

International degree mobility in library and information science

Vera Hillebrand, vera.hillebrand@hu-berlin.de

Berlin School of Library and Information Science, Humboldt-Universität zu Berlin

Elke Greifeneder, greifeneder@ibi.hu-berlin.de

Berlin School of Library and Information Science, Humboldt-Universität zu Berlin

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Research paper

Abstract

This study examines whether a brain drain exists in LIS and explores the patterns of geographical mobility of researchers. Brain drain or brain gain describes the migration of scientists from their home country to another. The results are based on a quantitative dataset of 877 active LIS researchers who have been involved in the 2014 to 2016 iConferences. The study reveals two alarming trends: the American LIS researchers rarely ever leave their continent and might lack international exposure. On the other hand, researchers from Asia and Europe show a high rate of mobility towards North America. In particular, the next generation of LIS researchers are currently receiving their education in North America. 94.3 % of all PhD students in the sample currently live in the US and may never return. One important pull factor seems to be the possibility of studying in English. If foreign students decide to come to Europe, they go to Ireland or the United Kingdom.

KEYWORDS: mobility, education, LIS, brain drain, lingua franca

Introduction

Ten years ago, Laudel remarked in her study about the scientific elite that “there is a widespread feeling that ‘whoever can go to the USA does so and tries to stay there’, we have at best only anecdotal evidence of this happening, and less to explain whether it does so across the entire spectrum of science.” (Laudel 2005, p. 378). Laudel describes a phenomenon that is known as brain drain or brain gain. It refers to the migration of scientists from their home country to another (OECD 2008). The fear of losing their elite scientists to the US is a real issue for most countries around the world, because in a research world in which English is the lingua franca, and in which research problems are

rarely local problems but rather global, spending time in the US offers major advantages. This is also true for Library and Information Science (LIS) where the major publication venues require English submissions and the majority of Information Science schools are in the US. This study offers more than anecdotal evidence of brain drain: it examines whether a brain drain exists in LIS and explores the patterns of geographical mobility of researchers.

Theoretical framework

Geographical mobility has been studied from various angles, focusing on either transport-related mobility, regional mobility or international mobility (Laudel 2003, Laudel 2005). Most studies on mobility examine the effects of residence changes on research output (Jonkers 2008, Sandström 2009, Veugelers 2015, Marmolejo-Leyva 2015) by studying the interplay between productivity and mobility, and mandates that researchers have published. Not surprisingly these studies are limited to researchers who have completed their PhD. Only a small number of studies examine student and graduate mobility (for example Murphy-Lejeune 2015). In addition, studies limit their analysis to a single demographic group, for example women, or only to researchers from one particular institution (Cañibano 2008, Cañibano 2011, Marginson 2006), or a specific research area (Criscuolo 2005, Furukawa 2012).

Being mobile in research can mean attending a conference for some days, a research stay for some months or completing a degree in another country. From a student perspective short term mobility such as semester-long Erasmus stays are usual. Since the harmonization of ECTS credits within the Bachelor and Masters system in Europe, the opportunities to get an education elsewhere have been growing rapidly. This has given early career researchers the chance to enhance their international experience (Murphy-Lejeune 2003), start networking with other research communities and get to know other education styles. “Brain circulation” can encourage knowledge transfer to the originating countries. A student with international experience can come back as a skilled migrant with new competences and connections with networks in foreign countries. Yet, there must be something that attracts researchers back, such as an “absorptive labour” market or a well-situated research community (OECD 2008). Otherwise, researchers may not come back.

Little is known about the international mobility of Library and Information researchers during their education. Kajberg (2004) conducted a survey into internationalization and collaboration of 25 LIS schools in Europe. Internationalization, in his case, means efforts to attract international students. The data show that 195 international students were enrolled at 23 LIS schools (Kajberg 2004, Table 1, p. 367). Insufficient resources and capacity are the reasons behind the unsatisfying number of international enrolments (Kajberg 2004).

This study contributes to previous research by examining the mobility of a field that has so far not received much attention, by studying both PhD students as well as researchers at later stages of their career, and by using a sample that is not biased towards high productivity researchers.

Methodology

This study uses a dataset that describes the iSchool community. It was originally collected for an analysis of the reviewing practices of the iConference, the annual meeting of the iSchools (Bogers and Greifeneder 2016). Its attendees represent members of the iSchools around the globe coming from more than 50 LIS schools. The dataset includes all registered users from ConfTool, the conference management system, who either submitted a contribution as authors (accepted or not) or were registered as reviewers in the years 2014, 2015 or 2016. Using the data from ConfTool further information was found by manually checking CVs for background information on each person. IRB approval was received both by the Faculty's IRB board and the iCaucus' executive group. The final dataset contains the following information on 877 active LIS researchers:

1. gender (male or female)
2. country of residence
3. whether or not they have completed or are currently studying in a PhD programme
4. the name of the university from which they have earned their PhD or where they are currently studying
5. the country where they have completed their PhD
6. the country where they have completed their Master degree and
7. birth country or, if this is not traceable, the country where the bachelor degree was obtained, on the assumption that most researchers have completed their bachelor degree in their home country.

4. Research results

The analysis focused on the following three themes: 1) mobility index that shows how frequently researchers have moved, 2) where researchers have moved to and 3) the mobility of PhD students.

The mobility index represents the number of times a person has changed residence before reaching their current place of residence. It goes from no

moves (index = 0) to a maximum of three moves (index > 0). The data on individual nations were summarized via the four continents (America, Europe and Asia and one last group that included Australia, the Middle East and Africa). Since the mobility of doctoral students cannot be categorized as finished, in contrast to researchers with doctorates, the groups were analyzed separately.

Researchers born in America

America has had the highest number of participants at the iConference during the last three years and thus they make up the largest subsample. It is remarkable that out of 456 participants born in America 418 have never left their home country (91.7 %). Of the 48 individuals who did move, only 26 left the American continent. Nine people were born in the South- and Middle America; however, all of them have moved during their career to North America. In terms of the number of participants, Canada ranked second after the United States of America. Figure 1 below shows all American participants who have left the continent (N = 26). Six are doctoral students and all are male. They have spread out across Europe (2), Asia (2) and America (2).

Although it seems that some researchers stayed in the United States (pink line) this is an optical misconstruction. The visualization restarts the bundling of groups by continent at each new educational step and therefore what seems like a constant line for individuals staying in the United States is in fact a constant line showing how many of those who have moved stayed in the United States at a particular time.

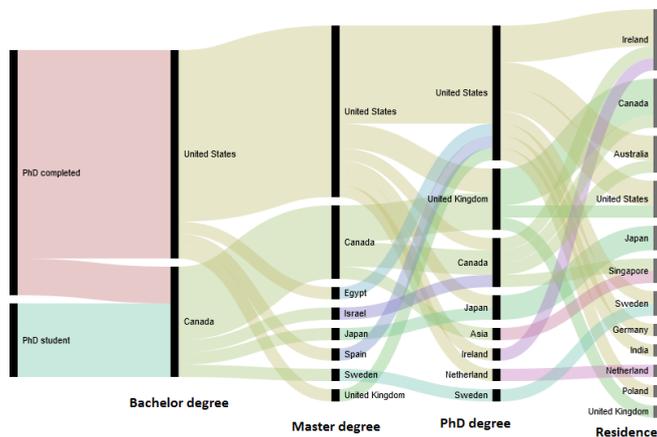


Figure 1. International mobility of American researchers and American PhD students with a mobility index > 0

American-born researchers with a mobility index > 0 who hold a PhD degree are today distributed over all continents. While this shows that Americans move to other countries, the figure disguises the fact that many of the countries to which Americans have moved are English-speaking. Figure 2 shows the same results as Figure 1, but with a distinction between English-speaking and non-English speaking countries.

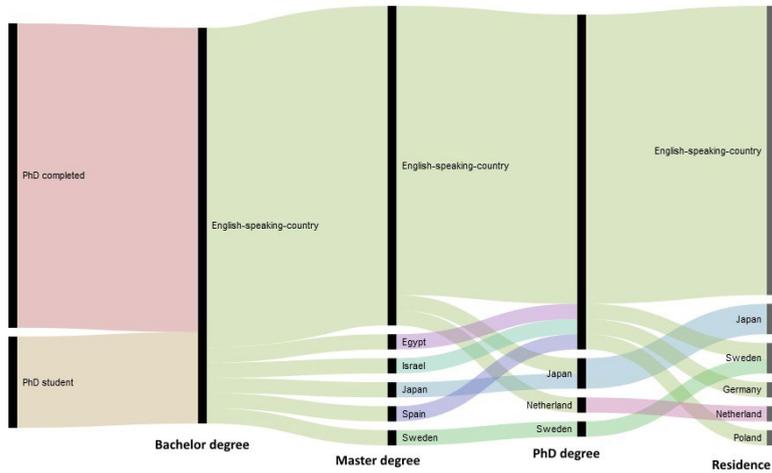


Figure 2. International mobility of American PhD holders and PhD students with a mobility index > 0 by English-speaking countries

All Americans who have returned to the US from Europe have completed their PhD in the United Kingdom. The American-born researchers who still live in Europe are located in Ireland (4) and the United Kingdom (1). Americans who have moved to Asia are today in Singapore (2) and India (1); all three Americans who went to another continent live in Australia. This means that only four mobile PhD researchers are in a country (Sweden (2), Germany (1), and Poland (1)) where English is not an official or national language. Half of the PhD students currently live in a non-English-speaking country (Japan (2), the Netherlands (1)).

Researchers born in Asia

In the case of Asian-born researchers, the situation is entirely different. Of 214 Asians only 37 have never left their home country. Table 1 gives an overview of the mobility index for Asian researchers by gender.

Table 1. Mobility index of Asian-born researchers by gender

	mobility index = 0			mobility index > 0		
	female	male	total	female	male	total
PhD completed (N = 133)	11	17		63	42	
PhD students (N = 81)	5	4		42	30	
			37			177

No other continent has such a large number of female researchers who have moved to a continent other than Asia. In total 105 Asian-born women have left the continent (86.8 % of all Asian female researchers included in the sample). 63 of them hold a PhD degree. Only two women did not earn their PhD degree in North America but in Australia or China. North America means in this case the United States, because only one woman out of 61 got her PhD from a university in Canada. Similarly, there is a high percentage of male researchers who earned their PhD degrees in the US. Five researchers earned their degree in the United Kingdom; one in Japan.

For the next generation of Asian-born LIS researchers, this trend seems to be even more pronounced. All female Asian-born researchers who moved away are currently doing their PhD in the United States. The same applies to male doctoral students who have all left for America, except for two, who, after having earned their masters in the US, have returned to Asia to complete their PhD. These numbers are striking in comparison to the nine doctoral students who stayed in Asia. The likelihood that most of them will return is low. Of all the participants with a PhD, only eight women (Fig. 4) and nine men have returned to Asia.

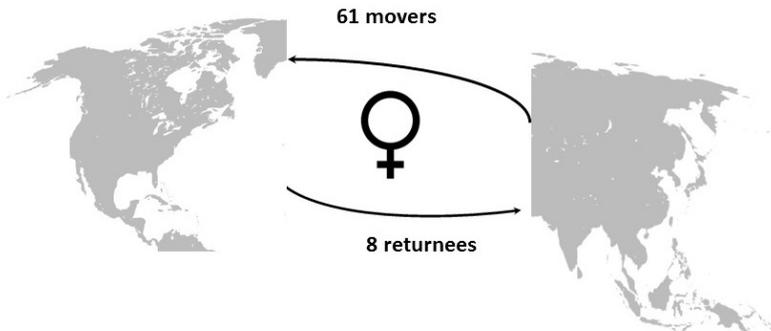


Figure 3. Mobility to North America by Asian-born women with a PhD degree

Researchers born in Europe

Europe has the most balanced numbers of “movers” and “stayers” (Table 2). The number of researchers who stayed in Europe is higher than the number of those who have moved to another country. But if Europeans leave their continent they– like everybody else – go to North America. 37 of 45 researchers with a PhD degree live today in America. Only six researchers have come back to Europe and four of them are now resident in a non-English speaking country (Denmark (1), France (1), Germany (1), and Portugal (1)). Two researchers are in Singapore and Australia, i.e. English-speaking countries (Fig. 4)

Table 2. Overview of the mobility index of European LIS researchers

	mobility index = 0			mobility index > 0		
	female	male	total	female	male	total
PhD completed (N = 118)				PhD completed	24	21
PhD students (N = 27)	5	10		PhD students	7	5
			88			57

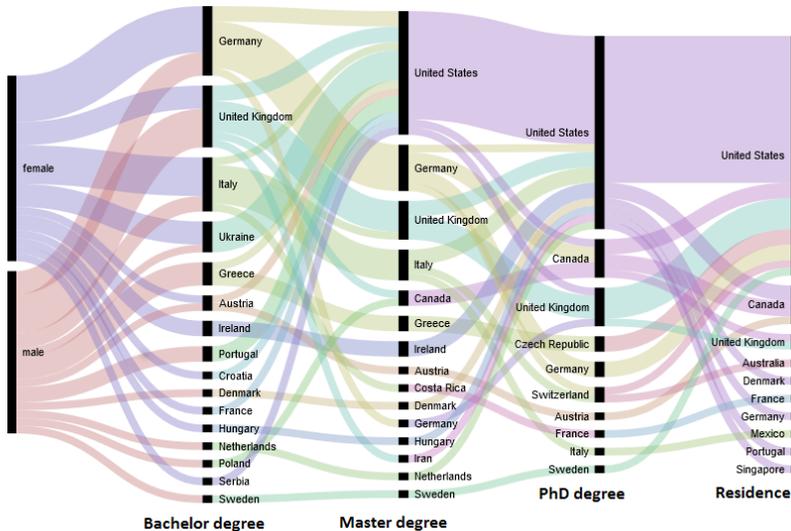


Figure 4. International mobility of European researchers holding a PhD with a mobility index > 0

Figure 5 shows European PhD students who have moved to at least one other continent. The Figure shows a pattern similar to that for Asian researchers, where all doctoral students have completed their degree in the United States. Since the number of European PhD students who have attended the iConference is small, only 27 doctoral students have been included in the sample. 16 of them have moved to another continent and all 16 have moved to the United States.

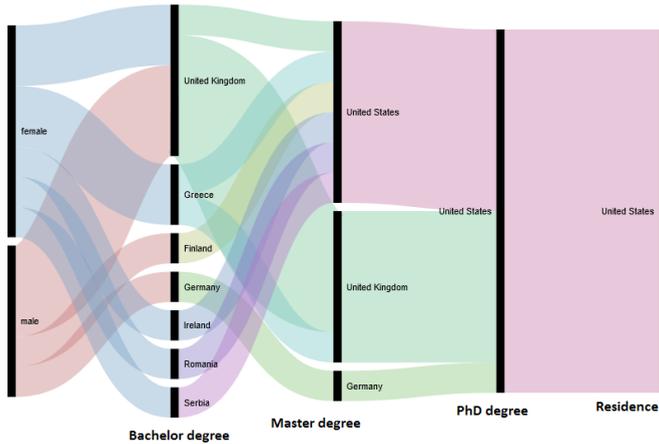


Figure 5. International mobility of European PhD students with a mobility index > 0

Figure 5 is misleading in that it does not show the fact that many Europeans do not move between continents, but within Europe. Europe, unlike the other continents, unites many languages in a much smaller territory. Changing country means a kind of rootlessness, since one leaves an affective, personal, language territory (Murphy-Lejeune 2003, 65). The challenge to gain a degree in a foreign-language-speaking country is greater than staying in the same language or cultural zone. Table 3 shows an overview of the mobility index of 88 participants from Europe. There are 18 researchers and two doctoral students with a mobility index > 0 based on intra European mobility. The majority (76.1%) have never left their home country.

Table 3. Intra-European mobility index

	intra Europe mobility index = 0			intra Europe mobility index > 0		
	female	male	total	female	male	total
PhD completed (N = 73)		17	38	PhD completed	11	7
PhD students (N = 15)		4	9	PhD students	1	1
			68			20

Figure 6 visualizes the flow of the 88 European participants. The largest group of “stayers” comes from Germany (16), the United Kingdom (16) and Denmark (15). 15 PhD students have never changed the country; a large group comes from the United Kingdom (6).

European migrants gravitate towards Denmark, the United Kingdom and Sweden. Only four out of 20 researchers have returned to the country they came from (Italy (2) and Denmark (2)). There, slightly more women (12) move within Europe than men (8). The only two mobile PhD students are currently

studying in Austria and Denmark. The majority of mobile participants come from Italy (5). The United Kingdom (5) and Denmark (4) have attracted most of the researchers. Germany is in third place because of the number of those who stayed (14) and because it has no inflow of foreign students.

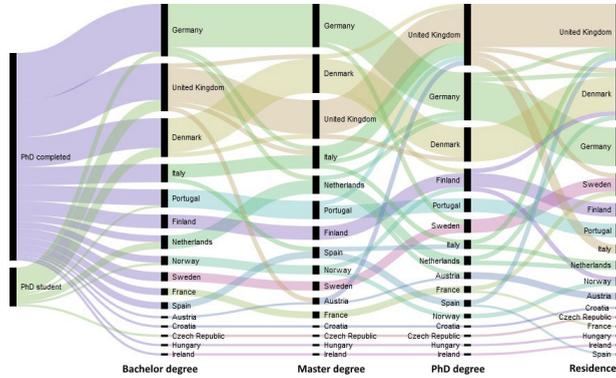


Figure 6. Intra-European mobility of European-born researchers holding a PhD and PhD students with a mobility index of 0 and > 0

Researchers born in Africa, the Middle East or Australia

Because of their comparatively small number, participants from Africa, the Middle East or Australia were grouped together. 52 researchers from these regions were authors or/and reviewers in the last three iConferences. Only nine people have never left their home country (Australia (3); Israel (6)). As we can see in Figure 7 mobile researchers from Africa, the Middle East or Australia exhibit the same pattern as Asian researchers.

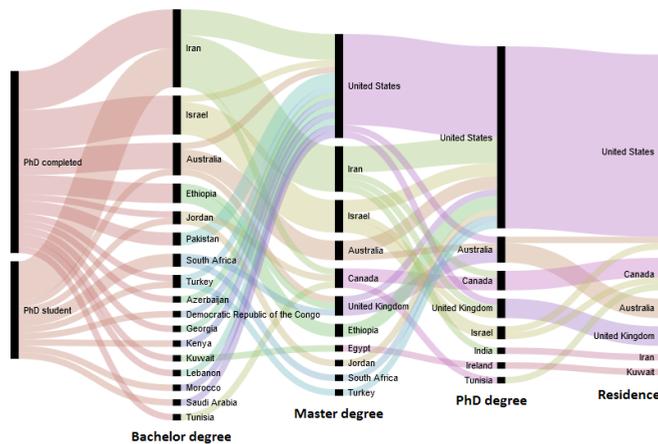


Figure 7. International mobility of researchers holding a PhD and PhD students from Africa, the Middle East and Australia with a mobility index > 0

Only four people have returned to their home country. All others live now in North America or in the United Kingdom. Two of those who have returned are from Australia, thus the non-English speaking countries are outnumbered.

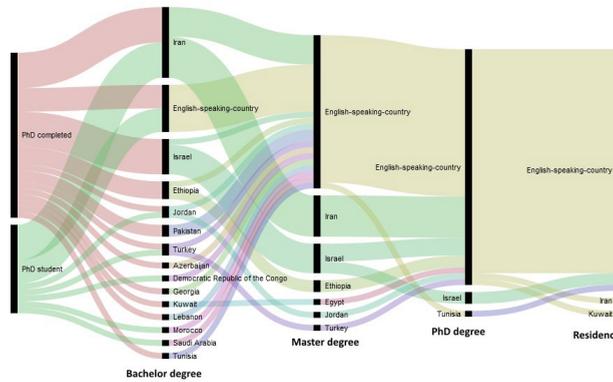


Figure 8. International mobility of researchers holding a PhD and PhD students from Africa, the Middle East and Australia to English-speaking countries with a mobility index > 0

All doctoral students have moved to an English-speaking country. This does not necessarily mean that the totality of PhD students from these countries leave their homes. It means that the doctoral students from this sample, who were able to participate in this highly competitive conference, have moved.

Impact of English as the lingua franca on mobility

All English-speaking countries attract foreign graduates because English dominates the research sector. Marginson (2006) points to the importance of English for global research. Two thirds of the top universities worldwide are in English-speaking countries. With the exception of the US, the mobility pattern is similar for all continents. Immediately after the Bachelor degree, half of the researchers have moved to an English-speaking country (Fig. 9 and 10). After finishing the Masters degree the next half followed (Fig.8). If researchers leave their home continent, the chances that they will return are low. Not moving at all seems to be the only other choice that people make.

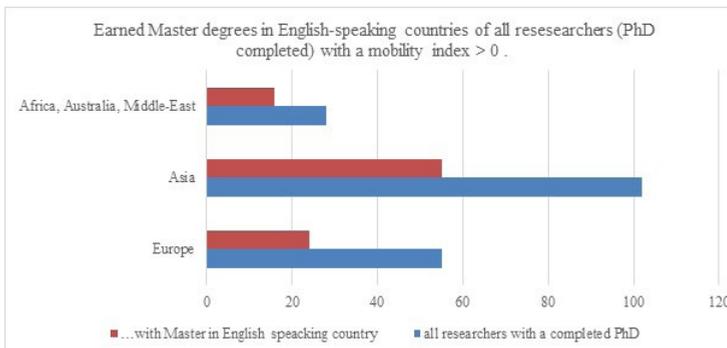


Figure 9. Earned Master degrees in English-speaking countries of all researchers (PhD completed) with a mobility index > 0

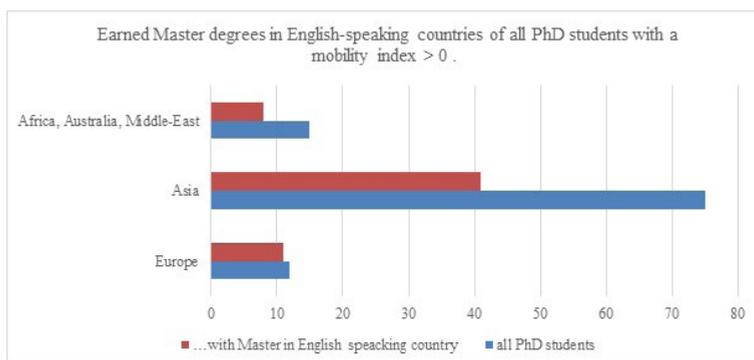


Figure 10. Earned Master degrees in English-speaking countries of all PhD students with a mobility index > 0

Discussion

Two facts are clear after analyzing the mobility of 877 LIS researchers. Half of all participants included in the sample for analysis are Americans who, for the most part, have never left their continent. The other half, comprising of researchers from Asia and Europe, shows a high rate of mobility towards North America. This is clearly a brain drain. For Asia this problem exists not only in Library and Information Science (Furukawa 2012, Marginson 2006, OECD 2008). The reasons behind the Asian brain drain are two-fold: first, Asian states have historically encouraged students to study abroad (Lucas 2005, OECD 2008) and the bad labour market in some countries prevents their return (Jonkers and Tijssen 2008). This is particularly true for women. Since the mid-1980s the number of Asian women studying abroad and deciding to stay there has been rising. Kim (2010) conducted a qualitative study involving 60 women from China, Japan and Korea to understand the role of the media in their decision to move to the west. The findings have revealed that for these countries, the gap between educational expectations and the reality of work inequality is one of the reasons why women stay in foreign countries. To stand a chance in the national labour market, women need to have a so-called “golden certificate” – an MA degree in English (Kim 2010).

A reason for concern might be the lack of participation from continents, such as Australia and Africa, or the Middle East. Only doctoral students with a degree from an English-speaking country decided to be part of the iSchool community. As a minority in the iSchools group, these countries suffer even more from the migration of their (best) researchers to America.

Europeans generally favour short-term mobility and circular migration (Ackers 2005, OECD 2008). A postdoctoral career phase in the US is a standard practice for

Europeans too (Laudel 2003). This study demonstrates that there is a – potentially new – high long-term brain drain of European researchers to North America.

The analysis revealed four points that European LIS schools ought to consider: first, of the 27 European PhD students who have contributed to the iConference, 42% have never left their country and might lack international exposure. Secondly, the students who have moved to another continent moved to the US, and European LIS schools risk their not returning. Only 12.5% of researchers from Europe did come back from North America after completing their PhD studies. If we consider that more than 200 submissions to the iConference have been made by PhD students (Bogers and Greifeneder 2016), this gives rise to a third concern: while more than half of the iSchools are not located in North America, only 27 European LIS PhD students were part of this sample (8% of all PhD submissions). European-born PhD students who are active at the highly competitive iConference (acceptance rate: ~ 36%) either do not live in Europe any more, or do not contribute at this research level. Fourth, the current situation where a large number of European students leave their home country right after the Bachelor to study in an English-speaking area points to the fact that English is an important pull factor for foreign students. Not only are European students leaving Europe, but also only two Asian researchers out of 177 who moved have studied in a non-English-speaking European country. Of all researchers from Africa, the Middle East and Australia, none earned a degree in a non-English-speaking country in Europe. The Library and Information Science degrees offered in Europe are apparently not attractive enough to foreign students. If the reason is truly that most of the higher education courses are not offered in English, European Universities ought to consider making changes.

Americans seem not to be too motivated to leave their continent at all – not even to English-speaking countries. Marginson (2006) writes in her report about three factors that structure the global hierarchy in research: the distribution of research, the global advantage of English and the global dominance of the United States in higher education. This study validates all of her points.

Conclusion

Mobility is a highly subjective phenomenon, but it has clear patterns in LIS. This study has traced the geographical mobility of 877 LIS researchers and discovered that the trends of migration of LIS researchers and students from Europe and Asia to North America, especially to the US, are pronounced. Many of them have moved to the US to obtain a degree or to stay; yet, when they leave their home country they are unlikely to return. This flow can be described as brain drain from Europe, Asia and other continents to North America. Asia loses in this process, in particular their female researchers, because of difficulties to find a job in their home countries, but also because the western lifestyle with its greater research

possibilities encourages them to stay. Europe has a higher rate of those who stay as well as researchers who move around on the continent. Here, too, if people move, they prefer North America and if they move in Europe, English-speaking countries seem to be more attractive. Researchers from Africa, the Middle East or Australia show the same migration pattern as Asian and European researchers. In particular, the next generation of LIS researchers currently receiving education in North America, may never return. On the other hand, American students hardly ever move to foreign countries to earn a degree. This behaviour is just as problematical as not returning. International experience means getting to know more research communities, education styles and experiencing personal development through other languages and cultures.

One important pull factor seems to be the possibility of studying in English. If foreign students do decide to come to Europe, they go to Ireland or the United Kingdom. European LIS schools should observe this development closely. Some of them are starting to offer degrees in English to respond to this trend. For example the Luleå University of Technology in Sweden offers a Master in Digital Curation as does the Humboldt University in Germany. English is an immense pull factor; being fluent in English has many advantages for a researcher's career – especially in LIS being proficient in English is a major advantage. Offering more degrees in English may be an important survival factor for European and Asian LIS education schools. Mobility is positive and should be encouraged, because it broadens the horizon of tomorrow's researcher. But if mobility has only one direction and one end point, it becomes a problem.

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