

Fraszczyk A, Drobisher D, Marinov M.

[Statistical analyses of motivations to participate in a rail focused extra-curricular activity and its short terms personal impacts.](#)

In: 7th International Conference on Operations and Supply Chain Management, Phuket, 2016. 2016, Phuket, Thailand: The Laboratory of Logistics and Supply Chain Management.

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This is the author's manuscript of a paper that was presented at 7th International Conference on Operations and Supply Chain Management, held 18-21 December 2016, Phuket, Thailand.

DOI link to article:

<http://oscm-forum.org/>

Date deposited:

22/12/2016



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STATISTICAL ANALYSES OF MOTIVATIONS TO PARTICIPATE IN A RAIL FOCUSED EXTRA-CURRICULAR ACTIVITY AND ITS SHORT TERMS PERSONAL IMPACTS

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ABSTRACT

The objectives of this paper are to analyse motivation to participate in an extracurricular rail-related academic activity as well as short term personal impacts achieved by students participating in a three-week long intensive programme in rail and logistics delivered by multinational consortium of higher education institutions for three consecutive years starting in summer 2012. A majority of participants were undergraduate and postgraduate delegates representing partner universities from ten European countries.

Data used for analyses presented in the paper was collected via feedback forms at the end of each edition of the programme. Although the curriculum of the programme varied slightly each year (e.g. various partner universities, research projects, technical visits), majority of the content remained constant throughout three editions, which allowed for a comparison of longitudinal data in terms of delegates' satisfaction and overall performance of the programme. The socio-economics of each year's delegates varied in terms of numbers, nationalities, academic backgrounds and male-female ratio. The analyses presented in the paper focus on short term personal impacts and outcomes achieved by the end of the three-week programme.

The analyses of results presented in the paper revealed a number of positive impacts experienced by students participating in the programme. Firstly, the main reasons for delegates to participate in the activity were to: broaden their academic knowledge in rail and logistics, gain an experience in studying and working in a different European country and practice their English language skills. Secondly, positive judgement on personal outcomes of the programme achieved increased from 76% in 2012 to 90% in 2014. Finally, 75% or more students believed that participation in the programme will have an influence on their future career plans.

Keywords: intensive programme, motivation, evaluation, benefits.

1. INTRODUCTION

A number of non-scientific publications have announced that a new railway renaissance era has already started (Greevy, 2013; Perry, 2015; Smith, 2012). It is expected that a high number

of rail infrastructure project currently under way in various locations worldwide (e.g. extension of the Dubai Metro in United Arab Emirates, Rail High Speed 2 in the UK, automated metro system in Sydney in Australia) will bring a high demand for a skilled rail workforce occupying engineering (e.g. maintenance, operations) as well as non-engineering (e.g. management, marketing) positions. However, the industry noticed that a skill gap is approaching (NSARE, 2013; HS2, 2013) and is caused mainly by an ageing workforce in the railway sector and a difficulty to recruit and retain new talents (see Railway Talents project run by UIC).

Educational institutions around the world have started offering solutions to the skill gap issue and they now offer a rich portfolio of courses addressed to students from schools, graduates from universities and professionals already in the industry. The activities offered include rail academies educating students at technical and vocational levels, universities offering a portfolio of undergraduate, postgraduate and Continuing Professional Development (CPD) rail-related courses. In addition, various education and training providers also offer CPDs to professionals already in industry (e.g. Railway Business Organisation course by the Institution of Railway Operators; IRO, 2015) and to people new to the sector (e.g. “Do you speak rail?” course by Essempy; Essempy, 2015).

Due to a multidisciplinary nature of the railways there are also more STEM (Science, Technology, Engineering and Maths) activities with a rail-flavour (e.g. STEM challenge at iRail annual event in the UK) and summer schools for rail enthusiasts (e.g. US-based “Rail and Intermodal Transportation Summer Youth Programme” or UK-based “RailNewcastle Intensive Programme in Rail and Logistics”) available on the market.

Although rail-related extracurricular activities attract many students, their motivation for participating and impacts this can have on their future studies and careers have not been studied widely. This paper aims to address this gap by analysing feedback left by the university level students participating in an intensive programme in rail and logistics.

2. BACKGROUND

The paper analyses motivation for participation in the intensive programme in rail and logistics and various short term impacts the programme had on students’ perception of their future careers. Students from various European and overseas higher education institutions (HEIs) participated in the programme on a voluntary basis. The students were studying transport-related university programmes or had an interest in the railways when applying. Three editions of the programme received funding from Lifelong Learning Programme of the European Commission (EC) as it addressed two of the ERASMUS SUB-programmes objectives. The first objective was based on improving the quality and increasing the number of student and teaching staff mobilities across Europe (RailNewcastle, 2015) where the second objective focused on improving the quality and increasing the number of multilateral cooperation between HEIs in Europe (RailNewcastle, 2015). Therefore the programme aimed to improve the quality of European education in railway and logistics at a university level and to increase the number of students and staff mobilities between European partners involved in the project.

The analysed programme offered a unique approach to teaching and learning as it employed a mixture of a lecturer-led activities (e.g. lectures, discussions, technical visits) and a student-led activities (e.g. group research work, workshops, seminars) (Fraszczyk et al, 2015a). In addition to conventional teaching tools, networking events were organised with a presence of professionals from academia and industry to enrich students’ exposure to variety of careers in the railways (Fraszczyk et al, 2015a).

The EC funding received allowed for three editions of the programme to be organised with the first one taking place in summer 2012, and the following two in summers of 2013 and 2014. HEIs from ten European countries were partnering in the delivery of the programme and due to funding limitations each partner supplied a maximum of two lecturers and six students to each of the editions. To address the objective of improving the quality of students across Europe the aim was to engage with partners from both old member (Belgium, Germany, Greece, Italy, Portugal, the United Kingdom) as well as new member states (Bulgaria, Poland, Romania) of the European Union, and Turkey. In addition to facilitating the exchange of railway and logistics knowledge between the European partners and offering a multicultural learning environment, the programme also stressed a multidisciplinary nature of the railway sector and welcomed students from engineering and non-engineering disciplines (Marinov, 2014). Overall, over 150 students, mainly undergraduates and postgraduates, participated in the programme.

The paper is a part of a wider evaluation study assessing various aspects of the UK-based intensive programme in rail and logistics. Structure and organisation of the programme as well as benefits to students of participating in extra-curricular activities have already been presented (Fraszczyk et al (2015a), Fraszczyk et al (2015b)). This paper therefore focuses mainly on motivation for participation in the programme and its short term personal impacts to students participating in this extra-curricular activity.

3. ORGANISATION OF THE PROGRAMME

The intensive programme which was aimed to promote rail education among undergraduate, masters and PhD students was organised in the UK with an involvement of European partners. This three week long programme followed a similar structure and curriculum at each of its three editions (Marinov and Ricci, 2012). Each day of Week 1 of the programme consisted of five forty-five minutes long sessions each and each day was dedicated to a different topic. The lectures covered material related to: Rail Transport, Logistics and Supply Chain Management on Monday; Rail, Multi Modal Transport and Energy on Tuesday; Rail Infrastructure, High Speed and ITS on Wednesday; Rail Vehicles, Safety and Security on Thursday; Rail Operations, Traffic Control and the Environment on Friday.

The lectures were delivered by railway experts from European academia and industry. As the lecturers were involved in various national and international rail research projects, they fed back their knowledge and experience to the lectures which were up to date and used findings from recent research work. However, the academic content of the programme was kept at a basic level in order to secure participation of students from various backgrounds (engineering and non-engineering) and their active involvement in discussion sessions and research work.

Week 2 consisted of student-led research project where students were organised into multidisciplinary and multicultural groups to enable sharing of knowledge at a European level. Students had all week to focus on rail-related research projects. The topics of group research projects varied from rail infrastructure, rail operations to rail marketing. All students were given the right to use a university computer cluster with computers with access to the Internet and scientific research databases. By the end of Week 2 each research group had to produce a research paper and a poster which were then publicly displayed in Week 3 of the programme. Moreover, each team member was obliged to participate in an oral delivery of their research findings presentation, which also took place in Week 3. Technical visits to rail facilities, workshops and networking opportunities enriched the curriculum of activities delivered in the final week of the programme.

4. METHODOLOGY

4.1 Design of a Data Collection Method

A 4-page A4 size feedback template was provided by British Council who was acting as the co-funder of the programme on behalf of the European Commission. The organisers were expected to collect feedback from all students participating in the programme and pass the completed forms on to the co-funders. The original feedback form was divided into seven sections, where each was dedicated to a different theme. The questions were related to personal details, details of the programme, motivation for participation, information about support received, accommodation used and infrastructure related to the programme, recognition of the programme/credits by a home institution as well as costs and overall evaluation of the programme. Moreover, the organisers included extra 2-pages with 11 new questions, which were directly related to the programme's specific activities (e.g. lectures, research work, technical visits), evaluation of materials received, overall positives and negatives of the programme, and suggestions for improvements. The 2-page supplement also included a question on how the programme might influence students' future career plans. The final version of the feedback form was a 6-page document, which in a hard copy was used for the collection of feedback in the three editions of the programme.

4.2. Collection of Data

A printed version of the 6-page feedback form was distributed to all student participants at the end of each edition of the programme. Students were given a dedicated time slot for completing the feedback, which they were expected to return it to the organisers by the end of the session. No additional electronic versions of the feedback were collected.

4.3 Characteristics of the Sample

The number of students participating in the programme, as Figure 1 shows, varied between the editions and was 49 in 2012, 66 in 2013 and 40 in 2014. A great majority of participants represented EU countries, however the 2013 edition also welcomed 16 Thai and 1 Brazilian students. The students were conducting their regular studies at undergraduate (BEng or BSc) or postgraduate (MEng, MSc and PhDs) levels in their home countries. They had to apply and meet a set of entry criteria, such as a good level of English, general interest in the railways and a good academic records, before they could be accepted on the programme. As the funding was limited there was a bound of six students per country per edition, with an exception of 2013 edition when, due to small number of students from Belgium and Germany, partners from Romania, Turkey and Poland were offered an extra one place each.

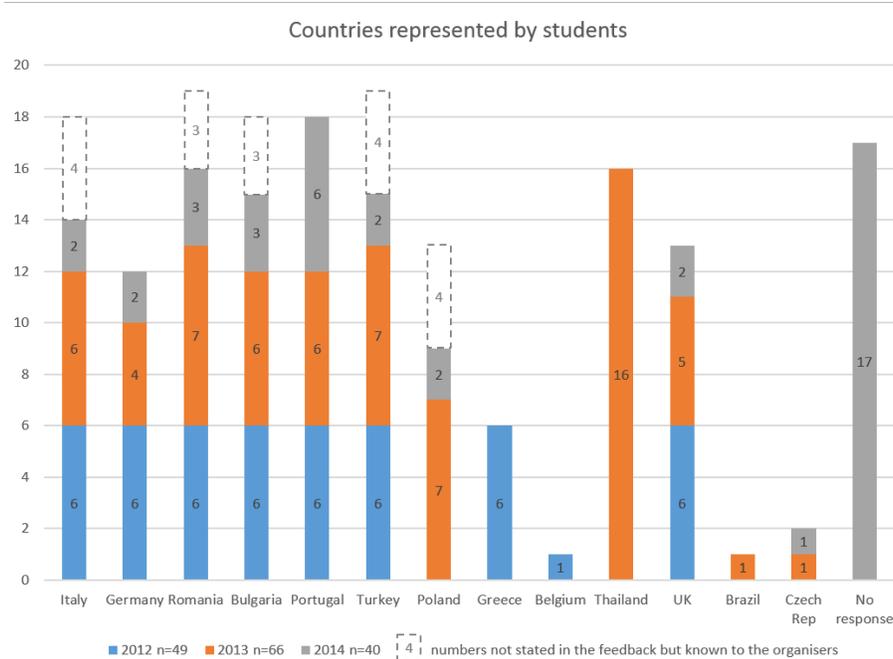


Figure 1. Countries represented by students participating in the programme [count]

Eight out of 13 countries involved in the programme had students participating in each of the three editions with Italy, Romania, Bulgaria, Portugal and Turkey sending at least six students every year. Although Thailand had 16 representatives in 2013, it was the only edition the country took part in and this was due to an internal funding received from a Thai government and its interest in investing in skilled rail academics. Also, 2014 edition had a high number of students who did not declare their country on the feedback form, nevertheless the final numbers were known to the organisers and are marked on Figure 1.

As the programme addressed multidisciplinary nature of the railways, students representing various subjects studied were encouraged to participate. Figure 2 shows details of subjects studied by participants of the three editions, where transport-related studies, civil and mechanical engineering were dominating disciplines with 19%, 13% and 12% of students on average, respectively. However, students with telematics, management and supply chain backgrounds were also visible. Although the presented results are meaningful for the first two editions only, as the 2014 edition experienced a high “no response” rate, it is clear that non-engineering students were in minority of the programmes’ participants.

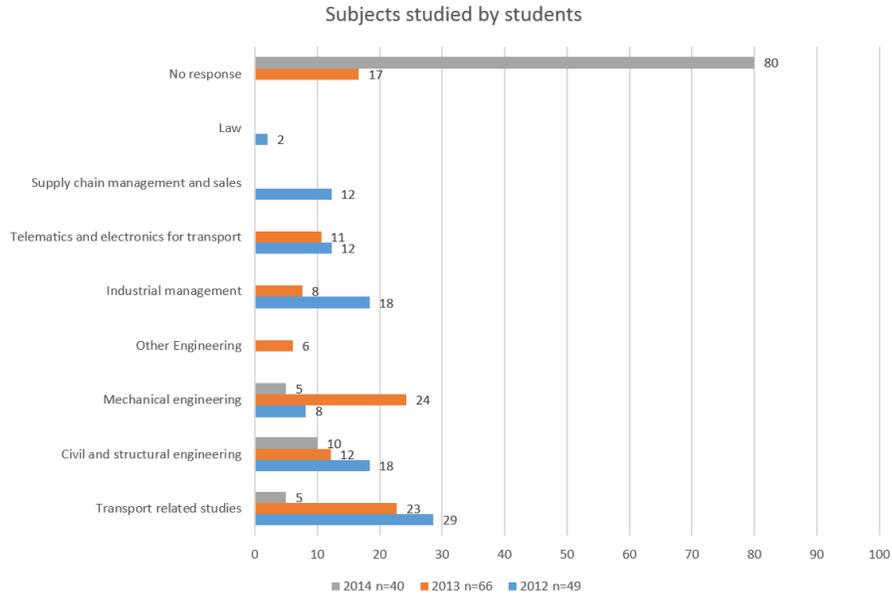


Figure 2. Subjects studied by students participating in the programme [%]

In terms of female:male ratio, as Figure 3 shows, each of the three editions welcomed students of both genders. In terms of Thai delegates attending the 2013 edition, there were 16 participants in total with 2 females only. However, when this group is excluded from calculations then the numbers of male students double the numbers of female students in the first two editions of the programme (16 vs. 33 in 2012 edition and 18 vs. 32 in 2013 edition, respectively). Results for the third edition are much more difficult to interpret as nearly half of respondents (18 out of 40 students) did not state their gender on the feedback form. Overall it can be seen that although the interest in rail and logistics programme is much higher among male students, female students form a significant group which should not be ignored neither at the recruitment nor at the delivery stages of the programme.

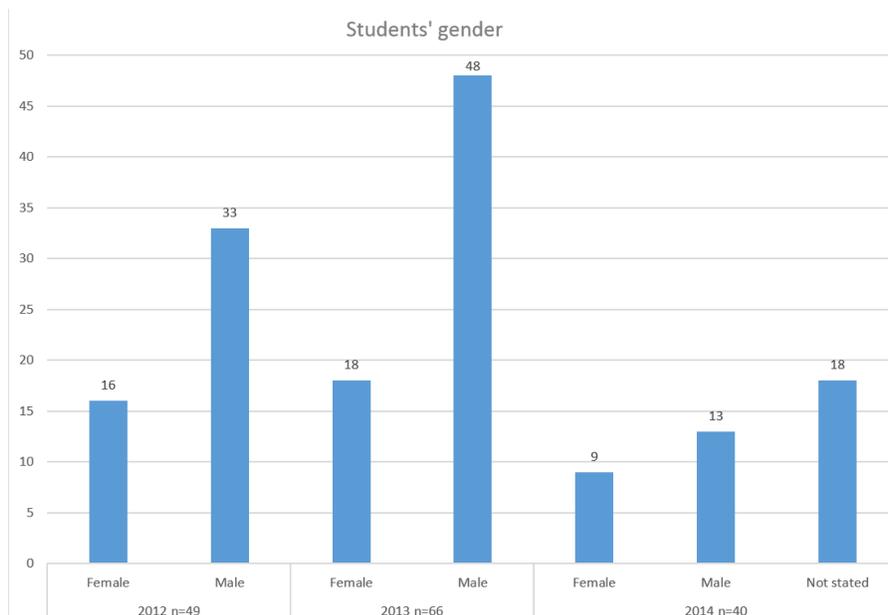


Figure 3. Gender of students participating in the programme [count]

5. Analyses of short term personal impacts

The data collected via the feedback form, was then cleaned and analysed using IBM SPSS and MS Excel software. For the purposes of this paper a selection of data related to: motivation for joining the programme, recognition of the programme/ECTS by home institution, judgement of personal outcomes to participants and language issues are displayed. The results presented in thematic sections are grouped mainly by the edition and/or gender to show similarities and differences, if any, in students' perception of the three-week extra-curricular activity they took part in.

5.1 Motivation for participation in the programme

As the students' selection process required them to be academically interested in rail and logistics the questionnaire also asked about students' non-academic motivations for joining the programme. The students had a set of motivations to choose from, as presented on Figure 4, and they rated them on a 5-point Likert scale where 1 was the lowest score of "Not at all" and 5 was the highest score of "Very much". The data for the three editions shows that from the six motivation factors available, only one – "Friends living abroad" attracted a wide spread of answers from 1 to 5 with the highest scores of 33% of the sample in 2012 edition saying "Not at all" and 30% of the students in 2014 edition saying "Very much". As expected from an extra-curricular activity addressed to students the "Academic factor" scored high in all three editions as 80% or more of participants rated it as 4 or 5 (84%, 85% and 80%, respectively). Majority of students were also motivated by a "Cultural factor" which scored very positively on 4 and 5 and only slightly lower than the academic motivation (80%, 76% and 81%, respectively). A very similar picture is presented for motivations based on "Practice of foreign language" and exposure to "European experience", which also scored approx. 80% positive. However, slightly lower scores are noted for motivations related to future "Career plans", which stayed at a positive level of 4 and 5 for 65% of students in 2013 to 79% in 2012 and 76% in 2014. These results, although still very positive, might be related to the fact that majority of the students were continuing their studies while participating in the programme and plans for their future career options were not clear by then yet.

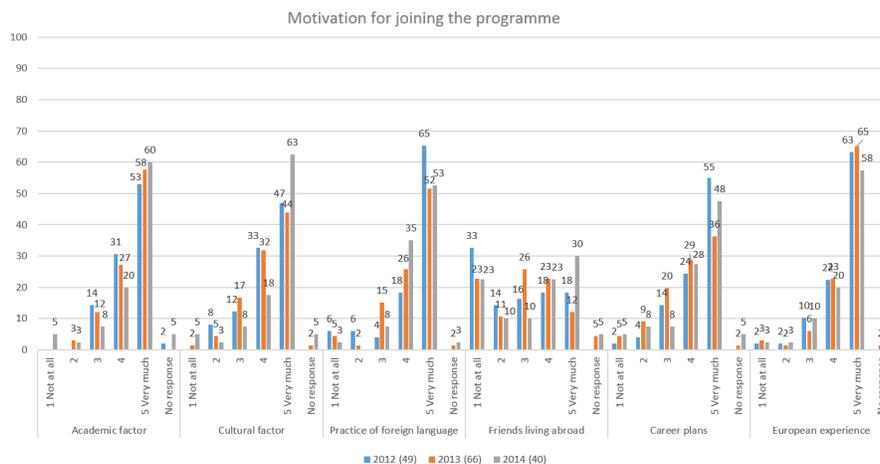


Figure 4. Students' motivation for joining the programme per edition [%]

To further investigate motivation factors across three years of the programme a set of new analyses was produced where results for each factor are presented for males and females taking part in each of the three editions. Figure 5 displays results for “Academic factor” as a motivation and it can be noticed that in 2012 edition the female vs. male results for the highest score of 5 were 69% vs. 45% only. Scores for the second edition are very similar and positive for both genders despite a large difference in number of females (18) and males (48) participating in the programme. The third edition scored again higher for the “Very much” score with females (78%) than with males (69%). The results show that overall males are more careful with giving the highest score than females, even when their academic motivation for joining the programme is at a similar positive level (combined 4 and 5 scores) for both genders

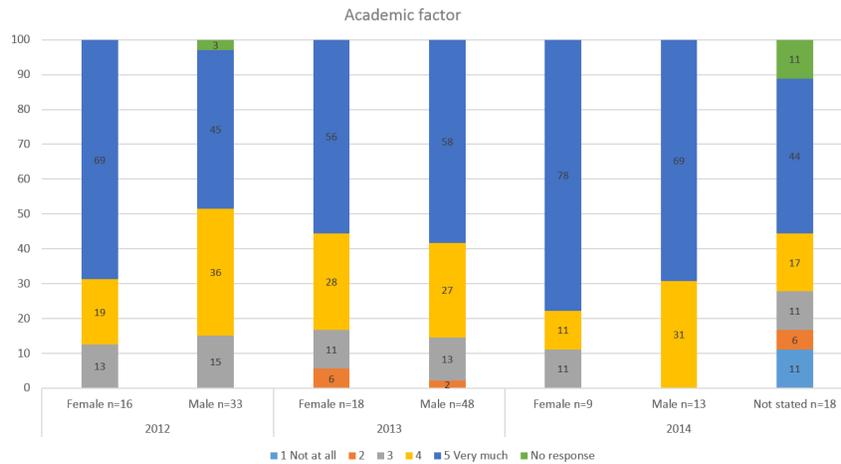


Figure 5. “Academic factor” as a motivation factor for joining the programme per edition per gender [%]

In terms of the “cultural factor” as a motivation for joining the programme the results between genders vary. As Figure 6 shows, in general the answers are positive and score 4 and 5 for majority, but male students seemed to be more negative as 12% of males in 2012 edition and 8% in 2013 edition rated this motivation negatively meaning that it was not a driving force for them to participate in the programme. Simultaneously, females in the first two editions tended to give a score of 3, which can be interpreted as neutral on a 5-point Likert scale, rather than a negative score for their cultural motivation. Although the gender numbers for the third edition are not clear due to a high “no response” rate, the number of positive scores of 5 is the highest out of all editions and the numbers are equal for both genders with 78% of females and 77% of males agreeing that a cultural motivation was one of the driving forces to join the programme.

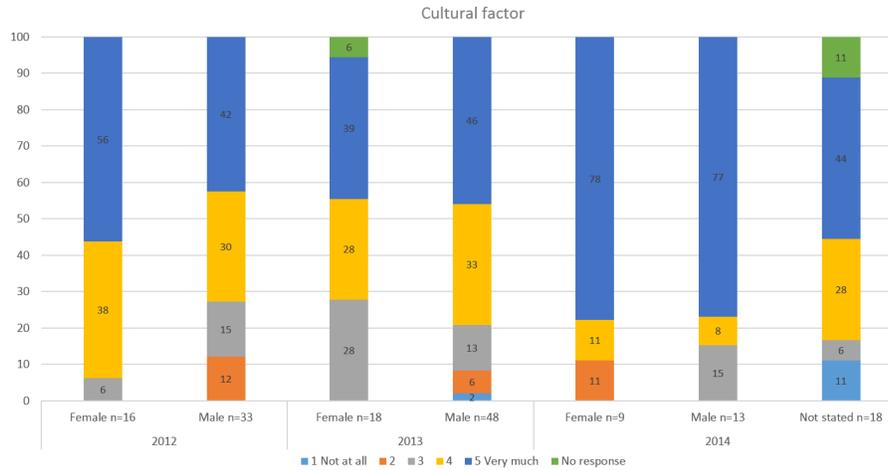


Figure 6. “Cultural factor” as a motivation factor for joining the programme per edition per gender [%]

An opportunity to practice a foreign language during participation in the programme was a motivation for a great majority of students across the three editions to join in. However, it is clearly seen on Figure 7 that an exceptional majority of 88% of females in the first edition rated this motivation at the highest level of 5 in comparison to males whose 55% scored 5 and 24% scored 4. For the next two editions the results are at an average level of 50% for both genders for score 5 and between 25% and 46% for score 4, which overall is still very positive.

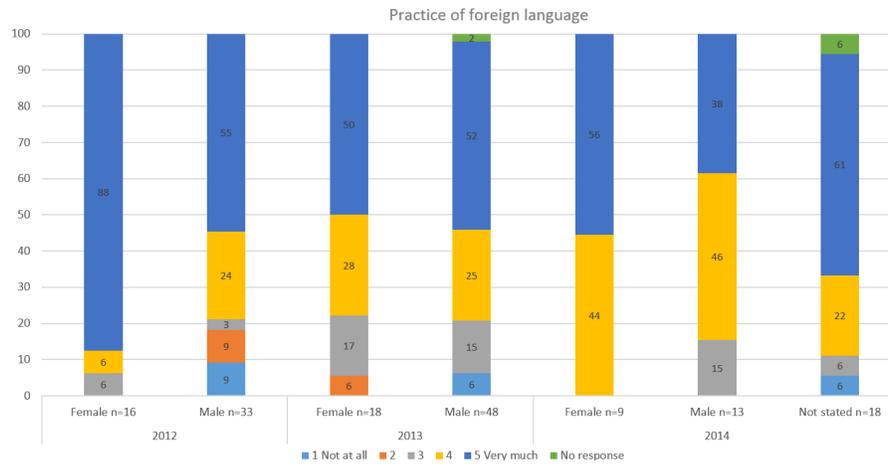


Figure 7. “Practice of foreign language” as a motivation factor for joining the programme per edition per gender [%]

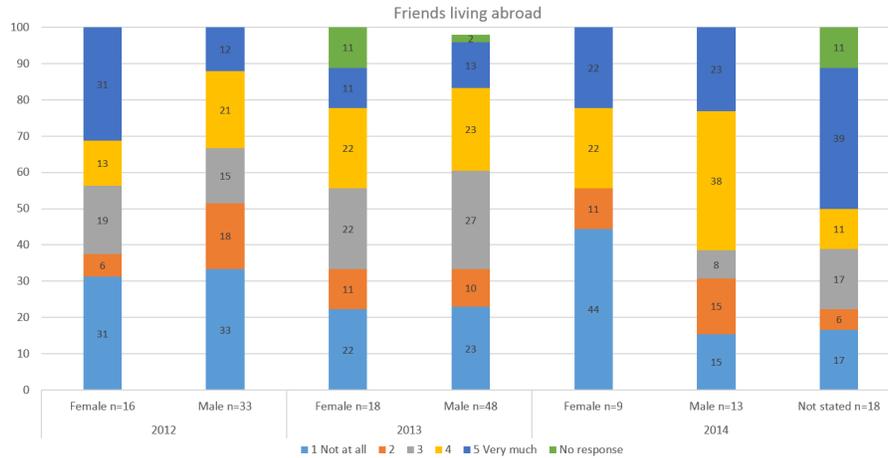


Figure 8. “Friends living abroad” as a motivation factor for joining the programme per edition per gender [%]

Results for the “Friends living abroad” motivation factor, as presented earlier on Figure 4, are most diverse out of the six factors. Although opinions amongst male and female students participating in the first two editions of the programme are at a similar level for positive, neutral and negative answers, there are many more negative opinions about this motivation factor when compared with the other five factors. This shows that only about a third of students in the 2012 and 2013 editions, both males and females, were motivated to participate in the programme because they had friends living abroad.

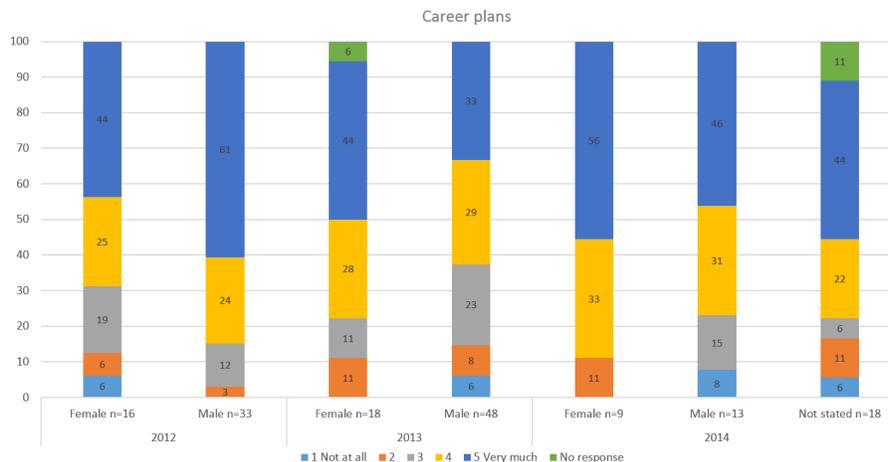


Figure 9. “Career plans” as a motivation factor for joining the programme per edition per gender [%]

In terms of “career plans” as a motivation factor for participating in the programme, Figure 6 clearly shows that the overall results were very positive. More specifically, as seen on Figure 9, the results were slightly more positive for males than females in 2012 (85% vs. 69%, respectively), but in 2013 edition the situation changed and there were 10% more career-orientated females (72%) than males (62%). Although the negative responses were kept at a low level, between 11% and 12% of females and between 3% and 15% of males did not think that their participation in the programme might influence their future career plans.

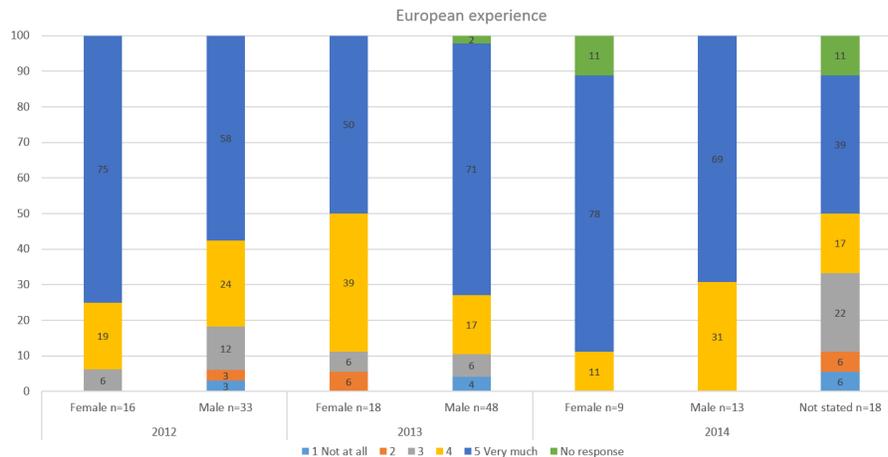


Figure 10. “European experience” as a motivation factor for joining the programme per edition per gender [%]

As the programme had a strong European flavour, due to a number of students and staff from various European partner higher education institutions participating, an exposure to a “European experience” was overwhelmingly positive as a motivation factor for joining this initiative, as seen on Figure 10. Since the first edition of the programme students rated the European experience factor mainly with the scores of 4 or 5, and the scores increased among males from 82% in 2012 edition to 100% in the third edition, although a slightly higher appreciation was expressed by females (94%) than males (82%).

5.2 Recognition of the Programme

European Credit Transfer System (ECTS) is a Europe-wide system adapted at the university level which allows students to take modules, related to their topic studied at home HEI, abroad at a different university and claim credits earned towards their main degree programme (EC, 2015). However, this right can only be exercised if both HEIs involved have a bilateral agreement signed and accept each other’s courses.

As the programme involved students from various European HEIs a question about students’ knowledge of whether or not the participation in the programme will be recognised by their HEI and contribute to their degree was asked. The students had three answer options of: “Yes”, “No” or “I don’t know” to select from and Figure 11 shows responses for the three editions. It can be seen that the number of students convinced about recognition of the programme increased from 31% in 2012 to over 40% (47% in 2013 edition and 43% in 2014 edition) in the following editions. However, a large group of students, from 65% in 2012 to 50% in 2014 responded “I don’t know” showing their lack of knowledge about the recognition issue.

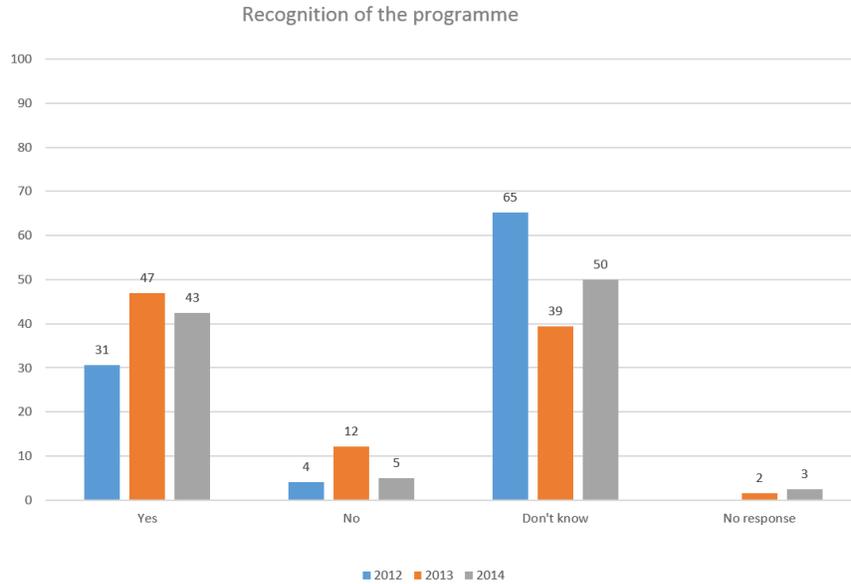


Figure 11. Students’ knowledge about recognition of the programme by edition [%]

To look into more detail an additional analyses were conducted and Figure 12 displays results for students’ knowledge about recognition of the programme per country. It can be seen that there was a serious confusion between students about the recognition of the programme by the HEI. Some HEIs had their students answering “Yes” and “Don’t know” at the end of the same edition, e.g. Greece (50% vs. 50%). Overall the students’ awareness of recognition shows a positive trend across three editions of the programme but the issue of misunderstanding and miscommunication must be addressed at the organisational level by the organisers and the partner HEIs. If the programme is to be recognised and counted towards students degrees and academic achievements more effort needs to be put in the future into informing students about ECTS option as it will allow students to make a better informed choice and the organisers to market the programme with an ECTS value.

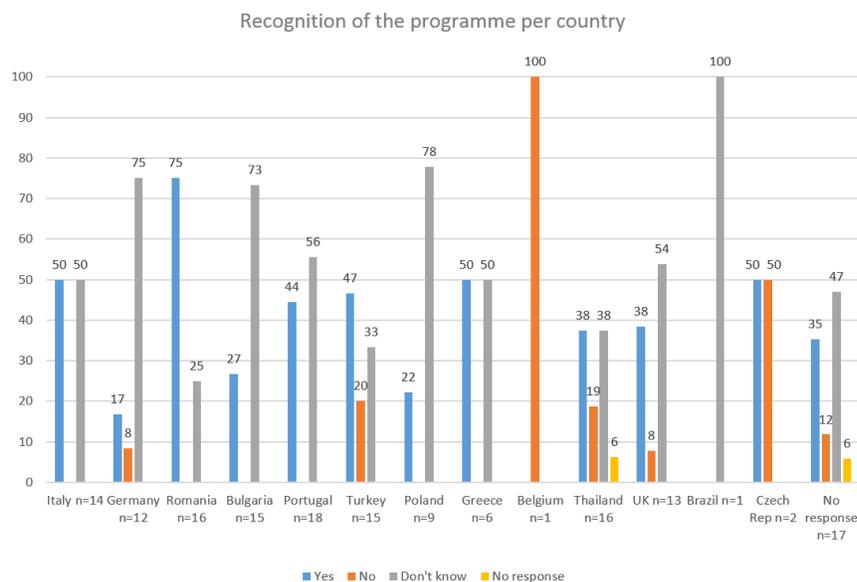


Figure 12. Students’ knowledge about recognition of the programme per country [%]

5.3 Personal Benefits

One of the compulsory questions on the feedback form asked students to judge their personal outcomes after participation in the programme. A 5-point Likert scale with 1 being “Poor/Negative” and 5 being “Excellent” rating was given. Majority of students chose 5 and 4 across three editions, as presented on Figure 13, and the percentage increased from 76% in 2012 to 87% in 2013 and in the 2014 edition researched 90% of satisfaction. Moreover, neutral responses with a rating of 3 decreased from 18% in the first edition to 8% in the third edition, showing that as the editions passed participants gained more confidence in the programme and judged personal benefits gained from it more positively.

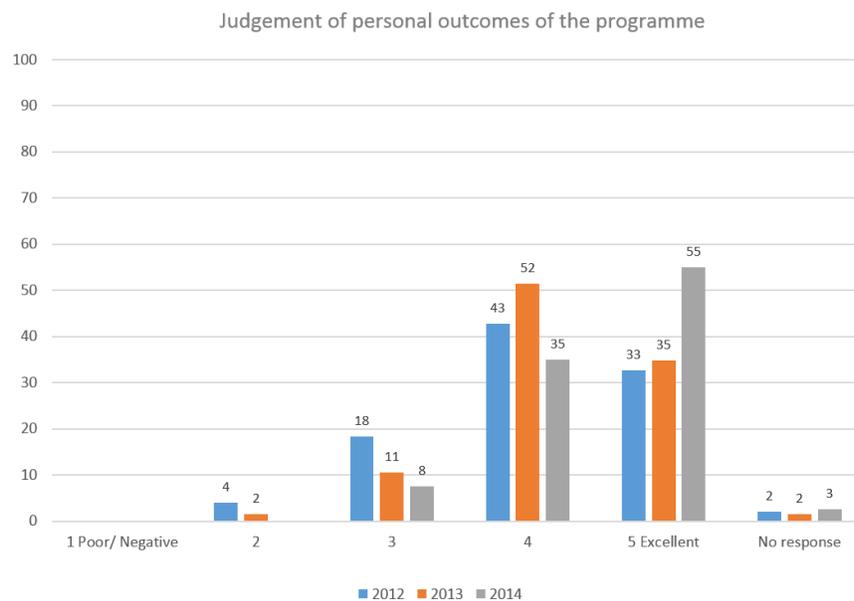


Figure 13. Students’ judgement of personal outcomes of the programme [%]

Figure 14 presents results for a set of benefits to students gained from participating in the programme. The benefits displayed are all orientated towards students’ further studies or career and how, if at all, they see the programme benefitting their future. An overwhelming majority of over three quarters of students (84% in 2012, 76% in 2013 and 96% in 2014) agreed that the programme will “Help with further studies/career” and rated this benefit with scores of 4 or 5. Similarly, 80% in 2013 and 75% in 2014 agreed that the participation in the programme will have an influence on their future career plans. This result might be linked to the benefits of being exposed to a European experience and to gaining an ability to work in a multicultural and multidisciplinary environment, which many students experienced for the first time during the programme.

Results for the benefit of the programme being of “help with finding a job” received mixed answers. In the first editions of the programme between 16% and 25% of students perceived this issue negatively and did not believe that their participation in this extra-curricular activity will give them an advantage when looking for a job. However, about half of the students in the first editions perceived this positively and rated this benefit with 4 or 5 scores. Moreover, 2014 edition noted a large increase in positive responses with 76% of students overall recognising the benefits.

Overall, the programme aspired to widen students’ horizons and give them confidence in pursuing various career options in life and the positive results confirm that this was achieved.

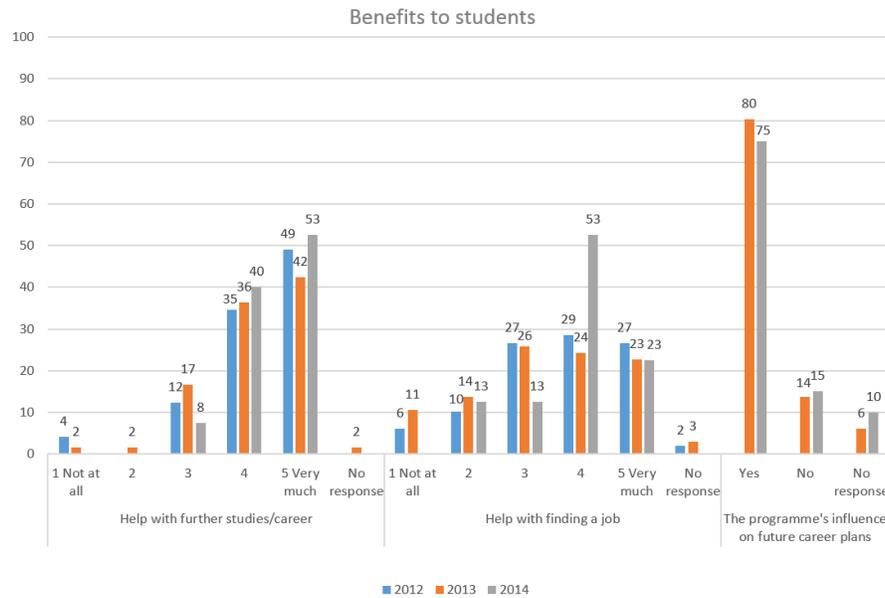


Figure 14. Students’ judgement of benefits of participating in the programme [%]

5.4 Language barrier

A language barrier awareness was present among the organisers and the partner HEIs involved in the programme. It was expected that perception of the programme and benefits gained would be dependent on the students’ proficiency in English therefore it was desired that only students with a good level of English will be accepted to participate. The feedback form included a question about English language being a barrier in understanding content of the lectures with two answer options: Yes or No. Figure 15 shows how understanding of English language among students evolved throughout the duration of the programme. During all three editions of the programme majority of students (from 63% in 2012 to 73% in 2014) did not find problems with the language. Only one in three (35% in 2012 and in 2013) or one in four (28% in 2014) students found some difficulties with understanding lecturers in Week 1 with reasons for that explained in comments such as the lecturers’ strong accents and speed of talking or struggle with understanding technical terms.

Overall, the results display a positive trend showing that the quality of students’ with a good level of English has improved over the years. Also, this questions reflects well the motivation factor for joining the programme presented in Figure 7 where about 80% of students agreed that an opportunity to practice a foreign language encouraged them to apply. It was definitely a great advantage of the programme that in addition to offering students an opportunity to share and gain subject-specific knowledge it also gave them a chance to improve their English communication and language skills.

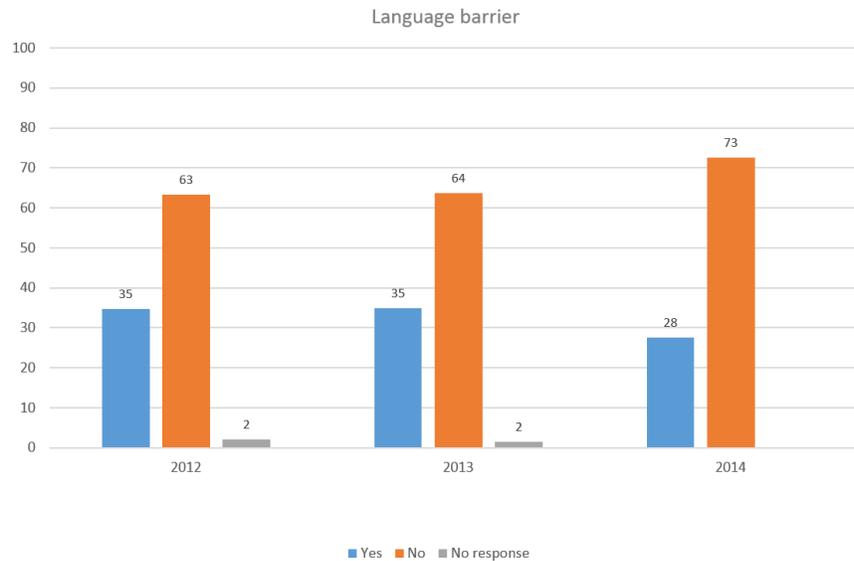


Figure 15. Students' judgement on English language being a barrier in understanding content of the lectures in Week 1 of the programme [%]

6. CONCLUSIONS

In order to contribute to a better understanding of students' motivations to join a rail-focused extra-curricular activity and to evaluate its short term personal benefits to students, this paper presented results of feedback collected at the end of three editions of the intensive programme in rail and logistics.

The results presented in the paper can be grouped into four thematic areas: motivation for participation in the programme, recognition of the programme by partner HEIs, personal benefits gained, and a language barrier experienced.

Firstly, the most popular driving factor for students to join the programme was their academic motivation (80% of participants or more). Although male participants showed increase in extremely positive ratings for the academic motivation (45%, 58% and 69%, respectively), the female participants results showed a drop in high ratings in 2013 (56% in comparison to 69% in 2012 and 78% in 2014). The other reasons for joining the programme were nearly as popular as the academic motivation, but were related to non-academic aspects of education such as cultural factors, European experience and practice of foreign language (each earned around 80% of the participants' scores). However, motivations related to future career plans achieved a slightly lower level and reached positive opinions of 73% of students on average for the three editions of the programme. All but academic factor motivations did not vary much between the genders.

Secondly, although it was not a priority for the organisers to guarantee programme's recognition by partner HEIs the feedback showed that students were misinformed about the recognition of the programme leading to participants from the same university giving opposite answers. Perhaps if the recognition issue was clear at the application stage more students would be interested in attending the programme and earning ECTS. Similarly in the future more students might be motivated to attend the programme if its recognition by their HEIs is guaranteed.

Thirdly, students who took part in the programme generally found themselves benefiting from it. It was foreseen by the great majority of students, more specifically 80% of students in 2013 and 75% in 2014 editions, that their future career choices will be influenced by participation in the programme. Moreover, this influence was seen in a positive light, as help with further

studies or career, by over 80% of students. But in the case of the programme helping students with finding a job their opinions were not so positive with between 16% and 25% rating it as 1 or 2 on a 5-point Likert scale.

Finally, by participating in the programme students attempted to overcome their English language barrier, which a great majority successfully did as between 63% of participants in 2012 and 73% in 2014 reported that they did not experience any problems with understanding the content of lectures delivered in Week 1 of the programme. However, some students mentioned that speed and accents with which some of the lecturers delivered their lectures caused some difficulties in communication. This issue could probably be addressed by the organisers when building a team of lecturers, who will be involved in delivering future editions of the programme.

Overall, it can be seen that the programme has been improving as satisfaction of students in terms of short term personal outcomes achieved slowly evolved into more positive and career-orientated goals, although avenues for improvements and future research can be identified.

7. RECOMMENDATIONS

7.1 Recommendations for improvements

The analyses of feedback received from the programme's participants' related to motivation for joining the programme as well as short term personal outcomes identified various benefits to students. The programme has already shown improvements in a number of areas and its potential to grow, but the study also highlighted some issues that can be addressed. Possible improvements to the future editions of the programme include the following avenues.

Firstly, in order to attract prospective students to join the programme its academic benefits as well as benefits for future career plans should be highlighted clearly at the recruitment stage. Also, a strong accent should be put on multidisciplinary nature of the programme both from students as well as staff perspectives. This will help to attract a wide spectrum of students from engineering and non-engineering backgrounds who will be also interested in improving their English language and communication skills and gaining an awareness and experience of working and studying in a multicultural environment.

Secondly, partner HEIs involved in the programme must address the miscommunication and misunderstanding about the recognition of the programme so that it is clear to any prospective candidates whether participation and successful completion of the programme can be claimed according to ECTS rules or not. This issue should be dealt with at an organisational level and partners should agree on best solutions benefiting students as well as the programme.

Thirdly, since there have been some problems with understanding of English language by the delegates and the most common problem was with terminology, the suggestion is to produce a glossary of terms and hand it out to all participants at the beginning of the programme. The other challenge with the language barrier was the lecturers' accents and speed with which they delivered their talks. A possible solution to this would be a production of lecture notes and an academic content, which could be shared with students so that they could follow the lectures more easily. This material could also act as a reference for any research work expected from students during the programme. That way students who struggle with understanding the content of lectures in Week 1 would have an alternative source of learning which they could study individually and as when required.

Finally, it is suggested that some measures are taken to attract more female students to participate in the programme, as male to female ratio was approximately 2:1 in the three editions. This could be achieved by highlighted multidisciplinary nature of the programme and by promoting it to students from variety of engineering and non-engineering backgrounds.

The above suggestions for improvements should not be costly to implement and results they could potentially produce would be beneficial to prospective students and the programme as a whole. The suggestions, if implemented, will help with promotion and successful delivery of the programme in the future.

7.2 Recommendations for further research

Overall, this paper, which is a part of a much wider evaluation study of the intensive programme in rail and logistics, contributes to the discussion on students' motivations for joining extra-curricular activity with a rail focus as well as highlights short term benefits their participation in the activity have on their future careers. However, much more could be done to further investigate impacts the programme has on students' future. More specifically, three directions for further research have been identified, as follows.

To start with, some further analyses could be conducted using the data collected via feedback forms combined with academic results achieved by research groups, such as for example quality of group research projects and individual involvement in project-related scientific publications. This could help to understand better students' academic progression and their engagement in extra-curricular activities.

To continue, a follow up study is suggested with the programme alumni who have already entered the world of work and could share the impact, if any, the programme had in reality on their further career choices. Apart from academic and career-related aspects the study could also investigate soft skills, if any, gained and social benefits, such as for example new friendships, which happened as a results of their participation in this activity.

To finalise, it would be interesting to investigate with the partner HEIs and lecturers involved in the programme on what personal and academic benefits, if any, their involvement in this activity brought to their lives. This would allow judging whether the programme was a success from staff perspective and investigate what measurable long-terms outcomes were achieved, and this could include a spectrum of aspects from friendship-related issues to new scientific publications and research projects.

8. REFERENCES

Journal articles

- Fraszczyk A, Dungworth J, Marinov M. (2015a) Analysis of Benefits to Young Rail Enthusiasts of Participating in Extracurricular Academic Activities. *Social Sciences* 2015, 4(4), 967–986.
- Marinov, M. (2014) Why only rail engineers? *Rail Professional*, February 2014, 115-117.
- Marinov, M., and Ricci, S. (2012) Organization and management of an innovative intensive programme in rail logistics. *Procedia Social and Behavioral Sciences*, 46 (2012), 4813-4816.
- Smith, K. (2012) Canada's light rail renaissance. *International Railway Journal*. Available at: <http://www.railjournal.com/index.php/light-rail/canadas-light-rail-renaissance.html> (Accessed on 12th October 2015).

Conference proceedings

- Fraszczyk, J. Dungworth, M. Marinov (2015b) An evaluation of a successful structure and organisation of an intensive programme in rail and logistics. *3rd UIC World Congress on Rail Training 2015*, Lisbon, Portugal.

Other references

- European Commission (2015) European Credit Transfer and Accumulation System (ECTS). Available at: http://ec.europa.eu/education/ects/ects_en.htm (Accessed on 11th October 2015).

- Essempy (2015) Do you speak rail? Available at: <http://www.essempy.co.uk> (Accessed on 12th October 2015)
- HS2 (2013) HS2 Skills & Capability. Presentation delivered at HS2 Supply Chain Conference, Birmingham, United Kingdom, November 2013. Available at: <https://www.gov.uk/government/publications/hs2-supply-chain-conference-2013> (Accessed on 12th November 2015).
- IRO (2015) Institution of Railway Operators. Available at: <http://www.railwayoperators.co.uk> (Accessed on 12th October 2015).
- McGreevy, M. (2013) Renaissance of Railways in Northern Ireland. Presentation to CIHT delivered on 25 February 2013. Available at: www.ciht.org.uk (Accessed on 12th October 2015).
- NSARE (2013) Forecasting the Skills Challenge. Report. Available at: <https://www.contractsfinder.service.gov.uk> (Accessed on 15 October 2015).
- Perry, C. (2015) Rail renaissance on track. Speech delivered on 12 March 2015 at Southampton port. Available at: <https://www.gov.uk/government/speeches/rail-renaissance-on-track> (Accessed on 12th October 2015)
- RailNewcastle (2015) RailNewcastle. Available at: <http://railnewcastle.pub.ro> (Accessed on 5th May 2015).