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Academics' perceptions of intercultural competence and professional development after international mobility

Laura Pylväs [a,*], Petri Nokelainen [b]

[a] University of Helsinki, Faculty of Educational Sciences, 00014, Finland
[b] Tampere University, Faculty of Education and Culture, 33014, Finland

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ABSTRACT

This study examines academics' perceptions of their intercultural competence after an international exchange period and the influence of academic international mobility on their professional development. The data was collected via an online survey ($N = 59$) and in-depth interviews ($N = 15$) from academic university staff in the field of engineering who had recently participated in an international mobility period. The findings produced a positive picture of academics' international work periods. The data from the self-evaluation indicated that international mobility augments professional proficiency in many ways, including the development of core subject-related competence (e.g., methodological skills) and problem-solving skills, professional self-awareness, as well as the capacity to apply external funding, produce shared publications, and create an international network. Furthermore, in relation to the model of Cultural Intelligence and its four dimensions, Metacognitive, Cognitive, Motivational, and Behavioral, the findings indicated that all the knowledge and skills developed during the exchange period were closely related with the generic working life skills suggested in the competence literature.

Introduction

The Internationalization of higher education has become a specific area of research in a variety of disciplines during recent decades. International mobility is one of the most visible manifestations of the internationalization processes. Mobility in general, but especially short-term mobility and the transient circulation of academics, is often associated with the acquisition of status and various forms of capital that subsequently raise career prospects and increase competitiveness in the academic labor market (Bauder, 2012). Academic staff occupy a variety of positions with different emphases on teaching and research. Yet, in all positions academic staff are on the frontline, facing expectations to develop not only their own intercultural and professional competence but also that of their students in order to provide sufficient career prospects.

Academics are thus positioned in a new way with regard to their career and expertise in modern working life. Various theoretical approaches have been generated to deepen our understanding of the professional knowledge and skills that are currently required to operate in this new environment, both in an academic context and more widely. However, despite the existence of numerous approaches to professional expertise and development, one particular construct, that of competence, has attracted particular interest, especially in regard to better integrating education and work (Le Deist & Winterton, 2005; Mulder & Winterton, 2017). Competence is often seen in the literature as comprising knowledge, skills, and attitudes (Mulder, 2014). Furthermore, growing interest in research on

* Corresponding author.
E-mail addresses: laura.pylvas@helsinki.fi (L. Pylväs), petri.nokelainen@tuni.fi (P. Nokelainen).

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competence has also been evident in the area of interculturalism. Current conceptualizations of intercultural competence emphasize interaction between people of different backgrounds during collaboration that is targeted towards a common goal (Deardorff & Jones, 2012).

While we gain increasingly specific information about the competence required in intercultural encounters, it is also important to continue reflecting on the contribution of this information to professional expertise in general and to overall career development. The aim of this study was to deepen understanding of academics' perceptions of intercultural competence and professional development after international mobility. The study participants included academics operating in both researcher and teacher positions in the field of engineering. The sample may not be representative of all academics, but it provides important insights into the meanings that are attributed to international experiences by natural scientists whose work is highly dependent on international cutting-edge research and the global market. We measured the self-reported intercultural competence of higher education engineering academics with the online survey, and employed a further five items to investigate their experiences of professional skills development related to academic international exchange periods. Furthermore, we conducted individual in-depth interviews to deepen the analyses of academics' international experiences and their influence on intercultural competence and professional development.

Theoretical framework

Intercultural competence

Intercultural competence plays a crucial role in modern working life, which indicates that the sphere of working life has expanded outside land borders and across cultural boundaries. While consensus on the conceptualization of intercultural competence is still lacking, and various theoretical frameworks have many differences, they also contain many similarities (Pylväs & Nokelainen, 2018). Spitzberg and Chagnon (2009) have identified 264 components of well-defined and comprehensive models and theories of intercultural competence, noting 64 cognitive/personality traits, 77 affective/attitudinal dimensions, and 127 behavioral/skill factors (Hammer, 2015). Overall, the current paradigm of intercultural competence emphasizes the developmental progression individuals make in moving from less diverse intercultural understandings to a more complex way of comprehending and responding to patterns of cultural difference between the self and the other (Hammer, 2015).

In this study, we chose to use the concept of *Cultural Intelligence* (CQ, see Earley & Ang, 2003) and the related Cultural Intelligence Scale (CQS, see Ang, Van Dyne, & Koh, 2006) to investigate academics' ability to work across cultural boundaries. Both concepts are based on a broader view of intelligence (e.g., Sternberg, 2000; Gardner, 1983) that resonates quite well with the current holistic view of professional competence development (e.g., Le Deist & Winterton, 2005), acknowledging not only cognitive but also creative, practical, and social intelligence (Ang et al., 2007). Based on empirical research, Earley and Ang (2003) define CQ as the ability to adapt effectively to intercultural situations and solve related problems. The capability to function effectively in intercultural settings is operationalized in their model of CQ with four dimensions: Metacognitive, Cognitive, Motivational, and Behavioral. Following Sternberg's multiple-loci-of-intelligence framework (2000), the metacognitive dimension of CQ is based on individuals' self-reflection on acquiring and understanding cultural knowledge, including planning, monitoring and revising mental models of cultural norms (Ng, Van Dyne, & Ang, 2012). The cognitive dimension of CQ refers to the knowledge (e.g., norms, practices) of different cultures that one has acquired through self-study, education and/or personal experiences (Earley & Ang, 2003). The third dimension of CQ, motivation, is defined as an individual's capacity to focus his/her attention on and maintain activities related to learning new things about different cultures and functioning successfully in cultural situations (Ng et al., 2012). The fourth CQ dimension, behavior, emphasizes that mental abilities are not enough; rather, individuals must also utilize appropriate verbal and nonverbal skills when interacting with people from different cultures (Ang & Van Dyne, 2008).

The CQ model contains similar characteristics to those found in models of professional competence. By considering the different approaches to competence in global terms, Le Deist and Winterton (2005) and Winterton (2009) created a holistic view of competence that includes four components placed in the areas of occupational vs. personal, as well as conceptual vs. operational competences. Cognitive competence consists of knowledge and understanding; functional competence consists of skills (i.e., practical know-how), and social competence consists of social behavior and attitudes. Metacompetence differs from the others in that it aims to encourage the acquisition of the other competences ("learning how to learn"). For instance, our recent research suggests that self-regulation is needed to acquire other professional competences (Nokelainen, Kaisvuo, & Pylväs, 2017; Pylväs, 2018). Earlier research has shown that successful learners can monitor and regulate the following triadic elements: volition, motivation and self-reflection (e.g., Kitsantas & Zimmerman, 2002; Zimmerman, 1989, 1998; Zimmerman & Kitsantas, 2005). Consequently, in addition that the mainstream Cognitive/Affective/Behavioral Paradigm can be distinguished from the state of research and theory in relation to intercultural competence (Hammer, 2015), professional competence also creates a link between self-regulative skills and the development of intercultural competence (Pylväs & Nokelainen, 2018). Yet, more empirical evidence is needed on to what extent various types of international mobility of professionals may foster the acquisition of intercultural competence.

Academic mobility

International mobility has a long history in academia. However, in recent decades, discussion has increasingly focused on the development of intercultural competence through international mobility. Although transnational mobility among academics is situated in individual contexts, the individual is nevertheless constrained by policy and evaluation regimes within the arena of global higher education competition (Gantwell, 2011). Bauder (2012) itemizes three important justifications for mobility being a current

element of the academic habitus. Firstly, mobility as a structural necessity (e.g., due to the lack of job opportunities in domestic university systems) and mobility as a habitual practice of career progression are mutually reinforcing. Secondly, mobility as a part of an effective research 'culture' enhances academic scholarship. Thirdly, international mobility typically enhances networks and enables academics to increase their contacts with colleagues and institutions abroad and provides them with access to privileged relationships in pursuit of collective distinctions and professional reproduction (Bauder, 2012).

Research has been conducted to reveal the tangible outcomes of international mobility, and some promising empirical results, also concerning academic staff members, have been presented. To mention a few, in Equeter and Helleman's (2015) study, researchers in Belgian universities considered their previous mobility to have been successful and beneficial in both professional and personal areas. The research also showed that, following successful mobility, the level of researchers' work engagement and well-being had increased, which also predicted a favorable attitude regarding the realization of future mobility. In turn, Jonkers and Tijssen's (2008) analysis of Chinese researchers' mobility history, publication output, and international co-publication data showed a relationship between scientific output, levels of international collaboration, and various individual characteristics of these researchers. Similarly, in Suarez-Ortega and Risquez's (2014) research, academics also perceived mobility in positive terms. The processes of mobility were considered to facilitate academic and professional development, offering the possibility of collaborative work, which promotes organizational and social changes within the international community. Furthermore, Richardson and McKenna's (2003) research revealed that even if a desire for travel or adventure was the key driver for British academics taking an overseas appointment, international experience was understood to bestow a major advantage in an increasingly international academic job market.

On the other hand, an integral issue in the discussion on international mobility among researchers is the question of 'who is being mobile and where'. After all, access to and the outcomes of international academic mobility are structured by disparities in labor markets, nation-state regulations, discourses, higher education systems, and institutions, as well as by individual characteristics such as gender, age, class, career stage, and cultural background (Bilecen & Van Mol, 2017). Consequently, the influence of academics' social position on international mobility has also been visible in the findings of empirical research, or at least it has made the findings more ambiguous. For example, Van der Wende (2015) noted that the rise in academic mobility occurs especially among young researchers in doctoral training (PhD students) and post-docs. It also appears that it is mainly men, and researchers with a partner and without children, who respond more favorably to the idea of a (longer) stay abroad (Equeter & Hellemans, 2015). Suarez-Ortega and Risquez's (2014) research, in addition to positive outcomes of mobility, found that both gender and cultural factors mediated the careers of their participants. According to the authors, opportunities for mobility may become a segregating factor, particularly regarding the careers of teachers and researchers who teach and research at the same time (Suarez-Ortega & Risquez, 2014). Furthermore, the current combination of mobility and funding flows and trends also seems to be causing an increasing concentration of (especially high-tech) research capacity (in the natural and life sciences) in a limited number of regional hubs (Van der Wende, 2015). Thus, it is unsurprising that, along with the positive outcomes of mobility, research in this area has also raised the question of the complex position of academics with regard to equality and autonomy. It has been argued by Bilecen and Van Mol (2017) that the social positions of individuals are reconstructed through their mobilities and immobilities, both in their countries of origin and destination. This study seeks to improve our knowledge about academics' intercultural competence development in the context of technical universities, and answer the following two research questions: 1) *How do engineering academics perceive their intercultural competence after an international exchange period?* 2) *How do engineering academics relate the international exchange period to their professional development?*

Methods

Academic international exchange survey

Participants

An electronic Academic International Exchange Survey was sent to all the academic staff of a Finnish technical university who had participated in an international exchange period during the years 2014–2018 ($N = 378$). Altogether 59 staff members (40 males, 67.8 %, and 19 females, 32.2 %) answered the AIES in November 2018 (response rate 15.6 %) using English, eliminating the need for back translation of the Cultural Intelligence Scale (Ang et al., 2006) items. The participants were between 25 and 66 years of age ($M = 37.5$, $SD = 9.065$). The majority of the participants were Finnish citizens ($n = 42$, 71.2 %). The citizenship of other participants was distributed as follows: Chinese ($n = 3$, 5.1 %), Indian ($n = 3$, 5.1 %), French ($n = 2$, 3.4 %), Russian ($n = 2$, 3.4 %), Spanish ($n = 2$, 3.4 %), German ($n = 1$, 1.7 %), Iranian ($n = 1$, 1.7 %), Pakistani ($n = 1$, 1.7 %), Turkish ($n = 1$, 1.7 %) or USA ($n = 1$, 1.7 %). Most of the participants ($n = 39$, 66.1 %) reported a Doctorate as their highest academic degree. One participant ($n = 1$, 1.7 %) had completed a Licentiate Degree, and the remainder ($n = 18$, 30.5 %) had completed a Master's Degree.

The survey data mostly included Doctoral Students ($n = 17$, 29.0 %) and Post-doctoral Researchers ($n = 16$, 27.0 %). The rest of the sample consisted of Assistant/Associate professors ($n = 9$, 15.3 %), University Lecturers ($n = 6$, 10.0 %) and Professors ($n = 6$, 10.0 %). Almost all participants ($n = 54$, 91.5 %) reported that their work duties were mostly related to research. Most of the participants ($n = 41$, 69.5 %) had a fixed term or temporary contract; only 17 (28.8 %) had a permanent contract. One participant failed to answer this question. The average length of work in their current position was 5.2 years ($SD = 5.333$) and in the current organization 6.0 years ($SD = 3.441$).

International experience

Most participants ($n = 41$, 69.5 %) reported having participated in one or two exchange periods that lasted for at least one month.

Ten participants (16.9 %) reported having participated in three or four exchange periods, while five (8.5 %) had participated in five exchange periods or more. Altogether, the participants had spent from one to 60 months on international academic exchanges (see Table 1). However, a more detailed analysis revealed that most of the participants ($n = 42$, 71.2 %) reported having spent a maximum of 10 months abroad. Some of the participants ($n = 11$, 18.6 %) reported having been abroad 11–20 months and a few ($n = 6$, 10.2 %) over 21 months. The participants were asked to describe one to three international exchange periods and respond to five questions related to them: 1) development of subject-specific skills, 2) development of networking, 3) impact on their current and 4) future career, and 5) development of intercultural skills. If there was more than one international exchange period, the responses were averaged into a new variable.

Cultural Intelligence Scale

In addition to demographic questions, and questions related to international exchange periods, the participants responded to items measuring their cultural intelligence (CQ). CQ was measured with the Cultural Intelligence Scale (CQS; Van Dyne, Ang, & Koh, 2009), which is a self-assessment instrument that contains 20 items. The original instrument has a seven-point response scale (1 = Strongly disagree, 7 = Strongly agree), but in this study we used a 'simpler' five-point response scale (1 = Totally disagree, 5 = Totally agree) as suggested by Likert (1932); for discussion, see de Vellis, 2003). The first dimension of the CQS (Metacognitive cultural intelligence) is measured with four items, the second (Cognitive) with six items, and the two remaining dimensions (Motivational, Behavioral) with five items (see Table 3 for details).

The CQS has demonstrated satisfactory and stable psychometric properties in international research during the past decade. For example, in their study of experts in various fields of international work, Templer, Tay, and Chandrasekar (2006) showed that the motivation factor reliably predicts adaptability to foreign culture, both in terms of working life and adaptability to foreign cultures more generally. Moreover, they found no differences related to gender, age or past experience abroad. In addition, the validity of the CQS items was tested in a study by Boštjančič, Komidar, and Johnson (2018). The results of confirmatory factor analysis supported the factorial validity of the CQS and the existence of a general cultural intelligence factor with satisfactory internal reliability values on the four CQS factors. Another study (Van Dyne et al., 2009) reported similar satisfactory alpha values.

Although the four dimensions of the CQS are clearly conceptualized to measure "an individual's capabilities, as opposed to personality traits or interests" (Ng et al., 2012, p. 34), several international empirical studies have shown better discriminant validity values when cultural intelligence (CQ) is treated as a two-dimensional construct (Bücker, Furrer, & Peeters Weem, 2016). The first dimension, Internalized Cultural Knowledge (ICK) intelligence, consists of the Metacognitive and Cognitive dimensions of CQ, and the second dimension, Effective Cultural Flexibility (ECF) intelligence, consists of its Motivational and Behavioral dimensions. According to Bücker et al. (2016), current international research prefers using this two-dimensional CQ framework, as it allows investigation of participants' cognitive (ICK) and action-oriented (ECF) characters. In this study, we use both the four and two-dimensional approaches to investigate CQ.

Statistical analyses

The first and second research questions ("*How do engineering academics perceive their intercultural competence after an international exchange period?*" and "*How do engineering academics relate the international exchange period to their professional development?*") were investigated with central tendency (*M, Md*), dispersion (*SD*), internal consistency (Cronbach's alpha) and correlation (Bayesian Pearson *r*) analyses in IBM SPSS 26 statistical software. Correlations were computed with the Bayesian method due to the small empirical sample ($N = 59$), discrete measurement level and non-normal distribution of the indicators (skewness values in the data were mostly negative up to a value of -1.005, indicating a response tendency towards positive values on the response scale, see Table 3). When calculating Bayesian correlations, a uniform prior [$c = 0$, $p(\rho) \propto (1-\rho^2)^c$] was used to reflect our belief that all response values in the survey were equally likely a priori (for discussion, see Edwards, Lindman, & Savage, 1963). Instead of producing "*p*-values" alongside the *r*, Bayesian correlation analysis reports Bayes Factors (BF) to compare the null (H_0 = no correlation) and alternative (H_1 = correlation) hypothesis: BF > = 1.000 (no evidence for H_1); BF = 0.333-0.999 (anecdotal evidence for H_1); BF = 0.100-0.332 (moderate evidence for H_1); BF = 0.033-0.099 (strong evidence for H_1); BF = 0. 010-0.032 (very strong evidence for H_1); BF < 0.010 (extreme evidence for H_1). In order to investigate the possible effect of nationality (Finnish: $n = 42$, 71.2 %; Non-Finnish: $n = 17$, 28.8 %) on the response tendencies for the four CQS dimensions, a non-parametric Mann-Whitney *U* test was performed between these two groups.

Table 1
The survey respondents' academic international exchange experience.

Duration	Participants (*n*)
Less than 5 months	25
5–10 months	17
11–20 months	11
21–30 months	1
31–40 months	2
41–50 months	1
Over 50 months	2

Note. Total number of participants $N = 59$.

Interviews

Participants

The interview data was collected from academic staff ($N = 15$) of the same Finnish technical university targeted by the survey. With the exception of one participant (who also had experience of international mobility), all the participants had participated in an international mobility period during the years 2017–2018. Four of the participants were females (26.7 %) and 11 were males (73.3 %). Nine of the participants (60.0 %) reported Finnish as their nationality. One of the participants (6.6 %) reported a European country and five participants (33.3 %) non-European countries as their nationality. Seven of the participants (46.6 %) reported their work status as Doctoral Student/Project Researcher and eight participants (53.3 %) as Post-doctoral Researcher/Professor. The participants' average length of time in their current position was 3.6 years ($SD = 2.982$). Nine of the participants (40.0 %) had participated in their last mobility period alone, five of the participants (33.3 %) with their partner and children, and one participant (6.6 %) with one child. The participants who travelled with their children received supplementary financial support from the university.

International experience

All interview participants had recently participated in an international exchange period. However, to obtain a more complete picture of the participants' international experience, they were asked to report their overall international work experience. Most of the participants (see Table 2) reported having worked a maximum of five months ($n = 5$, 33.3 %) or 5–10 months ($n = 5$, 33.3 %) abroad. Some of the participants ($n = 3$, 20.0 %) reported 11–20 months experience of working abroad, one participant (0.6 %) 21–30 months, and one participant (0.6 %) 31–40 months. Altogether, the participants had spent a total of 12 years and 2 months working abroad.

Almost half the participants (n = 7, 46.6 %) described their work environment as highly international. Active collaboration with international colleagues was linked to the research groups in which the participants were themselves involved. Most of these research groups were reported to consist of both national and international group members. In addition, many of the participants noted that the working language in their research group was English. The participants described one of the key functions of these research groups as collaborating with international colleagues and partners, especially on international projects and publications. The other half of the participants ($n = 8$, 53.3 %) described their work environment as partly international. Instead of being an integral part of their everyday work, international collaboration was more occasional. Otherwise, the international aspects of these research groups comprised the same kind of activities as in the "highly internationalized" research groups.

Qualitative analyses

Structured interviews served as our primary method of qualitative research. The interviews were conducted in 2018. Individual interviews lasted approximately 30–60 min. The interview data was based on a discussion of the following themes: international experiences at work, (recent) international mobility periods (e.g., motivation, benefits, and challenges), professional expertise, and intercultural competence. Questions such as "How would you describe your ability to work in international work environments?", "What kinds of knowledge or skills does a person need when working in intercultural environments?", and "When you think about an international exchange period, how would you evaluate the benefits of it?" were posed to the participants. The instrument was developed based on our earlier research and on empirically validated interview instruments modeling professional expertise and intercultural competence. In such instruments, researchers have provided several robust interview questions for analyzing individual views on competence across a range of professions (Nokelainen, 2018; Pylväs, 2018) and for examining international work experiences in detail (Pylväs, 2008). However, in accordance with the principles of semi-structured interviews, where the interviewer focuses the conversation on issues considered important to the research, the discussion also allowed some opportunities to follow up on matters deemed important by the interviewee (Brinkmann, 2014). The participants were free to emphasize and direct the focus of the discussion (within the constraints of time) to those issues that they considered to be particularly important.

The qualitative analysis took the form of qualitative content analysis of the textual (transcribed) empirical data. Instead of conducting numeric counts on the references of a small interview data set, the aim was rather to provide narrative descriptions and larger themes of international work experiences to deepen the analyses of the quantitative survey study. The unit of analysis distinguished for coding was a meaningful piece of text in the interview transcript (Krippendorff, 2012; Schreier, 2014). A meaningful piece of text in the data was typically a narrative of varying length. Authentic excerpts are provided in the results section as examples of such meaningful pieces of the text (Finnish excerpts have been translated into English). As only a few numerical counts were used to emphasize some parts of the qualitative data, the coding was conducted manually.

Table 2
The interview participants' international exchange/work experience.

Duration	Participants (*n*)
Less than 5 months	5
5–10 months	5
11–20 months	3
21–30 months	1
31–40 months	1

Note. Total number of participants $N = 15$.

Table 3
Engineering academics' Cultural Intelligence Scale item-related statistics ($N = 59$).

Cultural Intelligence Scale items	*M* (*SD*)	σ^3 (*S.E.*)	σ^4 (*S.E.*)
Metacognitive (α = .915)			
1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	4.2 (0.805)	−0.802 (0.311)	0.195 (0.613)
2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	4.1 (0.794)	−0.368 (0.311)	−0.713 (0.613)
3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	4.1 (0.831)	−0.579 (0.314)	−0.345 (0.618)
4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	3.8 (0.989)	−0.607 (0.311)	0.392 (0.613)
Cognitive (α = .867)			
5. I know the legal and economic systems of other cultures.	3.1 (1.057)	0.168 (0.311)	−0.565 (0.613)
6. I know the rules (e.g., vocabulary, grammar) of other languages.	3.6 (0.947)	−0.392 (0.311)	−0.712 (0.613)
7. I know the cultural values and religious beliefs of other cultures.	3.5 (0.916)	−0.080 (0.311)	−0.781 (0.613)
8. I know the marriage systems of other cultures.	2.9 (1.083)	0.198 (0.314)	−0.335 (0.618)
9. I know the arts and crafts of other cultures.	2.8 (1.142)	0.166 (0.311)	−0.700 (0.613)
10. I know the rules for expressing non-verbal behaviors in other cultures.	3.2 (0.979)	0.025 (0.311)	−0.410 (0.613)
Motivational (α = .822)			
11. I enjoy interacting with people from different cultures.	4.3 (0.907)	−1.005 (0.311)	0.014 (0.613)
12. I am confident that I can socialize with locals in a culture that is unfamiliar to me.	4.0 (0.890)	−0.372 (0.311)	−0.976 (0.613)
13. I am sure I can deal with the stresses of adjusting to a culture that is new to me.	4.1 (0.785)	−0.564 (0.311)	0.021 (0.613)
14. I enjoy living in cultures that are unfamiliar to me.	3.6 (0.945)	−0.063 (0.311)	−0.880 (0.613)
15. I am confident that I can get accustomed to the shopping conditions in a different culture.	4.0 (0.870)	−0.554 (0.311)	−0.413 (0.613)
Behavioral (α = .907)			
16. I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it.	3.7 (1.103)	−0.556 (0.311)	−0.404 (0.613)
17. I use pause and silence differently to suit different cross-cultural situations.	3.3 (1.093)	−0.228 (0.311)	−0.556 (0.613)
18. I vary the rate of my speaking when a cross-cultural situation requires it.	3.7 (1.027)	−0.748 (0.311)	0.535 (0.613)
19. I change my non-verbal behavior when a cross-cultural interaction requires it.	3.6 (1.055)	−0.572 (0.311)	0.054 (0.613)
20. I alter my facial expressions when a cross-cultural interaction requires it.	3.2 (1.135)	−0.341 (0.311)	−0.588 (0.613)

The coding frame consisted of two main categories, *intercultural competence* and *professional development*, which were based on the research questions formulated for this study. The main categories were followed by data-driven subcategories. The role of the subcategories was to specify what was said in the data with respect to the main categories (Schreier, 2014). With regard to the first main category *intercultural competence* (see section 4.1), the coding frame consisted of the eight data-driven categories (see Table 5 for more details). In the second phase, those data-driven subcategories were classified in accordance with the model of CQ (Earley & Ang, 2003; Ng et al., 2012) and its four dimensions: *Metacognitive, Cognitive, Motivational, and Behavioral*. Concerning the second main category *professional development* (see section 4.2), the coding frame was included with the three data-driven categories: *professional expertise, career prospects* and *professional collaboration*. The first author conducted the trial coding of the qualitative material and the examination of inconsistency in categories, followed by the necessary revisions. The second author was responsible for validating the quantitative material. The authors conducted the final conclusions of the coded data together by discussing the relationships between the qualitative and quantitative material and the theoretical interpretations. As the current study employed a mixed-method approach focused solely on academics in the field of engineering, the saturation point was reached after conducting the 15 interviews.

Results

Intercultural competence

In the survey, intercultural competence was measured with the 20-item Cultural Intelligence Scale (CQS) developed by Ang et al. (2006). The item-related statistics are presented in Table 3, and they demonstrate that both the Metacognitive and Motivational items have a higher central tendency (*M* range from 3.6 to 4.3) and broader indicator values (*SD* range from 0.785 to 0.989) than do the Cognitive and Behavioral items. Analysis of skewness (σ^3) values shows that the tail of the distribution on all but one (Cognitive) CQS dimension is on the left side (the skewness values are negative), indicating the participants' tendency to favor positive (e.g., 4 = 'Agree', 5 = 'Totally agree') response values. Positive skewness values (indicating disagreement with the statements) in the Cognitive dimension are clearly related to specific level factual questions, such as 'I know the legal and economic systems of other cultures,' and 'I know the marriage systems of other cultures.' The kurtosis (σ^4) values in our sample show values below 3, an indication of the platykurtic (less outliers than in the normal distribution) shape of the probability distribution. Table 3 also reports the internal consistency of the four CQS factors. Compared to the Cronbach's alpha values of the two earlier studies by Van Dyne, Ang and Koh (2009; α = .710–.840) and Boštjančič, Komidar and Johnson (2018; α = .830–.880), the alphas in the current study were higher (range from .882 to .915).

Table 4 presents the participants' average response values for the four CQS dimensions. Correlations between the four factors were all positive, and, according to Cohen's effect size estimation (1988), most had a large effect size (range .49–.62, see Table 7). The results show that the participants rated their Metacognitive ($M = 4.0$; $SD = 0.764$) and Motivational ($M = 4.0$; $SD = 0.674$) intercultural competence higher than their Cognitive ($M = 3.2$; $SD = 0.804$) and Behavioral ($M = 3.5$; $SD = 0.924$) competence. As seen previously in Table 3, this finding indicates that the academic staff members were confident (motivation) and conscious of their cultural knowledge (metacognition) in cross-cultural interactions. On the other hand, they were less certain about their knowledge of, for example, the legal and economic systems of other cultures (cognitive). When the participants' responses are viewed from the perspective of the two-dimensional CQ framework (Bücker et al., 2016), both cognitive (ICK: high score on Metacognitive CQ) and action-oriented (ECF: high score on Motivational CQ) characters are present.

As noted earlier, 42 (71.2 %) of the participants were Finnish and 17 (28.8 %) were citizens of other countries. The results of the Mann-Whitney *U* test showed that the average values of the non-Finnish group for the four dimensions were systematically slightly higher (*M* range from 3.2 to 4.3) than those of the Finnish group (*M* range from 3.2 to 4.0). However, there was only one small statistically significant difference between the group medians (and mean ranks) in the third CQS dimension (Motivational: $M_{\text{Finnish}} = 3.9$, $SD_{\text{Finnish}} = 0.662$; $M_{\text{non-Finnish}} = 4.3$, $SD_{\text{non-Finnish}} = 0.641$; $Z(1) = -1.985$, $p = .047$).

In the interviews, we asked the participants to describe, based on their own international experiences and personal development, the kinds of competence required to manage in international work environments. Firstly, the participants emphasized the importance of their professional expertise in the field of engineering. This finding is in line with the theoretical construct of professional competence, in which cognitive competence can be seen to cover occupational/conceptual knowledge and understanding and functional competence (i.e., skills and practical know-how; Le Deist & Winterton, 2005). However, the interviews failed to reveal recognition of the importance of other cognitive knowledge, such as the norms, practices, or legal and economic systems of other cultures (see Earley & Ang, 2003). Consequently, in this study, intercultural competence was intertwined with professional competence in the field of academic engineering.

Secondly, the participants stressed the importance of the capacity and willingness to be socially active and interact with other people when working in international environments. They highlighted the need for effective communication skills, the courage to approach people from other cultures, as well as "sufficient" social skills to be able to communicate with new people. Communication skills and "courage" were also reflected on in relation to Finnish culture, which was considered to favor introvert characteristics: the participants stressed that when working in intercultural environments one needs to be able to strengthen one's extrovert characteristics in order to become integrated into international work communities. Furthermore, the importance of language skills was highlighted in intercultural communication. Both oral and written English were considered important skills when working in academic intercultural environments. In addition, the importance of local languages was recognized. Some of the participants considered mastering a local language a useful skill with regard to integration into a foreign culture.

> *... a social person... so that even if you have a slightly different perspective on things, you don't immediately shut down new possibilities, so that you communicate with other people.* (Participant 14)

Table 4
Engineering academics' self-reported Cultural Intelligence Scale values ($N = 59$).

Cultural Intelligence Scale (CQS)	*M* (*SD*)
Internalized Cultural Knowledge (ICK, cognitive component)	
Metacognitive	4.0 (0.764)
Cognitive	3.2 (0.804)
Effective Cultural Flexibility (ECF, action-oriented component)	
Motivational	4.0 (0.674)
Behavioral	3.5 (0.924)

Table 5
Engineering academics perceived intercultural competence in a professional context in accordance with the model of CQ ($N = 15$).

Metacognitive	Cognitive[a]	Motivational	Behavioral
- Understanding cultural knowledge		- Motivation	- Communication skills
- Adaptability		- Self-direction	- Language skills

[a] The participants recognized the importance of professional cognitive knowledge (engineering).

> *Well I guess, being a Finnish introvert, you kind of recognize that the social scope in the exchanges has strengthened and developed.* (Participant 9)

Overall, behavioral (communication) competence was intertwined with metacognitive competence, that is, self-reflection on understanding and revising mental models of cultural knowledge and intercultural encounters (see Earley & Ang, 2003). According to several participants, one also needs to be adaptive to a new culture and open-minded to new ways of working. Nevertheless, some participants also emphasized that, rather than adapting to cultural differences, what was required was adaption to the differences between individuals. On the other hand, some of the participants noted the similarities between academic work environments and professional fields across cultures. Consequently, while the participants agreed with on the importance of adaptability, their treatment of the topic varied.

> *I think it is adaptability that's the strongest characteristic also in myself. But of course, you can be critical, but you don't always need to say it out loud.* (Participant 10)
> *But otherwise I think the academic environment is very similar no matter what the country […] it's more about the people.* (Participant 2)

Finally, the participants included such components as the motivation and self-direction to develop professionally in intercultural competence. They discussed the importance of internal motivation for gaining international work experience and enthusiasm for working with people from other cultures. Furthermore, with regard to self-direction, organizational skills and time management skills (e.g., the ability to formulate a work schedule and manage working time in a foreign environment) and the capacity to set personal goals when working abroad were also considered important.

> *There has to be a push, yes, but it has to come from inside. If you don't want to work in a multicultural environment, then whatever you do it won't work out. It has to come, the first step has to come from inside.* (Participant 4)
> *I think you need to be very well organized and push yourself to keep to your schedule.* (Participant 5)

The interview results were in line with both the survey results and earlier approaches to intercultural (e.g., Deardorff, 2006, 2009; Spitzberg & Chagnon, 2009) and global competence (OECD, 2016). In the following, the interview results are presented in accordance with the model of CQ (Earley & Ang, 2003; Ng et al., 2012) and its four dimensions (metacognitive, cognitive, motivational, and behavioral) to allow simultaneous reflection on the results of the survey and interviews (see Table 5). Whereas the survey respondents rated their self-reported Metacognitive and Motivational intercultural competence higher than their Cognitive and Behavioral competence, the interviewees (when reflecting their own intercultural ability, and the necessary competence to function in international environments based on their own exhange experience) agreed on the importance of Metacognitive, Motivational and Behavioral competence when operating in intercultural professional environments.

More precisely, the participants acknowledged the importance of 1) adaptability and cultural (international and academic) knowledge (*Metacognitive*), 2) motivation and self-direction (*Motivational*), and 3) communication and language skills (*Behavioral*). Overall, the descriptions of intercultural competence were closely related to generic working life skills, such as self-direction, motivation and social and communication skills (see Kitsantas & Zimmerman, 2002; Pylväs & Nokelainen, 2018; Zimmerman & Kitsantas, 2005). The intercultural aspect of competence was mostly visible with regard to the requirements of English language skills and intercultural adaptation.

Professional development

The Survey focused on identifying how academic international exchange periods had developed the participants professional skills and abilities related to five dimensions: 1. Core subject-related professional skills, 2. Networks, 3. Success in their current career, 4. Success in their future career, and 5. Development of intercultural skills (Table 6). The participants were asked to reflect on these issues on a five-point scale (1 = not at all, 5 = to a great extent). Correlations between the five items were all positive and all had at least a

Table 6
Engineering academics' responses to five statements related to their experiences of international exchange periods ($N = 59$).

Experiences of international academic exchange periods	*M*	*Md*	*SD*
Dev01 Exchange periods have developed my core subject-related skills.	4.3	5.0	0.947
Dev02 Exchange periods have developed my networks.	4.5	5.0	0.667
Dev03 Exchange periods have helped me to reach the current career stage.	3.9	4.0	1.094
Dev04 Exchange periods have had a positive effect on my future career.	4.4	4.6	0.910
Dev05 Exchange periods have developed my intercultural skills.	4.2	4.0	0.887

Note. Response scale: 1 = 'not at all', 5 = 'to a great extent'.

Table 7
Correlations between cultural intelligence scale factors and engineering academics' experiences from international exchange periods ($N = 59$).

	Dev01	Dev02	Dev03	Dev04	Dev05	CQS01	CQS02	CQS03	CQS04
	r	*r*	*r*	*r*	*r*	*r*	*r*	*r*	*r*
	BF	*BF*	*BF*	*BF*	*BF*	*BF*	*BF*	*BF*	*BF*
Dev01	1.00								
	–								
Dev02	.48	1.00							
	0.010	–							
Dev03	.41	.65	1.00						
	0.067	< 0.001	–						
Dev04	.50	.61	.76	1.00					
	0.005	< 0.001	< 0.001	–					
Dev05	.62	.53	.51	.40	1.00				
	< 0.001	0.002	0.003	0.093	–				
CQS01	**.44**	.36	.36	.17	**.60**	1.00			
	0.029	0.238	0.250	4.347	**< 0.001**	–			
CQS02	.34	.15	.21	.03	.38	.50	1.00		
	0.388	5.270	2.808	9.366	0.143	0.003	–		
CQS03	**.48**	.38	**.55**	.35	**.61**	.62	.53	1.00	
	0.011	0.162	**0.001**	0.272	**< 0.001**	< 0.001	0.001	–	
CQS04	**.51**	.37	**.40**	.36	**.55**	.59	.49	.57	1.00
	0.003	0.175	**0.093**	0.238	**0.001**	< 0.001	0.004	< 0.001	–

Note. r = Pearson product moment correlation, *BF* = Bayes Factor, Dev01 = Exchange periods have developed my core subject-related skills, Dev02 = Exchange periods have developed my networks, Dev03 = Exchange periods have helped me to reach the current career stage, Dev04 = Exchange periods have had a positive effect on my future career, Dev05 = Exchange periods have developed my intercultural skills, CQS01 = Metacognitive cultural intelligence, CQS02 = Cognitive cultural intelligence, CQS03 = Motivational cultural intelligence, CQS04 = Behavioral cultural intelligence.

medium effect size (range from .40 to .72, see Table 7). Although the participants' experiences of exchange periods were quite positive on all five dimensions, they were most unanimous (smallest *SD*) on the usefulness of the exchange periods for networking ($M = 4.5$, $SD = 0.667$). The benefit for reaching their current career stage ($M = 3.9$, $SD = 1.094$) had the smallest indicator value (with largest *SD*), in contrast to the expected positive effect on their future career ($M = 4.4$, $SD = 0.910$).

Next, we used correlational analysis to investigate the associations between the above-mentioned experiences of the utility value of international exchange periods and the four cultural intelligence factors (Table 7). Pearson product moment correlations between the five experience items (Table 6) and the four CQS factors (Table 4) were all positive (range from .03 to .61). According to Cohen's effect size estimation (1988), 11 of these correlations were at a medium level ($r > .30$) and five were considered large ($r > .50$). The Bayes Factor (*BF*) reports a ratio of data likelihoods given the null hypothesis (H_0: no association between the variables exist) is true versus the alternative hypothesis (H_1: there is an association between the variables). *BF* values smaller than 0.100 indicate a strong statistical association between variables (H_1 is true). When we combined the effect size information with Bayesian statistics (*BF*), we found eight associations between the experience items and CQS factors (bolded *r* and *BF* values in Table 7). Development of core subject-specific skills during an academic international exchange positively correlated strongly with one cognitive (ICK, Metacognitive cultural intelligence: $r = .44$, $BF = 0.029$) and with both action-oriented (ECF) components of CQ, that is, Motivational ($r = .48$, $BF = 0.011$) and Behavioral cultural intelligence ($r = .51$, $BF = 0.003$). Interestingly, experiences of the usefulness of exchange periods for career progress were only connected with action-oriented CQ components, related, for example, to the enjoyment of interacting with people from different cultures (Motivational: $r = .55$, $BF = 0.001$) and the ability to adjust behavior in cross-cultural interaction (Behavioral: $r = .40$, $BF = 0.093$). Finally, the participants' experiences of international exchange periods developing their intercultural skills were strongly positively associated with Metacognitive ($r = .60$, $BF < 0.001$), Motivational ($r = .61$, $BF < 0.001$) and Behavioral ($r = .55$, $BF < 0.001$) cultural intelligence.

In the interviews, we discussed both the participants' motivation to work abroad and the benefits gained from an international exchange period. The most important motivational factors and professional benefits were related to professional development (e.g., the possibility to reflect on one's own professional expertise and working methods), professional collaboration and career prospects. Consequently, the results were in line with the survey results. However, the interviews also showed how the above-mentioned factors were interlinked. For instance, collaboration with acknowledged professional experts from other countries and working in professionally inspiring work environments were connected to enhanced career prospects.

With regard to professional development, the interviews highlighted the participants' perceived development of generic professional skills, such as self-reflection, problem solving and creativity. Overall, the benefits related to international mobility underlined the importance of gaining new working methods and perspectives from different work environments. The participants appreciated the possibility to reflect on their own professional identity and expertise. In addition, many of the participants reported that while working abroad they were able to deepen their understanding of different working cultures, leadership, doctoral supervision and support as well as their own professional expertise.

> *I kind of got a better picture of my own expertise because there were no other experts from my field. . . so I was genuinely of service there.* (Participant 11)

I think if you go to different, in different countries, you learn something from each of them. Then if you gather all of them, then you become more experienced and you know how to deal with different kinds of situations. Also, different groups have different expertise, and each country has its, has a certain way of working, so you, these intercultural things help develop your personality. I think that's also important. (Participant 8)

By working with new people and in new environments, the participants felt they were able to promote their creativity compared to working in familiar environments. Several participants highlighted the opportunity to improve their problem-solving skills and creativity during the international exchange period.

One good thing with internationalization is that you always have a different perspective on the problem. There will always be people who might think differently about tackling the same problem. If you are from the same place, then there is a high probability that you might end up thinking in the same way. (Participant 4)

Also, the development of core subject-related (engineering) knowledge and skills were acknowledged in the interviews. Subject-related professional development was related, for example, to the special field of expertise or the specific infrastructure in the host organization.

In [the host country] they were quite good, and they had been working with this topic over 20 years, so they had huge knowledge about it, so I wanted to show them what I had and discuss what could get out of it. (Participant 5)

There are a couple. . . a whole new method that I can maybe apply in the future if I feel like it, or I can think about how it can be implemented in Finland. There is also essential machinery that we may also buy here. . . I have learned to use it. (Participant 15)

Secondly, according to the participants, international mobility was required to create international contacts in order to increase professional collaboration, in particular, on shared publications and research findings. Similarly, the co-writing of scientific papers and preparing collaborative funding applications were considered the most significant advantage gained after an exchange period. Some of the participants especially valued the experience of working with acknowledged experts in their own field of science as well as working with researchers who focused on topics compatible with their own interests.

I have been able to work with a person who is better-known than any other in [the name of home university]. . . if I am able to create networks with this university in this way, hopefully I will get to build a larger foundation. (Participant 14)

A few participants also discussed new teaching ideas and methods regarding their ability to promote pedagogical professional collaboration after the exchange period.

Finally, many of the participants also acknowledged the importance of intercultural experiences with regard to enhancing career prospects, for instance, success in their academic career and employment in general. The participants noted that the current professional requirements of an academic career emphasize the significance of international partners, for example in funding applications. The prospects of receiving research funding were seen as better when collaborating with international partners. Thus, many of the participants assessed their international experiences as advantageous with regard to recruitment in their future career. On the other hand, the participants also mentioned the current career advantages of international exchanges, such as being able to collect research data, finalize their doctoral thesis or allocate more time to research in general.

In the university, I think it does matter [if one has international experience], because at the higher levels just the connection counts and with whom you have papers, and the projects they are also, like, collaboration; it's very rare that entire big projects are run by one person, and I guess it's easier to get funding for later. (Participant 5)

If you want to stay in academia, it is a very competitive market, job market, and you need to build, I guess, networks. (Participant 6)

The interviews also demonstrated that enhanced career prospects may extend to the collegial level. Several participants particularly underlined the significance of international contacts with senior researchers (e.g., professors), who often enable the international visits of junior researchers within academia. Senior researchers were seen as key persons in organizing connections with international host organizations. Moreover, the participants considered that international visits may also deepen collaboration between their own and the host organization and thus increase the number of incoming international visitors. Consequently, individual international exchanges were also seen as potentially supporting the international mobility and career development of other staff members.

Yeah, of course, because what we bring back is the experience of being there and also, of course, newer ideas and so on. We don't just work on our own. We work here in a group. So, it will spread in the group. And it has to. Otherwise there's no point. You bring [experience] back so that you can make it better. (Participant 4)

I hope that I will also activate the others in the research group towards international collaboration so that there will be more opportunities and networks and enthusiasm. (Participant 9)

Table 8
Engineering academics' perception of the professional outcomes of international exchanges ($N = 15$).

Professional development	Professional collaboration	Career prospects
- Problem solving skills	- Publication collaboration	- Academic merit
- Creativity	- Funding collaboration	- Research progress
- Self-reflection	- Expert collaboration	- Individual networking
- Subject-related expertise	- Pedagogical collaboration	- Institutional networking
- Pedagogical expertise		

Overall, the interview results were in line with the survey results. Based on the survey and interview findings, international exchanges were considered to advance academics' professional development, widen professional networks, and enhance professional collaboration and career prospects. In the interviews (see Table 8), however, the participants particularly emphasized that working in international environments had improved their problem-solving skills and creativity. Moreover, international exchanges were considered to have promoted the participants' self-reflection skills and deepened understanding of their own professional expertise. Furthermore, in addition to acknowledging the importance of international mobility with regard to their personal development and career prospects, the participants also identified some socially shared advantages of individual international exchanges.

Discussion

In this study, we examined engineering academics' perceptions of their intercultural competence and professional development after international mobility. The study participants' self-evaluation data indicated that international mobility augments professional proficiency in many ways, including development of core subject-related competence (e.g., methodological skills) and problem-solving skills, professional self-awareness, as well as the capacity to apply for external funding, produce shared publications, and create international networks. Moreover, a further benefit of international visits was visible in the self-perceived development of intercultural competence, for instance communication skills and adaptation.

Earley and Ang's (2003) concept of *Cultural Intelligence* (CQ) and a related measurement instrument, the Cultural Intelligence Scale (CQS, Ang et al., 2006), enabled the further investigation of intercultural competence. The findings of the current study were in line with the model of CQ (Earley & Ang, 2003; Ng et al., 2012), with small differences between the survey and interview participants and the emphases they placed on its four dimensions, Metacognitive, Cognitive, Motivational, and Behavioral. However, both groups of participants particularly agreed on the importance of Metacognitive and Motivational competence when operating in intercultural professional environments. In parallel with an earlier study by Laitinen (2014), our results indicate that academic staff members were less certain about their knowledge of, for example, the legal and economic systems of other cultures (Cognitive). These findings are related to the current discussion on whether a four or two dimensional CQ framework should be used (Bücker et al., 2016). As both the Internalized Cultural Knowledge (ICK) and Effective Cultural Flexibility (ECF) dimensions of the two-dimensional framework contain pairs of "stronger" and "weaker" cultural intelligence dimensions (see Table 4 for the average values), we wonder if the use of a two-dimensional framework may lead to a situation where one dimension cancels or masks the effect of the other (e.g., ICK generally exhibits a higher scoring Metacognitive and a lower scoring Cognitive dimension).

In relation to the model of CQ, our findings indicated that all the knowledge and skills developed during the exchange period were closely related with generic working life skills. As a result of increasing empirical research, intercultural understanding and interaction has become one of the measurable areas of professional competence, which, in turn, has also given rise to various novel measurement methods. However, an interesting subject for future research could be the relationship between the development of employees' professional and intercultural competence. This could be investigated by applying more broadly the current theoretical approaches from both the areas of work research and intercultural relations.

The findings of the present study also indicate that international exchange periods in engineering higher education had developed the participants' current and future career prospects. In addition to the development of professional knowledge and skills, international exchanges and new operating environments seemed to have motivated the participants to reflect on their own professional identities. Furthermore, professional collaboration had produced concrete results in the form of co-authored research publications and shared funding applications. The participants reported being satisfied with working in professionally inspiring work environments. In particular, they valued collaboration with renowned experts in their own field of expertise and gaining new international contacts that could also be utilized in their future career or in developing institutional collaboration. Consequently, international mobility can help promote the internationalization of higher education, as it seems to enable academics to produce networks that are actualized as tangible "international" outputs. Such development may also benefit the host organization in the contexts of teaching and research, for example.

Overall, the findings produced a positive picture of academics' international work periods. The findings are also in line with earlier empirical research (Equeter & Hellemans, 2015; Jonkers & Tijssen, 2008; Suarez-Ortega & Risquez, 2014; Richardson & McKenna, 2003) on the positive outcomes of international mobility, which were manifested in academics' own professional and academic development as well as broader organizational benefits. On the other hand, in the present study, the participants failed to emphasize the importance of the individual rationales or benefits of international mobility, such as enhanced work engagement and well-being, or the desire for travel and adventures, that have been discussed in some earlier empirical research (e.g., Equeter & Hellemans, 2015; Richardson & McKenna, 2003). Instead, the findings of the present study supported Bauder's (2012) justifications for international mobility as a structural necessity and a habitual practice of career progression, an important part of an effective research culture and academic scholarship, and a requirement for enhancing academic networks. Nonetheless, this finding may also be due to our study's exclusive focus on the field of engineering. For instance, as the interview participants' background information demonstrates, staff in technical universities often operate in international research groups and work communities in their home university, which may serve to maintain engineers' habitual mobility practices and international connections rather than promote highly individual desires and choices. Furthermore, in accordance with earlier manifestations of academic mobility, in the present study international mobility also occurred especially among young male researchers in the natural and life sciences (see Equeter & Hellemans, 2015; Van der Wende, 2015). On the other hand, it can be seen as a positive development that the sample also included female academics as well as academics in a teaching position. Moreover, almost half of the interview participants traveled with their children. However, more empirical research in all academic fields is required on the prerequisites of staff mobility, particularly on the factors that may limit or even

prevent academics' participation in international exchange periods.

Limitations

We acknowledge that there are certain limitations that must be considered. First, the survey sample size of this study was quite small ($N = 59$) both from a technical and generalizability perspective. Following Murphy and Myors (1998) estimation of the minimum sample size with a 5 % sampling error, we should have obtained a sample of 194 participants from a population of 378 academics with international exchange experience in 2014–2018 ($n = 378 / (1 + 378 * .05^2)$). In order to respond to this limitation, firstly, we applied Bayesian methods that are non-sensitive (from a technical point of view) to issues related to a small sample size (Gill, 2002). Secondly, we complemented the quantitative data with a data sample of 15 interviews from the same target group. This is, furthermore, in accordance with notion that research on intercultural competence requires a multi-method approach to deepen understanding of the actualization of an individual's intercultural competence and international networking (Deardorff, 2009). Nevertheless, we also acknowledge that all the participants were from the field of engineering in a technical university, which possibly limits the generalizability of the findings. Although the participants represented a fairly heterogeneous group of academics (gender, age, job status, etc.), more comparable research is unquestionably needed between universities, professional fields and individuals to deepen the understanding of academics' approaches to international mobility.

Another limitation of this study is related to its cross-sectional design. An ideal study design focused on investigating the outcomes of intercultural mobility would have included measurements at three time points: before, during and after an international exchange period. In addition, as Aba (2015) notes, latent constructions such as intercultural competence are abstract psychological concepts which cannot be tested directly; thus, they can lead to misleading results. For instance, someone who is interested in other cultures for various reasons may evaluate himself/herself as interculturally competent without having any actual intercultural experience or training. However, we also consider that in the current study design the interviews complemented the survey results by providing a richer and more reliable picture of the engineering academics' perceptions of intercultural competence and professional development related to international mobility periods.

Declaration of Competing Interest

The authors report no declarations of interest.

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