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Cultural displacement as a lever to global-ready student profiles: results from a longitudinal study on International Lifelong Learning Programs (LLP)

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Abstract This article presents a study on the development of intercultural competences in students involved in international education, namely two LLP intensive programs (IPs). The data shows the extent to which, according to European Higher Education Area priorities, an educational model based on *mobility abroad* may foster competence development, and casts light on the importance of the socio-cultural experience of displacement—envisaged by the IP educational formula—in creating student profiles fitting for a global society. The starting point is a longitudinal study conducted over a 6-year time-span on 196 students who attended two consecutive lifelong learning IPs involving eleven Universities from eight European Countries. The two IPs set up an innovative interdisciplinary learning model aimed at developing intercultural competences in undergraduate students attending different degree courses. The study, based on questionnaires submitted to the participants at the end of each IP edition, worked out a pattern of indicators modelling intercultural competence as a multidimensional and developmental process especially associated with factors ascribable to the social dimension of learning. The emerging factorial pattern shows the social infra-structure of mobile students' intercultural competence as a process in which *mobility* works as a crucial external factor influencing the process of competence development. Mobility does not act either directly or alone, but is connected to the appreciation of *Web* 2.0 as a learning tool and the relevance attributed to *informal* and *experiential learning*, all of which are aspects concerning the social dimension of the educational pathway.

Keywords Lifelong learning · Mobility-based education · Bridging social capital · Intercultural competence · Global competences · Categorical principal components analysis · Factorial analysis · Structural equation models

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1 Introduction

The present study focuses on the educational relevance of *mobility abroad*. Mobility is especially considered for its capacity to initiate a personal transformative process that may work as a lever to competence development and to improve the education as a whole. In particular, the paper shows that mobility is at the crux of an educational strategy aimed at developing inter-cultural competency upon which, as noted by Mechtenberg and Strausz (2008), students' future productivity largely depends.

In accordance with literature on the topic (Deardorff 2006; Bennett 2013) this study preferred to use a broad, developmental definition of intercultural competence as opposed to definitions relating to specific components (skills). In the wake of Bennett, intercultural competence was meant as "the ability to embody and enact intercultural sensitivity", that is "to discriminate cultural differences and to experience those differences in communication across cultures" (Bennett 2013, p. 12).

The relevance of mobility abroad in strengthening the quality of higher education has been recognized since the end of the nineteen-nineties, as proved by the Bologna Declaration which can be understood as a process to increase student mobility. In any case, although mobility across countries exposes students directly to different cultures, translating displacement and the encounter with multiple perspectives into global competency is not easy. According to Olson and Kroeger (2001), substantive experience abroad is positively correlated with global competence and intercultural sensitivity, as long as other context bound conditions activating specific skills are created.

Moving from the hypothesis that the intercultural implications of displacement are not direct, nor immediate, this study highlights that not only the cognitive sphere, but the social one must also be activated in order to permit a specific skill-set to turn into a mindset to experience the world differently so as to create proper competence. The hypothesis verified in this study is that mobility abroad, explored both in terms of personal background of travelling abroad and of the displacement created by the international setting of the intensive program (IP), has an indirect impact on the process of intercultural competence development which is mediated by other factors entailed in the social dimension of learning.

The study sheds light on the significant correlation between the process of intercultural competence development and the latent factors concerned with mobility, as well as other social dimensions of learning (incentive, behavioural), and on the causal relationships which occur between these factors. Mobility proves to be the main external factor which plays a determinant role in the process of competence gaining.

By measuring the main dimensions entailed in the process of competence development and checking the causal relations among them, this study aims to contribute in an original way to a better conceptualization of intercultural competence and its assessment through well-identified dimensions. The self-evaluative surveys conducted over a time-span of 6 years on the participants to two EU lifelong learning intensive programs, the data analysis shows relevant findings from a sociological perspective as it shows a multi-dimensional pattern for assessing intercultural competency as *an asset deeply embedded in the social acting of individuals*. The statistical analysis was carried out in the following way: After a multivariate normalization of all variables involved (by means of optimal scaling procedures), a selective factorial analysis was used. Starting from the identified factors, the most appropriate causal model was identified. The analysis shows intercultural competency as a process which relies upon four latent dimensions, all of which are

inextricably concerned with the social side of learning. Moreover, it offers well-grounded elements for emphasizing mobility as an educational device that may meet the needs of global-ready students, an aspect under particular scrutiny by the EHEA.

The paper is organized as follows: Sect. 2 provides a short review of the state of the art about relations between experience of mobility and intercultural competency in an international educational framework, as well as the questionnaires used to gather data; Sect. 3 reports the three statistical steps (pre-treatment, factorial analysis and causal analysis) conducted to work out the pattern of the intercultural competence emerging from this study, while Sect. 4 provides a detailed analysis of the emerging pattern. Finally, Sect. 5 sums up the suggestions emerging from this study in terms of an education fitting for the challenges of a global world.

2 Student mobility as a fundamental strategy in EU educational policy: state-of-the-art

The relevance of mobility abroad in strengthening the quality of higher education has been recognised since the end of the nineteen-nineties, when it was placed at the Centre of European Educational Policy. The Bologna Declaration itself can be understood as a process to increase student mobility. From that moment onwards, student mobility has become so important within European policies that a Working Group on Mobility was created within the European Bologna Follow-up Group, with the aim of implementing and strengthening the EHEA Strategy for mobility envisaged by the Bologna Process (see EHEA Ministerial Conference 2012). In recent years, the relationship between mobility of skilled labour and human capital, both in terms of investment in education (Jahr et al. 2007) and of appraisal of talent (Mechtenberg and Strausz 2008) has increasingly been on the agenda of economic research. This is also because mobility is increasingly seen as a means to achieving multi-cultural skills, which are in turn regarded as crucial in a European Union striving for full economic integration, while at the same time preserving the diversity of its cultures.

Investigating the role played by mobility in building *intercultural competences*, an asset counted among the key competences for lifelong learning (European Parliament 2006/962/EC) and for becoming "globally competent" (Hunter et al. 2006), may be very useful in developing an educational system that meets the requirements of transnational integration set by EHEA policy and by the global labour market, and, more in general, in creating global-ready competency in future professionals, who are increasingly required to work in diverse, multicultural environments. The challenge in an ever-changing society is to prepare *global-ready* students duly fit both for the global workplace, as well as for the new forms of complexity. Nowadays, the disappearance of old forms of social integration and the development of new factors in social stratification has made mobility the endemic condition of individuals continuously exposed to conditions of estrangement and cultural discontinuity. Apart from *class,* new types of diversity concerning *age*, *lifestyle*, *gender*, and *migratory background* affect identity construction. The individual must cope with unprecedented forms of socialization and learning, since he/she is exposed to «disjunctural» situations in which «we can no longer presume upon our consolidated knowledge» because «there is no harmony between our experiences and our expectations of how we have to behave» (Jarvis and Parker 2005, p. 117).

As a matter of fact, although mobility across countries exposes students directly to different cultures and studying abroad seems to positively affect students' learning ability, which is meant as a general ability to process, learn, and use new and complex information (Perry 1999; Berg et al. 2012), translating displacement and the encounter with multiple perspectives into global competency is not easy.

2.1 The educational framework of the study

This study is based on surveys conducted over a time-span of 6 years on the participants to two EU lifelong learning intensive programs: The *interdisciplinary course on intercultural competences* (*ICIC*), and its sequel *interdisciplinary training on social inclusion* (*ITSI*), each lasting 3 years and aimed at developing intercultural competency in future educators, social workers and health care professionals. The two IPs were international courses funded by the EU and activated as optional courses by a Consortium of European Universities who had planned them and applied for funding. Each program lasted 3 years (*ICIC* from 2007 to 2010 and *ITSI* from 2011 to 2014), and as a matter of fact, one was the sequel of the other, and thus a longitudinal context of study was created. Both programs aimed at piloting and implementing an international training model envisaging the development of intercultural competences addressed to selected students from different European higher education institutions.[1] Since part of the learning activities were carried out every year in one of the partner institutions, these IPs presupposed short-term mobility abroad as an integral part of the didactical design and created an international, intercultural as well as a longitudinal context of study.

Being optional courses, the participants were spontaneous applicants who answered an announcement placed at the same time by each institution in the Consortium. As an asset concerned with communicative, social, and reflective skills, intercultural competence has mainly to do with abilities concerned with autonomy in managing study and complex situations (Perry 1999, p. 123), linguistic skills in a foreign language, and "self-reflexive" attitudes (Bennett 1999). For this reason, the prerequisites for admission to the IPs were: being enrolled in at least the second year of a university course of study and having at least a B2 level of English (the vehicular language of the programs). Once the possession of these requirements was verified, the selection envisaged an interview to permit the evaluators to check the candidates' self-reflexive consciousness.[2]

[1] (Re)funded yearly on the basis of competitive calls (Project No. 2007/IP-1; Project No. 2008/IP-2008-1-IT2—ERA 10-02980; Project No. 2009-1-IT2-ERA10-07879), *ICIC* involved a Consortium of eight higher education institutions, namely: University of Aosta Valley—Université de la Vallée d'Aoste (Italy) (Applicant Institution); Artevelde University of Applied Sciences—Gent (Belgium); Metropolia University of Applied Sciences—Helsinki (Finland); Doküz Eylul University—Izmir (Turkey); Semmelweis University—Budapest (Hungary); University of Salento—Lecce (Italy); Swiss Federal Institute for Vocational Education and Training SFIVET—Lugano (Switzerland) (associate partner); ECAP Foundation—Switzerland (associate partner). *ITSI* Program (Project No. 2011-1-HU1-ERA10- 03944) involved seven higher education institutions, most of which were the same as the previous program, namely: Semmelweis University—Budapest (Hungary) (Applicant Institution); University of Aosta Valley—Université de la Vallée d'Aoste (Italy); Artevelde University of Applied Sciences—Gent (Belgium); Metropolia University of Applied Sciences—Helsinki (Finland); Doküz Eylul University–Izmir (Turkey); Instituto Politécnico de Setubal–Setubal (Portugal); Universitatea de Vest "Vasile Goldis"–Arad (Romania).

[2] In this article the term "reflexivity" is used in the strict sociological meaning of *re shaping an object of analysis by reflecting on it*. This is also the meaning assumed by Bennett. However, the adjective "self-reflective" is also used with a focused reference to skills and tools which trigger the act of reflection, which is, of course, one of the cognitive activities necessary in order to develop a reflexive consciousness.

The two programs developed an enhanced concept of intercultural competence deeply embedded inaction in a socio-culturally significant way the estranging experience of mobility. All dimensions of learning—content, incentive and interaction (Illeris 2007, pp. 28–29)—were taken into account and solicited. In accordance with Deardorff (2006) broader definitions of intercultural competence were preferred to definitions relating to specific components (skills). Intercultural competence was meant as the aware mobilization of knowledge, skills, attitudes and values to cope with unfamiliar situations and ever changing problems arising (in work, as in life) from encounters with people socialized in a different culture, with a view to finding new and shared solutions (Onorati and Bednarz 2010). According to such a definition, and in the wake of Bennett, intercultural competency signifies more than simply having skills about other cultures: «skills do not cause competence. The root of competence resides in the ability to experience the world differently» (Bennett, in Bignami and Onorati 2014, p. 7), that is "the ability to embody and enact intercultural sensitivity […] to discriminate cultural differences and to experience those differences in communication across cultures" (Bennett 2013, p. 12). The emphasis on *awareness* and *sensitivity* hints at a more general holistic concept of competence to integrate «*know how* and *know why», that is* intelligent action in a socio-culturally significant way (Beckett 2009, p. 72). As a matter of fact, both programs envisioned intercultural competency holistically, as a culturally aware ability to cope not simply with ethnical differences, but with the endemic conditions of displacement created by continuously arising unfamiliar situations, and by new media actively expressing and constructing identity as an in-progress project.

According to this premise, a blended structure was used, consisting of a preliminary online phase through an interactive, social learning environment (DiLeahs for the *ICIC* and Moodle for the *ITSI*) and an intensive face-to-face phase, lasting 2 weeks and carried out in one of the partner countries. As the participants were selected from among the partner institutions, the IPs created an international learning context based on direct experience of difference and on the intertwining of formal and informal learning situations owing to geographical/cultural displacement and living together with class-mates from different countries. Immersive techniques—neighbourhood exploration, participative observation within organizations, interviews with operators—problem based learning and collaborative methodologies were central to these educational pathways based on an experiential approach.

2.2 The research question and the hypothesis of study

Developing intercultural competence is a broad ability to *cope with dissonance*, to identify one's own beliefs and values as cultural constructions, to *make commitments in the face of legitimate alternatives*. This competence to *experience the world differently* has become the cornerstone of what is broadly meant as "global competence", namely "having an open mind while actively seeking to understand cultural norms and expectations of others, leveraging this gained knowledge to interact, communicate and work effectively outside one's environment" (Hunter et al. 2006). The concrete experience of the *encounter with different others* offered by the immersive didactical formula of IPs based on mobility worked as a *disjunctural* starting point for initiating a process of review and transformation of knowledge, that also touches on values and proves to be relevant especially in lifelong learning and adult education (Mezirow 1997). Global competence runs in tandem with the need for colleges and universities to internationalize their curricula and to make mobility the lever of competence development. Nevertheless, travelling abroad and increasing

contact with people of diverse cultures does not automatically result in better understanding and communication (Halse 1999). According to Olson and Kroeger (2001), substantive experience abroad is positively correlated with global competence and intercultural sensitivity, as long as other context bound conditions activating specific skills are created.

Moving on from this evidence, the question at the basis of this study ponders if, and to what extent, the factors concerned with the social side of learning play a role in the development of intercultural competence. The hypothesis verified throughout this study is that mobility abroad, explored both in terms of personal background of travelling abroad and of the displacement created by the international setting of the IP, has a positive impact on the process of intercultural competence development and that this impact is not direct, but mediated by other factors concerned with the *social* facet (affective, behavioural, communicative) of the learning process.

2.3 The tools

The focus of this analysis is not directly referable to the longitudinal context of the IPs, but results from surveys repeated yearly at the end of each IP edition. Data was gathered through self-evaluation questionnaires submitted to 196 students enrolled in the aforementioned IPs at the end of each edition. The students considered for this study are not a sample, but comprise the whole of the IPs' target population.

The submitted questionnaire was not a self-evaluative tool about competences, but a self-reflective instrument to evaluate the learning experience as a whole, with special focus on the social activities carried out throughout the courses. Self-reflective exploration on the learning process is the optimal approach to intercultural competency, as amply defined in the literature (Deardorff 2004; Perry 1999; Bennett 1993). In fact, in Bennett's words, "self-reflexive consciousness (cultures and individuals are «making themselves up»)" is the cognitive structure of the highest stage of intercultural sensitivity (Bennett 1993, p. 13). In accordance with this perspective, the questionnaire explored student feedback on those activities involving the three main learning dimensions of intercultural competences: the cognitive dimension (knowledge of cultural issues), the affective dimension (motivation and disposition to adapt to complex communicative situations and to deal with stress and ambiguity arising from intercultural living together) and the behavioural dimension, mainly based on meta-cognitive skills concerned with awareness and critical distance (Dignes 1983; Deardorff 2004; INCA 2004). The last two dimensions are those mainly concerned with the social facet of learning. In general, the three dimensions were checked through students' agreement with and appraisal of the way in which the different sides of the educational action (content, socialization and organization) were dealt with in the IPs. Thereby students could demonstrate their «cognitive complexity and intellectual moral courage to investigate and compare things and make judgments about adequacy or inadequacy, appropriateness or inappropriateness of learning conditions in contexts» (Perry 1999, p. 123), which is at the core of the intercultural mind-set.

The questionnaire consisted of 52 questions. The first part of the questionnaire aimed at student profiling. To be more specific, there were four questions aimed at outlining the interviewee demographic profile (nationality, gender, education, faculty), one question on sociality/communication with foreigners, sketching the more or less inclusive nature of their sociality, and three questions on previous experience abroad with indications regarding duration, goals, distance, etc., that account for the mobility background. The

self-reflective part about the learning pathway was explored through *Likert-like* items with scores ranging from 1 to 4 points, which were formulated as follows:

- two questions on ability to carry out the *online work* alone (to check students' *autonomy*);
- thirty questions on agreement with/appraisal of the different dimensions entailed in the program: conception of the course, methodologies, organization, accommodation, socialization, impact on professional competency (but the first two surveys were based on a longer questionnaire, with five questions in a section related to a supplementary assignment);
- ten open questions on difficulties encountered throughout the course and suggestions for future improvement. Information about the way in which students dealt with the difficulties faced during the course is useful in this context of analysis, since it is indicative of the *affective* side of intercultural sensitivity. In particular, it is indicative of students' capability to adapt to complex communicative situations and to tolerate stress and ambiguity arising from intercultural living together. Tolerance of ambiguity is an intercultural skill appropriate to the competence stage of "acceptance" (Bennett 1993, p. 8)
- two open questions on the strong and weak points of the course (SWOT).

All the aforesaid aspects were described and analysed in the main study, but such a profound description is not the focus of the present paper,[3] where just a few aspects are reported.

As the target consisted of all students enrolled in the two IPs, and since students could not abandon the course except in very serious circumstances, there was actually no drop out from the courses. Moreover, the questionnaires were submitted only once at the end of each edition, so the risk of drop out was actually very low. As a matter of fact, all students who participated in the IPs completed their course of study and graduated.

3 Statistical analysis

In the 6 years of activity, 196 students (156 F, 42 M) were enrolled. As shown on the left side of Table 1, the prevalence of females does not depend significantly on Nationality, with the exception of Swiss and Romanian students.[4] Indeed, previous experience of mobility was also very dissimilar among the students (right side of Table 1).

By means of both CatPCA (an optimal scaling procedure) and factorial analysis, transformed variables were used to identify the latent factors of mobility and intercultural experience. Finally, the causal structure of such latent variables was investigated.

[3] The variables concerned with nationality proved not to be relevant for the analysis. This seems reasonable since there is no scientific basis for assuming that people from one country have a higher or lower disposition to develop intercultural competences than others. On the contrary, the kind of University pathway (Academic or Vocational) proved to be relevant in order to cluster the students, but not in the process of competence development, modelled here.

[4] This exception could be attributed to casual factors, that is the limited participation of a Swiss University to the Program (Swiss partners self-funded their participations), and the enrolment of a Romanian group entirely composed of male students in the 5th edition of the Program (held in Portugal).

Table 1 Distribution of the students by *nationality*, *gender*, and *previous mobility experience*

Nationality	Gender			Previous mobility experiences				Total
	F	M	Trans	*% F*	None	At least one	% Experienced	
Turkish	24	4	–	*85.7*	21	7	*25.0*	28
Belgian	28	3	–	*90.3*	17	14	*45.2*	31
Hungarian	28	4	–	*87.5*	21	11	*34.4*	32
Italian	41	5	–	*89.1*	26	20	*43.5*	46
Swiss	3	2	–	*60.0*	0	5	*100.0*	5
Finnish	26	2	1	*89.7*	5	24	*82.8*	29
Portuguese	9	3	–	*75.0*	7	5	*41.7*	12
Romanian	8	5	–	*61.5*	5	8	*61.5*	13
Total	167	28	1	*85.2*	102	94	*48.0*	196

Italic font identifies columns of percentages

3.1 Pre-treatment of data

The answers on the questionnaire distributed to the students were expressed mainly on a verbal *Likert-like* scale (in 4 modalities), with satisfaction judgements ranging from "not at all" to "very much". Neutral answers or "I don't know" statements were not valid choices. Because the early and final survey questionnaires were a little different, during the post-survey processing the five questions relating to the second assignment were coupled, by averaging, to the corresponding questions on the third assignment. The new assessment variables are thus expressed in seven ordinal modalities, with three intermediate values.

Moreover, some of the questions reflecting the previous experience of interviewees were expressed in amounts (of experience and of time), as well as in ordinal modalities ("no experience", "close mobility", "not close in Europe", "outside Europe"), and also non monotonically increasing (or decreasing) categorical variables, like "Reason for mobility", "Education" or "Origin". Thus, ordinary multivariate statistical analyses (available when data is measured on a numerical scale) cannot be used in this case.

Then, in order to obtain transformed variables, which are more adequate for such analyses and also to avoid effects of scale, the Categorical Principal Component Analysis (CatPCA) was applied to all the 39 observed variables (both quantitative, ordinal, and categorical). The CatPCA algorithm was created by the *Data Theory Scaling System Group* in Leiden University, NL. It is based on *alternative least squares optimal scaling* (ALSOS) procedures, that use methods deriving from Multiple correspondence analysis to produce transformed variables describing the value of each modality of a variable in respect of another, in order to compute a correlation matrix, even when variables are categorical.[5]

[5] Given a population of n individuals described by a set of m categorical variables $\mathbf{x}\ \mathbf{x}_1 \ldots \mathbf{x}_j \ldots \mathbf{x}_m$, the OS procedure, by using a complex matrix technique, transforms the categories into real values $\boldsymbol{\omega}_j$ (the variables $\mathbf{x}_j$ e $\boldsymbol{\omega}_j$ are defined with vector notation, because they relate to the n persons and respectively to the k_j categories of the i variables). First, a scalar g_{ijh} is defined with value 1 or 0 according to whether the ith person possesses the hth category of the $\mathbf{x}_j$ variable. Then, each vector $\mathbf{g}_{ih}$ is given by this scalar attached to the units in each category h of $\mathbf{x}_j$, generating the indicator-matrix $(n \times k_j)$ relative to such variable. Extending this procedure to all the m categorical variables (and, if requested, to discretized quantitative variable), the disjunctive complete indicator-matrix is obtained, noted as $\mathbf{G} = [\mathbf{G}_1 \ldots \mathbf{G}_j \ldots \mathbf{G}_m]$ (matrix $n \times K$, where $K = \sum_j k_j$).

Thus, each categorical variable is a product of an indicator-matrix by a vector $\boldsymbol{\omega}_j = [\omega_{j1} \ldots \omega_{jh} \ldots \omega_{jkj}]'$ of scaling parameters that, once estimated ($\hat{\omega}_{jh}$), originate the optimally scaled (quantitative) variables:

In this way, researchers can use categorical variables in statistical analyses that require underlying continuous distributions.

3.2 Factorial analysis

The procedure used in this CatPCA-based Factorial Analysis is known as "backward elimination". It consists of selecting all components with eigenvalue >1.1 and deleting the items with low communality (that is the ratio of each item's variance explained by the factorial solution: here, it must be at least 0.55), starting from the lowest value. After deleting an item, the whole procedure is repeated until all the variables have good communalities.

Under these constraints, the procedure stopped when four principal components are identified, explaining over 71 % of the total variance expressed by 12 items (see 4th column of Table 2).

Those components were submitted to an oblique factorial analysis, using a Promax rotation (Manly 1986). The resulting Factor Loadings Matrix defines the latent dimensions of intercultural education, still correlated to each other (see Table 3, columns 3–6, as well as Table 4).[6]

Due to the chosen rotation method, factors are correlated to each other (Table 4). In particular, the 3rd factor is well correlated with the 2nd and the 4th. The 1st factor has just a low, but statistically significant, correlation with the 2nd.

The analysis excluded 28 variables: all four demographic variables, the item about "sociality/communication with foreigners", all seven questions about the preliminary assignment,[7] but just one question about assignments two and three ("Enough time to do the assignments two and three"). Half of the questions about the intensive course were also removed from the analysis ("The intensive programme broadens the view on intercultural issues", "The intensive programme gave conceptual knowledge useful for my future

Footnote 5 continued

${}^{os}\mathbf{x}_j = \mathbf{G}_j\hat{\omega}_j$ or, equivalently, ${}^{os}\mathbf{x}_j = \sum_{h=1}^{k_j} \mathbf{g}_{jh}\hat{\omega}_{jh}$ ($j = 1, 2, \ldots, p$) where the superscript "OS" indicates the optimally scaled variable. Extending this procedure to all the units of the population and all variables, the matrix of optimally scaled individual scores is obtained, ${}^{os}\mathbf{X} = ({}^{os}\mathbf{X}_1, {}^{os}\mathbf{X}_2, \ldots, {}^{os}\mathbf{X}_m)$.

The vectors $\boldsymbol{\omega}_j$ have to be estimated by optimizing a target function with identification constraints, and it is worthwhile estimating simultaneously the quantities of the categorical variables and the parameters of the mode, by directly optimizing the target function with ALSOS methods (De Leeuw et al. 1976; Young et al. 1978). In order to better understand the CATPCA algorithm, see, by example, De Leeuw (1977), Meulman et al. (2004).

[6] The stability of this solution, as well as the following causal model, was checked using a bootstrap procedure (Efron 1979) with 1000 samples, giving quite good results. The medians of both bootstrapped eigenvalues (of extraction and rotation) are very close to their mean (1 % difference or less), and also the 90 % percentile intervals are quite narrow: 5th and 95th percentiles deviate less than ±15 % from the respective median value, and in most cases are close to ±5 %. The bootstrapped eigenvalues are almost normally distributed in every case, with very acceptable skewness: minimum −0.29 for the eigenvalue of 2nd component, maximum 0.81 for the eigenvalue of 6th component (s.e. about 0.08).

[7] "I did the preparatory work online", "I worked with pleasure on homepage presentation", "The goals of this assignment were very clear", "The self-introduction is relevant for future profession", "Tasks in assignment 1 were feasible", "Enough time to do assignment 1", "Assignment 1 was easy to do".

Table 2 Factor analysis of the intercultural components, with Promax oblique rotation (k = 4.5)

Components	Initial solution			Extracted eigenvalues			Promax rotation eigenvalues[a]
	Eigenvalues	Percent of variance	Cumulative % of variance	Eigenvalues	Percent of variance	Cumulative % of variance	
1	3.236	26.966	26.966	3.236	26.966	26.966	3.142
2	2.600	21.670	48.636	2.600	21.670	48.636	2.322
3	1.619	13.494	62.130	1.619	13.494	62.130	1.882
4	1.158	9.646	71.777	1.158	9.646	71.777	1.809
5	*0.887*	*7.390*	*79.166*				
6	*0.514*	*4.281*	*83.447*				
7	*0.460*	*3.831*	*87.278*				
8	*0.445*	*3.708*	*90.986*				
9	*0.353*	*2.941*	*93.927*				
10	*0.299*	*2.488*	*96.415*				
11	*0.256*	*2.132*	*98.547*				
12	*0.174*	*1.453*	*100.000*				

Italic font identifies components with eigenvalues <1.1

[a] When components are correlated, eigenvalues cannot be added to obtain a total variance

Table 3 Communalities and rotated factor loadings (>0.35) of the interviewees' answers; Cronbach's α

Items	Communalities	Factors			
		1	2	3	4
Found internet preliminary study relevant for the intro	**0.630**		0.755		
Assignments 2 and 3 on my own	**0.596**		0.620		
Tasks in assignments 2 and 3 were feasible	**0.648**		0.802		
Online part was a necessary component of the whole course	**0.620**		0.734		
The intensive program gave practical knowledge useful for future profession	**0.756**				0.827
Found this intensive course a valuable contribution to vocational education	**0.696**				0.804
Cooperative learning (group work and activities)	**0.791**			0.852	
Informal learning in and through the course	**0.777**			0.866	
Amount of mobility experiences	**0.818**	0.907			
Extent of mobility experience	**0.835**	0.920			
Duration of mobility experience	**0.763**	0.867			
Reason for mobility experiences	**0.682**	0.807			
Cronbach's Alpha		*89.88 %*	*71.15 %*	*78.95 %*	*75.09 %*

Table 4 Component correlation matrix

Factors	1	2	3	4
1	1.000	**0.147**	0.027	−0.068
2	**0.147**	1.000	**0.214**	0.108
3	0.027	**0.214**	1.000	**0.168**
4	−0.068	0.108	**0.168**	1.000

Bold font identifies significant coefficients, $p < 0.05$

profession"), as well as the whole set of items about goals and organization,[8] and half of the competency items ("Learning to cope better with heterogeneity and differences", "Learning to communicate in English in a more fluent and effective way"). The reason for such a drastic reduction in the items, given the ratio of the used algorithm ("backward elimination"), is clearly the weak correlation between the removed variables and the identified factorial system. They could be correlated to each other or to other factors, but not to the latent variables identified here (and defined later).

3.3 Causal model

By interpreting factors as latent variables and by following relations among them, a causal model can be designed. To achieve this outcome, a structural equation procedure was

[8] "Clarity and coherence of the goals of the programme of study", "Welcoming introduction to the course group building", "Balance between theoretical and practical parts", "Group activities quantity/quality timing", "Atmosphere in the group socialisation", "Time to reflect on the different issues of study", "Opportunities for networking", "Quality of the accommodation hostel, meals, and other facilities", "Organisation of the project work on field ", "Information about organization and activities logistics".

applied, using a LISREL model (Jöreskog 1973; Jöreskog and Sorbom 1984)[9] identified with the AMOS software.

In order to identify the best causal system, many different models were tested, starting from the factorial structure described above and the correlation matrix shown in Table 4. Some of those models cannot be identified, some other had weak goodness-of-fit and/or not significant parameters.

The Generalized least squares method was chosen for discrepancy estimation, because it is more robust than the Maximum Likelihood Method when moderate lacks in normality occur (Jöreskog 1973). The software provides modification indexes, as well as significance and fit indexes, that help to remove or to add relations to the model. The path diagram in Fig. 1 describes the best model, the one with significant parameters and high goodness-of-fit. It was validated by using a bootstrap procedure (which gave almost normal distributions) in order to exclude strong influences of endogeneity and/or noise factors.

As is easy to see, the identified model has just one exogenous factor (reflected and identified by four manifest variables related to mobility), and three endogenous factors, with causal structure "in cascade", or serial, where each factor is caused by the previous and causes the following factor (logically, the last factor is only caused).

Some statistical observations about the model have to be made. All regressions and covariance coefficients are strongly significant ($p < 0.001$), except for the regression weight among *Mobility* and *Blended Learning* factors, which is lower than the others, but still statistically significant (given the chosen significance level $\alpha = 0.05$).

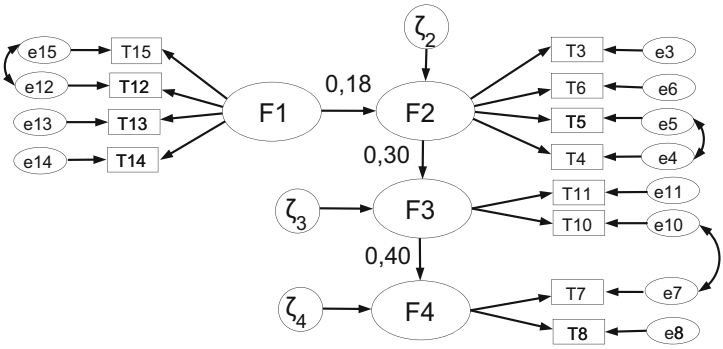
The fit of the model is very good,[10] following the criteria proposed by Hu and Bentler (1999): Tucker-Lewis Index = 0.990 and RMSEA = 0.014, but also AGFI = 0.931 and CFI = 0.993.

To conclude this statistical analysis, one concept has to be underlined. The use of CatPCA was instrumental for the factorial analysis in order to have the maximum initial amount of information (also categorical variables), while the FA with backward elimination was necessary in order to create a clear and useful causal model.[11]

[9] A Structural equation model (SEM) is described by two mathematical models, relating respectively the observed variables and the latent ones. The first model (*measurement model*) maps the observed variables onto their own latent variables (LV): $x_h = \lambda_{ih}\xi_i + \delta_h$ if such variable is related to a *causal* factor ξ_i, $y_k = \lambda_{jk}\eta_j + \varepsilon_k$ if it is related to a *caused* latent variable (δ_h and ε_k represent residuals of each observed variable, which are uncorrelated with all latent variables). The second model (*structural model*) shows the mutual relation between the LV; in matricial notation: $\boldsymbol{\eta} = \mathbf{B}\boldsymbol{\eta} + \boldsymbol{\Gamma}\boldsymbol{\xi} + \boldsymbol{\zeta}$, where $\mathbf{B}$ is the matrix (having zeros on the principal diagonal) of the factorial regression weight of the endogenous LV, $\boldsymbol{\Gamma}$ is the matrix of regression weight of the exogenous LV, and $\boldsymbol{\zeta}$ is the vector of the stochastic errors of this regression model, that are uncorrelated with the LVs. All LVs and residuals have zero mean, while residuals $\boldsymbol{\zeta}$, $\boldsymbol{\varepsilon}$ and $\boldsymbol{\delta}$ are mutually uncorrelated. About the Jöreskog SEM theory, see Jöreskog (1973, 1977).

[10] It is known that the model fit is better determined by using more correct fit indices than the Discrepancy's Chi square goodness-of-fit test: the Jöreskog's Adjusted Goodness of Fit Index (AGFI), the Comparative Fit Index (CFI) proposed by Bentler, 1990, the TLI—Tucker Lewis Index (Tucker and Lewis 1973) and the Root Mean Square Error of Approximation (RMSEA), proposed by Browne and Cudeck (1993). Note that the best Goodness of Fit occurs when RMSEA = 0.0 and other indices are 1.0; TLI has no upper limit, but when its value is close to 1.0, the fit of the model is excellent (Hu and Bentler 1999).

[11] Without removing variables with weak relations, only a jumbled and unidentifiable nine-factor model could be extracted from the data.



KEY: *observed items*

T3 - Found the internet preliminary study relevant for the intro	T10 - Cooperative learning (group work and activities)
T4 - Assignments 2 and 3 on my own	T11 - Informal learning in and through the course
T5 - Tasks in assignment 2 and 3 were feasible	T12 - Amount of mobility experiences
T6 - Online part was a necessary component of the whole course	T13 - Distance of mobility experiences
T7 - Intensive program gave practical knowledge useful for future profession	T14 - Duration of mobility experience
T8 - Found this intensive course a valuable contribution to vocational educ.	T15 - Reason of mobility experiences

Fig. 1 Path diagram and standardized regression weights of the identified SEM. All weights are statistically significant, with p values <0.001, except F1→F2 ($p < 0.03$)

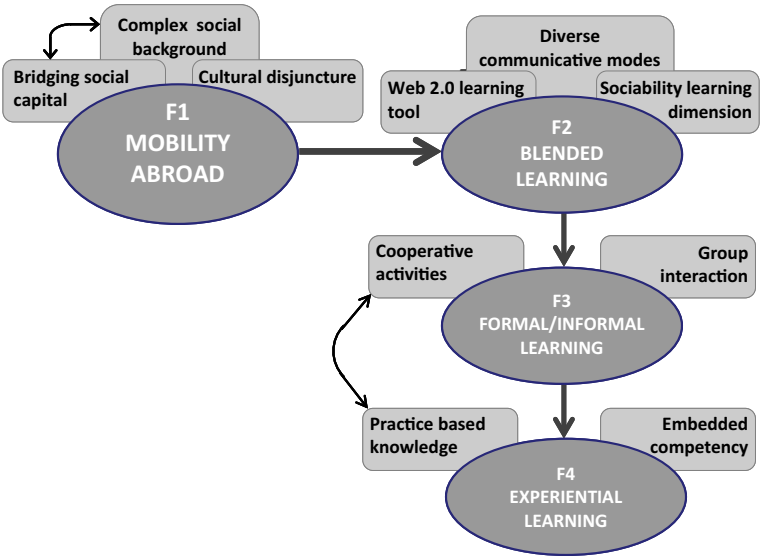


Fig. 2 The Dimensions of intercultural competency

4 The latent dimensions of intercultural learning

The statistical analysis sheds light on intercultural competency as a process with four latent dimensions, strongly related with the social side of learning (compare Figs. 1, 2):

- F1 = the learners' experiences of *mobility abroad*, explored as a source for a complex social background, referred to as *bridging* social capital (Putnam 2000), and for occasions of cultural disjuncture;
- F2 = the commitment afforded to *blended learning*, especially to Web 2.0 which allowed the diversification of communicative modes and frameworks, and defined sociability as a relevant learning dimension;
- F3 = the combination between *formal and informal learning*, owing to mobility and to the immersive techniques which created the conditions for group interaction and cooperation;
- F4 = the value attached by participants to *experiential* learning for their future profession, especially with reference to practice and the possibility of embedding intercultural competence in social interaction (Bennett, in Bignami and Onorati 2014).

The causal model sketched on the basis of the collected data shows intercultural competency as part of an educational vision that particularly values the individuals' communicative, social, and experiential background in their professions. In fact, the emerging pattern provides empirical evidence of the crucial role played by mobility, bridging sociality, Web 2.0 with its flexible modes of communication and sociability, informal, and experiential learning (all factors concerned with the social side of learning) in competency building.

The relationship between mobility in education and the use of new technologies (F1 and F2), as well as between informal and experiential learning (F3 and F4 especially express the social dimensions of learning) is consolidated in the literature. In fact, they have become leading priorities in EAHA educational policy (see EHEA Bologna Process, in www.ehea.info). The causal relations among these factors were not fixed a priori in this study, but they resulted as the most robust causal model (SEM) provided by several analyses.

Nevertheless, the identified factorial structure calls to mind the four basic dimensions pointed out by Perry (1999) and Knefelkamp (1999) as part of the social and relational process that forms the intellectual development of learners studying abroad.

F1, regarding the influence of background abroad on the process of competence gaining, recalls Perry's variable concerning «students' experience and response to diversity» (*ivi*: XXIV) as one of the dimensions to be explored to measure the impact of studying abroad on students' intellectual development. F2, regarding blended learning and its introduction of bottom-up communication and sociability which is self-generated and self-managed, escaping any form of authoritative control, evokes Perry's variable about «the amount of authority-provided structure for the learning environment» (*ibidem*) as a relevant condition in the learning process of mobile students. F3 about formal/informal learning fostering group interaction and cooperative activities seems to retrace Perry's variable measuring «the degree to which the class could be characterized as respectful, collaborative, and able to relate the subject matter to the context of students' lives» (*ibidem*) as an indicator of the cognitive complexity characterizing students abroad, while F4, regarding experiential learning, directly recalls Perry's variable concerning «the nature of experiential learning that was experienced as part of the class», which in this case is also regarded as a typical factor of students abroad (*ibidem*).

This correspondence situates the analysis within a consolidated branch of studies, which appraises intercultural competency as a process that creates an expertise which is deeply embedded in the social dimension of learning, and which mobility-based education places great emphasize on. Moreover, the factorial structure on one hand confirms that there is a

significant correlation between experience abroad and intercultural sensitivity, while on the other hand, by linking mobility with other factors entailed in the educational pathway, provides evidence that intercultural encounters do not automatically lead to an increase in intercultural understanding (Halse 1999), but a combination of factors concerned with educational contexts and strategies must be implemented in an international program.

4.1 Mobility abroad (F1)

The factorial structure shows students' mobility abroad as the main factor (F1) involved in learning. This works as an exogenous factor influencing other dimensions, in particular, the perception of the relevance of ICTs to the profession (F2). Students' mobility abroad is also explored through the kind of sociality developed during their stay in a foreign country. Intercultural sensitivity proves to be differentiated primarily by an inclusive or exclusive social background, which was explored in terms of social capital, namely as productive ties generating norms of reciprocity and trustworthiness among individuals. According to Putnam's distinction, students were distinguished by a *bonding*, exclusive, inward-looking sociality, which tends to reinforce exclusive identities and homogeneous groups, or by a *bridging*, inclusive, outwards-looking one, that encompasses people from across diverse social divides (Putnam 2000, p. 22).

No doubt, the possibility of spending time abroad offered by an IP and of experiencing a period of intense cohabitation with people from different countries, is the presupposition for experiencing *cultural multiplicity* as a *disjunctural* situation. Such a condition is necessary to *relativize* situations, even though this is not enough to allow the shift to a qualitatively different way of thinking. As shown by Perry, *relativizing* situations may also simply mean shifting from mere dualistic positions based on a right/wrong, polarized vision to a relativization of choices ("do your own thing"), in which points of view are still atomistic and dilemmatic in a «way in which each answer has its own "absolutism"» (Perry 1999, p. 107).

According to Bennett (1993), full intercultural sensitivity needs to go beyond the mere acceptance of different points of view. It needs a new perspective, in which the learner gives evidence of the meta-skill of «thinking about thought, talking about frames of reference and arguing about the coherence between a thought and its links and correlations with a context». At this stage, relativism is no longer the mere coexistence of many ways of thinking about a certain class of problems, «but a way to make sense in an otherwise chaotic multiplicity» (Perry 1999, p. 123).

Such a sensitivity, which is already intercultural, cannot rely only on mobility; it needs well-grounded educational planning in order to permit students to reach a stage of comparison, in which complexity consists of a multiplicity of patterns and a patterning which makes each point of view a "construct", with its own special character, coherence, and integrity.

4.2 Blended learning and communication (F2)

The causal model displays a factorial structure in which mobility (F1), namely the inclusive sociality and cognitive flexibility it affects, exerts a direct influence on the appreciation of the blended structure of the course (F2) in the process of competency development. The direct connection between F1 and F2 reflects the close connection between two sides of globalization: increased *physical mobility* and enhanced *virtual mobility*.

The relationship between F1 and F2 also hints at the re-writing of the space–time relationship and of the subjective geography «inside people's head» (Crang 1998, p. 11) owing to the complex connectivity that characterizes modern social life (Tomlinson 1999), as relevant dimensions in an educational pathway which *integrates different communicative modes* (face-to-face, online, 2.0 web) and *contexts* (formal, informal, national, international). Mobility (F1) mitigates the hypertrophic effects of «augmented reality» created by new media (Buckingham 2008), since it positively influences the appreciation of those online assignments focused not so much on individual self-expression, but rather on positive inter-dependence and collaboration among the participants.

4.3 Formal/informal learning (F3)

The multilingual, multi-professional, and multicultural context of Programs like *ICIC* and *ITSI* works as a *problematic field of interaction*, a "*situational social occasion"* in which the individuals' interaction is strictly dependent on the social structure and the prevailing communicative conditions therein (Goffman 1963). In a situation where common sense, with its bonding moral standards is completely undermined, all participants, even those from the country where the Program edition is taking place, are "foreigners", since "thinking-as-usual" ceases and the cultural pattern no longer functions as a system of tested recipes at hand (Schütz 1976, pp. 95–96).

The integration of non-formal and informal learning within institutionalised contexts of education favours the creation of such estrangement, which can be read as different stages of intercultural sensitivity. Nowadays, the emphasis on informal learning, especially in the field of intercultural education, reflects the everyday experience of migrants and post-migrants in the concrete contexts of trans-national cultural flows where situated relationships and biographies are re-negotiated daily, and which work as non-formal learning spaces.

The connection between mobility (F1), appraisal of ICTs (F2) and F3 shows that the diversification of communication modes and the emphasis on sociability are important learning dimensions which influence the students' capability of developing meta-skills to appreciate methodologies like the combination of formal and informal learning, and the cooperative work expressed by F3.

4.4 Experiential learning (F4)

The output dimension in this model is the relevance attached by the participants to experiential learning, especially to practical knowledge and to the intensive formula of the program.

In these Programs, practice was assumed not as a field of application, but as a space of exploration and discovery, which can question old knowledge and permit new knowledge to be inferred. Direct experience of changing contexts and communicative modes creates *disjunctural situations* and activates transformative skills by "effecting change in a *frame of reference*" (Mezirow 1997, p. 5). The cooperative methodology used for managing the complex contexts of cohabitation created by the IPs encouraged learners to move toward a more inclusive, self-reflexive, and integrated frame of reference.

The emerging model emphasizes the active role of the individual in negotiating his/her personal identity as well as professional competency within the social context. The crucial role played by experience, and the importance attached to it by learners, shows evidence of

an ecological approach to socialization provided by mobility-based lifelong learning and the "re-embedding" of expert knowledge in social life.

5 Conclusions

In order for mobility abroad to have educational relevance in preparing *global ready* students and in developing intercultural competence, three learning outcomes should be focused on: Increasing students' *awareness* of themselves as cultural beings; enhancing their awareness of others in their own *cultural contexts* and developing their capacity to *bridge cultural differences* between themselves and others (Vande Berg et al. 2012, pp. 14–15). This means that a *developmental*, *holistic* approach to learning, actually based on mobility, is necessary to develop that broad, all-encompassing expertise which is intercultural competence.

This study sheds light on the educational worth of mobility, especially in lifelong learning, as a promising learning device to reveal the endemic condition of today's individuals who are continuously exposed to estrangement, and to appraise it in terms of competency. By integrating mobility in the "protected" context of formal education, the conditions are set for creating a dissonant experience of cultural displacement that may be appraised in terms of intercultural competency, an asset which goes beyond multi-cultural skills and which is necessary to outline a new professional and human profile that fits the needs of our enlarged European society with its redefined boundaries and its emerging trans-national identities. The emerging constructs offer insights on *mobility-based education* which prove to be very promising in *constructing effective and appropriate sociability within complex social scenarios and in valuing it as a competency transversal to different professional profiles and crucial for employability, and living together in the global world*. The study emphasizes the social infrastructure of a learning model developed within the framework of EU Lifelong Learning Programs, in which competence is the result of an active process of world de-construction and re-construction fully *embedded in the social experience* of mobility abroad and full immersion in different cultural communities.

The four indexes which emerge from the factorial pattern evoke the four variables which form Perry's model of the intellectual development of learners studying abroad and place this study within a consolidated approach which appraises intercultural competency as a holistic process rooted in the relational dimension of the learning experience. Further exploration of a possible link between these factors and the students' position within the learning process may outline different levels of openness towards diversity, like an ideal range of intercultural sensitivity, and may cast light on the connection between experience of mobility and the kind of sociability developed through it. The data shows that mobility is a fecund field for the development of intercultural competences and an important factor of efficacy for future educational practice and research in the area of lifelong education. Through these examples of mobility-based education as promising practices in building broad-ranging competences and global-ready learning profiles, this study provides solid recommendations that may be useful to the EHEA Strategy for mobility and its increasing interest in student participation in transnational programs of studies.

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