STUDENT EVALUATION OF INTERNATIONAL INTERACTION AND COMMUNICATION OPPORTUNITIES AT UNIVERSITY

Victoria Kompanets[a]*, Juha Väätänen[b]

[a]LUT University, P.O. BOX 20, FI – 53851 Lappeenranta, Finland

Abstract

This paper addresses the university campus environment for international interaction and communication by studying self-evaluation of local and international students. The research aims to determine which factors of the formal and informal learning environment as well as social interaction outside university influence students' quality perceptions of opportunities for international interaction and communication at university and how these factors affect student evaluations. The study developed and tested a measurement scale to assess the quality of international interaction and communication opportunities in higher education. The research is based on a quantitative survey of 200 students mainly from Nordic countries and Russia, and represent both domestic and international student perspectives. Item-by-item, factor and multiple regression methods were used for data analysis. Multicultural interaction and local community engagement are important driving factors of student quality evaluation of international interaction and communication. Multicultural interaction and worldview perspectives exchanges in class and ease of making friends with local students and international students had significant impact on quality perception of international interaction and communication for both international and local students. In order to improve students' opportunities for international interaction and communication, universities should provide their students with regular opportunities to interact with one another during social campus events, clubs, and committees as well as extracurricular multicultural events organised by stakeholders.

Keywords: International interaction and communication, student engagement, higher education, Internationalisation

1. Introduction

Globalisation is an overarching trend that affects most spheres of human life and makes international interaction and communication skills a crucial contribution to a successful career in many fields. Higher education institutions are proper environments for acquiring such skills. Study abroad periods and internationalisation at home through communication with international students on campus are often available means to grow international understanding among students.

Internationalisation of higher education is actively promoted at the regional and national levels. The European Union emphasizes the importance of opportunities for young people to study and work across Europe. Nine million people within the last 30 years and 724 931 participants in 2016 took part in international mobility and collaborative projects of the European Union Erasmus+ programme (European Union, 2017). In addition, the European Commission suggested to double funding and triple the number of participants in the Erasmus programme for the next funding period (European Commission, 2018). In the speech at Sorbonne, French President Emmanuel Macron called for an expansion of international student exchange programmes so that 50% of all students would spend at least half a year abroad by the age of 25 and that students would speak at least two languages (Macron, 2017). The President's European Universities network idea evoked a wide response from university networks and higher education organisations (Myklebust & O'Malley, 2018). Overall, there is evidence to indicate intentions to extend the support of international mobility and cooperation in higher education in future years.

Many countries have their own strategies, position papers and programmes for higher education internationalisation. For example, in the Swedish strategic agenda for internationalisation of higher education and research, a special objective is devoted to the increase of intercultural competence and international understanding of students by developing a formal and informal learning environment for both domestic and international students (Swedish Government, 2018). The Finnish International strategy for higher education and research 2017–2025 set goals for better conditions for the integration of foreign students and multicultural environment development (Finnish Ministry of Education and Culture, 2017). In a similar manner, the National Union of Students in Norway emphasizes the inclusion of international students to increase the internationalisation of domestic students and better integration of foreign students (National Union of Students in Norway, 2017). Outside the European Union, a good example is the Russian Academic Excellence project 5-100-2020, targeted to lead at least five Russian universities to the top 100 of the world university rankings by 2020. One of the most important actions in all project 5-100-2020 participating universities'

roadmaps is an increase in students studying abroad as well as international students on campus. All these examples illustrate the increasing recognition of the importance of the international environment within universities to improve interactions between local and international students that will also improve their international communication skills.

Higher education institutions recognize the importance of intercultural and cross-cultural competence and arrange different opportunities for students to acquire them. Moreover, international experiences and cross-cultural communication competences are also being marketed as a manifestation of organisational and student success (Griffith et al., 2016). The benefits of the increased mobility of students can be achieved only through the proper university environment encouraging international and domestic students to interact and communicate with each other. Student feedback and evaluation of university services related to internationalisation becomes an important source for university development in this context.

Internationalisation of universities is often measured by the number of international students on campus and the number of domestic students who participate in an exchange period abroad. However, the presence of international students does not necessarily mean that the environment and culture on campus are sufficiently international (Knight, 2011). International students tend to interact only with other international students and have limited contacts with domestic students. This is a common situation and can lead to dissatisfaction with studies of international students and failure of internationalisation at home for domestic students.

Student experience in higher education is traditionally perceived as a complex construct formed of a set of academic experiences, administrative support and university facilities (see SERVQUAL (Oliveira & Ferreira, 2009; Yeo, 2009) and HEdPERF (Abdullah, 2005; Sultan & Yin Wong, 2013)). In addition to that, Chavan et al. (2014) identified that joint activities between students (co-creation) and social benefits, such as friendship, recognition and shared experiences, have an impact on international student experiences and their perceptions of the quality of education. International students are more satisfied with their studies when they communicate with local students. Social engagement of international students is also discussed at the country level as an important and necessary element of the internationalisation strategy, for example, in Australia (Australian Education International, 2012) and Norway (National Union of Students in Norway, 2017). Multicultural social and academic events and activities can considerably contribute to students' interaction and intercultural learning (Rienties & Nolan, 2014).

Table 1 displays tools suggested in current research to assess the quality of higher education through an international perspective. Copeland et al. (2017) developed student development constructs related to student benefits of community college internationalisation,

which reflect various activities and processes of multicultural interaction. Chavan et al. (2014) suggested additional constructs of higher education service quality model by studying the expectations of international and domestic students in Australia. Social experiences and co-creation activities between international and domestic students are suggested to lead to a higher quality assessment of educational experiences. Similarly, other researchers have found that randomised student selection for course group work, so that domestic and international students are mixed, leads to better interpersonal relations and better academic results (Hendrickson, Rosen, & Aune, 2011; Neri & Ville, 2008; Rienties, Nanclares, Jindal-Snape, & Alcott, 2013). Peer-assisted communities of practice that are self-organised or initially facilitated by university staff contribute to the increased engagement of international students in society (Chilvers, 2014; Hou, Montgomery, & McDowell, 2014; Khoury & Usman, 2018; Mcdowell & Montgomery, 2006). These elements can be used to assess the environmental facilitation of international interaction and communication opportunities at universities.

Table 1. Tools for international interaction and communication of international and domestic students

Authors	Tools
Copeland et al. (2017), p. 369	▪ Regular extracurricular opportunities for interaction of international and domestic students during campus events, clubs, committees, etc. ▪ On-campus learning events and activities such as panel discussions, guest speakers, international visitors, and student club or organizations ▪ Regular collaboration with students from other cultures in classroom settings ▪ Interfaith pastoral counseling or cross-culturally sensitive counseling ▪ Multicultural extracurricular learning opportunities such as day trips, workshops, programs, or events ▪ In-class collaborative opportunities for multicultural interaction and worldview perspectives ▪ Course content and materials reflecting global changes, shifting world demographics, and multicultural perspectives
Chavan et al. (2014)	▪ Connection of international students with supportive local communities ▪ International and domestic students' co-creation in academic activities (class debate-based discussions, experiential exercises, role plays, community engagement, internships and work placements) ▪ Social experiences
B Rienties et al. (2013); Bart Rienties, Alcott, & Jindal-Snape (2014); Hendrickson et al. (2011); Urban & Palmer (2014)	▪ Multicultural student teams for course assignments
Chilvers (2014); Khoury & Usman (2018); Montgomery & McDowell (2008)	▪ Communities of practice

2. Problem statement

International interaction and communication at universities have been researched from different perspectives. Considerable research has been conducted to evaluate the intercultural or cross-cultural competence of students acquired during their studies, often after a study abroad period. Examples of measurement scales are numerous and include the Beliefs, Events, and Values Inventory (BEVI) (Shealy, 2004), the Global Awareness Profile (GAP) (Corbitt, 1998), the Global Perspective Inventory (GPI) (Braskamp, Braskamp, Merrill, & Engberg, 2008), the Intercultural Adjustment Potential Scale (ICAPS) (Savicki, Downing-Burnette, Heller, Binder, & Suntinger, 2004), the Intercultural Development Inventory (IDI) (Bennett & Hammer, 2002) as well as attempts to combine these instruments (Almeida, Raquel, & Costa, 2017; Anderson & Lawton, 2007). However, the abstractness of cross-cultural competence or cultural sensitivity constructs makes it challenging for universities to correctly interpret the results of such measurements and take actions to improve students' skills.

There is a lack of studies in developing measurements on internationalisation at the institutional level (Copeland, McCrink, & Starratt, 2017). The quantitative instruments measuring internationalisation and its influence on the quality of higher education are claimed to be insufficient (Knight, 2011; Hudzik & Stohl, 2009). For example, measurement scales for evaluating higher education as a service, such as SERVQUAL (Oliveira & Ferreira, 2009; Yeo, 2009) and the performance-based service quality model (HEdPERF) (Abdullah, 2005; Sultan & Yin Wong, 2013) lack dimensions on internationalisation.

Internationalisation as a service at university can be best manifested in a learning environment where domestic and international students can communicate and learn from each other. In order to provide students with better internationalisation experiences and skills, higher education institutions need to know students' opinions on the current learning environment and directions on how to support them. This can facilitate the creation of better conditions for international interaction and communication for both international and domestic students. This paper addresses the problem of international interaction and communication at universities through the eyes of local and international students.

3. Purpose of the Study

The purpose of the study is to explore how students evaluate international interaction and communication at university. International interaction and communication at university is evaluated by studying student self-evaluation of formal and informal learning environments

on campus, which can be controlled by the university, as well as social interaction outside university (see Figure 1).

The study aims to develop and test a measurement scale for the assessment of the quality of international interaction and communication opportunities in higher education. In addition, we will compare international and domestic students' evaluations, because they tend to apply different criteria for higher education service quality assessments (Chavan, Bowden-Everson, Lundmark, & Zwar, 2014).
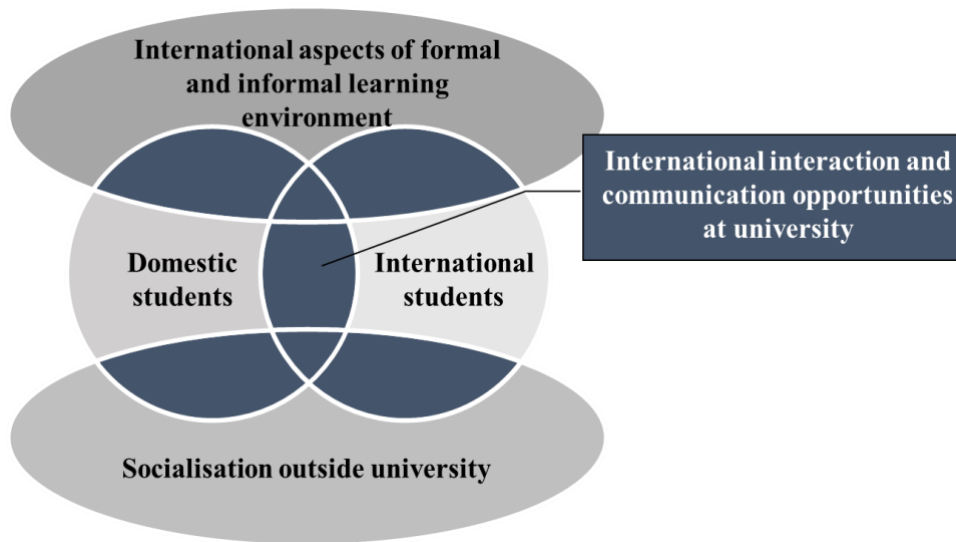

Figure 1. Aspects of international interaction and communication at university

4. Research Questions

The research aims to answer the following questions:

- Which factors influence students' evaluation of opportunities for international interaction and communication at university?

- How do these factors affect international and domestic students' quality evaluation of international interaction and communication?

Further, the study will test several hypotheses based on the constructs in Table 1 above. The constructs and related hypotheses are listed in Table 2.

Table 2. Scales and hypotheses of the study

Constructs	Hypothesis
International students and local students have regular opportunities to interact with one another during social campus events, clubs, committees, etc.	H1: Regular opportunities for interaction between international and domestic students during social campus events, clubs and committees have a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university.
There are enough multicultural extracurricular learning opportunities such as day trips, workshops, programs or events.	H2: The sufficiency of multicultural extracurricular learning opportunities such as day trips, workshops, programs, or events has a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university.
Teachers provide opportunities for multicultural interaction and worldview perspective exchanges in class.	H3: Opportunities for multicultural interaction and worldview perspective exchanges in class have a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university.
I collaborate regularly with students from other cultures in classroom/study-related settings.	H4: Regular collaboration with students from other cultures in classroom/study-related settings has a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university.
The university provides opportunities for interaction with local companies and organisations.	H5: Opportunities for interaction with local companies and organisations have a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university.
The university provides opportunities to participate in local community events and volunteer services.	H6: Opportunities to participate in local community events and volunteer service have a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university.
It is easy to make friends with local students.	H7: The ease of making friends with local students has a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university.
It is easy to make friends with other international students.	H8: The ease of making friends with other international students has a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university.
My overall evaluation of the quality of the opportunities for international interaction and communication in this university is good.	H9a: Multicultural interaction has a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university. H9b: Interaction between international and local students has a significant impact on international student evaluation of the quality of opportunities for international interaction and communication at university. H9c: Interaction between international students and other international students has a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university. H10a: Local community engagement has a significant impact on student evaluation of the quality of opportunities for international interaction and communication at university. H10b: Extracurricular events and community interaction have a significant impact on international student evaluation of the quality of opportunities for international interaction and communication at university.

5. Research Methods

The research is based on a quantitative survey of 200 students conducted in May 2018. Respondents are mainly from Nordic countries and Russia and represent both domestic and international student perspectives.

The self-administered online survey was distributed through the international offices, student guilds and university student portals at four universities in Finland, Sweden and Russia as well as student communities in social networks of other Nordic and Russian universities.

The survey consisted of demographic items and items related to students' attitudes about international activities at university. The questionnaire consisted of multiple-choice items and items using a five-point Likert scale (where 1 means strongly disagree and 5 means strongly agree). Two hundred completed questionnaires were returned, of which 130 respondents were international students (international degree students, joint and double degree students and exchange students) and 70 respondents were domestic students.

Statistical methods were used for data analysis; including descriptives, item-by-item, factor and multiple regression analyses using the software Stata/IC 14.0.

The results will contribute theoretically to the development of a scale for measuring the quality of higher education as a service by suggesting an instrument for the quality assessment of international communication and interaction opportunities for students. Use of the suggested tool will allow universities to evaluate their services with the help of student feedback.

6. Findings

6.1. Demographic Analysis

Table 3 presents the demographic data of respondents. 48.5% of respondents study in Finland, 14.5% in Russia, 11.5% in Sweden, 5% in Norway, 4.5% in Germany, 1% in Denmark and 15% in other countries. By country of origin, respondents were from 47 different countries, including 21.5% from Finland, 19% from Russia, 10.5% from Sweden, 4.5% from India, 3.5% from Germany and 4.5% from Iran. The majority of respondents study in medium (3.000–9.999 degree-seeking students) or large (at least 10.000 degree-seeking students) universities – 53.5% and 40.5% respectively. Most students were studying engineering (63%) or economic and business sciences (27.5%).

Table 3. Demographics

Variable	International students		Domestic students		All students	
	n=130	%	n=70	%	n=200	%
Age						
under 20	2	1.54	5	7.14	7	3.5
20-24	55	42.31	38	54.29	93	46.5
25-29	51	39.23	20	28.57	71	35.5
30-39	17	13.08	5	7.14	22	11
Gender						
Female	55	42.31	43	61.43	98	49
Male	68	52.31	26	37.14	94	47
NA/Other	7	5.39	1	1.43	8	4
Year of study						
Bachelor or equivalent (1st year)	3	2.31	6	8.57	9	4.5
Bachelor or equivalent (2nd year)	4	3.08	8	11.43	12	6
Bachelor or equivalent (3rd year or higher)	17	13.08	17	24.29	34	17
Master or equivalent	91	70.00	33	47.14	124	62
PhD / Doctor of Science or equivalent	9	6.92	6	8.57	15	7.5

6.2. Differences between international and domestic students

Comparisons of students' assessments of various international interaction opportunities at university (t-tests) show that international students were more likely than domestic students to have engaged in international communication on campus and outside university ($p < .001$). Nevertheless, there were no significant differences between international students' and domestic students' involvement in local community events and cooperation with local companies.

Table 4 presents the means and standard deviations (SD) for each variable by international students and domestic students and group comparisons. It also contains all item wordings of the variables in the model. The main dependent variable is *'My overall evaluation of quality of the opportunities for international interaction and communication in this university is good'*. Eight independent variables were developed based on the literature review. Some of the questions were adopted from the Community College Internationalisation Index (Copeland et al., 2017), while others were developed based on qualitative research papers (e.g. Chavan et al., 2014).

Table 4. Means and standard deviations for each variable by international students and domestic students and t-tests

Variables	All students n=200		International students n=130		Domestic students n=70		Group comparison (domestic vs. int'l) df =198	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*t*	*p*
International students and local students have regular opportunities to interact with one another during social campus events, clubs, committees, etc.	3.37	1.11	3.57	1.05	2.99	1.12	-3.66	***
There are enough multicultural extracurricular learning opportunities such as day trips, workshops, programs or events.	3.12	1.08	3.43	0.95	2.54	1.09	-6.00	***
Teachers provide opportunities for multicultural interaction and worldview perspective exchanges in class.	3.23	1.15	3.49	1.04	2.74	1.20	-4.61	***
I collaborate regularly with students from other cultures in classroom/study-related settings.	3.64	1.27	4.07	0.93	2.84	1.42	-7.34	***
The university provides opportunities for interaction with local companies and organisations.	3,30	1,09	3,32	1,13	3,24	1,03	-0,49	0,622
The university provides opportunities to participate in local community events and volunteer services.	3.03	0.97	3.05	1.00	2.99	0.94	-0.42	0.677
It is easy to make friends with local students.	3.03	1.29	2.70	1.23	3.63	1.17	5.18	***
It is easy to make friends with other international students.	3.93	1.02	4.24	0.80	3.36	1.14	-6.38	***
My overall evaluation of the quality of the opportunities for international interaction and communication in this university is good.	3.65	0.97	3.82	0.86	3.33	1.09	-3.47	***

*** p < .001

Five-point Likert scale: 1 = strongly disagree to 5 = strongly agree

International students gave relatively low assessments of the ease of making friends with local students (2.7 on a scale of 1 to 5), and very high assessments (4.24 [against a 3.36 assessment from domestic students]) with regard to making friends with other international students. This confirms earlier research (Breuning, 2007; Chavan et al., 2014; Montgomery & McDowell, 2008; Urban & Palmer, 2014) that international students find it difficult to communicate with domestic students. Another point worth mentioning is the difference in international and domestic students' opinions about multicultural opportunities and events.

International students tend to agree more often with the statement about regular collaboration with students from other cultures in study-related settings (4.07 against 2.84 for domestic students), about interaction in multicultural social campus events and clubs (3.57 for international students and 2.99 for domestic students) and about extracurricular events (3.43 and 2.54, respectively). While high assessments from international students are anticipated, the domestic students' evaluations may mean that they expect more international events and opportunities.

6.3. Factor analysis

The proposed measure for the international interaction and communication quality in higher education is an eight-item instrument. The Kaiser-Meyer-Olkin measure of sampling adequacy (MSA) is at least 0.6 for all variables, and overall MSA is 0.72, which indicates suitability for factor analysis (Hair, Anderson, Tatham, & Black, 1995). A principal component factor analysis (PFA) followed by an orthogonal varimax rotation for the whole set of data as well as a separate analysis of international and domestic students is conducted. Factor analysis results are summarised in Tables **5-7**.

Factor analysis for the whole dataset (200 responses) and for local students' responses (70 responses) generated two factors, which explain 57.5% and 64.05% of the total variance, respectively. The Eigenvalue for all factors is higher than 1; uniqueness of most of the variables is lower than 0.5, which means that the extracted factors explain at least half of the variance in each variable. The reliability of the scale was measured by calculating Cronbach's alpha, which is higher than 0.6 for both factors and is acceptable for an exploratory analysis of new scales (Hair, Anderson, Tatham, & Black, 1995). The extracted factors are multicultural interaction and local community engagement. Multicultural interaction refers to all the international events and activities arranged by the university. Local community engagement refers to communication with local companies, domestic students and participation in events arranged by the local community.

Table 5. Factor loadings and reliabilities for independent variables (overall dataset, N = 200)

Factor scales	(Alpha)/Factor loading
Factor 1. Multicultural interaction	(0.744)
There is enough multicultural extracurricular learning opportunities such as day trips, workshops, programs or events (ININT2)	0.590
Teachers provide opportunities for multicultural interaction and worldview perspective exchanges in class (ININT3)	0.681
I collaborate regularly with students from other cultures in classroom/study-related settings (ININT4)	0.836
It is easy to make friends with other international students (EXINT4)	0.789
Factor 2. Local community engagement	(0.614)
International students and local students have regular opportunities to interact with one another during social campus events, clubs, committees, etc. (ININT1)	0.490
The university provides opportunities for interaction with local companies and organisations (EXINT1)	0.705
The university provides opportunities to participate in local community events and volunteer services (EXINT2)	0.771
It is easy to make friends with local students (EXINT3)	0.628

Table 6. Factor loadings and reliabilities for independent variables (domestic students, N = 70)

Factor scales	(Alpha)/Factor loading
Factor 1. Multicultural interaction	(0.818)
It is easy to make friends with other international students (EXINT4)	0.8079
International students and local students have regular opportunities to interact with one another during social campus events, clubs, committees, etc. (ININT1)	0.6439
There are enough multicultural extracurricular learning opportunities such as day trips, workshops, programs or events (ININT2)	0.669
Teachers provide opportunities for multicultural interaction and worldview perspective exchanges in class (ININT3)	0.7242
I collaborate regularly with students from other cultures in classroom/study-related settings (ININT4)	0.8339
Factor 2. Local community engagement	(0.666)
The university provides opportunities for interaction with local companies and organisations (EXINT1)	0.5433
The university provides opportunities to participate in local community events and volunteer services (EXINT2)	0.8277
It is easy to make friends with local students (EXINT3)	0.7963

Table 7. Factor loadings and reliabilities for independent variables (international students, N = 130)

Factor scales	(Alpha) / Factor loading
Factor 1. Extracurricular events and community interaction	(0.706)
There are enough multicultural extracurricular learning opportunities such as day trips, workshops, programs or events (ININT2)	0.632
The university provides opportunities for interaction with local companies and organisations (EXINT1)	0.761
The university provides opportunities to participate in local community events and volunteer services (EXINT2)	0.870
Factor 2. Interaction between international and local students	(0.612)
International students and local students have regular opportunities to interact with one another during social campus events, clubs, committees, etc. (ININT1)	0.777
Teachers provide opportunities for multicultural interaction and worldview perspective exchanges in class (ININT3)	0.618
It is easy to make friends with local students (EXINT3)	0.739
Factor 3. Interaction with other international students	(0.494)
I collaborate regularly with students from other cultures in classroom/study-related settings (ININT4)	0.775
It is easy to make friends with other international students (EXINT4)	0.809

Factor analysis provided a slightly different grouping of variables for international students, which makes sense context-wise. Factor analysis for the international students' responses (130 responses) generated three factors, which explain 64.92% of the total variance. The Eigenvalue for all factors is higher than 1; the uniqueness indicator of all variables is lower than 0.5, which means that the extracted factors explain at least half of the variance in each variable. Cronbach's alpha as a reliability measure is higher than 0.6 for the first two factors and can be acceptable. The Cronbach's alpha for the third factor is equal to 0.49, which may indicate an internal consistency problem and can be due to a low number of variables in the factor (Tavakol & Dennick, 2011). However, Factor 3's items loadings are quite high, and we will accept this construct for further analysis. Collaboration in the classroom and friendship are complex items, but it seems that both are related to the concept of interaction with other international students.

The three extracted factors are extracurricular events and community interaction, interaction of international and local students and Interaction with other international students. The multicultural interaction factor from the analysis of all responses, including both domestic and international students, is divided into two constructs, one of which is associated with interactions between international and local students, and the other is associated with

interactions between international students. This reflects the common problem that international students usually make friends and communicate actively with other international students but rarely interact closely with local students (Chavan et al., 2014). This has also been mentioned by students in the survey's open feedback section.

6.4. Regression analysis

A multiple regression analysis was conducted to assess the extent to which the three models consisting of the eight variables related to different ways of international interaction (Model 1), factors of multicultural interaction and local community engagement (Model 2) and factors of extracurricular events and community interaction, interaction between international and local students and interaction with other international students (Model 3) (see Table 8) were able to predict international and domestic student evaluation of the quality of the opportunities for international interaction and communication at university and to identify the contribution of each factor in the models. The models were calculated for three datasets: all 200 students, only international students and only domestic students. Models 1 and 2 for the all-student dataset also included a control dummy variable ST0 (I am an international student, 0 = no, 1 = yes), but its influence was insignificant.

Table 8. Regression analysis results

Overall evaluation of the quality of the opportunities for international interaction and communication (EXINT5)	All (200)				International students (n=130)				Local students (n=70)			
	Coef.	SE	beta	R^2	Coef.	SE	beta	R^2	Coef.	SE	Beta	R^2
Model 1				0,5465				0,5028				0,608
International students and local students have regular opportunities to interact with one another during social campus events, clubs, committees, etc. (ININT1)	0,106**	0,054	0,121		0,120*	0,064	0,146		0,123	0,106	0,127	
There are enough multicultural extracurricular learning opportunities such as day trips, workshops, programs or events (ININT2)	0,111*	0,067	0,124		0,245***	0,075	0,27		-0,138	0,135	-0,138	
Teachers provide opportunities for multicultural interaction and worldview perspective exchanges in class (ININT3)	0,237***	0,057	0,280		0,149**	0,068	0,179		0,393***	0,088	0,434	
I collaborate regularly with students from other cultures in classroom / study-related settings (ININT4)	-0,040	0,058	-0,052		0,002	0,066	0,002		-0,034	0,104	-0,044	
The university provides opportunities for interaction with local companies and organisations (EXINT1)	0,048	0,061	0,054		0,064	0,073	0,083		-0,024	0,120	-0,022	
The university provides opportunities for participate in local community events and volunteer services (EXINT2)	0,105*	0,057	0,105		0,066	0,06	0,076		0,178	0,139	0,154	
It is easy to make friends with local students (EXINT3)	0,166***	0,042	0,219		0,130**	0,047	0,186		0,231**	0,095	0,248	
It is easy to make friends with other international students (EXINT4)	0,273***	0,073	0,286		0,300***	0,09	0,277		0,281**	0,132	0,296	
I am an international student (ST0)	0,102	0,124	0,050		-	-	-		-	-	-	
constant	0,209	0,265			-0,016	0,454			0,097	0,358		
Model 2				0,4973								0,4939
Factor 1. Multicultural interaction	0,498***	0,069	0,513		-	-	-		0,563***	0,104	0,519	
Factor 2. Local community engagement	0,472***	0,051	0,486		-	-	-		0,515***	0,087	0,474	
I am an international student (ST0)	-0,006	0,13	-0,003		-	-	-		-	-	-	
constant	3,649***	0,102			-	-	-		3,329***	0,094		
Model 3								0,464				
Factor 1. Extracurricular events and community interaction	-	-	-		0,381***	0,057	0,442		-	-	-	
Factor 2. Interaction between international and local students	-	-	-		0,390***	0,063	0,453		-	-	-	
Factor 3. Interaction with other international students	-	-	-		0,216***	0,06	0,251		-	-	-	
constant	-	-	-		3,815	0,056						

All but one assumption associated with conducting a multiple regression analysis were confirmed. Due to heteroskedacity of the dataset (according to White's and Breusch-Pagan/Cook-Weisberg tests), robust standard errors were used in the regression analysis. Other assumptions, such as a linear relationship between dependent and independent variables, no multicollinearity (according to the Durbin's alternative test for autocorrelation and VIF scores between 1 and 1.99 for all datasets and models) and data normality (Shapiro-Wilk W test for normal data) were confirmed.

Model 1 was able to predict 54.65%, 50.28% and 60.8% of the variability in evaluation of the quality of the opportunities for international interaction and communication for the mixed, international and local student datasets, respectively ($p < .0001$). However, the variables 'I collaborate regularly with students from other cultures in classroom/study-related settings' and 'the university provides opportunities for interaction with local companies and organisations' were not significant. The variable related to opportunities to participate in local community events and volunteer services was significant at level $p < 0.1$ only for the mixed dataset.

Multicultural interaction and worldview perspectives exchange in class and ease of making friends with local students and international students were found significant and common to both international and local students. It should be noted that the coefficient of multicultural interaction and worldview perspective exchanges in class for local students was more than twice as high as for international students (0.393 and 0.149 respectively), which means that international interaction elements in class are the most influential criteria for evaluating the quality of international interaction for domestic students. Another finding is that high-quality international interaction at universities is largely related to personal friendship with local and international students.

In Model 1 (Figure 2) for international students, the variables related to different events where students can meet other people, namely 'International students and local students have regular opportunities to interact with one another during social campus events, clubs, committees, etc.' and 'There are enough multicultural extracurricular learning opportunities such as day trips, workshops, programs or events' have a significant influence on student evaluation of the quality of the opportunities for international interaction and communication at university.
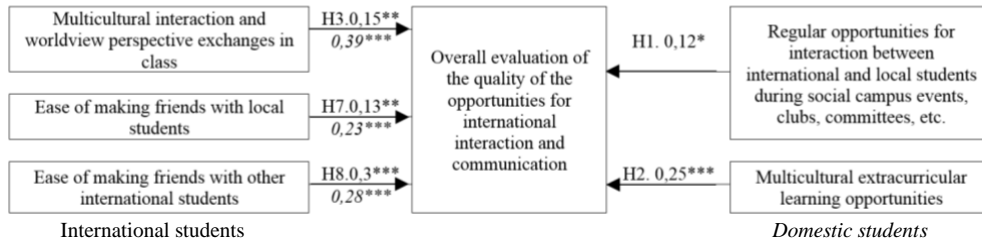
Figure 2. Model 1 of international interaction and communication at university

To study factor effects on quality evaluations of international interaction and communication at university separately for international and domestic students, Model 2 and Model 3 were analysed (Figure 3). Model 2 explained 49.39% of the total variance in evaluation of the quality of the opportunities for international interaction and communication ($p < .0001$) for local students and 49.73% for the mixed student dataset. Multicultural interaction and Local community engagement had a significant positive effect on student evaluations. Model 3 explained 46.4% of the total variance in evaluation of the quality of the opportunities for international interaction and communication ($p < .0001$) for international students. All three factors of extracurricular events and community interaction, interaction between international and local students and interaction with other international students had a significant positive effect on student evaluations (see Table 6).
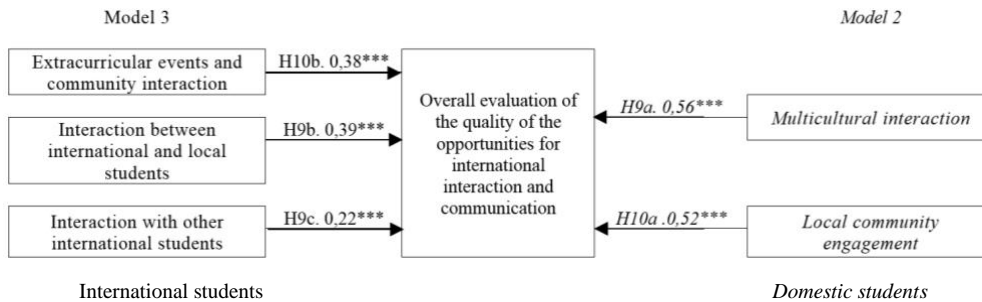

Figure 3. Models 2 and 3 of international interaction and communication at university

7. Discussion and conclusions

This study was designed to determine the effect of various factors on international and domestic students' quality evaluation of international interaction and communication opportunities at university. The findings of the study indicate differences in international and domestic student assessments. International students are more engaged in multicultural events on campus and outside the university than domestic students, as confirmed by Grayson (2008). Nevertheless, they find it challenging to make friends with local students and easy to make

friends with other international students, which is consistent with the findings in other studies (Breuning, 2007; Chavan et al., 2014; Montgomery & McDowell, 2008; Urban & Palmer, 2014). Despite the lack of communication with local students, international students still rate their international interaction and communication highly. This finding supports previous research in this area by Montgomery & McDowell (2008) and can be explained by the strong international community formed among the international students. Domestic students' lack of awareness and engagement in campus events, which resulted in lower evaluations of international interaction and communication opportunities, should be a point of development in universities.

The factor analysis provided a different grouping of variables for international and domestic students, which makes sense context-wise. Factors of multicultural interaction (all the international events and activities arranged by a university) and local community engagement (communication with local companies, domestic students and participation in the events arranged by the local community) were common to all (and particularly domestic students) and showed significant impacts on the quality evaluation of international interaction and communication. The factor analysis for the international students' responses generated three factors: extracurricular events and community interaction, interaction between international and local students and interaction with other international students, which have positive impact on the quality evaluation of international interaction and communication. Interactions between local and international students and between international students were extracted as two different factors because international students usually have stronger relationships and communities with other international students rather than local students, which is consistent with other studies (Chilvers, 2014; Hendrickson et al., 2011; Montgomery & McDowell, 2008; Rienties & Nolan, 2014).

Multicultural interaction and worldview perspective exchanges in class and ease of making friends with local students and international students had significant impacts on quality evaluation of international interaction and communication by both international and local students. International interaction elements in class are the most influential criteria for evaluating the quality of international interaction for domestic students. Along with Chavan et al.'s (2014) suggestion of social benefits as a driver of service quality perception, high-quality international interaction at universities is largely associated with personal friendship between local and international students. For international students, the variables related to different events where students can meet other people (namely regular opportunities to interact with local and international students during social campus events, clubs and committees and multicultural extracurricular learning opportunities) have a significant influence on student

perception of the quality of the opportunities for international interaction and communication at university. On the other hand, it was surprising that interactions with companies or involvement in local community events did not affect student quality evaluations significantly.

The developed and tested constructs related to international interaction and communication can be used in higher education service quality evaluation. The results illustrated the difference in international and domestic students' perceptions of quality of university internationalisation services. Future research could focus on embedding the constructs associated with international interaction and communication in the measurement of higher education quality and student satisfaction.

As a practical implication, the identified activities and events for enhancing international interaction and communication can benefit higher education practitioners by highlighting ways to develop the internationalisation of the institution. In order to improve students' opportunities for international interaction and communication, universities should provide their students with regular opportunities to interact with one another during course work, social campus events, clubs, and committees as well as extracurricular multicultural events.

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