





Measuring University Staff Mobility Impact in Higher Education

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Abstract

The paper addresses an issue within the field of higher education that has been discussed since the inception of the Erasmus mobility programme in 1987 - how to properly measure the impact of the staff mobility (academic and administrative). Students have a clear roadmap when it comes to the mobility practice and impact assessment but when it comes to staff mobility, impact assessment is less clear. For academic staff mobility, certain metrics can be used to objectively assess outcomes, but when it comes to the administrative staff, matters become more abstract as there are no widely used common metrics. This paper proposes a tool – the Mobility Matrix, that allows to measure the staff mobility impact using quantitative and qualitative data. The Mobility Matrix offers 10 characteristics of the mobility period that can be assessed at 3 levels for the quantitative part and three text fields for the qualitative part. This tool was tested at Riga Technical University (2023) for the assessment of the staff mobility impact. If the staff member provides credible and accurate data, the Mobility Matrix has the potential to become a common practice in higher education, allowing for new recognition mechanisms of staff mobility to emerge.

Introduction

Since the inception of the Erasmus programme in 1987 and the establishment of the Bologna process in 1999, international staff mobility in higher education has been growing and is promoted year by year. In the year 2022, there were 105 000 staff mobilities within the Erasmus+ programme of the European Commission (Erasmus+ Annual Report, 2022), which allows university staff members to visit partner institutions in programme- (within the EU) or partner-countries (outside of the EU) to undertake either administrative or academic mobility for a certain period. This number indicates that there is a high demand for staff mobility yet there is a limited amount of individually-based quantitative data available to analyze and measure the individual impact of the staff mobility across multiple factors that the common Erasmus+ participant survey does not collect. The European Commission periodically carries out the Erasmus+ Higher Education Impact Study (Erasmus+ Impact Study, 2018), which outlines and summarizes the overall impact of the participants in the mobility programme (students and staff) based on the questionnaires that are collected from the mobility participants. Overall, the Erasmus+ programme has a distinct and positive impact on students and staff as the data from participant surveys suggest. Higher education staff has reported that ICT skills have been acquired, networking in terms of institutional advancements achieved, knowledge development gained as well as different learning and teaching methods experienced (Vlad, 2021).

In a paper devoted to capturing the value brought by international staff mobility, Katarzyna Dziewanowska et al. (2019) discuss that value creation of the staff mobility is highly related to the individual and the context of their experiences. Dziewanowska et al. (2019) discuss the dynamics of mobility experiences, individual versus shared value as well as visible versus invisible value. Since there is limited detailed data available on staff mobility experiences, it is a phenomenon riddled with misconceptions and myths. Anthony Welch in 2008 described the myths related to the academic staff mobility, outlining that it is seen as a modern phenomenon that is limited to the West and is always a matter of choice. Academic mobility is also often perceived as centered around only students (Welch, 2008). In addition to this, it is perceived that academic mobility lacks a gender dimension and is neutral (i.e. there are no substantial cultural, economic, and political dimensions) (Welch, 2008). To combat these misconceptions, it is necessary to examine and interrogate the mobility experiences of staff in a systematic way.

Based on these observations, this paper's authors seek a combination of qualitative and quantitative data that can be used to measure the staff mobility impact. When it comes to student mobility in higher education, there is a clear roadmap for the mobility practice and impact assessment. Students must establish the compatibility of their study plan and the courses between the sending and receiving institutions. Moreover, they must reach a certain amount of credit points and they receive a transcript of records upon the end of the mobility period. Additionally, some institutions collect testimonials from students and perform monitoring activities in the middle of their mobility to gather data that is clear and easy to analyze. This mainstream practice has been readily adopted by institutions. The same cannot be said regarding the data collection practices that would allow higher education institutions an in-depth view of staff mobility. Staff mobility is more obscure in the data that is produced through documents such as the mobility agreement, grant agreement, and the final survey sent out and collected by the European Commission. It is important to note that the responses from the European Commission's survey are anonymized and individual responses are not available to the institution.

In terms of data that can be used to analyze student mobility, there is both a quantitative dimension (credit points, grades) and a qualitative dimension (assignments and projects to be recognized at home; student feedback forms). Hence, for measuring staff mobility both quantitative and qualitative aspects should also be addressed. In the framework of the Erasmus+ programme, which is the largest staff mobility programme in the EU (European Union), staff mobility has been founded on the basis of qualitative data provided in the mobility agreement. Typically, within the Erasmus+ programme a template for the mobility agreement (Erasmus+ staff mobility agreement templates 2023) is provided by European Commission that includes a specific plan that the staff member will undertake while visiting the partner institution. Impact assessments and recognition mechanisms for the staff mobility are typically aligned with local practices of the home institution. For the academic staff mobility, there are certain metrics that can be used to objectively assess some of the mobility outcomes, for example, the number of teaching hours, but these do not fully allow to measure the mobility impact. However, when it comes to the administrative staff, the information that can be gleaned about the mobility is far more abstract as there are no widely used common metrics.

It is already widely accepted that international staff mobility holds significant value for higher education institutions such as enhancing professionalization, raising job satisfaction, boosting capacity building and

developing ties between institutions. International staff mobility is also an aspect of the institutional quality assurance (Komives, 2014) and can contribute to the quality of education provided by the university. Staff mobility also plays an important role in developing good practices in enhancing learning among diverse student cohorts (Standley, 2015) as is also the case for Riga Technical University (Latvia) where the pilot testing of the proposed Mobility Matrix was carried out as there is a large number of international students (5298 international students from 101 countries; data from RTU webpage statistics section “Why RTU?”). That said, much is left yet to be uncovered about the impact of staff mobility. The authors of this paper argue that there is a need to apply more precise measures for the impact assessment of the staff mobilities in higher education for several reasons:

- To advance the staff mobility recognition process.
- To integrate the mobility aspect in staff assessment procedures.
- To increase knowledge transfer among staff mobility participants.
- To be able to create precise internationalization strategies.
- To establish a more transparent mobility selection procedure for the staff members.
-

This paper proposes a new tool developed by the International Education Research Center at Riga Technical University (Latvia) – the staff Mobility Matrix that allows institutions to measure the mobility impact using quantitative and qualitative data that comes from the activities performed during the mobility period. The Mobility Matrix offers 10 characteristics of the mobility period that can be assessed at three levels for the quantitative part (depending on the specificity and depth of the collaboration activities). For the qualitative part, there is one closed “yes” or “no” question and three text fields that correspond to the participant’s experience during the mobility. This tool has been piloted and tested at Riga Technical University (2023) for the staff mobility carried out by the local Erasmus+ mobility office and has proven to hold potential for continued successful data collection to measure staff mobility impact. Overall, the tool has proven to be relatively easy to use by the staff members, easy to understand by the university management and administrative staff, time-effective for both parties, and representative enough for the assessment of the staff mobility impact.

Method

The Mobility Matrix for the staff mobility impact assessment was developed in early 2023 by the International Education Research Center of Riga Technical University to see if there is a way to mainstream data collection that can be later analyzed and used to improve internal processes and the quality of mobility experiences. The method has been adapted to the local context and culture, as it is important to consider these environments for successful staff exchange (Pearce & Quan, 2015). The word “Matrix” was chosen due to the nature of the quantitative portion of the template – a table that is visually like a matrix figure (Matrix – a set of numbers arranged in rows and columns to form a rectangular array, as per the Britannica dictionary). The Mobility Matrix can be characterized as a document template that needs to be filled in after the completion of the mobility period of the staff member. The template contains both quantitative (ten factors) and qualitative (one closed and three open questions) data fields to be completed. The same template is used for academic and administrative staff who complete either a teaching or training mobility.

The proposed method can help the institution identify potential leaders that could emerge based on the data analysis. As highlighted by David Michael St. Germain: “With the huge university investments in internationalization efforts, it is essential that leaders can lead a diverse workforce to achieve success,” (St. Germain, 2017, p.7). These leaders within the large institutions could potentially be identified by their high scores in the proposed Mobility Matrix. From the perspective of the research methodology, Shen et al. describe the landscape of staff mobility research thus: “qualitative and quantitative studies are employed at comparable rates, whereas mixed research methods are employed by fewer studies. Moreover, the emphasis on theory in educational research is further demonstrated by the fact that most of the published research is theory-based,” (Shen et al., 2022, p.1335). This argument was considered when creating a mixed-method template to collect both quantitative and qualitative data and gather primary research data from the pilot to engage in more applied research practices.

Quantitative Part

In the first section of the Mobility Matrix, there is a table where staff must provide numeric values for each factor and choose the respective impact level achieved. Table 1 represents the original version that was developed and used in the pilot study by Riga Technical University. The quantitative part can also be seen as a set of structural indicators for internationalization that can be expressed in numeric values as described by Christoph Dorrenbacher (2000) in his paper where indicators such as number/proportion of foreign affiliates, number/proportion of non-capital involvements abroad, number/proportion of foreign employees, amount/proportion of value added abroad etc. are mentioned in relation to measurements for corporate internationalization. For the template at hand, sections which contain “numeric value” are left blank for staff to fill in with numbers.

Table 1. Mobility Matrix Template (Quantitative Data)

	LEVEL 1 (coefficient x1.1)	LEVEL 2 (coefficient x1.2)	LEVEL 3 (coefficient x1.3)
	Making acquaintance; preliminary discussions; presenting university to students; events – attended; agreements – discussed	Developing new, concrete ideas; sustaining existing partnerships; describing enrollment to students; collecting leads; events – participated; agreements – in process	Joint projects developed and submitted; students recruited; academic/scientific activities carried out/implemented; events – organized; agreements – signed
Number of academic institutions visited	Numeric value	Numeric value	Numeric value
Number of academic/scientific staff meetings	Numeric value	Numeric value	Numeric value

Number of administrative staff meetings	Numeric value	Numeric value	Numeric value
Number of Industry partners visited	Numeric value	Numeric value	Numeric value
Number of CSO partners visited	Numeric value	Numeric value	Numeric value
Number of students that you met	Numeric value	Numeric value	Numeric value
Number of governmental institutions visited	Numeric value	Numeric value	Numeric value
Number of lectures, workshops held with students	Numeric value	Numeric value	Numeric value
Number of events	Numeric value	Numeric value	Numeric value
Number of agreements	Numeric value	Numeric value	Numeric value
OVERALL INDEX: (The participant does not fill out this section)			

The quantitative data table in the vertical axis includes ten factors:

1. Number of academic institutions visited – the factor corresponds to the number of universities that staff members visited during the mobility period. Typically, the Erasmus+ programme encourages bilateral cooperation between two institutions, but there are occurrences where staff members can visit more than one institution.
2. Number of academic/scientific staff meetings – this factor is related to the meetings held with the academic and scientific staff members from the partner institution. These meetings can vary significantly in terms of length, number of participants, and the specific mobility programme. There also might be a mixed meeting with scientific, academic, and administrative staff.
3. Number of administrative staff meetings – this factor is related to the meetings held with the administrative staff members from the partner institution. These meetings can vary significantly in terms of length, number of participants, and the specific mobility programme. There also might be a mixed meeting with administrative, scientific, and academic staff.
4. Number of Industry partners visited – this factor represents the number of industry related partner institutions, individuals, or other types of organizations that the staff member met with during the mobility period.
5. Number of CSO partners visited – this factor represents the number of civil society related partner institutions, individuals, or other type of institutions.
6. Number of students met – this factor is related to the overall number of students that staff member met

during the mobility period. This can be a guest lecture, informational session, workshop, individual consultations, or other activity.

7. Number of governmental institutions visited – this factor corresponds to the governmental institutions that staff members visited or individuals met during the mobility period. This also includes events at the host university where external stakeholders representing governmental institutions were present.
8. Number of lectures, workshops held with students – the factor corresponds with the overall number of academic activity events with students. In this section, staff members are asked to indicate the number of events instead of the number of students.
9. Number of events – as each mobility plan is different, it is possible that there are other types of events the staff member takes part in besides lectures, workshops, and meetings; in this section staff members are asked to count any meetings beyond the scope of those mentioned above that they took part in during the mobility period.
10. Number of agreements – this factor corresponds to the individual, institutional or other types of agreements that have been made, signed or discussed during the mobility period.

The origins of the quantitative assessment factors used derive from the previous mobility plans of the staff members collected by Riga Technical University over the years as well as from a study by Constanze Engel in 2010 where it was identified that academic staff mobility impacts are often related to an enhanced intercultural understanding, an intensified use of scientific foreign language publications for teaching, new co-operations with partner programmes at the host institution, improved research contacts, an enlargement of work tasks, enhancement of scientific cooperation, and an increase of international research cooperation. The paper also describes the impact at the home institution – advising new students more positively and fostering the knowledge of other countries (Engel, 2010). At Riga Technical University, all ten factors were adapted to numeric values to calculate separate and an overall index that would show trends, activity levels, and the routine of the mobility period. Another study done in Turkey analyzed 34 factors related to instructor preferences, contribution to professional development, and contributions to the home institution (Mede & Tuzun, 2016), which characterized the academic staff mobility impacts. The most significant challenge was to adapt the factors to both academic and administrative staff because there are fewer studies conducted in relation to the administrative staff mobility.

The quantitative data table in the horizontal axis includes three levels of impact (the activity list is not exhaustive and serves as an informative example):

1. Level 1 – this impact level corresponds to basic activities and socializing (making acquaintance with the partner institution staff, preliminary discussions about potential cooperation, presenting the home university to the students, attending events organized by the host institution, discussing future agreements and cooperation opportunities). In the original template, the coefficient 1.1 is applied to this impact level.
2. Level 2 – this impact level corresponds to more concrete and targeted activities (developing new, concrete ideas for collaboration in particular fields or directions, sustaining existing partnerships by renewing joint activities, describing specific enrollment procedures to the students of host institution, collecting leads for exchange students, academics or researchers, active participation in events organized by the host institution, joint cooperation agreements being drafted). In the original template, the

coefficient 1.2 is applied to this impact level.

3. Level 3 – this impact level corresponds to specific, tangible outcomes (projects that have been developed during the mobility, submitted projects, host university students recruited for exchange, staff or researchers recruited for guest lectures or staff mobility, academic and scientific activities implemented during the mobility, events that were organized by the staff member, cooperation agreements that have been signed). In the original template, the coefficient 1.3 is applied to this impact level.

The formula used to calculate the overall impact index: $SUM\ of\ x(NV) * c(L)$, $SUM(OI)$. Where $x(NV)$ is the numeric value entered by the staff member, $c(L)$ is the coefficient applied to each of the three categories and OI is the sum of numeric values for each of the three levels. The overall index is calculated by the mobility office and participants do not need to fill it in.

Qualitative Part

The same Mobility Matrix template is used for both academic and administrative staff, but it has two variants when it comes to the mobility flow: incoming or outgoing. One variant is designed for outgoing staff mobility and one for incoming staff mobility, respectively. The quantitative part is the same for both outgoing and incoming staff mobility flows whereas the qualitative part differs slightly in the content of two of the questions as shall be discussed later. In the qualitative part of the template there is one closed question that needs to be marked with “yes” or “no,” as well as 3 open-ended questions that the staff member is asked to answer after the mobility period has finished. There is no character limit or specific directions given as the nature of mobilities may vary significantly. Table 2 represents the original version for outgoing staff mobility that was developed and used in the pilot study by Riga Technical University.

Table 2. Mobility Matrix Template (Qualitative Data)

1. Did you begin or continue working on any project(s)/initiative(s) at the receiving institution?	YES <input type="checkbox"/> NO <input type="checkbox"/>	
	If YES, please describe the project(s)/initiative(s) worked on (the aims, background information, timeline, current stage of the project etc.).	If NO, what arrangements have you made for future cooperation with the receiving institution?
2. How will the institution benefit from your visit to the receiving institution?		
3. What helpful information or tips could you give to future mobility participants going to the same destination/host institution?	Optional part; not mandatory.	

The first question in the qualitative section of the Mobility Matrix aims to establish whether the staff mobility took place as a continuation of an already existing partnership with the host institution or if it began a new partnership. Furthermore, the question directs the participant to elaborate on the specifics of the mobility depending on the nature of the collaboration (i.e. continued cooperation or newly established partnership). It should be noted that the first question asks the participant to consider the specifics of the results of their mobility such as projects or initiatives between the sending and host institutions. Examples of these include joint Erasmus+ projects, joint degree programs, mobility programs for students, and guest lectures among others. This question is mandatory since the data provided by the staff will give the sending institution insight into the specific outcomes of the mobility with implications for a variety of factors such as the quality of the mobility, the staff mobility selection procedures, the cooperation with the partner institution and others discussed later in this paper.

The staff who indicate that they either have begun or continued to work on previously-established projects or initiatives with the host institution must move on to the sub-section of the first question, which asks the staff to detail specifics of these activities such as the aims, background information, and timeline of projects among others. On the other hand, the staff who answer the first question with “No,” indicating that their mobility did not take place to begin or continue work on projects or initiatives with the host institution are asked to elaborate on the arrangements that have been put in place for future cooperation as a result of their mobility. This question prompts the staff to consider the continuation of their mobility vis a vis the cooperation ties with the partner institution.

For Riga Technical University, as for other higher education institutions, it is important that staff mobilities do not take place as a one-off occurrence, but rather lay groundwork for meaningful and purposeful cooperation between the sending and receiving institutions. While establishing new contacts and gaining new experiences have merit, staff are required to consider the impact of their mobility beyond general statements, which, as experience shows, can often appear in mobility agreements. Staff filling out the Mobility Matrix must reflect on what will follow their mobility and how cooperation can grow as a result of their visit. The second mandatory question in the form reinforces the first by asking the staff about the benefit to the sending institution as a result of their mobility. This question is linked to two sections which appear in the staff mobility agreement. The current version (2023) of the staff mobility agreement provided by the Latvian State Education Development Agency as the National Agency on behalf of the European Commission asks staff to detail the “[a]dded value of the mobility (in the context of the modernisation and internationalisation strategies of the institutions involved),” and the “[e]xpected outcomes and impact (e.g. on the professional development of the staff member and on both institutions)” (Staff Mobility Agreement Template, 2023). These two sections are the same for both versions of the teaching and training staff mobility agreement templates, respectively. These sections in the mobility agreement are meant to establish the proposed or anticipated value and impact of the staff mobility whereas the second qualitative section question in the proposed Mobility Matrix at hand asks the staff about the actual impact of their mobility after the completion of the mobility period. Moreover, the Mobility Matrix focuses on the perceived benefit of the staff mobility vis a vis the sending institution. The third and final question in the qualitative section of the Mobility Matrix is optional. The staff may choose to provide any information they deem important or helpful regarding the mobility from a number of standpoints (the preparation procedures, the host country or institution, travel and accommodation tips, etc.) that may be of use to future staff mobility participants

or the sending institution. This question was created as optional so as not to overwhelm the participant with the amount of information they are asked to provide in the form as a whole.

Incoming Staff Mobility

The qualitative section of the Mobility Matrix for incoming staff differs from that of the outgoing staff mobility version, specifically, in the formulation of the second question; namely, “2) How will your institution benefit from your visit at RTU?” This question is mandatory and matches the aims of the second question in the Mobility Matrix version for outgoing staff mobility as described earlier. For the optional question 3, the staff are asked to consider, “[w]hat helpful information or tips could you give to future mobility participants going to RTU?” This question aims to provide the host institution with information that could help better prepare for future incoming staff mobilities at Riga Technical Institution as the receiving institution in the context of the pilot.

Pilot Project

From May 2023 until November 2023 a pilot project was carried out at Riga Technical University (Latvia) where the outgoing and incoming staff members were asked to fill in the Mobility Matrix post mobility. In total, 30 staff members within the framework of Erasmus+ KA171 international credit mobility project of Riga Technical University took part in the pilot and duly filled in the two portions of the Mobility Matrix. Gender balance was in favor of females (see Figure 1), with 18 participants self-identifying as female and 12 as male. The Mobility Matrix was given to incoming and outgoing staff members and as shown in Figure 2, meaning that 19 participants were hosted by Riga Technical University and represented universities from Bosnia and Herzegovina, Kosovo, Honduras, Ukraine, South Korea, Montenegro, the Dominican Republic, and Jordan. Meanwhile, 11 participants represented Riga Technical University in partner countries outside the EU such as Jordan, Montenegro, Kosovo, and others. Separate attention was dedicated to gender differences, because, as discussed by Zekai He et al. in 2019, studies on mobility differences by gender are limited if not altogether lacking. Therefore, the overall mobility index calculations were also analyzed by gender to determine the performance relation. Mobility type was also separated in the data sheet due to the fact that, as described in the introduction part of the paper, there are implications for the home university after staff members return from the mobility period abroad.

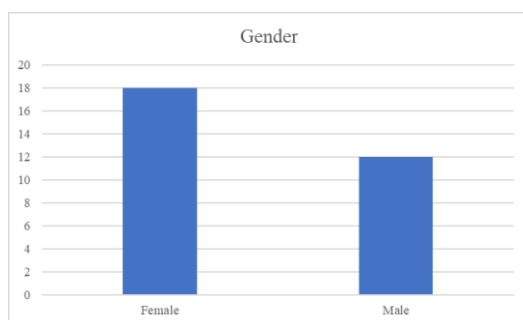


Figure 1. Gender of Participants

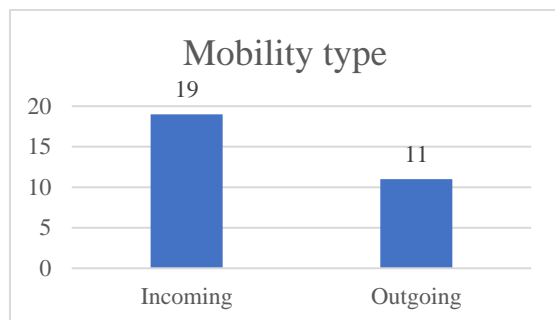


Figure 2. Mobility Type of Participants

The template as described above (quantitative and qualitative parts) was filled in by academic and administrative

staff members after their mobility period ended. It was circulated among staff as an editable electronic MS Word document. Once filled in, the Mobility Matrix was submitted electronically via institutional email or using the institutional MS Teams.

Results

Results of the Pilot (Quantitative Data)

After the end of the pilot period, all of the responses were analyzed to conclude findings. In terms of activity levels (quantitative part), the majority of the staff members (60%) reported that they have carried out activities that correspond to the first impact level (Level 1), approximately one third (33.33%) stated that they have engaged in the second level activities (Level 2) and only 6.67% of all participants had indicated the highest level (Level 3) activities in their Mobility Matrix reports (Figure 3). Staff members could add more than one level of activity; therefore, the visualization of the data shows levels in combination – Level 1 only, Level 1, 2 and Level 1, 2, 3. For more in-depth, specific achievements, staff experience also involved more entry-level collaboration issues, so it would be a field-specific mobility that could account for Level 2 and Level 3.

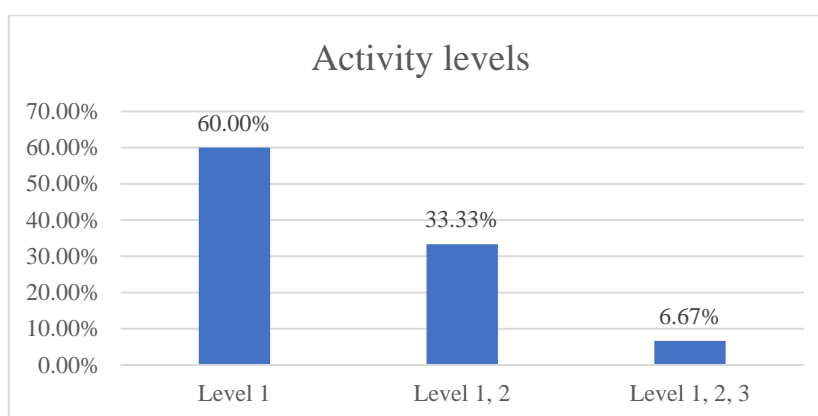


Figure 3. Activity Levels of Participants

In terms of the 10 factors (quantitative part), a visual representation was created for each of the 30 participants (horizontal axis) in combination with the mobility score (vertical axis) in the two figures below. The highest spikes for factors 1-5 in the Mobility Matrix appear in the number of academic and scientific meetings (see Figure 4) that correspond to the knowledge exchange, training activities, and networking objectives of the Erasmus+ programme. This trend is also connected to the volume of meetings higher than other activities. In terms of the number of institutions visited, staff reported from one to five, in the highest sections reporting affiliated institutions to the host of the mobility. The lowest scores for factors 1-5 were recorded for the industry and civil society partner visits. While filling in the quantitative part, staff members sometimes also added notes, commentary or remarks to better explain the numbers or help the reviewer make the correct interpretation of the numeric value provided. Cross-referencing with the qualitative question section of the Mobility Matrix boosted the clarity of the responses provided in the quantitative section; for example, for the item “number of agreements,” some of the participants misunderstood the item as including such documents as mobility agreements and financial agreements related to their mobility. These documents are not considered in the scope of the “number of

agreements” in the quantitative section of the Mobility Matrix, which rather intended to find out whether MOUs or similar inter-institutional agreements were discussed or signed during the staff mobility.

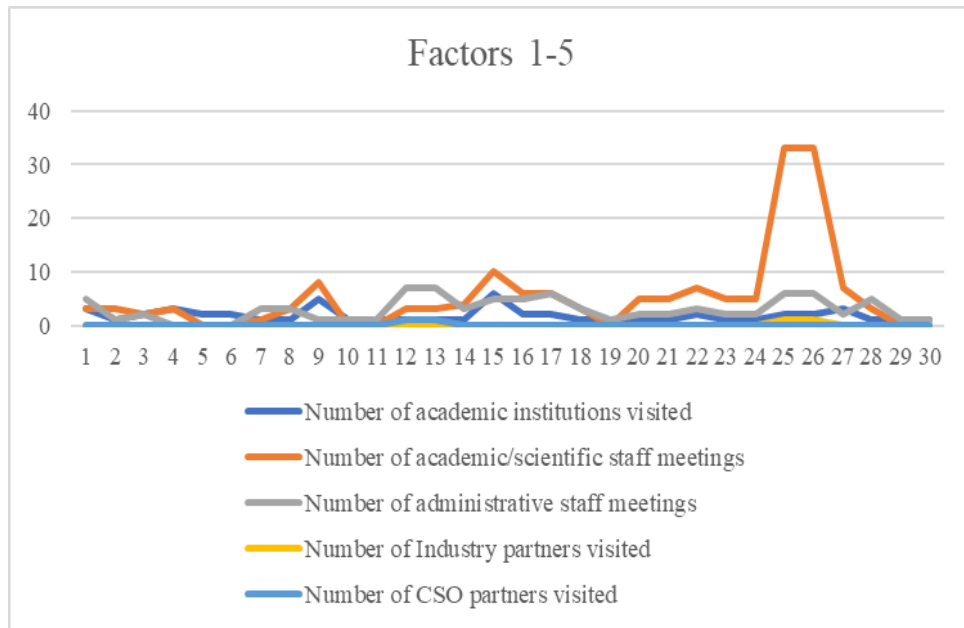


Figure 4. Numeric Values for Factors 1-5 for Each Participant (Pilot Project)

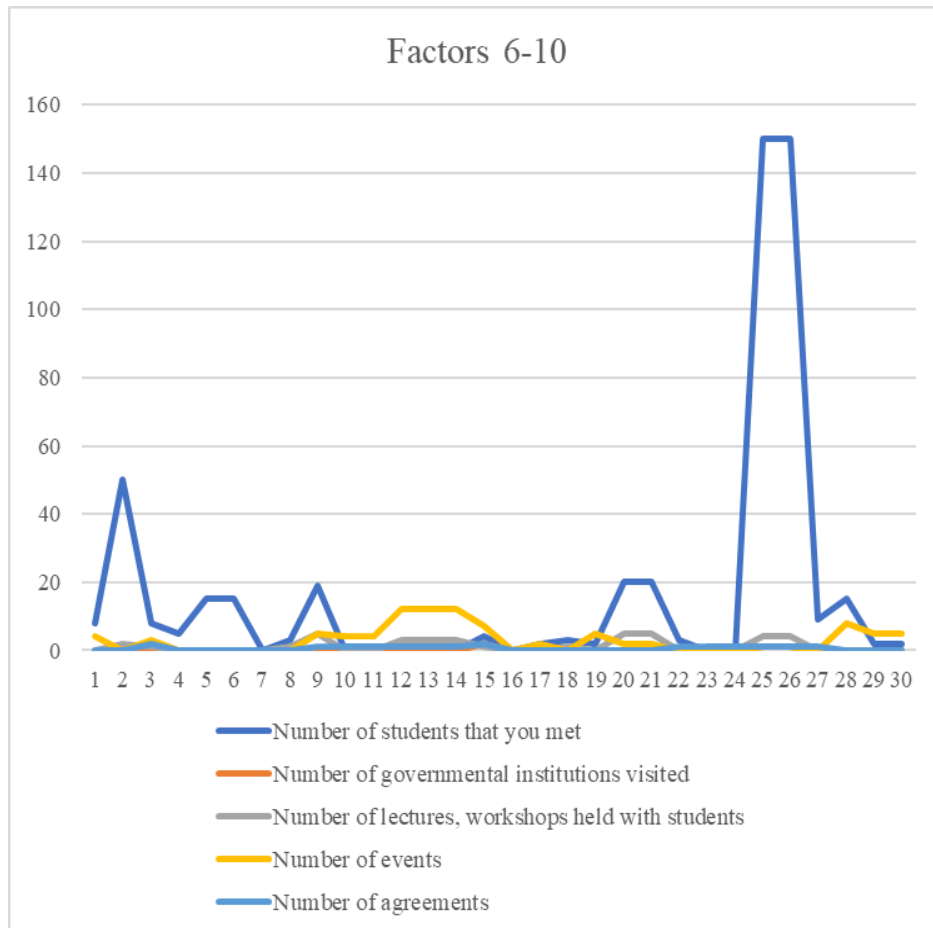


Figure 5. Numeric Values for Factors 6-10 for Each Participant (Pilot Project)

Factors 6-10 (see Figure 5) showed the highest trend in number of students that staff members met during their mobility, corresponding to academic cooperation and value creation. There were no records of visits or meetings with governmental institutions and an exceedingly small number of agreements discussed, drafted, or signed. The number of events varied between 0 to 12 with administrative staff reporting more events than academic staff. As can be seen in Figure 5, only 3 out of 5 factors show significant vertical climb, but authors would not disqualify these factors from further use or analysis. Factors 6-10 showed greater numeric values in comparison with factors 1-5, mainly because of the number of students that were met during the mobility period.

Using the formula described in the section “Method,” the overall mobility index was calculated through an MS Excel table, summarizing the overall performance of each staff member. The lowest score obtained was 5.5 and the highest was 220.6, which reflects significant differences in quantitative data when describing activities carried out during the mobility period. Some scores of staff members who participated in a mobility in a group (2 or more people together for the same time period and at the same institution) were identical and represented the joint approach of filling in the Mobility Matrix, which occurred four times in total the data sample. Figure 6 shows the individual score for each of the 30 participants (horizontal axis) and the individual index (vertical axis), the overall average being 35.75. There were two identical high scores recorded for two staff members that went on an academic outgoing mobility from Riga Technical University and this occurrence can be explained by the high number of students that attended their guest lectures. Data visualization shows that only a few participants scored close to or over 50 and this score could represent higher achievers.

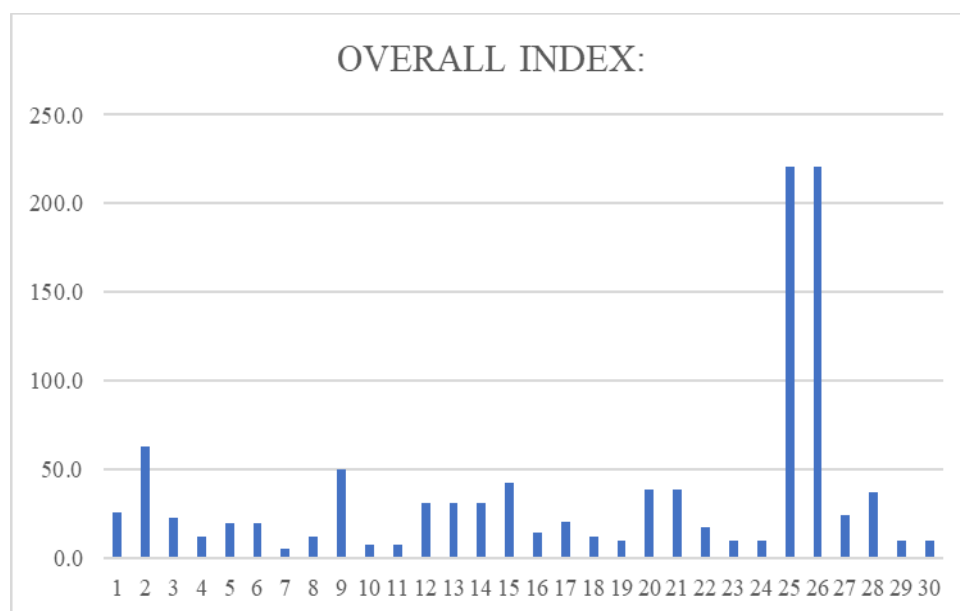


Figure 6. Overall Mobility Index per Participant (Pilot Project)

The average score for female participants was recorded at 40.5, but for male participants – 26.3. It is important to note that there were more female participants overall in the pilot test. The average score for incoming staff members was 20.2, but for outgoing staff – 62.7. It is important to note that there were two high scores within the pool of outgoing staff members that significantly increased the overall average. It was determined that those two high scores were achieved by female participants, setting the overall score ratio in favor of females. If we would

remove those two records, the overall average for the outgoing staff would be 27.6 that is quite close to the score of the overall average of incoming staff. Figure 7 shows data visualization for the average mobility index by gender and mobility type.

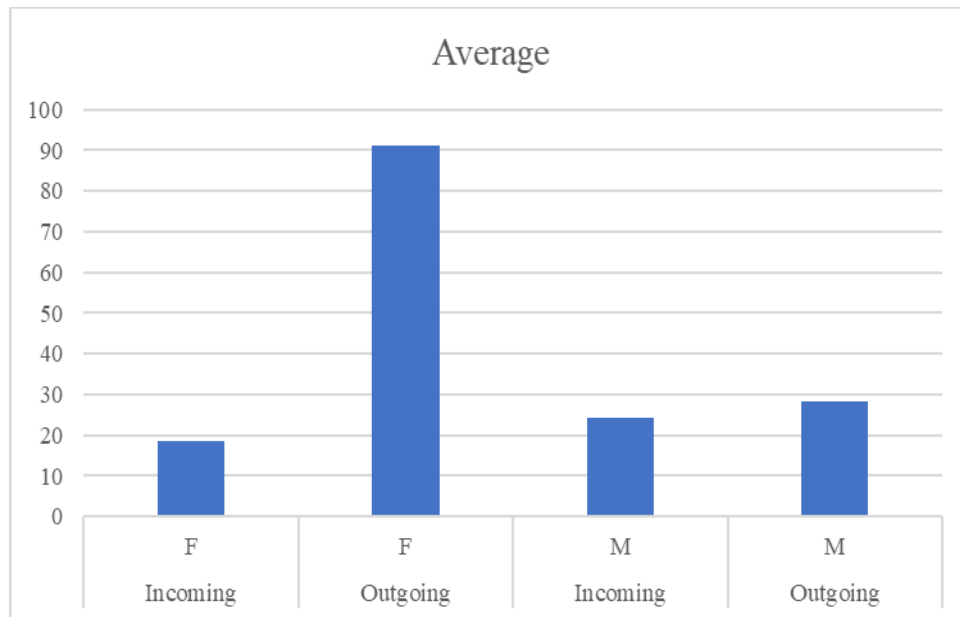


Figure 7. Overall Average Mobility Index by Gender and Mobility Type (Pilot Project)

Results of the Pilot (Qualitative Data)

The pilot showed that there was an above average success rate of the responses provided for the qualitative portion of the Mobility Matrix in that 37% of the responses provided by participants were deemed as high quality, 23% were rated as moderate quality and 40% of the responses were rated as scarce or unusable. High quality responses contained such markers as specifics of the mobility (projects or initiatives discussed; specific meetings or activities mentioned in relation to the participant’s experience of the mobility), future cooperation plans or suggestions, feedback for the sending and/or receiving institutions. Moderate quality responses contained some specifics on the mobility experience such as meetings attended or subjects discussed but they were general overall and did not go into the same depth as the responses deemed as high quality. The responses deemed scarce or unusable contained no specifics or some copied portions of text from the mobility agreement; these responses were typically very brief.

New or Existing Partnership

Within the sample, 20% marked “Yes” in the Mobility Matrix form for the question “Did you begin or continue working on any project(s)/initiative(s) at the receiving institution?” and further indicated that they continued working on existing projects or initiatives during their mobility. Meanwhile, 10% ticked “Yes” and indicated that they began discussions or work on new projects or initiatives. One participant ticked both “Yes” and “No” in error, but the responses provided in the open questions indicated that this participant had not in fact discussed ongoing or new projects/initiatives during the mobility. Besides this response marked in error, the rest of the

respondents (63%) ticked “No.” 60% of the responses for those participants that indicated that they continued or began new cooperation were of good quality and 30% were of moderately good quality. Meanwhile, for those who had marked “No,” as having had no previous cooperation and did not lay plans for any new projects/initiatives with the receiving institution, 25% of the responses were of good quality and 20% of moderately good quality. This indicates that, overall, the participants who had marked “Yes,” on the first question in the qualitative section of the Mobility Matrix produced responses of better quality than those who ticked “No.”

Quality of Responses: Teaching VS. Training Mobility

Of the five teaching mobilities, one response was deemed as high quality, two were of moderate quality and two responses were scarce. This data pool of teaching mobilities is too small to allow for any significant assertions to be made. It follows that no significant statistical difference can be determined between the respondents who participated in a training mobility versus those who participated in a teaching mobility. All of the teaching mobilities in this sample were also outgoing mobilities.

Quality of Responses: Incoming VS. Outgoing Mobility

In terms of the quality of responses for incoming and outgoing mobility flows, incoming staff produced 35% good quality responses versus outgoing staff producing 40% good quality responses, indicating a small margin of better responses from outgoing staff. It should be noted that the sample of outgoing staff was very small and a larger sample equal to the incoming staff mobility flow must be considered in the future to be able to draw any reliable or meaningful conclusions from the data gathered from both mobility flows.

There was a significant difference, however, in one particular aspect of the responses given by incoming and outgoing mobility staff; namely, for the final, optional question that asks, “What helpful information or tips could you give to future mobility participants going to the same destination/host institution?” For this question, some of the incoming staff used the space provided to leave feedback about their mobility experience to the host institution. This feedback was directed towards the organization of the mobility and was overwhelmingly positive but did not serve the intended purpose of the question as the information provided therein is not helpful to future mobility participants.

It should also be noted that there were 4 responses that were either partially or fully copied from other participants and two instances where several (2) participants had filled out the same form (i.e. both participants signed their names on one form). This occurred for mobilities that the staff attended together at the same institution, taking place at the same time. Data from duplicate responses is unreliable and the pilot showed that precautions must be taken to avoid such occurrences in the future.

Quality of Responses: The Gender Dimension

In terms of the gender identity self-assigned by participants in the Mobility Matrix form, as mentioned earlier in

the paper, 60% of respondents identified as female and 40% identified as male. 50% of the female respondents produced good quality responses and 22% produced moderate quality responses in stark contrast to the male respondents of which 17% produced good quality responses and 25% produced moderate quality responses. The female respondents went into greater detailed and mentioned specifics of existing or future cooperation possibilities while male respondents often kept responses brief and general. Female respondents spent more time providing suggestions and giving feedback. The female responses that were valued as high quality have the potential for impact in the organization of future mobility activities since many of them indicated points of contact in the host institution or potentially fruitful areas of collaboration in either research, student exchange, or other academic areas.

Mobility Specifics Discussed in Responses

The responses in the qualitative questions section of the Mobility Matrix that were of high or moderate quality included specific points that can be useful in continuing or planning for further cooperation between the sending and receiving institutions. Plans or ideas for joint publications or conference papers is one point that was mentioned in some of these responses. Such items are valuable because they indicate a tangible outcome of the cooperation between the two institutions. Similarly, the continuation or plans for collaboration on projects was another highly valued item that appeared in some of the responses. One respondent detailed the work on an ongoing joint project and newly laid plans with the host institution for a publication of the project results in a Riga Technical University journal.

Capacity building is another aspect that is strengthened by mobilities as observed in this research sample. The majority of the overall number of respondents (89% of incoming staff and 27% of the outgoing staff) in this sample completed their mobility as part of an international staff week organized at the host institution. The staff weeks were organized with common events for all attendees and some separate meetings organized depending on individual staff interests. The feedback from the staff who completed their mobility as part of a staff week indicated that they learned new information about the host institution and had the chance to promote the visibility of the sending institution.

Some responses gave detailed feedback on specific issues that could be improved in mobility or institutional procedures to strengthen cooperation between the partner institutions or to improve institutional processes and workflow. This type of feedback allows for further intervention and improvement at the local (departmental, institutional) and international (partner institution) levels. The detail provided in some of the good quality responses was surprising and showed that even in a sample of this small a size there is usable data, which can have a positive impact on the review, planning, and organization of mobility activities. Other responses that were more general mentioned the strengthening of ties between partner institutions as a result of the mobility enabling the exchange of information, experience, and best practices.

The possibility for student exchange through specific degree programs or mobility types was also discussed in a few of the good quality responses. The visiting staff promoted their home university and the specific degree

programs they either represented or knew their home institution had an interest in sending or receiving students. Although no concrete plans were put in place to see these opportunities through, it is helpful to glean the interest of the sending or receiving institution in this case, so that the relevant department or unit responsible for Erasmus+ student mobility can follow up accordingly. Such information is essential for the organizers of student mobility since they can point to specific departments or programs in the partner institution that can aid in disseminating relevant information to potential student mobility participants and promote Erasmus+ program opportunities. A few of the responses went even further and mentioned the possibility of joint or double degree programs that could be developed between the sending and receiving institutions. Granted, a double degree program is a much more complex pursuit than student exchange through Erasmus+, but awareness of such an institutional interest is important and should lead to a larger conversation internally and with the partner institution.

Optional Response Section

Out of the 30 respondents, 70% filled out the optional response question No. 3, “What helpful information or tips could you give to future mobility participants going to the same destination/host institution?” A few of the responses gave tips for specific possible avenues of future cooperation between the partner institutions, some suggesting particular departments or fields that might be interesting for collaboration. Some of the responses included helpful tips for organizing future mobility activities such as practical information about the host institution and country, like information on getting around, accommodation, cultural differences, and other pertinent information. Many of the responses to this question suggested that the future mobility participants take special care in planning and preparation for the mobility; a few of the responses asked future participants to take note of the length of time that it takes to prepare the necessary documents for an Erasmus+ KA171 mobility. This suggests to the mobility organizers that a review of internal procedures might be necessary.

Several respondents also recommended that future mobility participants get to know the host institution and take advantage of all of the events and opportunities offered there; these were the responses from those incoming staff members that participated in the international staff week organized at RTU. Notably, as mentioned earlier, the majority of the responses by incoming staff that attended the staff week used this space to leave feedback on the organization processes of this event. The feedback was more so complementary to the organizers instead of helpful or useful for future mobility participants. These responses indicate that this set of respondents felt that this space was appropriate to express gratitude for their positive mobility experience to the organizers or that it was necessary to do so for the benefit of the organizers, for example, if the Mobility Matrix forms were a part of institutional review and the organizers could benefit from a positive response from participants. This, of course, is not the intended purpose of this question and though this data is interesting, it is not helpful for organizing future mobility activities. The aspect of cultural differences is important to consider here as in some cultures it might be considered necessary to express gratitude to the host institution somewhere and, perhaps, this was the only space that participants felt they had the opportunity to do so since this was the only space marked as “optional.” For the future, it may be necessary to include an optional comments section with no guidance, which opens up space for mobility participants to express whatever feedback they wish. At the same time, it is necessary to reconsider the phrasing of the third optional question to ensure that its intended purpose is clear.

Discussion

As the pilot test at Riga Technical University showed, there is a need for further development and discussion of the Mobility Matrix, adding institutional contexts, rethinking coefficients and the process in which participants are instructed to complete the document in addition to how data is collected and analyzed. The example shown in this paper examines how to approach measuring the impact of staff mobility as it has become a mainstream practice of internationalization in higher education. There are undoubtedly many benefits to international staff mobility and with more precise tools and methods of measurement it would be possible to not only measure impact that happened abroad, but also levels of internationalization at home and how this impact can be conveyed to the staff members at the home institution. When used in constructive collaboration, research has shown that qualitative and quantitative data complement each other and it would be difficult to make decisions, conclusions or plan actions based only on one or the other. The Mobility Matrix could benefit from further validation by undertaking longitudinal studies over the years and adding more data to be analyzed. It would be valuable in further studies to combine and add analysis of inputs, outputs, and outcomes as described by Madeleine F. Green (2012) in her work “Measuring and Assessing Internationalization,” to see how the Mobility Matrix factors relate to the measurements of overall internationalization. In addition, the international perspective should be considered in an attempt to create internationally applicable, universal internationalization measurements and indicators (Gao, 2014); the proposed solution in this paper can serve as an element in this process.

Conclusion

The Mobility Matrix has proven to be useful in the context of Riga Technical University and has provided valuable insights from the pilot on the measurement of the staff mobility impact. Staff members were largely forthcoming in providing data and showed interest in specific details about sections of the Mobility Matrix, which helped make a case for it as a valid tool. The data collected in the pilot cannot be representative for all the institutions globally, yet it can provide guidance for potential measurements of staff mobility impact and can be adapted for any local context. If the template is automated electronically, it would not consume much staff effort and no significant human resources would be required. It was clear during the pilot that staff members would need more precise instructions and an explanation on how to fill in both the quantitative and qualitative sections to obtain more valid and usable data. Also, additional instructions may be needed for group mobilities (with two or more participants going to the same host institution) to avoid identical responses or data duplication. Both sections of quantitative and qualitative data complemented each other and often provided a good explanation for one another, therefore, this form should be kept in the following versions.

Recommendations

The pilot of the implementation of the Mobility Matrix at Riga Technical University proved both that this type of tool holds significant potential for gathering data that can inform institutional practices related to the organization of mobility processes and in the context of an institution’s overall internationalization strategy. That said, the review and analysis of the pilot revealed many areas for improvement for successful future use. Subsequently,

there are several recommendations that can be made. Recommendations can be divided by the four target groups of the Mobility Matrix: mobility officers and administrative staff working with mobilities, staff members that participate in mobility, institutional management, and researchers.

Mobility Officers and Administrative Staff Working with Mobilities

If an institution decides to use a tool such as the Mobility Matrix, it is important to adapt it to the needs of the particular institution, so that the data collected helps the institution analyze and reflect on its processes as they relate to the institutional goals. To do this, it is necessary to first consider what the desired “impact” of the mobility is in each specific institutional context. To be sure, the expected impact of each Erasmus+ staff mobility follows the standards set by the European Commission. That being said, staff mobilities are used to strengthen the cooperation between institutions in particular areas and they help address specific needs of institutions. For RTU, the Key Performance Indicators (KPI) set by the institution helped guide the creation of the Mobility Matrix and what metrics could be considered when weighing the impact of a staff mobility. These KPIs will be different for each institution, so the Mobility Matrix would need to be adapted accordingly.

Moreover, careful reflection is necessary when considering specific factors of teaching versus training staff mobility. For one, it may be necessary to create two different versions of the Mobility Matrix as the goals of each type of mobility will be different and therefore, they will yield different outcomes. Indeed, even the specific items in the quantitative portion of the Mobility Matrix necessitate reflection – is a lecture for 50 students of a higher value than a lecture for 7 students? Initially, taken at face value, it may seem so. But there is context hidden under numerical values that must be considered through qualitative data analysis. In this instance, the result of the guest lecture for 7 students may as well lead to outcomes of an equally high value for the sending (and/or receiving) institution (e.g. joint projects, publications, or student mobility). Thus, as mentioned previously, it is imperative that the quantitative and qualitative sections are crafted with complementarity in mind to allow for cross-validation of the data. The staff directly working with mobilities must ensure that the areas of emphasis align with the overall internationalization goals of the institution. The creation (or adaptation) of the Mobility Matrix must be a collaborative effort between several departments for it to be a tool that yields results that are truly useful; therefore, the staff directly involved in the organization of the mobility must work together with different internal stakeholders to ensure that the Mobility Matrix is created appropriately considering the larger institutional context.

It is imperative that the staff undertaking a mobility is given clear instructions for filling out the Mobility Matrix. Guidelines for the Mobility Matrix completion must be developed thoroughly, considering the opinions and experiences of staff mobility participants. It could be useful to check for understanding via interviews with staff prior to launching the Mobility Matrix at scale. The participating staff must possess a clear understanding of the purpose of this tool and how their data will be used. If the staff are better informed of how their data may benefit the institution in the revision of mobility procedures and the improvement of the mobility experience of other participants, they may be more inclined to provide input that will be precise, detailed, and useful.

The precision of the data provided by participants is crucial for an accurate analysis to be possible. Staff should

be encouraged to reflect their mobility experience as accurately as possible; this can particularly be a challenge with the quantitative part of the Mobility Matrix. The staff member may not recall how many people they met during specific meetings or how many students may have been in their lecture. If tracking these metrics, it should be ensured that the staff participating in the mobility familiarize themselves with the Mobility Matrix and make notes during the mobility if possible. Otherwise, this information may be lost or skewed when the Mobility Matrix is filled out at the end of the mobility period. Additionally, staff should be encouraged to fill out the Mobility Matrix as soon as possible after the completion of the mobility so that the information is still fresh in their minds.

Data analysis for the sample set in the pilot carried out at RTU was relatively easy to code and analyze because the sample was so limited. If the Mobility Matrix were to be implemented systematically at the institutional level, it would become increasingly difficult to analyze the large amount of data gathered. It is therefore necessary to consider versions of the Mobility Matrix that would be automated and make it easy to both gather and analyze the data. There are many automated data collection and analysis tools available online that could be used for this purpose and the institution should select the most appropriate version for large-scale data collection that fits their needs and capabilities.

Lastly, it should be considered how to encourage participating staff to fill out the Mobility Matrix. The research sample would have been far larger in the pilot carried out by RTU had all of the staff who received the request to fill out the Mobility Matrix done so. Following up with individual reminders and repeated requests for staff to fill out the Mobility Matrix is time consuming and, depending on the size of the institution and the scale at which staff mobilities take place, may be impossible. The systematic implementation of a tool like the Mobility Matrix may be one solution, but some incentive for staff should be considered to boost the quality of the responses.

Staff Members that Undertake Mobility

The Mobility Matrix is only useful in the case that staff who participate in mobility provide precise and valid data. Clear guidelines and instructions as well as checking for understanding can ensure that staff are well-prepared to fill out the Mobility Matrix. As mentioned earlier, it is important that the value of their input is communicated to staff so that the Mobility Matrix does not appear as “busywork.” Any mobility includes several documents that the staff member must complete and the amount of paperwork that must be assembled can be cumbersome. The staff member must be informed that their data will have a real impact on the institution and on their colleagues to stress the importance of their input. At the same time, it should be made clear that there will be no negative consequences for the staff member based on the information that they do or do not fill in. Institutions must consider how to approach this because, of course, on the one hand, staff members should not be reprimanded for how they fill out the Mobility Matrix; on the other hand, good quality responses should be the aim. It may be necessary to follow up with some staff to inquire about their responses if there is cause for concern, but this should be done with careful consideration. One such instance where a follow-up would be needed is in the case of duplicate Mobility Matrix responses as discussed earlier. It should be made clear to staff that copied answers provide unusable data and these types of responses must be discouraged.

The pilot also showed that, statistically, the male respondents provided less detailed input. It would be important to track whether this is the case in larger studies of this kind in the future to see if this trend continues. If it continues to be statistically significant, possible mitigation strategies should be considered. Possible mentorship and consultations from staff who are identified to have had fruitful mobility experiences could help boost the quality and value of the mobility for other staff members. Moreover, with the permission of such staff members, their completed Mobility Matrix documents could be shared as examples of best practice to make expectations and desired outcomes clearer to other staff.

The difference between teaching and training staff mobility should be carefully reviewed by the sending institution. Arguably, it is easier to track the success and impact of a teaching mobility than a training mobility, particularly in the case that the training mobility is an initial visit for the participant. In this case, the institution must consider what impact they expect from this type of training mobility and what results are expected from the participant. While professional growth and enrichment are no doubt valuable results of any mobility, the Mobility Matrix is meant to track more tangible results. By clearly defining expectations for all parties involved, the training mobility can be reconceptualized to yield not only better data but also to provide an overall better experience for the participant.

The pilot carried out at RTU showed a difference between the quality and content of the responses between incoming and outgoing staff mobility flows, particularly in the third question in the qualitative section of the document that asked the staff to give advice or tips for future mobility participants. Several of the incoming staff in the sample provided feedback for the organizers of the mobility at the host institution that did not meet the purpose of the question. Namely, as discussed earlier, many of the staff felt the need to complement the receiving institution, perhaps, due to cultural norms. To avoid this outcome in the future, it is suggested that the Mobility Matrix include another optional section labeled “Other comments or feedback” to provide space for the mobility participants to express whatever they wish without compromising the third optional question.

Institutional Management

The data collected from a thoughtfully crafted Mobility Matrix must be analyzed and then considered when planning the institutional internationalization strategy as well as the mobility and cooperation strategies. To achieve this, the Mobility Matrix must be vetted and promoted to the institutional leadership as a useful and reliable tool. Considering this, the use of the Mobility Matrix must be mainstreamed and used consistently to collect sufficient data for a meaningful analysis. Institutional endorsement of such a tool and embedding it into existing staff mobility procedures is necessary for a steady influx of data.

Researchers

The researchers who analyze the data collected through the Mobility Matrix should take care to consider both the quantitative and qualitative parts in conjunction. It would be useful to seek out possible synergies with other available data on staff mobilities to find correlations, artefacts, and significant findings. The data collection and

analysis should not only shape mobility-related institutional processes and the internationalization strategy, but they should also continuously inform the Mobility Matrix itself. Meaning, the Mobility Matrix should never exist as a static document – it should be revisited and revised based on data and best practices uncovered through research and cooperation with other institutions who use such tools. This leads to the point that the Mobility Matrix and similar tools that may exist should be widely discussed and analyzed, and best practices in data collection related to mobilities should be shared among institutions.


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