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ENGAGING UNIVERSITIES IN SOCIAL INNOVATION RESEARCH FOR UNDERSTANDING SUSTAINABILITY ISSUES*

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Abstract. The paper presents the analysis of a three-stage research conducted by the authors within a social innovation project in collaboration with international master students of Riga Technical University for determining the factors, which motivate people to be involved in the solution of social problems. The authors not only analyse and use the outcomes of the students' research but also provide feasibility study of using the potential of study research at the university, for implementing serious research projects. Data collection from Africa, Asia, America and Europe was organised jointly by all the students via web-based survey for creating an original data base for the collaborative use. The qualitative and quantitative content analysis of the respondents' texts revealed three groups of factors: intrapersonal, interpersonal and external factors which motivate people to be involved in the solution of social problems. Having conducted content analysis of the same texts and comparing the outcomes of the students' and their own research, the authors concluded that study research is worth being used for research projects.

Keywords: social problems, social innovation, study research, learning research by doing research, qualitative content analysis

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1. Introduction

Social innovation plays a significant role in the development of social capital, social cohesion, social inclusion, empowerment and democracy (Davies & Simon, 2013a) causing systemic changes and societal transformation (Cajaiba-Santana, 2013; OECD, 2010) and bringing to sustainable development of the society (European Commission, 2013; Phillips, Lee, Ghobadian, O'Regan & James, 2015). Social innovation supports in the creation of better futures via development of new ideas for improving well-being, welfare and quality of life (Bonifacio, 2014; Edwards-Schachter, Matti & Alcántara, 2012; European Commission, 2013; OECD, 2010; Boonyachut, 2016, Pauceanu, 2016; Dobrovolskienė et al., 2017).

Being a promoter of multi-level positive changes in relationships (Klievink & Janssen, 2014; Nichols, Phipps, Provençal & Hewitt, 2013; OECD, 2010), social innovation triggers openness and cross-sectoral partnership (Sanzo-Perez, et al., 2015; Khanagha et al., 2017; Hilkevics ~~& Hilkevics~~, 2017; Zemlickiene et al., 2017; Ignatavičius et al., 2015).

Going through a complex adaptive system, social innovation leads to evolutionary changes in cycling dynamics like in case of open innovation (Yun, Won & Park, 2016) bringing to new levels of social innovation. In this context a very important role in socio-economic system ~~plays~~ is played by the segment of small and medium sized enterprises (SMEs). SMEs represent the primary moving mechanism for creation of ~~a~~ new jobs and increase of the gross domestic product; their growth and development are the priorities amongst the goals of national economies for developed countries of the world (Kozubikova et al., 2017; Belas & Sopkova, 2016; Kljucnikov et al., 2016). Playing an important role in the formation and development of a market by nurturing social enterprises and social values produced through the creative and newly open combination between technology and society (Yun, 2015), social innovation has major economic impact on the society (Nichols et al., 2013; Phillips et al., 2015; Murray, Caulier-Grice & Mulgan, 2010). Therefore, the promotion of motivation of different clusters in the society to become involved in social innovation processes has become a contemporary task of utmost importance.
The purpose of the paper is to analyse and use the findings of a study research conducted by university students for exploring the factors, which motivate the society to become involved in social innovation processes, carrying out as well feasibility study of using outcomes of university study research for a national research project on social innovation.
The research was conducted in the autumn semester of 2015 in the Faculty of Engineering Economics and Management of Riga Technical University (RTU) in collaboration with forty-five international master students from twenty-five countries within the study course 'Modern research methods: theory and practice' delivered by Karine Oganisjana. In order to make the students understand and learn how to conduct real research, it was decided to 'push' them into the project 'Involvement of the society in social innovation for providing sustainable development of Latvia' which is part of the National Research Program 'Economic Transformation, Smart Growth, Governance and Legal Framework for the State and Society for Sustainable Development – a New Approach to the Creation of a Sustainable Learning Community (EKOSOC-LV)'. This decision was justified by benefits for both the students and the project. The students got an opportunity to learn research by practicing research in groups and individually starting from goal setting, web-based data collecting till the conduct of the qualitative and quantitative content analysis and interpretation of the results, making conclusions and writing the report. On the other hand, this study research provided the project with original data from Europe, Asia, Africa and America collected by the students within short period of time ensuring high response rate and young people's

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analysis of the factors which motivate people to be involved in the solution of social problems. The findings were important for a further comparative analysis of the situations in Latvia and other regions of the world related to the involvement of the society in social innovation processes.

Research questions:

1. What motivates people to be involved in the solution of social problems?
2. Is it feasible to use study research for real research projects at a national level?

2. Theoretical framework. Social innovation vs. solution of social problems

The concept of social innovation is defined related to solution of social problems in a more effective, efficient, sustainable or just way than existing solutions; that brings to creation of social value and improvement of the quality of people's lives, causing new social practices and serving more for the public good as a whole rather than for private individuals (Phills, Deiglmeier & Miller, 2008; OECD, 2010; Dover, 2011; Mahmuda, Baskaran & Pancholi, 2014; Howaldt, Butzin, Domanski & Kaletka, 2014). One of the main characteristics of social innovation is specified as detection of real social needs and orientation to solving social problems (Edwards-Schachter et al., 2012), identifying and delivering new services that improve welfare of individuals and communities (OECD, 2010), creating 'new combination or figuration of practices in areas of social action, prompted by certain actors or constellations of actors with the goal of better coping with needs and problems than is possible by use of existing practices' (Howaldt et al., 2014, p. 122). However, there is not a common platform for understanding the matter of social innovation. Some scholars address social innovation as an instrument used for solving social problems, because the contexts in which social innovation is evolved are based on actions aimed at their solution. As argued by other researchers and practitioners, such instrumental definitions lead to a too narrow view of social innovation (Cajaiba-Santana, 2013) while social innovation has to include not only a means in the chain of solution of the social problems but also results of solving social problems which cause social change and bring benefit about (Cajaiba-Santana, 2013; Phills et al., 2008; Davies & Simon, 2013a, etc.).

Despite these disputes, the common thing in all cases is the relation of social innovation to solution of social problems. That is the reason why the research conducted by the RTU master students focused on the involvement of the society in solution of social problems vs. involvement of the society in social innovation processes. This decision was justified by the results of a pilot research conducted by the students which showed that social innovation being a relatively new concept was not understood by the respondents while 'solution of social problems' was clear almost to everybody.

Involvement of people in the solution of social problems

Involvement of people in the solution of social problems makes a crucial aspect of social innovation for: 1) understanding complex needs; 2) uncovering innovative ideas; 3) finding novel solutions to complex problems; 4) increasing the legitimacy of projects by involving citizens in design, implementation and decision making; 5) providing opportunities for participation and co-operation avoiding linear, top down policy responses (Davies & Simon, 2013b). The levels of involvement of people in the solution of social problems can be different: 1) starting with providing information about present states and current experiences which provides essential input throughout the development of social innovation; and 2) coming up with the developing of future solutions which can contribute and shape new ideas to improve existing practices (Davies & Simon, 2012). Also the forms of engagement in the process of social innovation are different: understanding individual needs and problems; understanding larger patterns and trends; crowdsourcing solutions; co-developing solutions (Davies & Simon, 2012, 2013b; Davies, Simon, Patrick & Norman, 2012). Motivation of people to be involved in the solution of social problems is a complicated process which challenges contemporary society. Reznickova and Zepeda (2015) consider self-determination theory as a unifying framework to understand motivation of people to be involved in

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volunteer social innovation. Satisfaction of the basic psychological needs for autonomy, competence, and relatedness leads to sustained motivation to invest one's time, energy, and ideas into the social innovation (Reznickova & Zepeda, 2015). Engagement is considered also as a motivational state and a process of positive self-control occurring when people experience a product or service in terms of a personal life goal or value resulting in intrinsic as well as extrinsic motivation (Calder, Malthouse & Maslowska, 2016). It was shown that motivation of people to be involved in public work is conditioned by financial incentives, recognition, opportunities for self-expression, social environment, etc. (Raudeliūnienė & Meidutė-Kavaliauskienė, 2014). In order to gain more insight into factors which promote people's motivation to be involved in the solution of social problems, in this research it was decided to use the potential of RTU international master students for collecting and analysing data from four continents. It provided the students an opportunity to participate in learning research by doing research.

Learning research by doing research

It is argued that the greatest impact on students' learning and understanding research arises from their experiences of doing research in the research-based learning projects (Jiang & Roberts, 2011) introducing students the ways of thinking and acting like researchers (Valter & Akerlind, 2010) instead of mere delivering of knowledge about research (Nho, 2016). Research-based learning is related to a variety of educational objectives such as: conceptual, procedural, metacognitive, affective, epistemic, social and other objectives (Aditomo, Goodyear, Bliuc & Ellis, 2013). Research-based learning covers a range of pedagogical learner-centred approaches that empower students to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem (Savery, 2006) enhancing their research competency and critical thinking skills (Wannapiroon, 2014). It is important to create opportunities for students to train and understand research ethics based on the overarching principle of not delivering knowledge but changing the way of students' thinking promoting their learning to deal wisely with ethical aspects of research especially dealing with conflicts derived from cultural differences (Nho, 2016). According to Brew (2006), teaching and research need to be integrated to promote synergy and better education through research-based learning. Research-based learning tasks may be: 1) use-oriented, 2) not use-oriented, 3) focused on content and 4) focused on practice (Aditomo et al., 2013); the research presented in this paper presents the results of students' use-oriented learning.

In recent years, students' role in universities has changed, making the students not only the recipients of existing knowledge, but also active participants in knowledge generation. The students have become essential factors for carrying out academic research in universities, they have been argued to play the most important role in university research output (Salter, D'Este, Pavitt, Scott, Martin, Geuna, Nightingale & Patel, 2000; Kwon, S.H. Kim, Park, E.K. Kim & Jang, 2015).

Organisation of learning research by doing research in Riga Technical University

The study course 'Modern research methods: theory and practice' in the case of RTU was organised to meet two purposes:

1) to provide the international master students with an opportunity to learn to conduct research by participating in a real research project 'Involvement of the society in social innovation for providing sustainable development of Latvia';
2) to provide the project with an opportunity to get original data from all over the world and the students' young-eyed view while conducting qualitative content analysis.

In the beginning of the course, the students were trained in groups and pairs to carry out different research tasks encompassing:

– analysis of different texts for determining and understanding units of meanings; assigning codes to corresponding text fragments and developing categories depending on the research question;

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- conducting closed coding of fragments of texts taken from the scripts of a focus group discussion on social innovation which had previously been organized by the authors within the National research program EKOSOC-LV (Oganisjana & Surikova, 2015; Oganisjana, Surikova & Laizāns, 2015);
- reading and analysing of scientific papers on social innovation and open innovation with a special focus on grasping the interconnection between the matter and theoretical aspects of the concepts under exploration and the ways of empirical data organization, analysis and interpretation of the results.

When the students had gained enough research experience in collaboration with the course mates and the teacher, they were engaged into the research project. After the piloting of the first tentative survey form with the students, in order to make it more easy for understanding, it was decided to elaborate two questionnaires: 'Involvement of people in the solution of social problems 1 & 2'; the first questionnaire was for respondents with and the second one – without an experience in solving social problems. The students sent the questionnaires via Google Drive electronic forms to representatives of different fields who live in their countries. Each student was to ensure at least ten responses; in the result of this team-based data collection, a joint data base (121 responses to questionnaire 1 and 251 responses for questionnaire 2) was created for collaborative use. Along with giving personal information on their gender, age, education, status, field of activity and the living place, the respondents had to answer questions about: social problems they solved/would solve, the challenges they faced/might face, the way they solved/would solve the problems, people who helped/would help them and their opinion on what motivates people to be involved in the solution of social problems. The response texts were massive and it would be time consuming and tiring to conduct qualitative content analysis of the entire survey. Therefore, it was decided that each student would formulate only one research question and analyse responses to the corresponding question from both questionnaires for further comparative analysis of the views of respondents with and without experience in solving social problems. As in the beginning of the semester the students had plenty of opportunities to train different aspects of scientific research discussing and working in groups, in pairs and in collaboration with the teacher, it was decided that the qualitative content analysis of the texts of this survey had to be conducted by each student individually. That aimed to simplify the assessment procedure, promote the students' research skills and ability to cope with the task on their own. The qualitative content analysis of the texts was conducted with open coding for developing categories according to the 'Step model of inductive category development' (Mayring, 2000) with further creation and quantitative analysis of category frequency tables, interpretation of the results and preparation of the report on the research conducted. The research question 'What motivates people to be involved in the solution of social problems?' was analysed by six students; therefore, in the context of this paper the authors will focus only on these six research reports.

3. The research design and methods

The authors conducted the following three-stage research:

Stage 1. Analysis of the outcomes of the students' research for studying the quality and course of the qualitative content analysis conducted by each student individually with open coding using Excel. The categories developed by each student independently were analysed to reveal the possibility of systemising them into a unified set of categories.

Stage 2. Qualitative content analysis of the same texts for determining the factors which motivate people to be involved in the solution of social problems. This part of the research was conducted with closed coding using software AQUAD 6 (Huber & Gürtler, 2000). As pre-constructed codes in the second stage of analysis, the categories developed by the students and unified by the authors in the first stage of the research were used.

Stage 3. Feasibility study of using the outcomes of students' study research for research projects at the national level. The authors compared the frequencies of the categories developed in the qualitative content analysis by the students and themselves using Mann-Whitney U test in IBM SPSS Statistics 20 for revealing statistically significant differences between the two samples.

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2. The outcomes of the research

Stage 1. The students' individual findings were analysed and systemised into a set of fourteen unified categories based on their meanings (see the last column of Table 1).

Table 1. Factors, which motivate people to be involved in the solution of social problems are determined based on the categories developed by the students and unified by the authors

Nr.	**Key categories developed by the students in the qualitative content analysis**	**Categories unified by the authors**
1.	Awareness of social problems; social awareness; understanding of social problems; awareness of the importance and impact of the solution of social problems	**Social awareness**
2.	Support from: mass media, government, enterprises, NGOs, families, friends and other individuals	**Support**
3.	First-hand experience; facing the problem directly; personal involvement in the problem via challenges faced by oneself, family, relatives, friends and colleagues	**Personal affection**
4.	Social responsibility; social conscience; moral values; ethical norms; social thinking; commitment; acting for the benefit of society	**Social responsibility**
5.	Cooperation; collaboration; teamwork; networking; volunteering; co-thinking; co-deciding; co-creating	**Co-creation**
6.	Empathy; human compassion; love; sympathy; mercy	**Empathy**
7.	Recognition of results; acknowledgement; gratitude; appreciation; respect and honour	**Appreciation**
8.	Financial motivation; bonuses; rewards; benefit; employment opportunity; better quality of life	**Personal gain**
9.	Communication, active dialogue: with local community, government, enterprises, NGOs, mass media and private sector for sharing experience on the social problems to be solved	**Active dialogue**
10.	Example of active participation; inspiring examples; role models; success stories; inspiring people	**Inspiring examples**
11.	Personal experience; own experience in solving social problems	**Personal experience**
12.	Opportunities and chance for participation in social life and solution of social problems	**Participation opportunities**
13.	Future orientation; understanding the ultimate goal; understanding the consequences of one's actions; acting towards future outcomes; anticipating future results	**Proactivity**
14.	Education; educational campaigns and programmes; learning from experience; career guidance; seminars and public events	**Education**

Source: the authors

The factors which motivate people to be involved in the solution of social problems (see the last column of Table 1) can be divided into three factor groups based on their meanings:

- Intrapersonal factors: empathy, personal gain, personal affection, personal experience and proactivity.
- Interpersonal factors: social awareness, co-creation, active dialogue, education, social responsibility.

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– External factors: support, appreciation, inspiring examples, participation opportunities.

Stage 2. The authors conducted their own qualitative content analysis of the same texts using as pre-constructed conceptual codes the unified categories (see the last column of Table 1) which were formed on the basis of the students' qualitative content analysis. Unlike the students who conducted the qualitative content analysis individually, the authors first worked in two virtual groups in the skype environment: group 1 consisting of the first three authors ($AU_{1,2,3}$) and group 2 – of the fourth and fifth authors together ($AU_{4,5}$). To finalise the results, one more skype working session was organised with the participation of all the authors ($AU_{1,2,3,4,5}$). The authors concluded that the students coped with the coding and developing of categories successfully demonstrating appropriate understanding of the meanings of the texts; therefore, the authors agreed with the categories developed by the students. However, the students had a tendency to assign mainly one conceptual code to each text fragment, while, being more experienced in qualitative content analysis and working in group, the authors identified more than one unit of meanings corresponding to some of the text fragments. That means that the authors assigned codes more frequently; in the result, the frequencies of categories in the case of the authors' qualitative content analysis were bigger. This tendency is illustrated with an example of comparative analysis conducted by one of the students and the authors (see Table 2).

Table 2. Comparison of the coding conducted by one of the students and the authors (fragment)

Coding by a student	Coding by the authors
'The important thing to motivate people to become involved is to make them understand that everyone should have the right and also should live together peacefully and solve social problems together as it could influence everyone's life (***personal affection***). To promote this understanding, I think the agencies or organisations in charge of this issue should educate people (***education***) and, at the same time, support participatory processes (***support***) and increase the channels that people can become involved and participate to find out the resolutions together for any social problem.' (***participation opportunities***).	'The important thing to motivate people to become involved is to make them understand that everyone should have the right and also should live together peacefully (***social responsibility)*** and solve social problems together as it could influence everyone's life (***proactivity, personal affection***). To promote this understanding, I think the agencies or organisations in charge of this issue should educate people (***education***) and, at the same time, support participatory processes (***support***) and increase the channels through which people can become involved and participate to find out the resolutions together for any social problem.' (***co-creation, participation opportunities***).
Comment: The fragment 'everyone should have the right and also should live together peacefully' has an accent of being socially responsible for peace in the society which was not identified by the student. 'It could influence everyone's life' is not only about being affected personally as shown by the student with the code 'personal affection', but also about view of future coded by the authors as 'proactivity'. The fragment 'people can become involved and participate to find out the resolutions together' is assigned the code 'co-creation' by the authors as finding any joint resolution means co-creating something new regardless of its material or non-material nature.	

Source: the authors

Despite the differences between the frequencies of some categories determined by the students and the authors, the students mainly grasped the meaning of the text fragments correctly. However, the authors developed one more category which wasn't identified by the students. That category was named 'self-awareness' (see Table 3).

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Table 3. Identification of the category 'Self-awareness' by the authors

Coding by the students	Coding by the authors
'People will be motivated to solve social problems when they are helped to understand that they are an entire part of the society and they are able to bring great innovations in the world by doing simple things.' (***proactivity***)	'People will be motivated to solve social problems when they are helped to understand that they are an entire part of the society and they are able to bring great innovations in the world by doing simple things.' (***self-awareness, proactivity***)
Comment: The student assigned the code 'proactivity' to this fragment. But it speaks also about the importance of helping people to discover their own potential and strengths, as well as about the positive impact which they may have on the life of the society. Therefore, the authors assigned it also the conceptual code 'self-awareness'.	
'To make them see how even a fraction of work by them can contribute towards overall achievement.' **(*proactivity*)**	'To make them see how even a fraction of work by them can contribute towards overall achievement.' (***proactivity, self-awareness***)
Comment: The student considered that the text fragment is about thinking and acting for future improvement. Therefore, she assigned it the code 'proactivity'. As for the authors, they assigned also the code 'self-awareness' to this text fragment, as the key thought here is about making people see the importance of their own work as of real contribution in the development of the society.	

Source: the authors

The students identified the units of meanings in the text fragments related to other codes rather successfully. However, they did not think through the text fragments where the respondents were saying that in order to motivate people to be involved in the solution of social problems, it is important to make them understand their own selves and become aware of their own strengths and role which they could play in the life of the society. Therefore, the list of fourteen factors presented in the research outcomes of stage 1 was complemented with the fifteenth factor, that is, with 'self-awareness'.

Stage 3. In order to conduct the quantitative analysis of the feasibility of using the outcomes of the students' study research for the research project, the frequency table of categories which make the basis of the motivational factors for people to be involved in the solution of social problems was constructed (see Table 4).

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Table 4. Frequency table of categories − the basis of the factors which motivate people to be involved in the solution of social problems

Researcher code	Country of student	Social awareness	Support	Personal affection	Social responsibility	Co-creation	Empathy	Appreciation	Personal gain	Active dialogue	Inspiring examples	Personal experience	Participation opportunity	Proactivity	Education	Self-awareness
		Total frequencies of categories summed up from the analysis of both questionnaires														
S1	Ukraine	113	21	20	35	20	32	22	26	25	8	0	0	0	0	0
S2	Ukraine	111	26	28	36	26	24	4	21	12	14	13	6	29	0	0
S3	Thailand	77	13	2	12	5	0	0	14	6	56	12	14	0	43	0
S4	Panama	134	15	10	9	7	33	0	32	11	5	3	28	0	34	0
S5	Russia	46	24	11	60	54	24	0	18	54	14	14	12	42	44	0
S6	Germany	44	16	32	19	33	31	0	45	27	14	32	11	21	36	0
$AU_{1,2,3}$		63	173	29	41	85	41	62	10	40	31	25	10	27	56	54
$AU_{4,5}$		52	136	25	40	58	31	63	9	36	18	21	3	25	36	49
$AU_{1,2,3,4,5}$		63	173	32	45	85	41	67	11	41	31	25	10	28	56	54
The students' total %		26	6	5	8	7	7	1	8	7	5	4	4	5	8	0
The authors' total %		24	4	6	11	6	10	1	6	4	4	1	4	7	8	4

Source: the authors

Table 4 contains: 1) the absolute frequencies of the categories determined by each student independently and by the three groups of the authors while conducting qualitative content analysis of the texts from all the respondents; 2) the weight of each factor in percent determined from the sums of frequencies of each category within the groups of the students (see 'The students' total') and the authors (see 'The authors' total'). Based on the last two rows of Table 4, the diagram depicted in Figure 1 was constructed to show the distribution of the weights of the factors.

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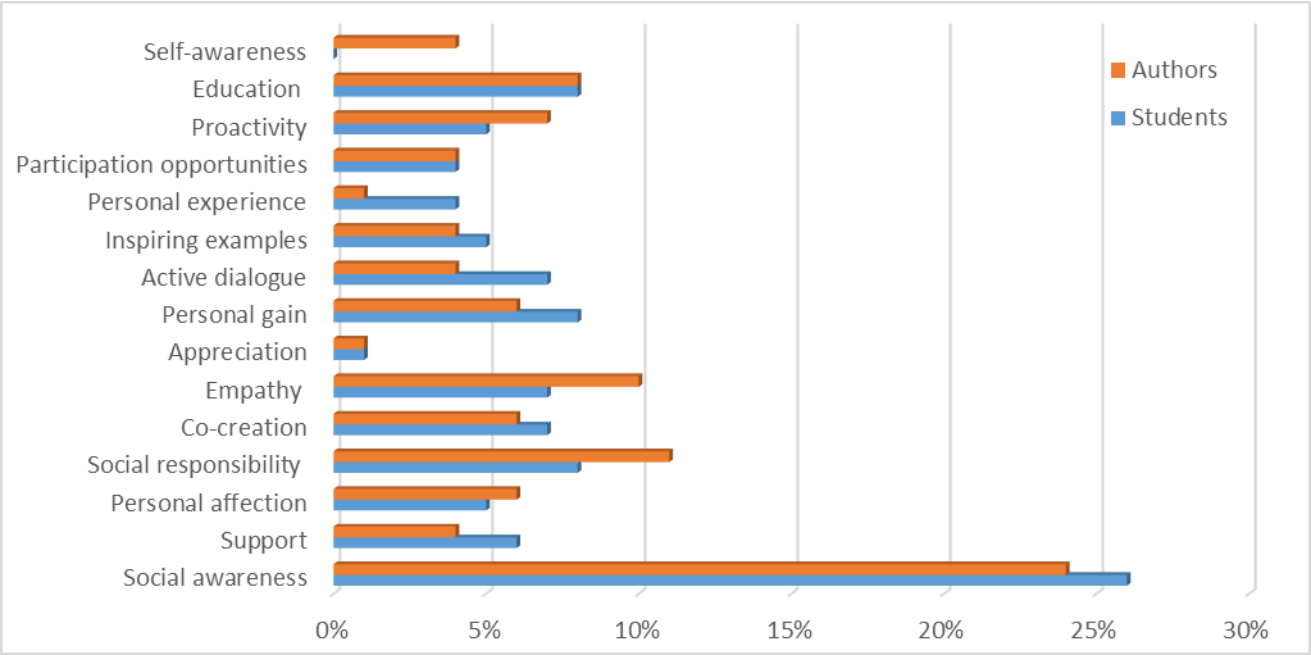

Figure 1. Distribution of the weights of the factors which motivate people to be involved in the solution of social problems: comparison of the students and the authors' findings

Source: the authors

The diagram shows that both in the students and authors' analysis, 'social awareness' (24% - 26%) has the biggest weight among the other factors. Similar weights in the two distributions have 'education' (8%), 'participation opportunities' (4%) and 'appreciation' (1%). The factor 'self-awareness' (4%) naturally appears only in the authors' factor list. As for the rest of the factors, they have mismatch in weights in the two distributions which speaks about differences in the intensity of the perception of meanings of text fragments related to these factors while conducting the coding by the students and the authors.

In order to analyse whether the differences between the results of the students and the authors' coding were statistically significant, two corresponding samples: 1) category frequencies determined by the students (see the six rows S1-S6 of Table 4); and 2) category frequencies determined by the authors' groups (see the three corresponding rows $AU_{1,2,3}$, $AU_{4,5}$ and $AU_{1,2,3,4,5}$ of Table 4) were compared. One-sample Kolmogorov-Smirnov test in IBM SPSS Statistics 20 showed that both samples had non-normal distribution. Taking into account the small sizes of the samples (six students and three authors' groups) these two samples were compared using Mann-Whitney U non-parametric test based on the requirements for small samples: critical values for the Mann-Whitney U Test (Billiet, 2003) and Exact Test statistics - Exact sig. (2-tailed) (Nachar, 2008; Mehta & Patel, 2012).

This analysis revealed that the two samples do not have statistically significant differences ($p > .05$) related to the following factors: 'co-creation', 'appreciation', 'personal gain', 'active dialogue', 'inspiring examples', 'personal experience' and 'participation opportunities'. Statistically significant differences were identified for: 'social awareness' ($p = .024$); 'support' ($p = .048$); 'personal affection' ($p = .024$); 'social responsibility' ($p = .048$); 'empathy' ($p = .024$); 'proactivity' ($p = .036$); 'education' ($p = .024$); 'self-awareness' ($p = .012$). These results can be explained by:

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– the differences in the approaches to coding; while the students assigned mainly one code to a text fragment, the authors assigned more than one code depending on the meaning of the text fragments (see Tables 2 & 3);
– the fact that the authors worked in groups and could notice more units of meanings than the students who worked individually. The students didn't work in groups as it was important to be sure that they had learned to conduct all the stages of research on their own. It also eased the process of assessment.
However, despite these statistically significant differences between the coding conducted by the students and the authors, there is no doubt that the students coped with the main challenge of the qualitative content analysis as a whole. Even having worked individually they developed their categories correctly which afterwards were united into the set of fourteen categories by the authors. These unified categories made the basis of factors which motivate people to be involved in the solution of social problems.

Conclusions

1. The research revealed fifteen factors which motivate people to be involved in the solution of social problems which makes the basis of social innovation as a crucial condition for achieving sustainable development of the society. Based on their matter, these factors are divided into three groups.
– Intrapersonal factors: self-awareness, empathy, personal gain, personal affection, personal experience and proactivity.
– Interpersonal factors: social awareness, co-creation, active dialogue, education; social responsibility.
– External factors: support, appreciation, inspiring examples, participation opportunities.
2. Fourteen of these factors were determined owing to the study research conducted by the international master students of Riga Technical University. One factor – 'self-awareness' was added by the authors in the course of their own qualitative content analysis of the same qualitative data using as pre-constructed codes the categories developed by the students. The research conducted by the authors showed that the students had developed the categories correctly though there were differences in frequencies of categories; that can be explained by the fact that the students worked individually but not in small groups which is more recommended in the case of qualitative content analysis. Therefore, it is feasible to use the potential of university students' study research for real research projects providing that they would work in small groups of two or three students and collaborate with the teacher. This practice would require elaboration of a new approach to the assessment of students' final work keeping to the main logic of the organisation of learning research by doing research as realised in RTU.

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References

Aditomo, A., Goodyear, P., Bliuc, A.-M., & Ellis, R.A. 2013. Inquiry-based learning in higher education: principal forms, educational objectives, and disciplinary variations. *Studies in Higher Education* 38(9): 1239–1258.

Belas, J., Sopkova, G. 2016. A Model of Entrepreneurial Orientation. *Transformation in Business & Economics* 15(38B): 630-645.

Billiet, P. 2003. The Mann-Whitney U-test – Analysis of 2-between-group data with a quantitative response variable. Retrieved from http://psych.unl.edu/psycrs/handcomp/hcmann.PDF

Bonifacio, M. 2014. Social innovation: A novel policy stream or a policy compromise? An EU perspective. *European Review* 22(1): 145–169. http://dx.doi.org/10.1017/S1062798713000707

Boonyachut, S. 2016. Sustainability of community's entrepreneurship: case of floating market at Ladmayom, *Entrepreneurship and Sustainability Issues* 4(2): 211-219. http://doi.org/10.9770/jesi.2016.4.2(8)

Brew, A. 2006. *Research and teaching*. UK: Palgrave Macmillian.

Cajaiba-Santana, G. (2013). Social innovation: Moving the field forward. A conceptual framework. *Technological Forecasting and Social Change* 82: 42–51. http://dx.doi.org/110.1016/j.techfore.2013.05.008

Calder, B.J., Malthouse, E.C., & Maslowska, E. 2016. Brand marketing, big data and social innovation as future research directions for engagement. *Journal of Marketing Management* 32(5-6): 579–585. http://dx.doi.org/110.1080/0267257X.2016.1144326

Davies, A., & Simon, J. 2012. *Citizen engagement in social innovation – a case study report.* A deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE), European Commission – 7th Framework Programme, Brussels: European Commission, DG Research. Retrieved from http://www.tepsie.eu/images/documents/D5.3%20final.pdf

Davies, A., & Simon, J. 2013a. *The value and role of citizen engagement in social innovation.* A deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE), European Commission – 7th Framework Programme, Brussels: European Commission, DG Research. Retrieved from http://www.tepsie.eu/images/documents/D5.2%20final.pdf

Davies, A., & Simon, J. 2013b. *Engaging citizens in social innovation: A short guide to the research for policy makers and practitioners.* A deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE), European Commission – 7th Framework Programme, Brussels: European Commission, DG Research. Retrieved from http://www.tepsie.eu/images/documents/tepsie54.pdf

Davies, A., Simon, J., Patrick, R., & Norman, W. 2012. *Mapping citizen engagement in the process of social innovation.* A deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE), European Commission – 7th Framework Programme, Brussels: European Commission, DG Research. Retrieved from http://www.tepsie.eu/images/documents/tepsie.d5.1mappingcitizenengagementintheprocessofsocialinnovation.pdf

Dobrovolskienė, N.; Tvaronavičienė, M.; Tamošiūnienė, R. 2017. Tackling projects on sustainability: a Lithuanian case study, *Entrepreneurship and Sustainability Issues* 4(4): 477-488. http://doi.org/10.9770/jesi.2017.4.4(6)

Dover, G. 2011. *Social innovation and institutional work: A study of the role of place and place-making in social innovations for the "Hard-to-House"*. Dissertation submitted in partial fulfilment of the requirements for the degree of doctor of philosophy in the Faculty of Business Administration.

Edwards-Schachter, M.E., Matti, C.E., & Alcántara, E. 2012. Fostering quality of life through social innovation: A living lab methodology study case. *Review of Policy Research* 29(6): 672–692. http://doi.org/10.1111/j.1541-1338.2012.00588.x

European Commission. 2013. *Guide to social innovation.* Retrieved from: http://ec.europa.eu/regional_policy/sources/docgener/presenta/social_innovation/social_innovation_2013.pdf

Hilkevics, S.; Hilkevics, A. 2017. The comparative analysis of technology transfer models, *Entrepreneurship and Sustainability Issues* 4(4): 540-558. http://doi.org/10.9770/jesi.2017.4.4(11)

Howaldt, J., Butzin, A., Domanski, D., & Kaletka, C. 2014. *Theoretical approaches to social innovation - A critical literature review.* A deliverable of the project: 'Social Innovation: Driving Force of Social Change' (SI-DRIVE). Dortmund: Sozialforschungsstelle. Retrieved from http://www.si-drive.eu/wp-content/uploads/2014/11/D1_1-Critical-Literature-Review.pdf

Huber, G., & Gürtler, L. (2004). *AQUAD 6. Manual for the analysis of qualitative data*. Tübingen, Germany: Ingeborg Huber Verlag.

Ignatavičius, R.; Tvaronavičienė, M.; Piccinetti, L. 2015. Sustainable development through technology transfer networks: case of Lithuania, *Journal of Security and Sustainability Issues* 4(3): 261-267. DOI: http://dx.doi.org/10.9770/jssi.2015.4.3(6)

Jiang, F., & Roberts, P.J. (2011). An investigation of the impact of research-led education on student learning and understandings of research. *Journal of University Teaching & Learning Practice* 8(2), Article 4.

Khanagha, A.; Dehkordi, A. M.; Zali, M. R.; Hejazi, S. R. 2017. Performance implications of entrepreneurial orientation at public research and technology institutions, *Entrepreneurship and Sustainability Issues* 4(4): 601-610. http://dx.doi.org/10.9770/jesi.2017.4.4(15)

Klievink, B., & Janssen, M. 2014. Developing multi-layer information infrastructures: Advancing social innovation through public–private governance. *Information Systems Management* 31(3), 240–249. http://dx.doi.org/10.1080/10580530.2014.923268

Kljucnikov, A., Belas, J., Kozubikova, L., Pasekova, P. (2016). The Entrepreneurial Perception of SME Business Environment Quality in the Czech Republic. *Journal of Competitiveness* 8(1). https://doi.org/10.7441/joc.2016.01.05

Kozubikova, L., Homolka, L., Kristalas, D. (2017). The Effect of Business Environment and Entrepreneurs' Gender on Perception of Financial Risk in The Smes Sector. *Journal of Competitiveness* 9(1): 36 – 50. https://doi.org/10.7441/joc.2017.01.053

Kwon, K.-S., Kim, S.H., Park, T.-S., Kim, E.K., & Jang, D. 2015. The impact of graduate students on research productivity in Korea. *Journal of Open Innovation: Technology, Market, and Complexity* 1(21): 1–11. http://dx.doi.org/10.1186/s40852-015-0024-6

Mahmuda, I., Baskaran, A., & Pancholi, J. 2014. Financing social innovation for poverty reduction: A case study of microfinancing and microenterprise development in Bangladesh. *Science, Technology & Society* 19(2): 249–273. http://dx.doi.org/10.1177/0971721814529879

Mayring, P. 2000. Qualitative content analysis. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research Theories* 1(2). Retrieved from http://www.qualitative-research.net/index.php/fqs/article/view/1089/2385

Mehta, C.R., & Patel, N.R. 2012. IBM SPSS Exact Tests. Retrieved from http://www.sussex.ac.uk/its/pdfs/SPSS_Exact_Tests_21.pdf

Murray, R., Caulier-Grice, J., & Mulgan, G. 2010. *Ways to design, develop and grow social innovation: The open book of social innovation*. The Young Foundation & NESTA. Retrieved from: http://youngfoundation.org/wp-content/uploads/2012/10/The-Open-Book-of-Social-Innovationg.pdf

Nachar, N. 2008. The Mann-Whitney U: A test for assessing whether two independent samples come from the same distribution. *Tutorials in Quantitative Methods for Psychology* 4(1): 13–20. Retrieved from http://tqmp.org/RegularArticles/vol04-1/p013/p013.pdf

Nho, H.J. (2016). Research ethics education in Korea for overcoming culture and value system differences. *Journal of Open Innovation: Technology, Market, and Complexity* 2(4): 1-11.: http://dx.doi.org/10.1186/s40852-016-0030-3

Nichols, N., Phipps, D.J., Provençal, J., & Hewitt, A. 2013. Knowledge mobilization, collaboration, and social innovation: Leveraging investments in higher education. *Canadian Journal of Nonprofit & Social Economy Research / Revue canadienne de recherche sur les OSBL et l'économie sociale* 4(1), 25–42.

OECD. (2010). *SMEs, entrepreneurship and innovation.* Series: OECD Studies on SMEs and Entrepreneurship. OECD Publishing.

Oganisjana, K., & Surikova, S. (2015). Social innovation in the promotion of sustainable development of the contemporary Latvian society. *Journal of Security and Sustainability Issues 5*(2): 249–258. http://dx.doi.org/10.9770/jssi.2015.5.2(10)

Oganisjana, K., Surikova, S., & Laizāns, T. 2015. Factors influencing social innovation processes in Latvia. *Entrepreneurship and Sustainability Issues* 3(2): 186–197. http://dx.doi.org/10.9770/jesi.2015.3.2(6)

Pauceanu, A. M. 2016. Innovation and entrepreneurship in Sultanate of 0man – an empirical study, *Entrepreneurship and Sustainability Issues* 4(1): 83-99 http://dx.doi.org/10.9770/jesi.2016.4.1(8)

Phillips, W., Lee, H., Ghobadian, A., O'Regan, N., & James, P. 2015. Social innovation and social entrepreneurship: A systematic review. *Group & Organization Management* 40(3): 428–461. http://dx.doi.org/10.1177/1059601114560063

Phills, J.A., Deiglmeier, K., & Miller, D.T. 2008. Rediscovering social innovation. *Stanford Social Innovation Review* 6(4), 33-43. Retrieved from http://ssir.org/images/articles/2008FA_feature_phills_deiglmeier_miller.pdf

Raudeliūnienė, J., & Meidutė-Kavaliauskienė, I. 2014. Analysis of factors motivating human resources in public sector. *Procedia – Social and Behavioral Sciences* 110: 719 – 726.

Reznickova, A., & Zepeda, L. 2015. Can self-determination theory explain the self-perpetuation of social innovations? A case study of slow food at the University of Wisconsin-Madison. *Journal of Community & Applied Social Psychology* 26: 3–17. http://dx.doi.org/10.1002/casp.2229

Salter, A., D'Este, P., Pavitt, K., Scott, A., Martin, B., Geuna, A. et al. 2000. *Talent, not technology: Publicly funded research and innovation in the UK.* A report commissioned by the CVCP and HEFCE, SPRU. UK: University of Sussex.

Sanzo-Perez, M.J., Álvarez-González, L.I., & Rey-García, M. 2015. How to encourage social innovations: A resource-based approach. *The Service Industries Journal* 35(7-8): 430–447. http://dx.doi.org/10.1080/02642069.2015.1015517

Savery, J.R. 2006. Overview of problem-based learning: Definitions and distinctions. *The Interdisciplinary Journal of Problem-based Learning* 1(1): 9–20.

Valter, K. and Akerlind, G. 2010. Introducing students to ways of thinking and acting like a researcher: A Case Study of Research-led Education in the Sciences. *International Journal of Teaching and Learning in Higher Education* 22(1): 89–97.

Wannapiroon, P. 2014. Development of research-based blended learning model to enhance graduate students' research competency and critical thinking skills. *Procedia – Social and Behavioral Sciences* 136: 486–490.

Yun J.H.J. 2015. How do we conquer the growth limits of capitalism? Schumpeterian Dynamics of Open Innovation. *Journal of Open Innovation: Technology, Market, and Complexity* 1(1): 1-20. http://dx.doi.org/10.1186/s40852-015-0019-3

Yun, J.H.J., Won, D.K., & Park, K. 2016. Dynamics from open innovation to evolutionary change. *Journal of Open Innovation: Technology, Market, and Complexity 2*(7): 1-22. http://dx.doi.org/10.1186/s40852-016-0033-0

Zemlickiene, V.; Mačiulis, A.; Tvaronavičienė, M. 2017. Factors impacting the commercial potential of technologies: expert approach, *Technological and Economic Development of Economy* 23(2): 410-427 http://dx.doi.org/10.3846/20294913.2016.1271061

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