UC-CROWD
universities & companies
crowdsourcing

European Report – Final Results on

WP5 – Teaching Learning Case Study – Students

partner in charge ***University of Wolverhampton***

date ***30th of May 2014***

location ***Wolverhampton, United Kingdom***

type of report ***European Report – Student's perspective***

1. Objective and general description of the activity

The main aim of this paper is to summarise and compare the findings about the students in relation to the concept of crowdsourcing.

The report provides an in-depth analysis and comparison of differences between students perception towards crowdsourcing, among the 7 different European Union countries. In order to that, this paper has focused on the following aspects/criterions:

- *Motivation;*
- *Obstacles;*
- *Incentives;*
- *Functions.*

1.2. Description of the activity

All of the data that has been used to conduct this research was collected and presented by each project's partner and represents students from various EU countries, which are: UK, Bulgaria, Portugal, Poland, Belgium, Italy and Slovenia. The same questionnaire (both tangible and online) was used in every instance to insure the data is collected efficiently.

In total, there were 742 student participants, who consisted of:

- *UK-146 partakers*
- *Belgium-16 partakers*
- *Bulgaria-16 partakers*
- *Italy-408 partakers*
- *Poland-16 partakers*
- *Portugal-130 partakers*
- *Slovenia-10 partakers*

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The analysis that has been used for the purposes of this research was made of two steps.

Firstly, SPSS software was used to analyse and compare the values of Mean for every variable required for the research.

Secondly, One Sample T-test was used to compare the findings from the first part of the analysis and find possible significance between student perceptions across the EU. Subsequently, visual interpretation of the results was provided.

Results of the analysis

2.1. Motivation

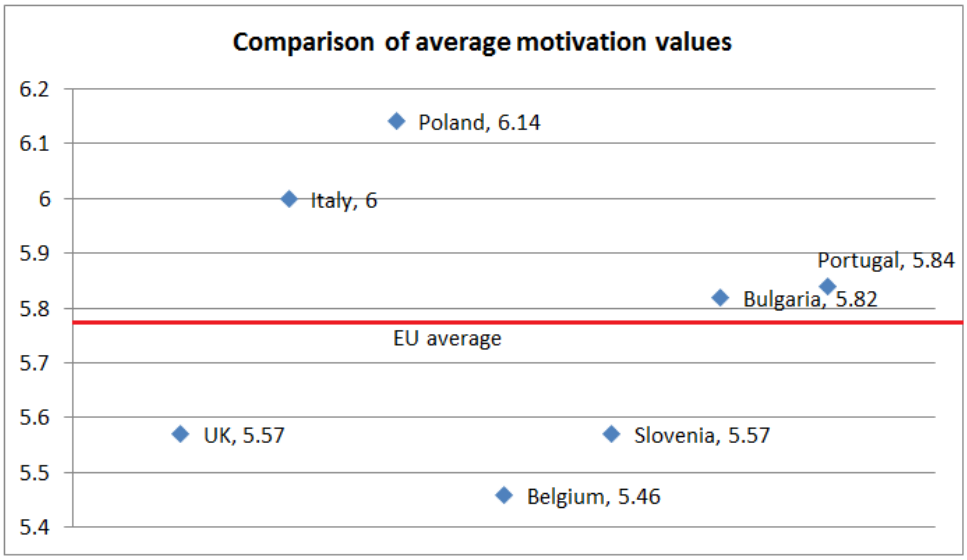

Figure 1, Comparison of average motivation values

Figure 1 highlights the EU average motivation value is equal to 5,77, which indicates that all of the proposed motivation factors were evaluated highly by students. It can be seen that Poland (6,14) and Italy (6,00) have the highest motivation values among all of the reviewed countries. In contrast Belgium (5,46), Slovenia (5,57) and the UK (5,57) have the lowest motivation values. Another interesting finding was that average motivation values of Bulgaria (5,82) and Portugal (5,84) were the closest to the average value of the EU (5,57).

2.1.1. One sample T-test

742 students from various universities in EU were asked to evaluate the possible motivation drivers that may attract potential users to engage with crowdsourcing platforms. The average mean value of the

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EU motivation value was found to be 5, 77. After that this sample mean was individually compared to the mean value of each of the seven countries. A one-sample t-Test has demonstrated that average value in EU was significantly different from the average values of each of the 7 seven countries (refer to appendix). Therefore, it can be suggested that motivation drivers that may effectively work in particular country may not be effective enough in other country. Nevertheless, the difference was found to be rather small

2.1.2. Motivation/opportunities

Purpose: Matrix Question was addressed to understand the factors that could mostly motivate the students to actively participate to a Crowdsourcing platform

Analysis: as concerns motivation factors the most relevant motivations engines are represented by:

- *Raising your knowledge after you solved the problem;*
- *To transfer scientific knowledge into practice by developing research projects based on the companies' problems;*
- *Creating contacts with various stakeholders;*
- *To seek an opportunity to contact real working world problems;*
- *The ability to attract future employer/employee.*

An interesting observation is that students in the EU have highly evaluated several intrinsic motivation factors e.g. raising knowledge, transferring knowledge into practice, etc. In contrast only one purely extrinsic motivation driver was common in most countries e.g. opportunity to attract employer/employee or obtain internship.

According to those findings, it can be suggested that intrinsic motivation factors could be more effective than extrinsic in the EU. This highlight the importance of academics and professors to engage their students and inculcate the culture of sharing knowledge online, and also the highlight the benefits of participating in the crowdsourcing mechanism.

Furthermore, it can also be stated that there were many similarities among the reviewed countries and the same motivation drivers were considered to be important.

In addition, it must be mentioned that all of the students have highly evaluated possible motivational factors, as most of the mean values were 4 or higher. The latter fact indicates that all of the proposed motivation drivers were highly relevant and the results of the analysis are accurate.

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2.2. Obstacles

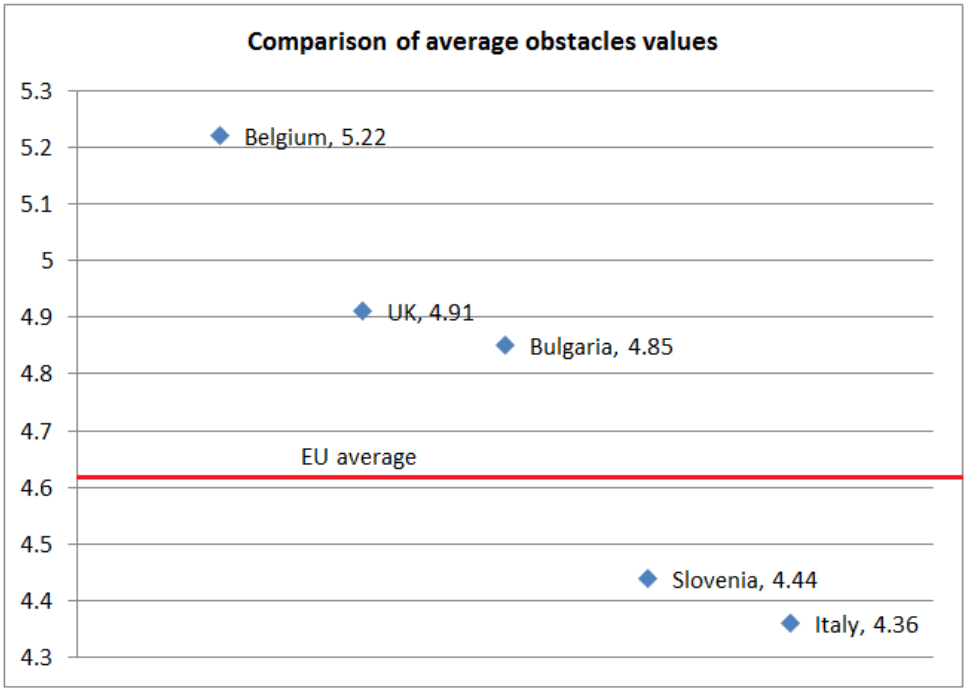

Figure 3, Comparison of average obstacles values

Figure 2 illustrates that the EU average value of possible obstacles is equal to 4,62, which indicates that all of the possible crowdsourcing obstacles were considered as slightly more important as neutral. It can be also observed that among all of the countries, Belgium has the highest average obstacles value (5,22), indicating that students in Belgium are more concerned with the potential crowdsourcing obstacles comparing to students from Italy (4,36), Slovenia (4,44) and the EU in general.

Please note that Poland was not included in this section of the research as some of the critically important parts of data were missing.

2.2.1 One sample T-test

726 students (excluding 16 students from Poland) from all of the seven countries were asked to evaluate the importance of possible obstacles that may impact on crowdsourcing platform efficiency. The average mean value of EU obstacles value was found to be 4, 62. According to the results of a one sample T-test it was figured out that average value of the each country was significantly different to the EU average value of possible obstacles (see appendix). Therefore, the importance of potential obstacles on the performance of the crowdsourcing platform is different in every country and requires additional attention.

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2.2.2 Most Relevant Obstacles

Purpose: Matrix Question was addressed to point out the factors that could damage and negatively influence the development of a crowdsourcing platform.

Analysis: as concerns obstacles the most relevant threats were represented by:

- *Lack of participation from companies;*
- *Intellectual property issues;*
- *Low quality of the final product;*
- *Lack of support from professors/researchers;*
- *Companies have the perspective that there is a gap between what is taught in Universities and what is useful for companies*

According to the findings, it can be stated that from the EU students' perspective, most of the obstacles are related directly to the companies' rather to such issues as language barriers or lack of IT skills e.g. lack of participation from the companies, intellectual property issues, low quality of assistance, etc.

One of the main concerns about the above stated argument is that it may negatively impact on students' perception towards the Crowdsourcing platform, as students consider companies to be the most important party in Crowdsourcing. Therefore, it must be explained to students that their role in CS platform is equally important to the role of companies.

Another important finding was that students have highly evaluated such obstacle as lack of support from professors/researchers. It other words, student have lack of self-confidence that may serve as a serious obstacle between them and Crowdsourcing platform. Therefore, it is critically important for universities to provide any possible assistance/guidance from academic staff to students participating in Crowdsourcing activities.

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2.3 Incentives

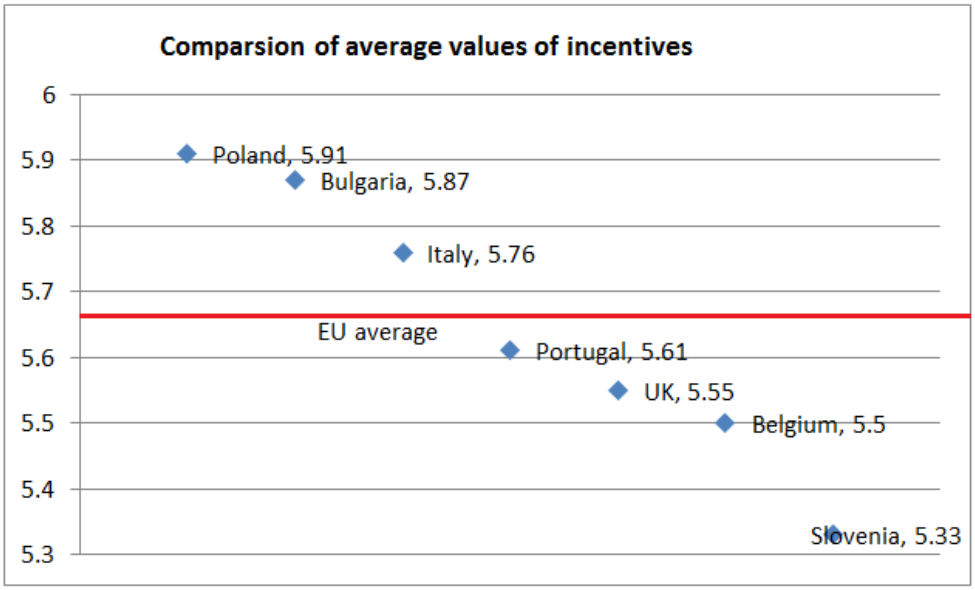

Figure 5, Comparison of average values of incentives

According to figure 5, students in the EU have highly evaluated all of the proposed incentives options, as the average score is equal to 5, 66. Interestingly, despite the rather high average score, there were 4 countries with scores below the EU average (UK-5, 55; Portugal-5, 61;Belgium-5, 5; Slovenia-5, 33). The analysis has also demonstrated that Poland (5,91), Bulgaria (5,87) and Italy (5,76) have the highest scores among all of the reviewed countries. The latter fact demonstrates that proposed incentives would be slightly more effective in Bulgaria, Poland and Italy rather than in Slovenia, Belgium and the UK.

2.3.1 One sample T-test

742 students were asked to evaluate (from 1-very low to 7-very high) the importance of possible incentives that can be used to attract users to participate in crowdsourcing activities. It was identified that the average mean value of EU incentives was 5,66. Subsequently, one sample T-test has demonstrated (see appendix) that there was significant difference between each country and EU in terms of incentives average values. Therefore, it can be argued that incentives are also dependant on the specific circumstances of each of the reviewed countries and should be reviewed individually.

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2.3.2 Most Relevant Incentives

Purpose: Matrix Question was addressed to point out the incentives (in particular academic) that could be used to encourage students to participate with the crowdsourcing platform.

Analysis: as concerns incentives the most relevant opportunities are represented by:

- *Starting cooperation between companies and universities*
- *Internship opportunities for students*
- *To use work on the project to develop into coursework or bachelor/master/PhD*
- *Ability to attract future employment*
- *Payment incentives*

As it can be seen, most of the top 5 EU incentives are examples of extrinsic motivation drivers. Therefore, data from this analysis can be compared to the data from the section 2, as there are overlaps between motivation and incentives.

It was discovered from section 2 that intrinsic motivation drivers could be more effective than extrinsic. However, according to findings from section 3, it may be suggested that extrinsic motivation could be as effective as intrinsic. For example, such highly evaluated incentives as internship opportunities, future employment and financial rewards may serve as an evidence of the statement above. In the light of those facts, mixed motivation can be effectively used in UCCROWD platform for two reasons:

Firstly, there are many similarities between students responses and evaluation of the research criterions e.g. motivation, incentives, etc.

Secondly, according to Brabham (2013), in case if both extrinsic motivation and intrinsic motivation are interacting with each other (mixed motivation drivers), extrinsic motivation is more likely to undermine intrinsic motivation. However, this method is assumed to be quite effective, since individuals may participate in CS for many different reasons, and extrinsic motivation may support intrinsic motivation and vice versa.

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2.4 Functions

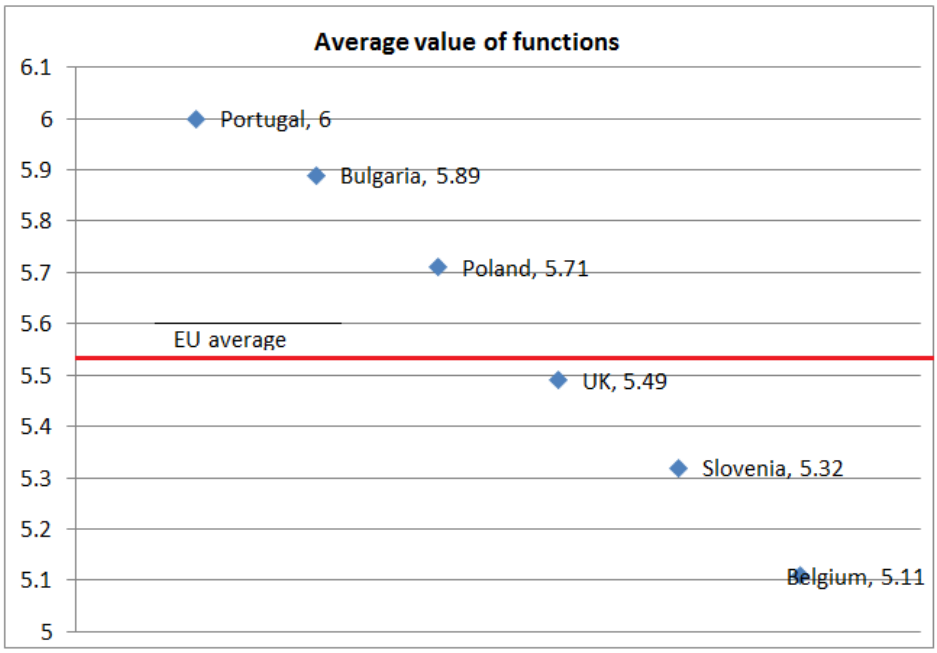

Figure 7, Comparison of average values of functions

In accordance with figure 7, it can be seen that the EU average value of possible crowdsourcing functions is equal to 5.33, which indicates that students in Europe have considered all of the possible functions to be important. Another interesting observation is that Portugal was the only country which scored 6, 00 at the average value of potential crowdsourcing functions. In comparison, Belgium has the lowest average value (5, 11) among all of the countries. It can also be seen that there were 3 (Portugal-6, 00; Bulgaria-5.89; Poland-5.71) countries with average value of functions above the EU average rate. The latter fact demonstrates that students from the above mentioned countries were more interested in possible crowdsourcing functions rather than students from UK (5. 49), Slovenia (5. 32) and Belgium (5. 11).

Please note that Italy was not included in this report section as there was lack of critically important data required for the analysis.

2.4.1 One sample T-test

334 students were asked to evaluate the possible functions of the crowdsourcing platform (from 1-very low to 7-very high). It was found out that EU average value of crowdsourcing platform functions was as high as 5.33. This mean value was then compared to the mean values of the rest six countries.

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Ultimately, one sample T-test has reported that there was significant difference in each case (see appendix). In the light of the statement above, it can be concluded that possible crowdsourcing functions also require individual attention in every country.

2.4.2 Most Relevant Functions

Purpose: matrix question was addressed to display the findings about the possible Crowdsourcing functions that could be hosted in the platform.

Analysis:

- *Creation of discussion board about the challenges*
- *To be available as an app in order to be used on tablets and smartphone devices*
- *Opportunity to receive notifications about the new challenges*
- *Option to view stakeholders with the same area of interests*
- *Option for creating a team composed by students from the same/different universities*

Unlike the previously observed sections (see sectiones 2, 4 and 6), the section above (Figure 8) has the least amount of similarities between the listed countries. Therefore, it can be stated that CS functions may require rather individual approach.

Nevertheless, there were some examples of potential functions that were highly ranked by the students from nearly all of the reviewed countries. For instance, such function as availability of Crowdsourcing platform as a tablet/smart phone application was highly evaluated by most of the participating students. Therefore, it is crucially important for UC Crowd to develop a mobile app that will suit the needs and lifestyle of the modern students and subsequently enhance their engagement with UC Crowd.

Another important finding was that students are very interested in cooperation with other parties e.g. students, academics, companies, etc. The evidence of the latter argument is that EU students have highly ranked such functions as creation of discussion board, option to create a team by students from the same/different universities. In this occasion, it would be very reasonable for UC Crowd platform to develop an interactive interface with some elements of the social networks e.g. forums/discussion board; option to invite users to start following your account, etc.

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3. Conclusion

Summarising all of the findings, it can be stated that student's evaluation patterns have appeared to be quite unique. The findings from one sample T-test analysis have demonstrated that there was significant difference between all of the countries and EU in general. The descriptive statistics have also reported the same results and therefore may serve as the support to the findings from the one sample T-test. Nonetheless, it was also figured out that in almost every criterion/aspect the difference between all of the countries was comparatively small and, in most cases, its value was in the same rank range i.e. (from 5 to 5,99). Nevertheless, in order to create an effective crowdsourcing platform, all of the differences and other details should be carefully evaluated in order to mitigate any possible risks.

The analysis has demonstrated that there were many similarities between the students' evaluation of the motivational drivers, incentives and obstacles. Nevertheless, in case of Crowdsourcing functions the results were more different to each other. Therefore, function section may require additional analysis in order to determine all of the important tendencies.

Additionally, it was found out that crowdsourcing obstacles had the lowest EU average value, which indicates that European students have considered them being barely important. However, it may not be the case as there were two countries (Slovenia and Italy) with average value significantly lower than EU average value. In this occasion, it may be reasonable to focus on Slovenia and Italy more than on the rest countries in terms of possible obstacles.

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4. Appendix

4.1 Opportunities/motivation

Variable	df	t	Significance
EU average	568	150.110	0.000
UK average	145	68.228	0.000
Bulgaria average	15	30.392	0.000
Belgium average	15	23.537	0.000
Portugal average	129	94.184	0.000
Slovenia average	9	19.453	0.000
Poland average	15	19.056	0.000
Italy average	234	97.544	0.000

4.2 Obstacles

Variable	df	t	Significance
EU average	508	96.595	0.000
UK average	145	57.688	0.000
Bulgaria average	15	20.217	0.000
Belgium average	15	17.856	0.000
Portugal average	129	62.331	0.000
Slovenia average	9	12.381	0.000
Italy average	190	50.549	0.000

4.3 Incentives

Variable	df	t	Significance
EU average	528	139.637	0.000
UK average	145	71.940	0.000
Bulgaria average	15	24.306	0.000
Belgium average	15	20.902	0.000
Portugal average	116	74.190	0.000
Slovenia average	10	17.187	0.000

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Poland average	*15*	*29.332*	*0.000*
Italy average	*207*	*84.696*	*0.000*

4.4 Functions

Variable	***df***	***t***	***Significance***
EU average	*401*	*35.053*	*0.000*
UK average	*145*	*71.338*	*0.000*
Bulgaria average	*15*	*31.109*	*0.000*
Belgium average	*15*	*21.520*	*0.000*
Portugal average	*25*	*41.102*	*0.000*
Slovenia average	*9*	*22.355*	*0.000*
Poland average	*15*	*24.616*	*0.000*

5. References

Brabham, D. (2013), Crowdsourcing, pp. 58-67. USA: The MIT Press.

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