

INNOVATION SUSTAINABILITY IN PROMOTIONAL RESEARCH OF DOCTORAL STUDENTS IN SOCIAL SCIENCES

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Abstract: Doctoral students, like future scientists to be, are involved into the processes, which are based on a triad: knowledge, research and innovation. This condition makes us assess interrelated issues on the characteristics of innovation and doctoral students' innovative potential to create this innovation. The article addresses the content analysis of the definition of research innovation and characterizes the innovation specificity in social sciences. Considering the types of the assessment of innovation, the emphasis is put on the quality of research innovation, choosing sustainability signs like quality indicators: contextuality, value-orientation, process management and systems of the resource use. Interviewing the doctoral students in social sciences (N=6), the questions dealt with innovation, sustainability in innovation and the environment promoting the innovative research. The novelty set in doctoral students' promotion work in social sciences is, in its turn, analyzed in the context of sustainability (N=16). Results of study depict the doctoral students' views on innovation and its sustainability is exposed in their promotional studies.

Keywords: doctoral students, innovation, promotional studies, social sciences, sustainability.

Introduction

One of the criteria in obtaining a PhD degree in sciences is to „develop and publicly defend a promotion thesis, which contains *original* research results and renders *new ideas* in the respective science or its sub-branch” (Doktora zinātniskā..., 2005). National qualification systems are conceptually based on the European Qualifications Framework for Lifelong Learning (2008), saying that in the result of doctoral studies, one has to acquire *innovative*, autonomous and holistic professional integrity and contribute to sustained development of *new ideas* in the context of professional field and science. Conditions of Qualification Framework do not specify what content the words: innovative, original study, new ideas, new concepts include, what signs witness the presence of innovation, originality, new ideas and insights in the promotional studies and, whether there should be applied some criteria of the quality. The essence of the words mentioned could be expressed by one unifying concept – *innovation*. The basic meaning of the concept „innovation” (Latin. *novus* - new) is the change of something known, introducing new forms or elements. The concept of innovation is widely used when speaking about the contribution of research into the science, i.e., in the field in which the doctoral students are involved.

Although the essence of the concept – innovation is unambiguous (as well as creation of something new), there still exist many contextually different explanations as to the content, signs and structure of innovation. In each field of sciences the innovation content will be different in correspondence to its specificity (Todtling, Lehner, Kaufmann, 2009). Innovation in engineering will differ from innovation in pedagogy, therefore one should attribute to the field of social sciences appropriate, uniform and sufficiently universal signs of innovation.

Conclusions of research on characteristics of innovation would help the doctoral students of social sciences to carry out a critical self-assessment of innovation of one's promotional study, as well as would point to things, how to organize the doctoral students' scientific activities in order to provide a favourable environment for research innovation.

The concept – innovation can be considered as being a comparatively new idea where its substantive explanations are still leading to discussions (Lapina, 2007). Most commonly the innovation is understood as an economic driving force; a process; a cooperation; changes to an effective way to welfare; transfer of knowledge; a new way of thinking; a way of life. The Latvian Law on Scientific Activity (Zinātniskās darbības..., 2005) determines, that an innovative idea is a process, in which new scientific, technical, social, cultural ideas or those of other fields, as well as elaborations and

technologies are introduced as a product or services which are competitive and in demand in the market.

On the other hand, J.Stabulnieks, the innovation expert, emphasizes that the concept of innovation has to be understood not as the acquisition of new knowledge or the process of generating new ideas, but as the practical implementation process of these new ideas in the field of production or service (Stabulnieks, 2009). Admitting the fact, that innovation implies only practical usability, there is a limited possibility to assess the innovation in other contexts. Not in all research fields it is possible to get an immediate practical usability and, whether the market value of innovation is the only criterion in long-term?

In Oslo manual (2005), on the contrary, the content of the innovation concept is widened, considering what kind of innovation is expected: product, process, organizational or social. Consequently the usability of the concept – innovation is wider, because innovation is based on an assumption that something is called as new in comparison to something which has been before.

In the context of contemporary society needs and development conditions, it is essential to assess the quality of research innovation (Council conclusions..., 2009). It is insufficient only to state the fact of innovation presence in research works of doctoral students in social sciences, but in the assessment of innovation it is necessary to actualize the question of quality as well. Sustainability is accepted as the parameter of innovation quality in research (UNECE Strategy for Education for Sustainability Development, 2005).

Methodology

The character of innovation has changed during the time and it keeps changing still. The Austrian economist and politologist J.A.Schumpeter, 1934 in the theory of business cycle has put forward the concept that the main reason for economic development is innovation. This traditional model of understanding is based on innovation in economic effectiveness and is also a dominating definition nowadays as well. At present, in parallel to it, there exist also other models understanding of innovation: holistic, linear, non-linear, social model (Mahdjoubi, 1997). Innovation is not longer only referred to economics, there appear intersectoral and multidisciplinary aspects. The classification of innovation thematically broadens and now it is already spoken about scientific, technological, social innovation and cultural creativeness (The Impact of Culture on Creativity, 2009). Innovation in the doctoral students' promotional research can include different model qualities, as well as interdisciplinary aspects. In the context of research, social sciences include those branches of sciences, which deal with the society and relations between the public and an individual.

Taking for granted the innovation structure and its characteristics as described in the scientific literature (Maslow, 2000; Rogers, 2003; Ness, 2004; Csikszentmihaly, 1996; Amabile, 1996; Mahdjoubi, 1997) it has been concluded, that innovation in doctoral students' promotional research in social sciences, can be characterized as follows:

- Analyzing the type of innovation, or innovation subject, most commonly are mentioned the terms: innovative process, innovative method, innovative product. In social sciences such a classification not always will be useful, for example, a newly written teaching material could at the same time be considered an innovative method, as well as an innovative product;
- Establishing the level of intensity of innovation, or the range in the amplitude between the previous, the existing and the newly-created. In scientific literature the innovations are grouped according to the intensity of innovation: philosophical prototype of innovation, primary innovation, secondary innovation and integrative innovation. The highest level innovation intensity is *ex-nihilo* (Greek.) or creation out of nothing. It could be considered more like a philosophical prototype, because at the level of humans even the most distinguished discoveries are not created, but discovered, or invented, therefore we can call the primary or baseline innovation as the highest innovation intensity level, which A.Maslow, (Maslow, 2000) descriptively called as „pioneer or comandors” innovation. Baseline innovation should be, in general, considered a rare phenomenon, because only by coincidence of certain circumstances, when an individual's innovative potential is synchronized with

changes in the field of a certain science or culture, we can expect the baseline innovation. Most commonly we can speak about the secondary innovation, or, continuing Maslow's offered classification „colonists' innovation following pioneers". In other articles it is defined also as an adaptive, improving or pseudo innovation (InnoSupport, 2007). On the basis of previous experience and knowledge there are created new forms of thoughts, which enrich the total noosphere and egregor of the humanity (Вернадский, 1989). The researcher is co-responsible for the ecology or non-pollution of this joint energoinformative environment, this points to the necessity to determine parameters of the innovation quality;

- Assessing the impact of innovations in the time perspective or how sustained the innovation is.
- The present topicality in science and education is the consideration of sustainability principle, it is attributed also to research innovation (ET 2020). If the innovative potential is directed only to short-term needs, then in the research philosophy there start dominating ideas on the wish and ability to create (Ness,2004), therefore like innovation quality parameters one should mention also the consideration of sustainability principles;
- Assessing the vastness of the impact of innovation in space or its contextuality, interdisciplinarity. Reduced and one-sided focus, or „tunnel vision" (Ness, 2004) in the content of created innovation causes risks to underestimate the consequences of the impact of innovation in the related fields. The spirit of our century requires the opposite position – innovation has to have a considerably broader positive influence.

Respecting scientific literature review and public development conditions, one has to emphasize how significant the innovation quality parameters are (Feist, 2006; Schmidt, 2008).

Getting acquainted with innovation characteristics, there are determined research limits, or the right way how to characterize and evaluate sustainability of research innovation in cases of doctoral students' promotional research:

- Type of innovation is defined depending on the subject of innovation;
- Intensity of innovation is determined by the experts of the corresponding field and social evaluation;

The fact of the presence of innovation and its intensity can be measured, attributing standards of the respective field and social evaluation in a certain community (Csikszentmihaly, 1996; Amabile, 1983). Consequently, in the evaluation of innovation there is stressed both the specificity of a certain field and the role of experts, and also the public ability to accept and use the innovation. Like one of the innovation aims E. Rogers (Rogers, 2003) mentions the need to cause the public reaction to its novelty (something not existing before), in such a way getting rejection or adaptation. Here an important role is paid to the culture of innovation and creativity, as well as traditions in the society. We have to mention, that not every innovation can be accepted by people, because innovation of a high intensity level, by its nature, is „revolutionary" and is ahead of the current experience. It means that in the assessment of innovation, the emphasis should be placed not so much on the people's ability to accept the novelty, as to the social benefit of innovation in the future. Impact of innovation in time and space, like innovation categories, can be evaluated by applying sustainability criteria and its parameters.

Taking into account the limitations mentioned, in this research stage the analysis was done as to the innovation subject and innovation sustainability, or its impact in time and space. Social evaluation of the innovation intensity will be analyzed in the further course of the study, inviting experts and summarizing the information on evaluation of research innovation in public space.

Promotional research innovation of doctoral students in social sciences can be analyzed from different angles: from the position of innovative potential, which includes research competences and aspects of environmental support, from the position of the result of the innovation creation process (promotional study), as well as by analyzing the preconditions of a successful result – doctoral students' understanding of innovation.

In 2012 a pilot study was done with an aim to find out the understanding of doctoral students in social sciences of the innovation content and to characterize innovation in promotional studies of social

sciences in long-term context. As concerns the article, the aim of the pilot study is not being fully realized yet, because at present only the initial stage of the study is described.

The promotional theses in social sciences defended in Latvia's universities from 2000 – 2011 were analyzed: in pedagogy and education (N=13); psychology (N=3). In promotional studies the chapters on topicality and novelty were analyzed, as well as the doctoral students' theses forwarded for defence. At the same time, there were done partially structured interviews (N=6) with doctoral students in social sciences from the study programmes: sociology (N=3); psychology (N=1); pedagogy (N=1), economics (N=1).

In the data analysis we used the text and partially structured interview transcript in qualitative content analysis, using coding and theme selection classification systems (Ievads pētniecībā..., 2011).

In order to determine a certain quality in promotional works, the content units developed as a result of content analysis were compared to long-term parameters and the data were interpreted by contextual approach. In the analyzed promotional studies it was determined, how many and what sustainability parameters are included in the author's developed novelty. Each of the four sustainability signs include several parameters, which emerge from the generalization of the promotional study content units and the correlations of these content units with sustainability signs (Learning for the future: Competences in Education for Sustainability, 2011; Pipere, 2006; Sterling, 2003, Scott, 2002).

Table 1

Sustainability signs and parameters of innovation

Signs of innovation sustainability	Parameters of innovation sustainability signs
Contextuality	4 parameters : interdisciplinarity, broad point of views, individual/common interaction, theoretical/practical unity
Value orientation	3 parameters: versatility/tolerance, spiritual values, social responsibility
Process management at individual and/or community level	4 parameters: anticipation of changes, transformation of praxis and/or theory, openness/cooperation
Use of resources at individual and/or community level	3 parameters: local governments, self-development, self-functioning systems

Results and discussion

In scientific literature (Wolfe,2006) there are mentioned the following classical innovation subjects or types, such as: process, method and product, but in the research innovation process the range of subjects is broadened, because in promotional research of doctoral students in social sciences the innovation subjects mentioned were: model developed Mo (6 promotional research works); process – P (3 promotional research works); method – Me (3 promotional research works); terminology – T (2 promotional research works); parameters/criteria – RK (2 promotional research works). The most commonly found innovation subject is the model, the rest of innovation types are numerically distributed rather proportionally.

In Table 2.- just opposite to the code of promotional work there is drawn the number of sustainability sign rate.

In order to understand the content of innovation sustainability parameters, one can offer a promotional study (6Mo) like an example, in which all four sustainability signs are found.

Parameters of contextuality signs (broad view, individual/common interrelationship) are characterized by the content units: „*local education environment like a part of global environment; inclusive environment; ecology of man and social system*”; parameters of process management (anticipation of changes, transformation of praxis and/or theory) are characterized by the content units: “*continuity of education, future-oriented community resources*”, parameters of the system of the use of resources (local government, self-development systems) are characterized by- „*directions of environmental self-development; continuous education*”; but value orientation parameters (versatility/tolerance, spiritual values, social responsibility) are characterized by the content units: „*humanistically target oriented*;

ecological thinking". In the rest of promotional research works the total number of sustainability signs and their criteria are lesser than in the example mentioned.

Table 2

Signs and parameters of innovation sustainability in promotional research

Code of promotional research	Contextuality (parameter rate)	Value orientation (parameter rate)	Process management at individual and/or community level (parameter rate)	Resource use at individual and/or community level (parameter rate)
1P	4	-	1	-
2Mo	4	-	-	1
3RK	4	-	-	-
4Mo	3	-	1	-
5Me	3	1	-	-
6Mo	3	2	2	2
7T	2	1	1	1
8P	5	1	1	-
9Me	4	1	1	-
10Mo	5	1	1	1
11RK	4	-	1	1
12Mo	3	-	1	1
13Me	3	-	1	-
14P	2	-	1	1
15T	4	-	1	1
16Mo	3	-	2	1

Contextuality of innovation from the four sustainability signs is the most pronounced, because in all promotional research works there was included one of another of contextuality parameters. It points to the doctoral students' attempts to include in the innovation content much wider correlations. Such sustainability signs as value orientation and the systems of the use of individual and/or total resources are included in the innovations in a lesser number.

From contextuality parameters one should specially emphasize the attempts to link various fields and to integrate them into the global context. Although separate contextuality parameters are found in all research works, yet when comparing the parameters, a tendency is seen, that in the offered innovations a greater emphasis is put on theoretical reflexion, rarer on practical effectiveness or usability and value orientation.

Sustainability envisages the anticipation of changes; therefore it is essential that innovation would be directed at the management of the process of changes. In 13 promotional research works there is included one of parameters of this sign.

In 6 research works there was not observed such a sustainability sign as the use of the available resources. Not including the locally available resources, there exists the risk, that there may develop a weak link between the usefulness of innovation and the definite target audience. The sustainability sign : value orientation is found not in all promotional research works. Not always it would be proper to speak about the value orientation in the direct way, it can be exposed indirectly as well. This is the question not only about the ethics of research, but also about social value of innovation, or value-added effect. Which can be characterized by a practical example: innovative educational model includes not only the way how to acquire the study material more effectively, but also cooperation and individual approaches.

The fact, whether the created research innovation in social science would be coordinated with sustainability principles, is close to the concept – innovation and the understanding of the essence of sustainability. In order to get the idea on the content of this concept from the point of view of doctoral students, there were carried out a partially structured interviews and the transcripts of the interviews

were analyzed (N=6). In Table 3 the basic questions and the corresponding content units are summarized.

Table 3

Content analysis of interviews – content units

What is innovation?	What is sustainability in innovation?	How to promote innovative research?
Topicality; compliance with the spirit of time; to serve the people, usefulness; nonstandard solution; innovation, quality; innovation affects the level of life; scientific activity is always innovative; integrity; holism; integration of knowledge.	Usefulness; process is more significant than the aim; self-revelation; quality; for a longer period and wider circle of users; locality; continuity; sustainability in science and business is impossible.	Creative environment; courage; self-development; professionalism; personality features; money; self-creativity; moral maturity; cooperation; joint work; creativeness; self-reflection.

Analyzing the nature of innovation, in a part of respondents' answers there prevailed the effectivity of innovation as a result of activity (for example, content units – *usefulness; for a wider circle of users*, etc.), but in the other part – characteristics of the creative process of innovation and the innovation itself (for example, content unit – *nonstandard solution, quality; localization*, etc.). Respondents stress the topicality of innovation and practical usefulness, as well as points to the holistic and integrative nature of innovation. In the answer, that scientific activity is always innovative, one should add, that innovation can develop also as a result of traditional scientific activity. Thus, one can start a discussion, whether innovation is only a result or a process. A similar answer to the question – whether innovation is a result or a process - is not given also by results of the pilot study.

Comparing the answers to the question on innovation sustainability, using study authors' created signs and parameters of innovation sustainability, one can see interrelated content similarity. Content units: *for a longer time and broader circle; localization; self-revelation*, etc. point to signs of innovation sustainability: contextuality, use of available resources and systems of process management. Sustainability is recognized as the innovation quality parameter. Part of respondents perceives sustainability in a reduced way, only in the dimension of time. It can be found also in the answer, that sustainability in science and business is impossible. It is a controversially valued answer, because sustainability in innovation does not mean anything statical and unchangeable. Not in vain like one of sustainability signs in innovation there is mentioned the anticipation of changes and management. The answers also say – *localization*, which, at the same time, means the involvement of available resources.

In total, each respondent has mentioned not more than two sustainability signs in innovation. In order to attribute sustainability character to research innovation, the new researchers should have a deeper understanding of sustainability.

In the question about promotion of innovative research, respondents put more emphasis on the fact what hinders to realize the innovative research and pointed to several obstacles: *limitations, bureaucracy; fright; experts' attitude; lack of knowledge, loss of interest; money; competition; knowledge environment; „farmstead” thinking; inability to accept the different*. Subjective and objective obstacles mentioned are contextually linked to basic principles of sustainability – versatility, tolerance, cooperation, public creativity and innovation culture.

Results of the pilot study show that innovation sustainability questions are of concern not only in doctoral students' understanding of innovation sustainability, but also in the final result of doctoral students' research activity – the quality of research quality.

Conclusions

- In Latvia at present there idea prevails, that innovation is a process, in which new scientific, technical, social, cultural, or any other ideas, elaborations and technologies are implemented

in the product or service, being in demand and competitive in the market, admitting, however, that innovation has only practical importance, its ability to assess its effect in other contexts is limited. In social sciences field one should adapt the corresponding, unified and sufficiently universal innovation signs.

- Innovation in promotional research works of doctoral students in social sciences can be analyzed from different points of view: from the position of innovative potential, which includes research competences and aspects of environmental support, from position of results of innovation creation process (promotional research), as well as analyzing a successful result precondition – deeper knowledge of doctoral students in innovation.
- Research innovation in social sciences is characterized by its intensity, as well as the influence in time and space, traditional types of innovation: process, method, product supplemented by new types: model, terminology, elaboration of parameters/criteria. For determination of innovation intensity there are distinguished three levels: primary, secondary and integrative, considering also the society's ability to accept and use innovation. Innovation of a high intensity level, by its nature, is exceeding the present experience, therefore in its evaluation the emphasis should be put on the social benefit in the future.
- In the context of public needs and in the context of conditions of the development it is insufficient to state only the presence of innovation fact in research studies of doctoral students in social sciences, in the assessment of research innovation it is important to update also questions of quality, emphasizing sustainability as one of the criteria. Results of the pilot study demonstrate that the doctoral students of social sciences show a reduced understanding of sustainability and innovation, which, in its turn, affects innovations of sustainability content in promotional research works.
- In order to raise the innovation quality in doctoral students' work in social sciences, they should render an extra knowledge on the interrelationship of innovation and sustainability. Creation of innovation calls for an adequate environment which is made and affected by creativity and innovation culture in all education stages and in the society in general. The character of the innovation sustainability should be integrated already in the promotional study idea, aim and strategy, in order it could expose itself at the end of research to a full extent.



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