

While international student mobility generally receives positive feedback from students, prospective employers and public institutions, some returning students report that they primarily socialized with peers from their home country, speaking in their native language. International management research has shown that the "quantity" of international experience, such as time spent abroad, does little to explain the development of intercultural competence ([Bartel-Radic, 2014](#)). Moreover, the COVID-19 pandemic has profoundly affected both higher education and international mobility, limiting opportunities for intercultural encounters in person.

This study aims to understand the conditions and experiences under which students develop intercultural competence during international mobility. Sub-research questions raised include how intercultural competence is influenced by 1) the international mobility study conditions such as student group composition and language of instruction, 2) the international mobility experiences including social interaction, difficulties encountered and emotions experienced, and 3) online teaching and "virtual mobility" during the COVID-19 pandemic. To achieve these objectives, we collected survey data from five student cohorts at a French higher education institution between 2017 and 2021, measuring aspects of both their international experience and their intercultural competence. The data analysis employs structural equation modeling, using three distinct measures of intercultural competence and variables associated with the format and dynamics of the international experience. Our findings contribute to research in intercultural education, and offer insights for curriculum design in higher education, especially in designing and preparing international student mobility programs.

Literature review

We first review the literature on the concept of intercultural competence and its components and measures. Second, we take a look at international student mobility and the role of international students' social interactions. Third, we focus on the connections between both fields, i.e. under which conditions international experience and training enhance intercultural competence.

Intercultural competence

Intercultural competence is defined as "the ability to communicate effectively and appropriately in intercultural situations based on one's intercultural knowledge, skills, and attributes" (Deardorff, 2004: 194, cited by [Deardorff, 2006](#)). Over recent decades, a considerable and growing number of contributions, including literature reviews, has explored intercultural competence ([Peng et al., 2020](#)). [Spitzberg and Changnon's \(2009\)](#) presentation of 22 models of intercultural competence highlights the field's diversity in terms of disciplines, terminology, and both scientific and practical goals. The main categories of models include: (1) compositional models, which list the components of intercultural competence, such as knowledge and behavior (e.g., [Deardorff, 2006](#)), which [Hammer \(2015\)](#) refers to as the "CAB paradigm" (cognitive/affective/behavioral paradigm); (2) co-orientational and adaptive models, which focus on communication and interaction between individuals from different cultures (e. g., [Fantini, 1995](#)); and (3) developmental models involving successive levels of competence that can be achieved through learning processes (e. g., [Hammer et al., 2003](#); [Hammer, 2015](#)).

However, this abundance of publications suffers from ambiguous construct definitions and poor integration ([Ang et al., 2007](#)). [Van de Vijver and Leung \(2009\)](#) argue that the heightened interest in intercultural competence has not necessarily led to a deeper understanding of the concept. A striking example is the limited connections between the intercultural competence literature and closely related concepts such as cross-cultural competence, cultural intelligence, and global mindset (for a review, see [Yari et al., 2020](#)). For instance, although [Spitzberg and Changnon's \(2009\)](#) literature review is the most cited contribution on intercultural competence ([Peng et al., 2020](#)), it never mentions the term 'cross-cultural competence', while [Yari et al. \(2020\)](#) review cross-cultural competence without mentioning 'intercultural competence'. Lastly, the concept of cultural intelligence, defined as "the capability to function effectively in culturally diverse settings" ([Ang et al., 2007](#): 335) has "become the focus of a vibrant scholarly conversation" ([Ott & Michailova, 2018](#): 99) but ignores both intercultural and cross-cultural competence. We argue that the constructs of intercultural competence, cross-cultural competence and cultural intelligence are close enough to be treated interchangeably, as they all involve an understanding of intercultural interactions and the ability to adapt behavior accordingly. The definitions of these concepts also largely overlap with the concept of "global mindset" ([Andresen & Bergdolt, 2017](#)).

Most contributions to the field of intercultural competence define the concept through components, interaction processes, or levels. Among these, compositional models dominate the subfield of intercultural competence, an approach shared by cultural intelligence studies. These models roughly align with the "knowledge, skills, abilities, and other personal characteristics" framework ([Caligiuri, 2006](#)), with a particular focus on translating abilities into observable behavior and incorporating specific personality traits and attitudes. For each component, [Spitzberg and Changnon \(2009\)](#) list dozens of (overlapping) elements from the literature, revealing significant conceptual inconsistencies. They argue that "the more a model incorporates specific conceptualizations of interactants' motivation, knowledge, skills, context, and outcomes in the context of an ongoing relationship over time, the more advanced the model" (2009: 44) for understanding intercultural competence. Yet, they also acknowledge "there is a need to provide a more parsimonious model" (2009: 45) than the list of over 300 related terms and concepts they provide. Similarly, [Richter et al. \(2023\)](#)

identified 68 measures of intercultural competence introduced over the past 50 years. Barmeyer and Davoine (2012) criticize that most of these measures adopt an individual approach of intercultural competence, while this last can only be observed in contextualized social interaction.

Components and measures of intercultural competence

The personality traits and attitudes most often cited in the literature as strongly associated with or equivalent to intercultural competence include open-mindedness (or openness), lack of ethnocentrism, sociability (or extraversion), emotional stability, self-confidence, empathy, cognitive (attributional) complexity, and tolerance for ambiguity (e.g., Caligiuri, 2006; Johnson et al., 2006; Spitzberg & Changnon, 2009; Van der Zee & Van Oudenhoven, 2001). Among these, some are stable personality traits, such as openness and extraversion, which are two of the “Big Five”, while others, such as ethnocentrism and empathy, are considered more specific attitudes (Shaffer et al., 2006). Cognitive complexity reflects a thorough, nuanced, and adaptable analysis of the social environment (Porter & Inks, 2000). This concept includes attributional complexity -the tendency to offer simple versus complex explanations of human behavior- and metacognition, or the tendency to reflect on the underlying processes involved in making causal attributions.

More than simply a personality trait associated with intercultural competence, the absence of ethnocentrism can even be considered equivalent to possessing intercultural competence. Neuliep et al. (2005) reference Sumner (1906, p. 13), who introduced the term ethnocentrism and defined it as “the technical name for that view of things in which one’s own group is the center of everything, and all others are measured and evaluated by reference to it”. Consequently, ethnocentric individuals exhibit attitudes and behaviors that favor their ingroup, while displaying bias against outgroups (Neuliep et al., 2005).

This perspective on ethnocentrism as the antithesis of intercultural competence is foundational to the developmental model of intercultural competence (Hammer et al., 2003; Hammer, 2015), which emphasizes the intercultural learning process. This model comprises six stages of intercultural sensitivity, categorized into three ethnocentric stages and three ethno-relative stages. In this context, ethnocentrism represents a deficiency in intercultural competence. Young et al. (2017) found evidence that cultural intelligence negatively predicts ethnocentrism.

The cognitive dimension of intercultural competence, specifically intercultural knowledge, is a construct that has been infrequently, yet increasingly measured objectively in academic research (Bartel-Radic & Giannelloni, 2017; Richter et al., 2023). This measurement often employs the critical incident technique developed by Flanagan (1954). Critical incidents are brief narratives describing intercultural situations and encounters. They are considered critical because they are likely to be interpreted differently by individuals from different cultures, potentially leading to misunderstandings and conflict. Each critical incident is accompanied by several possible responses (typically four), which include interpretations of the situation, possible courses of action, or anticipated outcomes. Responses deemed “incorrect” typically reflect ethnocentric views or stereotypical perceptions of other cultures, while multiple “correct” answers are provided to avoid isomorphic representations of cultures and to emphasize tolerance for ambiguity. Ideally, critical incidents are theory-based (Bhawuk, 2001), i.e. dimensions of culture proposed by Hofstede (2001) and others. Although originally developed for training purposes, critical incidents are also effective tools for measuring intercultural knowledge by capturing the tacit knowledge associated with intercultural competence (Johnson et al., 2006).

International student mobility

Among the various forms of internationalization in higher education, international student mobility has received the most attention and emerged as a priority area of research. The volume of academic publications on this topic has surged, with over 1000 papers published between 2015 and 2018 (Gümüş et al., 2020). The literature is mostly divided into two subfields: one focusing on long-term mobility and the other on short-term mobility or study abroad experiences. Strictly speaking, international student mobility refers to a period of study abroad lasting more than three months, characterized as a “mobility event” within a student’s course of study (Teichler, 2017). Research distinguishes between “horizontal mobility” between countries with similar economic development and higher education institutions of comparable quality, and “vertical mobility” (Teichler, 2017). In their mapping of the international student mobility literature, Gümüş et al. (2020) identified one of the three main clusters that concentrates on the sociocultural, emotional, and academic development of students. A smaller cluster includes scholars such as Hammer et al. (2003) who have mostly explored the links between intercultural competence and sensitivity.

The ability to improve foreign language skills has long been considered the primary benefit of international student mobility (Chak & Makino, 2010). However, the literature has reported several positive outcomes associated with international student mobility, including personal development, cultural awareness, and career advancement (Marcotte et al., 2007; Roy et al., 2019). Research indicates that previously mobile students tend to outperform their non-mobile counterparts in academic, professional, and general competencies, particularly excelling in international competencies, including foreign language proficiency and intercultural competence (Teichler, 2017). Since her seminal work, Deardorff (2006) has emphasized the role of international mobility in the development of students’ intercultural competence.

The role of international students’ social interactions

Social interactions among students during their mobility play a key role in their well-being. Hendrickson et al. (2011) found that international students with a larger network of individuals from the host country reported higher satisfaction and lower levels of

homesickness, while Szabó et al. (2020) observed that contact with individuals from both home and host countries contributed to greater psychological well-being. Different pathways, including social communication in the host country and intercultural transformation, significantly influence the development of international students' intercultural adjustment (Peng & Wu, 2019). Furthermore, students' own cultural intelligence plays a moderating role, mitigating the negative effects of culture shock and reverse culture shock on psychological and sociocultural adaptation (Presbitero, 2016).

Despite this, the influence of social contacts both inside and outside of educational institutions on mobility outcomes and learning remains less understood (Szabó et al., 2020). Even prior to the COVID-19 pandemic, the rapid development of digital technologies prompted scholars to increasingly question the role of "physical" mobility for students and academics. Lawton (2015) pointed to the potential of e-learning to internationalize student curricula, providing "internationalization at home" experiences for non-mobile students. These alternative forms of cross-border higher education are becoming increasingly intertwined with traditional international student mobility. The COVID-19 pandemic drastically altered this landscape in 2020, creating significant emotional challenges for affected international students (English et al., 2022). Lockdowns and travel restrictions required students to develop coping strategies, while campuses were called upon to provide social support to mitigate stress and post-traumatic symptoms. On the other hand, English et al. (2022) noted that international students experienced fewer intercultural conflicts during the Wuhan 2020 lockdown, which contributed to their successful adjustment.

International experience and training as triggers of intercultural competence

International student mobility represents a specific form of international experience, although the latter is rarely well defined. At the individual level, international experience refers to a person's exposure to various national contexts (Hambrick et al., 1998). This exposure involves interactions with other cultures, as well as different political, economic, social, and administrative contexts, and involves engagement with foreign languages. Takeuchi et al. (2005) distinguish between work experience and personal experience (including experiences in the assignee's host country and in other foreign countries). Sommer (2012) identifies five components of international experience: work experience abroad, international education, work experience in an international context or environment, travel to one or more foreign countries, and personal international experience. International experience can therefore be categorized according to the place of acquisition (whether within the home country or in more distant countries), the nature of the experience (professional or private), and the mode or period of acquisition (such as through school, university, or work) (Sommer, 2012).

Intercultural competence is enhanced by international experiences and training (Bartel-Radic, 2014; Caligiuri & Tarique, 2012; Ott & Iskhakova, 2019; Takeuchi et al., 2005). In professional and higher education contexts, three categories of intercultural training are commonly proposed: cognitive (e.g., university lectures), emotional (e.g., cultural awareness and sensitivity seminars), and behavioral content (Waxin & Barneyer, 2008). The latter two categories rely to some extent on intercultural interactions and social contacts. However, cultural knowledge is often not effectively transferred through commonly used training programs, which tend to be ineffective, highlighting the role of tacit knowledge (Lenartowicz et al., 2014). Practical experience is crucial to the individual learning process (Kolb, 1984), highlighting the intrinsic link between experience and competence. Intercultural competence is a complex and difficult skill to acquire, encompassing a simultaneous understanding of one's own culture and that of others, and defined as "the ability to recognize and use cultural differences as a resource for learning and designing effective action in specific contexts" (Friedman & Antal, 2005: 70). Thus, the most important factors in achieving this competence are international experiences and related intercultural interactions.

Given the challenges in defining and measuring intercultural competence, international experience is frequently used as a proxy for intercultural competence in human resource management decisions within professional contexts. However, empirical evidence on how international experience contributes to intercultural competence remains scarce. Caligiuri and Tarique (2012) found that international experience in personal contexts significantly influences three personality traits associated with intercultural competence, with effects ranging from 14 % to 28 %. Paradoxically, both types of international experiences have a negative impact on international leadership performance. Furthermore, Bartel-Radic (2014) reports a very weak average impact of international experience on intercultural competence.

Conditions for intercultural competence development

There is a clear research gap regarding the conditions under which international experience contributes to intercultural competence. Contemporary studies increasingly indicate that it is not the quantity, but the quality -specifically type and nature- of international experience that enhances intercultural competence (Bartel-Radic, 2014; Caligiuri & Tarique, 2012; Ott & Iskhakova, 2019). This aligns with findings in research on global teams, where the level of diversity within a team has no clear or direct effect on team performance; rather, team effectiveness is strongly dependent on the context of teamwork and interaction processes (Horwitz & Horwitz, 2007; Zellmer-Bruhn & Gibson, 2013). The "contact hypothesis" (Allport, 1954) and social learning theory (Bandura, 1977) provide theoretical support for examining how intercultural interaction stimulates intercultural competence (Caligiuri & Tarique, 2012). According to the contact hypothesis (Allport, 1954), direct contact between hostile groups can help reduce negative stereotypes. Both theories emphasize that learning occurs through interactions with people from different cultures.

Conflict can arise during such interactions. It is defined as an interactive process involving disagreement between two or more interdependent parties who perceive dissonant or incompatible preferences, attitudes, and goals (Rahim, 2002). Two core elements of conflict are disagreement and stressful interactions between parties, which can give rise to negative emotions or distress. However,

team conflict can also yield positive outcomes (De Wit et al., 2012). The intensity of the conflict appears to play a crucial role, with moderate levels leading to better outcomes than more intense levels (Lam et al., 2007). Effective conflict management is key to reducing conflict intensity and negative consequences while promoting positive outcomes (Rahim, 2002). Moreover, it also fosters learning and improves organizational effectiveness.

This study aims to understand the conditions and contexts under which students develop intercultural competence during international mobility. Specifically, we ask which personal characteristics, conditions of the international experience and the nature of the intercultural interaction experienced by students impact their intercultural competence at the conclusion of their academic stay. Fig. 1 illustrates the theoretical framework of the study along with the research questions explored.

Method

Our empirical study draws on a unique dataset collected through a survey conducted among students of a French higher education institution in social sciences, Sciences Po Grenoble - UGA. As part of their curriculum, all students at this school are required to participate in a study-abroad program during the second year of their undergraduate degree. Upon completion of this international mobility, we surveyed students to measure their intercultural competence and collected data on various aspects of their study conditions and experiences abroad.

Survey design

Measures of Intercultural Competence

As noted above, intercultural competence cannot be directly observed. Our study includes three different approaches to cultural differences: 1) subjectively perceived learning, 2) ethnorelativism (absence of ethnocentrism), and 3) understanding of intercultural events based on the critical incident technique.

- 1) Perceived learning of intercultural competence during the international mobility was measured with three items on 5-point Likert scales: a) I've learned a lot during the mobility program. b) I'm more open-minded, and more tolerant thanks to this international experience. c) International mobility allows you to learn more than staying in your home country.
- 2) Ethnocentrism was measured using Neuliep and McCroskey's (1997) revised scale of general ethnocentrism (Neuliep et al., 2005). The reliability of the scale was reported to be 0.7 (Cronbach's alpha; Neuliep et al., 2005) and is generally expected to reach 0.8–0.9 in "most cases" (Neuliep & McCroskey, 2013). The scale comprises 22 items, of which 15 are scored. Neuliep and McCroskey (2013) describe it as a unidimensional measure (2013).

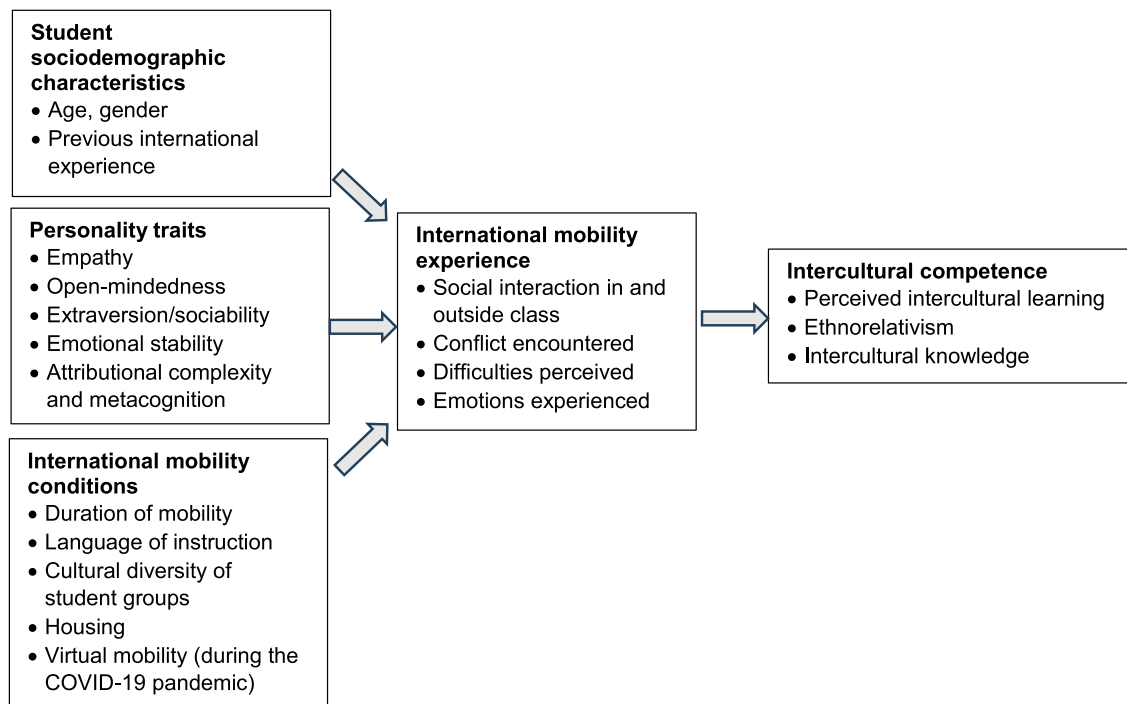


Fig. 1. Theoretical model and aims of the study.

3) Following Bartel-Radic and Giannelloni (2017) (Richter et al., 2023), we also measured intercultural knowledge using the critical incident technique. Four ‘critical incidents’ were developed from the authors’ and fellow researchers’ (all experts in intercultural management) personal experiences as well as their students’ internship reports (#1 to #3), or drawn from a business case (#4; Pelletier, 2010). We aimed to select critical incidents that are nuanced, avoiding stereotypes and overly straightforward responses, while remaining grounded in four different theoretical dimensions of culture (Bhawuk, 2001; Hofstede, 2001) and involving various cultures (see Table 1). An example of a critical incident is included in Appendix A. For each critical incident, four possible interpretations were formulated. During a pilot study with eleven intercultural experts, one response was identified as fully accurate (offering an excellent interpretation of the situation) and at least one response was identified as entirely inaccurate (providing a completely wrong interpretation of the situation). The remaining two responses were often “partly incorrect”. Respondents were then asked to rate all interpretations on a scale of 0–10. For each critical incident, the respondent’s score is based on their rating of the “correct” answer, with higher scores indicating a better the interpretation of the situation. The overall intercultural knowledge score is calculated by adding up the four sub-scores.

Measures of International Experience

The study includes a wide range of variables measuring aspects of the international experience, developed in an exploratory manner. The first set of variables measures international experience prior to the mobility program: we measured the extent of students’ interactions with people from different countries, specifically asking if they had met people from other countries (*interexpe1*), whether they had traveled abroad (*interexpe2*), and whether they had already lived abroad and, if so, in the number of countries and for how long (*interexpe3*). These variables help evaluate the level of international experience that students had prior to their academic stay abroad.

The second set of variables describes the nature of interactions during the year of international mobility. For this purpose, the survey includes questions on the different types of interactions students had with individuals in the host country, including whether they spent significant time on campus (*campus*), formed friendships with students from the host country (*friend1*) or from other foreign countries (*foreign2*), whether they explored the host country’s culture (*cult1*), or participated in intercultural events with other international students (*cult2*). Additional questions evaluate the frequency of group work with students from the host country (*coophost*) or from other countries (*coopother*), the presence of courses taught in English (*eng*), and classes taught by international professors (*internprof*). Students were also asked whether they had shared accommodation with international students (*flat*).

Finally, students were asked to provide information on their emotions and feelings related to their international mobility. Specifically, they assessed conflicts experienced between their moral values and those encountered in other cultures (*conflicult1*) or conflicts during groupwork (*conflicult2*). They also reported to what extent they perceived emotions such as fear, disdain, anger, disgust, and sadness, in one item each. Descriptive statistics for these measures are presented in Appendix B.

Measures of Personality Traits

To measure personality traits and attitudes associated with intercultural competence, we used established scales from the literature. Emotional stability was assessed using the revised “NEO-FFI” (Neo Five Factor Inventory; Costa & McCrae, 1992) as adapted by Bartel-Radic (2014) with 5 items. Self-confidence was measured using the Davis and Rubin (1983) scale, consisting of 6 items. For communication skills, we applied the revised version of Hogan and Hogan’s (1992) “HPI” sociability scale, also adapted by Bartel-Radic (2014), with 3 items. Empathy, defined as the “tendency to take the psychological perspective of others,” was measured with Davis’ (1983) 7-item scale. Cognitive complexity, reflecting a thorough, complex and flexible analysis of the social environment, was measured using Porter and Ink’s (2000) construct of attributional complexity, encompassing six factors. We selected three of these factors as relevant to intercultural competence and included the 15 corresponding items in the survey: 1) the tendency to give simple versus complex explanations of human behavior, 2) metacognition, or the tendency to reflect on the underlying processes involved in causal attributions, and 3) motivation to understand human behavior. Open-mindedness was measured with Bartel-Radic’s (2014) 4-item scale, while ethnocentrism was measured using Neuliep’s (2002) generalized ethnocentrism scale. Altogether, 55 items measuring personality traits and attitudes were included in the survey. Participants were asked to rate themselves on a scale of 1–5 for each item, with higher scores reflecting a stronger alignment with the trait or attitude.

Data collection and sample

The online survey was administered to students at the end of their international mobility, each year from 2017 to 2021. Each student cohort consisted of approximately 200 students, resulting in a total population of approximately 1000 students over the five

Table 1

Cultures concerned by the critical incidents used in the survey.

Critical incident number	Main national culture concerned*	Other national culture concerned**	Main cultural dimension included
1	India	Czech Republic	Power distance
2	Argentina	Denmark	Monochronism/polychronism
3	Singapore	United Kingdom	Individualism/collectivism
4	Germany	France	Universalism/particularism

* Knowledge of this culture is essential to answer the critical incident correctly.

** Knowledge of this culture is helpful but not essential to answer the critical incident correctly.

years of the study. A total of 499 students responded to the survey, resulting in an average response rate of nearly 50 %. The annual distribution of the sample is shown in [Table 2](#). The international mobility duration ranged from 4 to 14 months, with an average of 10 months. The respondents' average age was 20 years, and 68 % were female (see [Appendix B](#)), aligning closely with the broader student demographics of the school.

Data analysis with PLS-SEM

Structural equation modelling (SEM) is a multivariate statistical approach for investigating complex relationships between observed and latent variables. It is a well-established tool for analysing complex models in social sciences research. For many years, covariance-based SEM (CB-SEM) dominated this field ([Hair et al., 2019; Ringle et al., 2020](#)). However, since 2010, partial least squares SEM (PLS-SEM) has gained increasing popularity in management research ([Hair et al., 2019](#)). This shift is due to several advantages offered by PLS-SEM, including soft distributional data assumptions, small sample size requirements, flexibility in using different measurement models, and its exploratory rather than confirmatory approach ([Chin, 2010; Hair et al., 2019](#)). Given the exploratory nature of our research and the complexity of the relationships involved, PLS-SEM is therefore an appropriate method for evaluating our model. The data analysis was conducted using SMART-PLS 3 software.

Measurement model assessment

In social science research, measurement models are generally categorized into two types: reflective and formative. In reflective measurement models, the construct influences the indicators directly, meaning that the indicators reflect the underlying construct and may include measurement errors. Here, loadings signify the strength of the relationship between each indicator and the underlying construct ([Sarstedt et al., 2017](#)). In a formative measurement model, constructs are defined by items, with the underlying construct represented as a linear combination of a set of indicators. As a result, the relationship flows from the indicators to the construct ([Legate et al., 2021; Petter et al., 2007; Sarstedt et al., 2017](#)). However, constructs are not inherently formative or reflective; rather, the researcher determines the appropriate measurement model ([Diamantopoulos, 2011](#)). This choice is an important step in the research process ([Diamantopoulos & Winklhofer, 2001; Ringle et al., 2020](#)).

To verify assumptions of linear relationships, we used the correlation matrix. Indicators with low correlation levels were designed as formative measures. Additional criteria to identify formative measures include the direction of causality (from measures to construct), the degree of indicator interchangeability, the extent of covariation among indicators, and the nomological network of construct indicators ([Petter et al., 2007](#)).

To construct the reflective measures, we applied an exploratory factor analysis using SPSS (V25). Sampling adequacy was checked using the Kaiser-Meyer-Olkin measure ($KMO > 0.7$), alongside Bartlett's test of sphericity (statistical significance $p < .001$). Dimensionality was assessed based on the Kaiser criterion (eigenvalue > 1). For multidimensional measures, Oblimin rotation was used to maximize loadings and assess correlations between the resulting factors.

As a result, ten reflective latent variables were identified: Perceived Learning, Attributional Complexity, Negative Emotions, Empathy, International Experience, Emotional Instability, Metacognition, and Ethnocentrism 1, 2, and 3). In addition, five formative latent variables were identified: French Classmates, Conflicts, Perception of Differences, Work Abroad, and Intercultural Knowledge. Given the exploratory nature of our research, two additional latent variables, Degree of On-site Learning, and Life on Campus, were included in the analysis with single indicators.

Reflexive measurement model assessment

Since formative and reflective measures differ significantly, distinguishing between reflectively and formatively specified constructs is essential when evaluating measurement models ([Ringle et al., 2020](#)). The evaluation of reflective measurement models relies on three dimensions: internal consistency, convergent validity, and discriminant validity ([Hair et al., 2016; Sarstedt et al., 2017](#)).

Cronbach's alpha is the traditional criterion for assessing internal consistency, estimating reliability based on intercorrelations among observed indicator variables ([Hair et al., 2016](#)). However, it has some limitations, such as sensitivity to the number of indicators, and an assumption that indicators are equally reliable. Jöreskog's Composite Reliability (CR) evaluates reliability by considering indicator loadings, yet it may overestimate reliability in PLS-SEM due to the assumption of parameter precision. [Dijkstra and Henseler \(2015\)](#) proposed a more consistent reliability coefficient, Rho A, specifically for PLS. For all these tests, reliability should ideally be above 0.70 and below 0.95 ([Dijkstra & Henseler, 2015; Hair et al., 2016; Ringle et al., 2020](#)).

In [Table 3](#), all latent variables except for Attributional Complexity and Ethnocentrism 1 have acceptable values for Cronbach's alpha, Rho A, and Composite Reliability (CR). While these two latent variables recorded values below 0.7 for Cronbach's alpha and

Table 2
Sample distribution per year.

Year	Sample size	% of total number of students
2017	91	46
2018	133	67
2019	113	57
2020	70	35
2021	92	46

Table 3
Construct reliability and validity.

	Cronbach's Alpha	Rho A	Composite Reliability CR	AVE
Perceived Learning	0.735	0.764	0.849	0.654
Attributional Complexity	0.608	0.602	0.789	0.556
Negative Emotions	0.773	0.778	0.854	0.595
Empathy	0.744	0.754	0.837	0.562
International Experience	0.764	0.797	0.862	0.676
Emotional Instability	0.838	0.846	0.903	0.756
Meta-Cognition	0.850	0.858	0.889	0.572
Ethnocentrism 1	0.581	0.643	0.821	0.698
Ethnocentrism 2	0.869	0.873	0.911	0.719
Ethnocentrism 3	0.877	0.897	0.902	0.572

Rho A, they maintained acceptable CR values. However, given the exploratory nature of our study, these values have been deemed acceptable, and the latent variables therefore retained.

Convergent validity: The standardized loadings of the indicators should exceed 0.70, indicating that the construct accounts for more than 50 % of the variance in the indicator, thereby demonstrating satisfactory reliability (Chin, 2010; Ringle et al., 2020; Sarstedt et al., 2017). Consequently, any indicators with loadings below this threshold were removed during the measurement process.

Another test involved the Average Variance Extracted (AVE), which should exceed 0.5 (Hair et al., 2016; Ringle et al., 2020). This indicates that the construct accounts for 50 % or more of the variance of the indicators (Chin, 2010). As shown in Table 3, all latent variables meet this criterion, with AVE values greater than 0.5, indicating acceptability.

Discriminant validity: Discriminant validity aims to determine whether one construct is genuinely distinct from another. Various methods and definitions can be used to assess discriminant validity (Rönkkö & Cho, 2022). According to Rönkkö and Cho (2022, p. 11), “Two measures intended to measure different constructs have discriminant validity if the absolute value of the correlation between the measures, after correction for measurement error, is low enough for the measures to be considered measures of different constructs.” One approach to evaluate this is by examining cross-loadings, where each measure should have a strong correlation with its corresponding construct (i.e., high loading with the measured construct) and weaker correlations with other constructs (i.e., low loadings with other constructs; Chin, 2010; Hair et al., 2016). In our analysis, the cross-loading test indicates acceptability; for each latent variable, the loadings for each indicator exceeded 0.7, while loadings with other latent variables are low (see Appendix C: Cross Loadings).

The Fornell-Larcker criterion evaluates discriminant validity by comparing the square root of the Average Variance Extracted (AVE) values with the correlations between latent variables. Specifically, the square root of each construct’s AVE should exceed its highest correlation with any other construct (Hair et al., 2016). The Fornell-Larcker criterion is met for the measures used in this

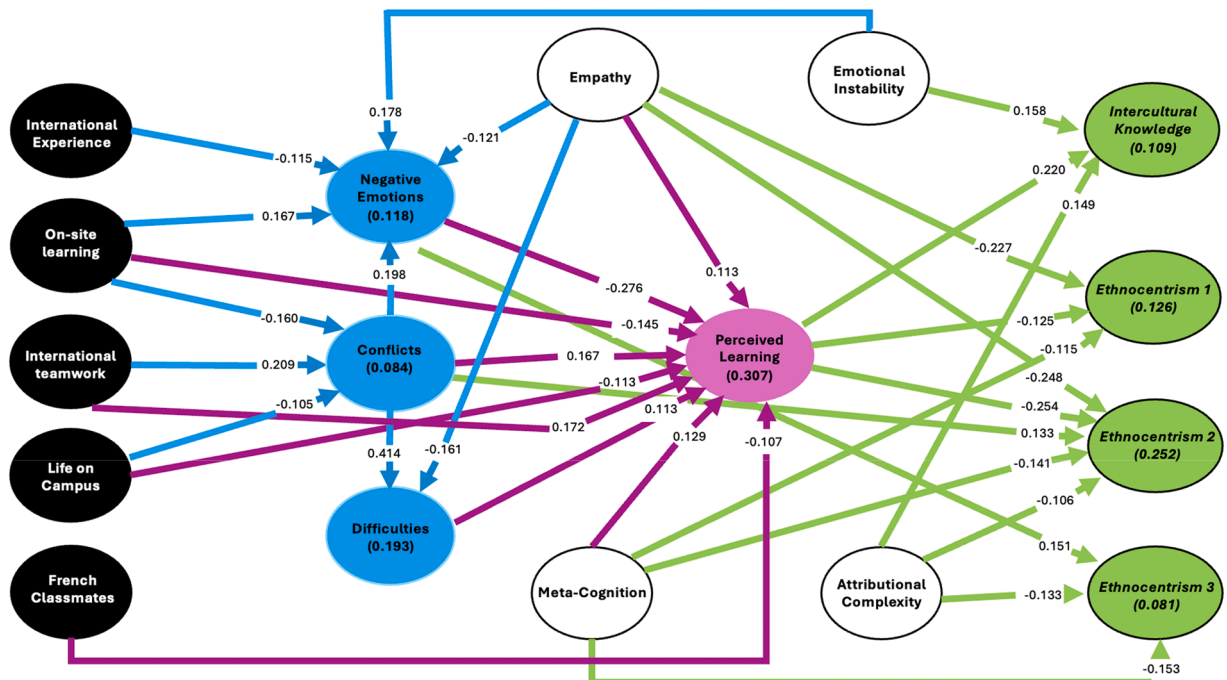


Fig. 2. Structural equations model (PLS-SEM).

research model (see [Appendix D: Fornell-Larcker Criterion](#)). However, [Henseler et al. \(2015\)](#) indicated that this criterion may inadequately identify discriminant validity issues. They recommend using the heterotrait-monotrait ratio (HTMT) of the correlation criterion instead. The HTMT represents the ratio of between-trait correlations to within-trait correlations, with a threshold of 0.85 suggested for assessing discriminant validity ([Hair et al., 2016, 2019](#); [Henseler et al., 2015](#)). The results of the analysis are consistent with this criterion ([Appendix E: HTMT Criterion](#)).

The criteria used for reflective measurement models are not applicable to formative models. Evaluating formative measurement models involves three steps: assessing convergent validity, examining collinearity problems, and determining the significance and relevance of the formative indicators ([Hair et al., 2016](#); [Ringle et al., 2020](#)).

Findings

This exploratory research proposes a complex model linking international mobility with intercultural learning and competence (see [Fig. 2](#)). The model incorporates four groups of variables: first, on the left in black, are five latent variables associated with the conditions of international mobility. Next, in blue, are three variables related to socio-emotional processes, including negative emotions, perception of differences, and conflict. At the top and bottom of [Fig. 2](#), four personality traits (empathy, emotional stability/instability, metacognition, and attributional complexity) are highlighted in white. Finally, in the center and right of [Fig. 2](#), are the three measures of intercultural competence, represented in purple and green, which include perceived learning, intercultural knowledge, and three dimensions of ethnocentrism. The model retains only those constructs that significantly influenced at least one of the three measures of intercultural competence and learning in our data. Thus, several items and constructs from each group of independent or moderating variables (conditions of international mobility, socio-emotional processes, personality traits, and gender) that did not demonstrate relevance were excluded.

First, we examine how mobility conditions and socio-emotional processes shape students' experiences. Second, we analyze the impact of individual student characteristics. Third, we focus on learning outcomes, particularly the mediating role of perceived learning on intercultural knowledge and ethnocentrism. See [Appendix F](#) for details describing the path coefficients in [Fig. 2](#).

The influence of international mobility conditions

International experience prior to students' international mobility shows a negative effect on only one other variable, negative emotions (-0.115). In other words, the greater the students' prior international experience, the fewer negative emotions they experienced during mobility.

Independent of the COVID-19 pandemic, three aggregate variables related to the conditions and organization of international mobility influence socio-emotional processes and perceived learning: working with international students, living on campus, and having mostly French classmates. Teamwork with international students increased both intercultural conflicts (0.209), and perceived learning (0.172). In contrast, spending the majority of time on campus was associated with reduced conflicts (-0.105) and lower perceived learning (-0.113). Similarly, having primarily French classmates was linked to a decrease in perceived learning (-0.107).

Two of the five cohorts participating in the study were affected by the outbreak of the COVID-19 pandemic: the 2019–2020 cohort approximately two-thirds into their international mobility, and the 2020–2021 cohort throughout the entire year. Based on student-reported information about their mobility conditions (e.g., no mobility but an "international semester" at their home university; online courses from an international host university but evaluated while remaining in their home country; online courses from an international host university with some mobility to the host country; or "full" international mobility with on-site lectures at the host university), we calculated an indicator to reflect the degree of "on-site learning" (set at 100 % for the first three cohorts unaffected by the pandemic). Our analysis shows that on-site learning reduces conflict (-0.160), but increases negative emotions (0.167), including irritation, disgust, contempt, and sadness. Interestingly, on-site learning also negatively impacts perceived learning (-0.145).

The role of international mobility dynamics

The three mobility conditions variables mentioned above (on-site learning, working with international students, and living on campus) account for 8.4 % of perceived conflict. In turn, experiencing conflict amplifies two other variables of mobility dynamics: negative emotions (0.198) and difficulties in adapting to cultural differences (0.414). Conflict also has a dual effect, positively influencing perceived learning (0.167), but also heightening the second dimension of ethnocentrism (0.133), which includes variables indicating students' resistance to confronting cultural and other differences. This variable obviously encompasses various types of conflicts, which can lead to either positive outcomes (such as learning) or negative effects (like difficulties in adapting to cultural differences, negative emotions, and ethnocentrism). Our model explains up to 19.3 % of the variance in students' difficulties in understanding cultural differences. However, similar to conflicts these adaptation challenges have a positive impact on perceived learning (0.113).

Our model explains up to 11.8 % of students' negative emotions ($R^2 = 11.8\%$). Unlike conflict, which can have positive outcomes, negative emotions have only negative consequences: they reduce perceived learning (-0.276) and intensify the third dimension of ethnocentrism (0.151), which includes variables on the perceived superiority of students' home culture.

Personality traits related to intercultural competence

The survey included measures for individual personality traits linked to intercultural competence as cited in the literature. Four traits were found to have significant relationships with other constructs in our model: metacognition, attributional complexity, empathy, and emotional stability. Among these, empathy and emotional stability show some influence on the “dynamic” variables of international mobility. Both empathy and emotional stability contribute to reducing negative emotions (empathy: -0.121 ; emotional instability: 0.178). In addition, empathy reduces difficulties in adapting to cultural differences (-0.161). However, emotional stability has a negative effect on intercultural knowledge (emotional instability: 0.158).

Metacognition, or the tendency to reflect on the underlying processes involved in causal attributions, positively impacts perceived learning (0.129) and negatively affects all three dimensions of ethnocentrism (-0.115 ; -0.141 ; -0.153). Similarly, attributional complexity shows a positive effect on intercultural learning (0.149) and a negative effect on the second and third dimensions of ethnocentrism (-0.106 ; -0.133).

Overall, our results confirm positive relationships between the four traits and intercultural competence. However, no significant relationship was found for the other personality traits measured in the survey, such as self-confidence, openness, communication skills, sociability, or the motivation to understand human behavior, one of the three dimensions of attributional complexity considered.

The mediating role of perceived intercultural learning

The last section of the results focuses on intercultural learning outcomes across the three dimensions included in the study: perceived learning, intercultural knowledge, and (the absence of) ethnocentrism. Intercultural knowledge is explained by two traits – emotional instability (0.158) and attributional complexity (0.149) – while it is primarily influenced by perceived learning (0.220), the three dimensions for 10.9% of the variance.

The first dimension of ethnocentrism, characterized by a lack of respect for other cultures, is explained by two traits – empathy (-0.227) and metacognition (-0.115) – as well as by perceived learning (-0.125), accounting for 12.6% of the variance. The second dimension, related to the refusal to confront cultural differences, is explained by five variables, accounting for 25.2% of the variance. Four of these negatively influence this dimension: perceived learning (-0.254), empathy (-0.248), metacognition (-0.141), and attributional complexity (-0.106). Conversely, experiencing conflicts increases the refusal to confront cultural differences (0.133). The third dimension of ethnocentrism, reflecting the perception of one’s own culture as superior, is less well explained by the model, accounting for only 8.1% of the variance. This dimension is increased by negative emotions experienced during international mobility (0.151), but decreased by metacognition (-0.153) and attributional complexity (-0.133).

Perceived learning accounts for 30.7% of the model, through nine variables related to the conditions and dynamics of international mobility, as well as two traits: metacognition (0.129) and empathy (0.133). Among the conditions, working with international students increases perceived learning (0.172), while local learning (-0.145), living on campus (-0.113) and having mainly French classmates (-0.107) reduce it. The variables most significantly influencing perceived learning fall under international mobility dynamics: negative emotions significantly decrease perceived learning (-0.276), while the experience of conflict (0.167) and difficulties related to cultural differences (0.113) increase it.

It is noteworthy that each variable related to mobility conditions is related to both intercultural knowledge and ethnocentrism. Likewise, the variables pertaining to international mobility dynamics variables show only weak relationships with one dimension of ethnocentrism and no correlation with intercultural knowledge. Notably, the model reveals that perceived learning plays an important mediating role in the relationship between the conditions and dynamics of international mobility and both intercultural knowledge and ethnocentrism. Perceived learning is the variable that most significantly influences intercultural knowledge and the acceptance of cultural differences (ethnocentrism 2). However, the aspects of ethnocentrism associated with respect and equal valuation of other cultures are more strongly influenced by personality traits and emotional factors.

Discussion

Intercultural learning through positive conflict management

The main theoretical contribution of these findings lies in their support for social learning theory (Bandura, 1977), which posits that international experience improves intercultural competence. This supports the contact hypothesis (Allport, 1954), suggesting that interaction between hostile groups can mitigate negative stereotypes. One possible interpretation of these results is that “emotional instability” expresses the consequences of these negative emotions on students’ feelings. This finding is consistent with the variables that explain intercultural learning in global teams (Bartel-Radic, 2006), including long-term interaction and conflict among peers. Conflict is recognized as “one of the most important engines of change” (Deschamps & Devos, 1993: 27) as a specific form of interaction involving both deconstructing and restructuring of perspectives. Although negative interpersonal emotions are often temporary and do not fundamentally change people’s thinking, conflict can heighten awareness of underlying issues. Research shows that conflict in top management teams can have valuable consequences (Eisenhardt et al., 1997), and is even more likely in diverse teams (Kochan et al., 2003). Cultural diversity brings a wide variety of values, behaviors, and working styles, often leading to conflicts as a natural consequence. The learning process for developing intercultural competence begins with acknowledging the existence of cultural differences (Bennett & Paige, 1986), and the conflicts and intense negative emotions experienced during international mobility can catalyze this learning process.

Insights into measuring intercultural competence

This study incorporates three measures that are considered in the literature to be related to intercultural competence. The first measure focuses on personality traits, which are viewed here not as outcomes but as antecedents of intercultural competence and learning. The second measure involves the concept of ethnocentrism, which, according to the developmental approach to intercultural competence (Hammer, 2015), is considered as the absence of this competence, in contrast to ethnorelativism. We used Neuliep, (2002) scale of ethnocentrism, which we found to have three dimensions: 1) disrespect for other cultures, 2) unwillingness to confront cultural differences, and 3) the belief that one's own culture is superior. While the second dimension maintains a more neutral stance, the first and third dimensions are heavily judgment-laden. Our study therefore contributes to a better understanding of how the various facets of ethnocentrism can include both motivational and judgmental components.

The third measure of intercultural competence is grounded in the critical incident technique, which offers a methodological innovation for studying intercultural competence through the lens of intercultural knowledge (Bartel-Radic & Giannelloni, 2017). Our results confirm the authors' findings that intercultural knowledge is only weakly related to other elements of intercultural competence, especially personality traits. Among these, only attributional complexity positively influences intercultural knowledge, while emotional stability exhibits a negative effect. While emotional stability may facilitate effective intercultural communication in real-life situations, it appears to hinder a good understanding of cultural differences in written scenes that lack direct emotional engagement from the respondent.

We added an exploratory measure of subjectively perceived learning, which extends beyond intercultural competence to encompass broader learning gained through international mobility. Our findings showed that this subjectively perceived learning is a central, mediating variable in the development of intercultural competence.

Contributions to international mobility curriculum design

This study offers empirical insights for designing student curricula related to international mobility. While such experiences clearly improve students' intercultural competence, this improvement does not occur under all circumstances. For instance, placing students in an international campus with many other peers from their home country is detrimental to their learning experience and may even reinforce ethnocentrism. Therefore, collaboration and teamwork with students from the host or other international students from third countries should be actively encouraged in order to facilitate for intercultural learning. It is essential that students be confronted with challenging situations and conflicts; however, these experiences should be carefully monitored and the students supported to avoid negative emotions. Conflict situations can provide valuable opportunities to observe differences between home and host country cultures, thereby enhancing intercultural learning.

The COVID-19 pandemic has forced many universities worldwide to shift to online teaching, thus reducing interpersonal contact. However, our findings indicate that this transition did not negatively impact students' intercultural learning. Therefore, it is certainly worthwhile to maintain international mobility opportunities, even if they are conducted in a "virtual" format.

Conclusion

Our survey study of 499 French students aimed to explore the contexts and conditions under which their international mobility enhances intercultural competence. The results show that personality traits such as empathy, emotional stability, attributional complexity, and metacognition promote the development of intercultural competence. Furthermore, experiencing difficulties and conflicts has a positive influence on intercultural competence when students effectively manage these challenges and overcome negative emotions. In addition, perceived learning from international experiences plays a central and mediating role in explaining intercultural knowledge and ethnorelativism.

This study's limitations lie in the exploratory nature of certain measures, such as those related to emotions experienced and conflicts encountered. Similarly, the measure of intercultural knowledge may be open to discussion due to the limited number of critical incidents and the ranking of responses as part of a pilot study. Additionally, the outbreak of the COVID-19 pandemic during the international mobility of the fourth cohort we studied necessitated the additional survey items related to the pandemic's impact on student mobility and the use of online instruction in addition to or instead of traditional face-to-face instruction. Unfortunately, it was not possible to complete the three earlier data subsets with these variables on online teaching, and we assumed that lectures were conducted in an entirely face-to-face format until 2019. This assumption may have introduced some bias into our findings. Surveying a student population from a single institution presents both strengths and limitations: while the homogeneity of the sample helps minimize bias and illustrates the relevance of specific conditions and dynamics of international mobility, further research is needed to generalize these results to other student populations and contexts.

We believe that promising avenues for future research include exploring the role of emotions and students' conflict management behaviors. Additionally, an important research perspective lies in examining the consequences of international experience and intercultural competence on academic performance (such as grades and diploma attainment), as well as their impact on employability and career trajectories.

CRedit authorship contribution statement

Anne Bartel-Radic: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Alain Cucchi:** Software, Methodology, Data curation.

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Declaration of Competing Interest

None

Appendix A. Example of a “critical incident”

Tomas, a student from Czech Republic, worked for some time behind the bar of an Indian Members Club in London, together with an Indian guy called Ali. One day, the waitress got an order wrong, with the result that the customer did not receive what he wanted. Just at the time when the customer was complaining about this, the manager of the club entered, and he started reprimanding Tomas and Ali for the mistake that had been made. Tomas replied to the manager that he had better get the full story and the facts straight before jumping to conclusions, and that it was not really their fault. But Ali did not say anything to support him. After the manager had left, Ali turned to Tomas and said ‘how could you talk like this to the boss?’ In fact, Ali seemed to be madder with Tomas than with the way the boss had treated them. Why did Ali react like this?

Out of the following explanations, which one is the most appropriate, according to you?

-
- Ali did not like Tomas' excuse that it was not his fault; he believes all workers should take responsibility for the teamwork regardless who made the mistake.
- Ali wanted Tomas to apologize so that the customer would calm down.
- Ali is not a team player, he was not supportive when Tomas discussed with the boss.
- Ali believes that Tomas will be dismissed because he has argued with the boss.
-

Appendix B. Descriptive statistics of the variables measuring international experience

Variable	Definition	Mean	Min	Max	Stand. Dev
<i>gender</i>	1 if female, 0 male	0.68	0	1	
<i>age</i>	Unit: years	20	18	25	0.95
<i>interexpe1</i>	Has met people from other countries before the int. mobility	3.69	1	5	1.01
<i>interexpe2</i>	Has travelled abroad before the international mobility	3.83	1	5	1.08
<i>interexpe3</i>	Has lived abroad before the international mobility	2.64	1	5	1.41
<i>Campus</i>	Has spent their time on the university campus	2.17	1	5	1.33
<i>friend1</i>	Had friendly relations with students from the host country	3.42	1	5	1.35
<i>friend2</i>	Had friendly relations with int. students from third countries	2.74	1	5	1.37
<i>cult1</i>	Has tried to discover the host country's culture	4.23	1	5	0.88
<i>cult2</i>	Has participated in cultural events with other int. students	3.27	1	5	1.29
<i>Flat</i>	Flat sharing with int. students	3.81	1	5	1.60
<i>cult3</i>	Has visited local organizations or companies	1.89	1	5	1.18
<i>Coophost</i>	Group work with students from the host country	3.06	1	5	1.36
<i>Coopother</i>	Group work with int. students from third countries	2.78	1	5	1.44
<i>Internprof</i>	Teaching by international professors from third countries	2.21	1	5	1.28
<i>Conflict1</i>	Has experienced conflict because of differences in moral values	2.71	1	5	1.34
<i>Conflict2</i>	Has experienced conflict during group work with int. students	1.91	1	5	1.24
<i>Emotion 1</i>	Has experienced fear	1.90	1	5	0.95
<i>Emotion 2</i>	Has experienced anger	1.88	1	5	1.08
<i>Emotion 3</i>	Has experienced disgust	1.30	1	5	0.76
<i>Emotion 4</i>	Has experienced sadness	2.10	1	5	1.12
<i>Emotion 5</i>	Has experienced disdain	1.56	1	5	0.95

For most items, a scale from 1 to 5 was used with 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often.

Appendix C. Cross loadings

Measure Type (R: Reflexive; F: Formative; U: Unique)	R	F	R	F	U	F	R	R	R	F	R	R	R	R	U	R	F
Latent Variable/ Indicators	Perceived Learning	French Classmates	Attrib. Complexity	Conflicts	On-site learning	Difficulties	Negative Emotions	Empathy	Internat. Experience	Intercult. Knowledge	Emotional Instability	Ethnocentrism 1	Meta-Cognition 2	Ethnocentrism	Life on Campus 3	Ethnocentrism	Internat. Teamwork
LearnLot	0.86	-0.19	0.13	0.26	-0.25	0.11	-0.26	0.22	0.11	0.19	-0.02	-0.25	0.20	-0.14	-0.10	-0.08	0.25
LearnMore	0.70	-0.14	0.06	0.13	-0.08	-0.01	-0.19	0.11	0.14	0.15	-0.02	-0.24	0.18	-0.13	-0.11	-0.19	0.18
LearnOpen	0.85	-0.10	0.13	0.25	-0.22	0.11	-0.25	0.19	0.05	0.23	-0.01	-0.28	0.21	-0.22	-0.11	-0.16	0.23
FrenchFriends	-0.15	0.84	-0.07	-0.10	0.06	0.03	0.06	-0.08	-0.02	-0.04	0.04	0.04	-0.11	0.01	0.01	0.05	-0.03
FrenchClassmates	-0.14	0.80	-0.02	-0.05	-0.04	0.06	0.11	-0.06	-0.06	0.02	0.02	0.08	-0.05	0.00	-0.03	0.01	0.00
COMP3reverse	0.04	-0.05	0.77	-0.01	-0.01	-0.01	-0.07	0.09	-0.08	0.13	0.09	-0.15	0.16	-0.10	0.02	-0.10	-0.01
COMP4reverse	0.09	-0.02	0.74	0.04	-0.01	-0.02	-0.06	0.14	-0.11	0.14	0.11	-0.14	0.20	-0.07	-0.02	-0.13	0.00
META8reverse	0.16	-0.06	0.73	0.11	-0.05	0.05	-0.02	0.13	0.04	0.17	0.08	-0.18	0.30	-0.13	0.03	-0.18	0.08
ConflictValues	0.24	-0.12	0.07	0.84	-0.14	0.39	0.17	0.02	0.09	0.14	0.05	-0.01	0.13	0.08	-0.11	0.08	0.05
ConflictWork	0.21	-0.03	0.05	0.83	-0.15	0.29	0.09	0.04	0.09	0.11	0.01	0.06	0.07	0.02	-0.04	0.04	0.33
MobCovid2	-0.24	0.02	-0.03	-0.18	1.00	-0.11	0.14	0.02	-0.11	-0.05	0.00	0.05	-0.02	0.02	-0.07	-0.01	-0.10
DiffAdmin	-0.05	-0.01	-0.07	0.13	0.04	0.29	0.25	-0.05	0.01	0.00	0.02	0.01	0.03	0.07	-0.22	0.10	-0.14
DiffFood	0.15	-0.03	-0.02	0.22	-0.18	0.58	0.03	-0.08	-0.02	0.09	-0.01	0.01	-0.02	0.00	-0.03	0.05	0.07
DiffGreet	0.09	0.02	0.04	0.28	-0.07	0.66	0.16	-0.05	-0.01	0.11	0.01	0.08	0.02	0.05	0.00	0.03	0.04
DiffHumor	0.05	0.06	0.02	0.29	-0.07	0.69	0.26	-0.09	0.06	0.04	0.04	0.06	-0.03	0.03	-0.02	0.14	-0.06
DiffOrientation	0.10	0.08	0.02	0.24	-0.01	0.56	0.18	-0.03	0.08	0.03	0.06	0.05	-0.03	-0.02	-0.07	0.02	0.01
DiffReligion	-0.05	0.03	-0.01	0.18	-0.06	0.48	0.13	-0.18	0.03	-0.04	0.05	0.22	-0.09	0.15	-0.09	0.13	-0.04
Disdain	-0.19	0.11	-0.02	0.15	0.05	0.23	0.74	-0.10	-0.15	0.00	0.20	0.18	0.04	0.08	0.09	0.05	0.00
Disgust	-0.25	0.11	-0.06	0.11	0.10	0.25	0.80	-0.07	-0.04	-0.03	0.09	0.17	-0.03	0.10	-0.04	0.15	-0.06
Anger	-0.24	0.05	-0.09	0.15	0.11	0.25	0.81	-0.10	-0.10	0.03	0.14	0.19	-0.08	0.11	0.01	0.21	-0.11
Sadness	-0.21	0.05	-0.03	0.07	0.17	0.12	0.74	-0.11	-0.11	0.03	0.16	0.15	-0.02	0.07	0.11	0.08	-0.09
EMPA1	0.15	-0.08	0.13	0.01	0.01	-0.15	-0.09	0.80	0.13	0.12	-0.01	-0.29	0.34	-0.27	0.05	-0.13	0.06
EMPA2	0.17	-0.06	0.04	-0.07	0.04	-0.23	-0.13	0.79	0.06	0.08	-0.06	-0.29	0.34	-0.21	0.02	-0.13	0.01
EMPA3	0.13	-0.04	0.10	0.06	0.02	0.01	-0.06	0.69	0.03	0.05	-0.04	-0.20	0.35	-0.17	0.02	-0.12	0.11
EMPA6	0.20	-0.06	0.20	0.11	-0.01	-0.04	-0.08	0.72	0.04	0.14	0.06	-0.35	0.45	-0.27	0.00	-0.16	0.12
InternatExp1	0.11	-0.10	-0.05	0.11	-0.10	0.02	-0.11	0.12	0.86	0.04	-0.04	-0.11	0.08	-0.04	-0.06	0.05	0.09
InternatExp2	0.11	-0.02	-0.04	0.07	-0.10	0.06	-0.12	0.07	0.86	0.04	-0.01	-0.09	0.03	-0.07	-0.08	0.00	0.03
InternatExp3	0.06	0.00	-0.05	0.09	-0.06	0.04	-0.08	0.03	0.74	0.01	-0.01	-0.02	-0.01	-0.02	0.03	0.02	0.02
evalTomas1	0.11	-0.03	0.13	0.11	0.01	0.07	0.10	0.13	-0.02	0.56	0.11	-0.06	0.16	-0.05	0.12	-0.05	-0.01
evalJack1	0.12	-0.05	0.02	0.16	-0.03	0.07	0.07	0.12	0.06	0.33	0.05	-0.14	0.09	-0.19	0.01	-0.11	-0.06
evalStephan1	0.14	-0.01	0.14	0.05	-0.01	-0.02	0.02	0.15	-0.02	0.56	0.05	-0.21	0.12	-0.19	-0.12	-0.18	0.02
evalparking1	0.22	0.00	0.14	0.15	-0.07	0.08	-0.03	0.07	0.09	0.86	0.16	-0.11	0.07	-0.10	-0.04	-0.12	0.06
Instability1	-0.04	0.00	0.14	0.04	-0.02	0.03	0.16	0.01	-0.01	0.12	0.84	0.01	0.15	0.07	0.05	0.01	-0.03

(continued on next page)

(continued)

Measure Type (R: R Reflexive; F: Formative; U: Unique)	R	F	R	F	U	F	R	R	R	F	R	R	R	R	R	U	R	F
Latent Variable/ Indicators	Perceived Learning	French Classmates	Attrib. Complexity	Conflicts	On-site learning	Difficulties	Negative Emotions	Empathy	Internat. Experience	Intercult. Knowledge	Emotional Instability	Ethnocentrism 1	Meta- Cognition 2	Ethnocentrism	Life on Campus 3	Ethnocentrism	Internat. Teamwork	
Instability2	-0.03	0.05	0.12	0.04	0.00	0.07	0.17	-0.02	-0.02	0.16	0.92	0.00	0.15	-0.01	0.06	-0.05	-0.03	
Instability4	0.01	0.04	0.07	0.01	0.01	0.04	0.16	-0.02	-0.03	0.16	0.86	-0.02	0.16	-0.01	0.02	-0.05	0.00	
ETHNO12	-0.28	0.05	-0.16	-0.03	0.03	0.05	0.14	-0.32	-0.12	-0.17	0.01	0.81	-0.23	0.37	0.09	0.30	-0.02	
ETHNO13	-0.28	0.05	-0.18	0.04	0.02	0.14	0.20	-0.29	-0.06	-0.13	0.00	0.83	-0.27	0.39	0.13	0.39	-0.06	
ETHNO14	-0.28	0.09	-0.20	0.04	0.06	0.13	0.22	-0.33	-0.10	-0.11	0.01	0.90	-0.30	0.38	0.07	0.40	-0.06	
ETHNO15	-0.25	0.04	-0.19	0.05	0.07	0.17	0.20	-0.36	-0.07	-0.12	-0.03	0.85	-0.35	0.42	0.06	0.46	-0.08	
META1	0.21	-0.06	0.20	0.09	0.00	-0.06	-0.01	0.38	-0.02	0.10	0.15	-0.31	0.80	-0.23	0.02	-0.20	0.10	
META2	0.21	-0.04	0.34	0.12	-0.06	-0.06	-0.07	0.36	0.03	0.09	0.11	-0.23	0.75	-0.18	0.02	-0.10	0.17	
META3	0.22	-0.07	0.23	0.08	-0.03	0.00	0.01	0.34	0.03	0.08	0.17	-0.21	0.74	-0.17	0.10	-0.11	0.11	
META4	0.13	-0.12	0.24	0.06	0.01	-0.05	-0.03	0.40	0.08	0.08	0.09	-0.30	0.76	-0.19	0.00	-0.14	0.05	
META5	0.18	-0.06	0.22	0.11	-0.05	-0.04	-0.09	0.41	0.09	0.12	0.06	-0.20	0.71	-0.18	0.06	-0.13	0.08	
META6	0.15	-0.09	0.19	0.10	0.02	0.01	0.03	0.36	0.01	0.16	0.20	-0.28	0.77	-0.21	0.00	-0.20	0.09	
ETHNO3reverse	-0.14	-0.01	-0.10	0.06	0.03	0.05	0.10	-0.19	0.01	-0.11	0.05	0.30	-0.20	0.76	0.00	0.49	-0.02	
ETHNO7reverse	-0.20	0.01	-0.12	0.05	0.01	0.08	0.10	-0.32	-0.08	-0.10	-0.01	0.45	-0.23	0.90	0.09	0.35	-0.07	
Campus	-0.13	-0.01	0.02	-0.09	-0.07	-0.08	0.05	0.03	-0.05	-0.03	0.05	0.10	0.04	0.07	1.00	0.04	0.02	
ETHNO1	-0.15	0.00	-0.16	0.08	0.01	0.12	0.14	-0.23	0.01	-0.14	-0.04	0.42	-0.20	0.41	-0.02	0.81	-0.03	
ETHNO2	-0.14	0.02	-0.13	0.10	0.00	0.11	0.12	-0.16	-0.02	-0.12	-0.01	0.38	-0.16	0.39	0.00	0.83	-0.03	
ETHNO4	-0.04	0.00	-0.12	0.13	-0.08	0.11	0.12	-0.05	0.02	-0.06	-0.04	0.26	-0.05	0.36	0.01	0.72	-0.02	
ETHNO9	-0.11	0.08	-0.17	0.04	0.01	0.08	0.11	-0.14	0.08	-0.15	-0.02	0.36	-0.16	0.37	0.05	0.80	-0.06	
ETHNO10	-0.17	0.01	-0.16	-0.01	-0.04	0.09	0.13	-0.16	0.04	-0.12	-0.07	0.40	-0.21	0.38	0.08	0.81	-0.08	
ETHNO11	-0.15	0.03	-0.15	0.04	0.03	0.13	0.17	-0.09	-0.02	-0.11	0.00	0.32	-0.12	0.41	0.05	0.75	0.01	
InterTeammates	0.22	-0.07	0.04	0.11	-0.12	-0.03	-0.07	0.06	0.00	0.08	0.01	-0.04	0.13	-0.03	0.08	-0.05	0.69	
LocalTeammates	0.23	0.01	0.02	0.23	-0.06	0.00	-0.07	0.09	0.07	0.02	-0.03	-0.06	0.10	-0.06	-0.03	-0.03	0.90	

Appendix D. Fornell-Larcker criterion

Construct	Attributional Complexity	Conflicts	Emotional Instability	Empathy	Ethnocentrism 1	Ethnocentrism 2	Ethnocentrism 3	French Classmates	Intercultural Knowledge	International Experience	Life on Campus	Meta-Cognition	Negative Emotions	On-site learning	Perceived Learning	Encountered Difficulties
Attributional Complexity	0.75															
Conflicts	0.07															
Emotional Instability	0.13	0.03	0.87													
Empathy	0.16	0.03	-0.02	0.75												
Ethnocentrism 1	-0.13	0.06	0.02	-0.31	0.84											
Ethnocentrism 2	-0.21	0.03	-0	-0.39	0.46	0.85										
Ethnocentrism 3	-0.19	0.07	-0.04	-0.19	0.49	0.46	0.79									
French Classmates	-0.06	-0.09	0.04	-0.09	0	0.07	0.03									
Intercultural Knowledge	0.2	0.15	0.17	0.14	-0.12	-0.16	-0.15	-0.01								
International Experience	-0.06	0.11	-0.02	0.09	-0.05	-0.1	0.02	-0.05	0.04	0.82						
Life on Campus	0.02	-0.09	0.05	0.03	0.07	0.1	0.04	-0.01	-0.03	-0.05						
Meta-Cognition	0.31	0.12	0.18	0.49	-0.26	-0.34	-0.2	-0.1	0.14	0.04	0.04	0.76				
Negative Emotions	-0.07	0.16	0.19	-0.13	0.12	0.23	0.17	0.1	0.01	-0.13	0.05	-0.03	0.77			
On-site learning	-0.03	-0.18	-0	0.02	0.02	0.05	-0.01	0.02	-0.05	-0.11	-0.07	-0.02	0.14	1		
Perceived Learning	0.14	0.27	-0.02	0.22	-0.2	-0.32	-0.17	-0.17	0.24	0.12	-0.13	0.24	-0.29	-0.24	0.81	
Encountered Difficulties	0.02	0.41	0.05	-0.15	0.08	0.14	0.14	0.05	0.08	0.05	-0.08	-0.04	0.28	-0.11	0.1	
International Teamwork	0.04	0.22	-0.02	0.1	-0.06	-0.07	-0.04	-0.02	0.06	0.06	0.02	0.13	-0.09	-0.1	0.28	-0.01

Appendix E. HTMT criterion

Constructs	Attributional Complexity	Emotional Instability	Empathy	Ethnocentrism 1	Ethnocentrism 2	Ethnocentrism 3	International Experience	Life on Campus	Meta-Cognition	Negative Emotions	On-site learning
Attributional Complexity	0.179										
Emotional Instability		0.078									
Empathy	0.228	0.078	0.44								
Ethnocentrism 1	0.214	0.076	0.464	0.631							
Ethnocentrism 2	0.287	0.023	0.217	0.713	0.516						
Ethnocentrism 3	0.247	0.059	0.122	0.092	0.114	0.065					
International Experience	0.147	0.03	0.122	0.092	0.114	0.065					
Life on Campus	0.043	0.055	0.035	0.072	0.111	0.048	0.077				
Meta-Cognition	0.418	0.204	0.618	0.36	0.388	0.214	0.082	0.049			
Negative Emotions	0.103	0.234	0.162	0.171	0.275	0.195	0.161	0.088	0.09		
On-site learning	0.035	0.013	0.032	0.027	0.055	0.038	0.121	0.066	0.042	0.162	
Perceived Learning	0.181	0.04	0.284	0.3	0.403	0.209	0.159	0.155	0.305	0.378	0.265

Appendix F. Paths coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/ STDEV)	P Values
Attributional Complexity -> Ethnocentrism 2	-0.106	-0.111	0.042	2.512	0.012
Attributional Complexity -> Ethnocentrism 3	-0.133	-0.139	0.051	2.604	0.009
Attributional Complexity -> Intercultural Knowledge	0.149	0.155	0.051	2.942	0.003
Conflicts -> Difficulties	0.414	0.420	0.043	9.671	0.000
Conflicts -> Ethnocentrism 2	0.133	0.131	0.048	2.774	0.006
Conflicts -> Negative Emotions	0.198	0.198	0.051	3.879	0.000
Conflicts -> Perceived Learning	0.167	0.166	0.041	4.034	0.000
Difficulties -> Perceived Learning	0.113	0.111	0.055	2.055	0.040
Emotional Instability -> Intercultural Knowledge	0.158	0.162	0.048	3.303	0.001
Emotional Instability -> Negative Emotions	0.178	0.177	0.043	4.137	0.000
Empathy -> Difficulties	-0.161	-0.162	0.056	2.901	0.004
Empathy -> Ethnocentrism 1	-0.227	-0.229	0.053	4.288	0.000
Empathy -> Ethnocentrism 2	-0.248	-0.246	0.054	4.587	0.000
Empathy -> Negative Emotions	-0.121	-0.122	0.050	2.447	0.015
Empathy -> Perceived Learning	0.113	0.111	0.043	2.624	0.009
French Classmates -> Perceived Learning	-0.107	-0.113	0.042	2.556	0.011
International Experience -> Negative Emotions	-0.115	-0.123	0.047	2.451	0.014
Life on Campus -> Conflicts	-0.105	-0.104	0.042	2.528	0.012
Life on Campus -> Perceived Learning	-0.113	-0.114	0.041	2.769	0.006
Meta-Cognition -> Ethnocentrism 1	-0.115	-0.117	0.056	2.067	0.039
Meta-Cognition -> Ethnocentrism 2	-0.141	-0.137	0.059	2.403	0.016
Meta-Cognition -> Ethnocentrism 3	-0.153	-0.154	0.059	2.580	0.010
Meta-Cognition -> Perceived Learning	0.129	0.131	0.050	2.560	0.011
Negative Emotions -> Ethnocentrism 3	0.151	0.154	0.050	3.030	0.003
Negative Emotions -> Perceived Learning	-0.276	-0.274	0.044	6.293	0.000
On-site learning -> Conflicts	-0.160	-0.160	0.035	4.593	0.000
On-site learning -> Negative Emotions	0.167	0.165	0.070	2.391	0.017
On-site learning -> Perceived Learning	-0.145	-0.145	0.047	3.056	0.002
Perceived Learning -> Ethnocentrism 1	-0.125	-0.129	0.047	2.653	0.008
Perceived Learning -> Ethnocentrism 2	-0.254	-0.257	0.058	4.362	0.000
Perceived Learning -> Intercultural Knowledge	0.220	0.226	0.046	4.774	0.000
Work with other nationalities -> Conflicts	0.209	0.209	0.067	3.118	0.002
Work with other nationalities -> Perceived Learning	0.172	0.171	0.039	4.43	0

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