

COMPARATIVE ANALYSIS OF STUDENTS' PATTERNS IN DIFFERENT DEPARTMENTS

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Abstract

This paper reports results from comparative study of master students' patterns across two trajectories of future specialization. Using thematic analysis we identified students' patterns of different groups of students. First group of patterns (or early life-course strategies) were identified from the sample of students from political department, second group of patterns were identified from the sample of students from natural science (chemistry) department (N=40). Students' patterns are kind of markers that characterized various situations and scarcities of such situations in different type of labor market and different branch of science where they are studying. Based on the hypotheses of relative scarcity that underlie individual behavior we recognized different patterns and models of the initial patterns across data set. We found two explicit patterns, but with varied diversity of each. First identified pattern was "safety pattern", second was "development pattern". Students from different departments demonstrate different patterns, in some cases quite opposite. We found and describe critical cases within patterns.

Key words: master students, life-course, relatively scarcity, thematic analysis.

JEL Code: I21, I26, I29

Introduction

Nowadays in the Russian educational system has been embedded structural changes related to the preparation to accession to the Bologna system. A few years ago there was a start defining educational process on two areas of training - bachelor's and master's degree, and more recently – PHD training became the third part of the educational process. In 2015 there was a graduation of the first bachelors - those students who studied for 4 years, as opposed to the usual 5 years. How have these processes impact the formation of individuals' life-strategies in different fields of science? Is it possible to compare students' strategies in different fields of science?

Getting an education is one of the main steps towards full independence of the individual from parent's family. At this stage individuals form an early strategy for in their life-course, course of action for its implementation, which certainly affects their values and priorities.

How different students in the departments of natural science and humanities form their life and educational strategies? What is the real impact and reasons of differences among student's strategies?

In our similar studies, we have noted some heterogeneity of value orientations, different directions and contradictory principles in homogeneous groups of students (Bannikova, 2013) related to their different pattern. Using thematic analysis as a methodology to identify and describe patterns and strategies, we have been identified 2 patterns. The sample consisted of 40 masters from the departments of natural science and the humanities.

1. Theoretical backgrounds

Since the mid-1980s, Henk Becker began actively research the process of social change and their impact on the life-course of the individuals. He held a series of large-scale research based on the data set of more than 4,000 respondents (Dutch) (Iedema, 1997). Becker explored questions of cultural, economic and political changes and the nature of their impact on the lives of individuals, questions whether the impact of generational affiliation imply the nature of the life-course, and many others (Rosenfeld & Becker, 1992). Life-course studies of Becker became the basis for a comparative analysis in this kind of studies.

Becker put forward the following hypothesis in a comparative study of adults' life-courses (Iedema, 1997), representatives of different cohorts, as part of its conceptual model:

- Value-orientations of individuals formed in the process of socialization, remained stable throughout the life-course;
- Scarcity of opportunities and resources at the entering into the series of transactions of life-course affects all the possibilities in individuals' lives.

Studies of Becker confirmed these hypotheses. Grouping of people with identical patterns occur in different ways, related to different historical time and space, different scarcities of such times.

Institutional scarcities are scarcities, which include such phenomena as unemployment (structural, local), recession (manifested in the decline of household income), the housing shortage (high prices to purchase and lease) an impact on the procedure, the length and nature in the series of life-transaction (transition from the state of complete dependence from parents to a state of complete independence). Institutional scarcities in consequence affect the entire content of the life-course and determine the ceiling of somebody's' ambitions.

Is it possible to compare the institutional scarcities that exist in the different fields of knowledge? What is meant the scarcities in different science? Which organizational unit will serve as a basis for comparison?

Obviously, the level of development of different branches of knowledge is different. Even in terms of the presence of science in general, the scientific profile of the universities or science in the Russian Federation as a whole. 2/3 of the scientific community of Russia - representatives of technical sciences, 1/4 of – natural science, and only 3% are humanities. This distribution by field of science is characteristic for the industrial countries, and has remained virtually unchanged since the time of the collapse of the USSR, with the exception in the growth of the humanitarian representatives. Such a structure, of course, has an impact on research strategies, the degree of elaboration of ideas, the use of scientific achievements in practice, etc. criteria listed by us - this is the criteria of the scientific school. How to compare student's patterns in different schools and how it affects directly to the participants in the educational process?

Zaharchuk (Zaharchuk, 2013) revealed the difference in the normal paradigms (in the Kuhn's typology) in the humanities and natural sciences.

Tab.1. Specificity of scientific schools in the natural sciences and humanities

The aspect of identification	Scientific schools in the natural sciences	Scientific schools in the humanities
Available scientific paradigm	Explicit scientific paradigm	Implicit scientific paradigm
Availability of the research program	Clearly formulated within as the framework of scientific school	It revealed only through in-depth analysis of the activities of the members of the scientific school
Management of the study	The collective nature of the research. High density of communication	The individual character of research
The structure of the scientific school	There is a possibility clearly delineate the scope of the scientific school, identify its leader, even a simple historical-scientific or sociological observation	The amorphousness of "looseness" of the Scientific School, not associated with a clearly defined research program
Geographical location	As a rule, formed in the future, and working within the same region, and a single scientific organization	Not characterized by the presence of one work place for all members of the school
Leader's Personality	A leader must be a good manager: to be able to organize research, to carry out communication with the public, to find funding for research	Of great importance is the mindset, attitude towards life and people
Number of doctors	Two or more	At least one

Source: (Zaharchuk, 2013)

A choice of master's training is more informed choice and involves awareness of the medium-term objectives and prospects of life. This choice is included in the individual life-course and usually is a part of its implementation. Identification of students' patterns regarding the existing institutional scarcities in the different fields of science is the basic research question in our study.

The hypotheses of our study are:

- grouping of students patterns originates related to chosen branch of science;
- students of the natural science department chose the master training program as a step toward their scientific career;
- students of the political department chose the master training program as a guarantee of future employment.

2. Methodology

To find the typical students patterns we use the thematic analysis method that is a method of qualitative data analysis aimed to discover and describe themes within data. Thematic analysis is based on the method of M. Luborsky (Luborsky, 1994) that is analysis of qualitative data obtained through interviews semiformalized. According Luborsky, the allocation in an interview with the researcher provides information about the beliefs and motivations of respondents' response to events. Luborsky describes theme such as generalized verbal statements of respondents about their thoughts, feelings, beliefs, attitudes, which allow researcher to identify a certain pattern of the individual.

The sample of the study was first-year masters of natural science and the humanities' departments. 40 respondents were asked to write a text, answering the question – what is mean to be a student in the master's program. 20 essays were received from students of natural sciences, 20 essays from students of humanities, 20 essays were male, and 20 essays were female. The structure of the basic principles of writing texts were not given, the amount was limited to two sheets.

The first stage of the thematic analysis begins after the researcher deeply familiarized with the data made a few notes to help him identify codes within the data. After codes were finding and describing, it is helpful to put it in the table.

Defining codes must be correlated with the data and hypothesis. After codes and their descriptions were done, researcher should look for general themes consisted of these codes.

Tab. 2. Description of the selected codes

Code	Description
Description of the process of entering master training	Students talk in detail about how they got into the master training (which would trigger their decision how the exams and so on).
Description of the goals of the participation in master training	Students describe for what they do it, how it is interwoven into their life strategy.
Description of professors' stuff	Students describe how professors do their lessons and give emotional characteristics of content of the classes.
Description of the	Students analyze the external processes of change in the education system and

environment (include political, economical changes)	employers' existing stereotypes.
Description of training process	Students describe the convenience / inconvenience of the training process.
Description of difficulties	Students describe (usually without analysis) all the difficulties they face - the complexity of the information, the complexity of the control of time and so forth.

Source: Authors' elaboration

After analyzing the codes as well as their subsequent typology, two key themes (or two patterns) have been identified:

- Safety pattern, which determined by the need to ensure the safety of their own future that is the main purpose of middle-term goals (often those who could not find a job after the graduation);

- Development pattern, which determined by the need for self-expression that is the main purpose of master degree (often those who is implemented the labor market and have a successful professional experience).

3. Findings

We identified two patterns, which include a specific set of codes (Table 4).

Tab. 3. Identified themes and codes

Codes Themes	Safety pattern	Development pattern
1	Description Masters revenue models and feature of the external processes	Description of the goals of entering to master training
2	Characteristics of the professor and the educational process	Description of difficulties

Source: Authors' elaboration

Among the received responses 28 were identified as development pattern, 12 were identified as safety pattern.

Tab.4. Distribution of patterns across data

Department Patterns	Safety pattern		Development pattern		Over all
	Female	Male	Female	Male	
Natural science department	2	1	8	9	20
Political department	8	1	2	9	20
Over all	10	2	10	18	40

Source: Authors' elaboration

If we look at normal distribution of patterns in Natural science department, we could see that a development pattern is dominant among girls and boys.

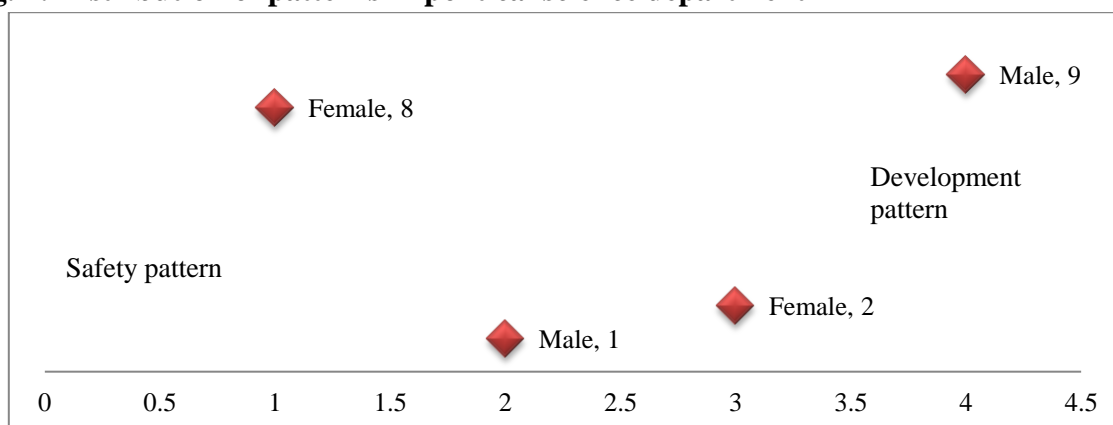
Fig. 1: Distribution of patterns in natural science department



Sources: Authors' elaboration

If we look at normal distribution of patterns in Political science department, we could see that a development pattern is mainly male, and on the opposite – the safety pattern is mainly female.

Fig. 2: Distribution of patterns in political science department



Sources: Authors' elaboration

An example of the different patterns represented in the student's essays is the difference in the themes raised by the students. Those students, who considered the choice of master training towards a successful future employment, most give the comparative characteristics of the training process, as well as the details and the details of talk about how they came to a master's course. Those students who are enrolled in master's training for the purpose of self-expression talked in their essay about two key points: the description of the purpose (usually by comparing themselves others), as well as identified or characterized the training process and its consequences for their goals.

Among those students with safety pattern the predominant majority are girls (2-10), mainly from the humanities. By grouping their essays, we noted some impersonal nature of the decisions made with related to the choice of the training: *"As a fourth-year student, I did not even think to enter the Masters ... Everything was decided in the end of August, before the exams for admission!"*. This phrase is the best characterized this pattern - there is spontaneity

important decision was made, and the impersonal nature of the action. Also, students noted that advertising was a manipulation for their decision: *"It seems that having a Master degree the chances of finding a prestigious job in renowned companies would increase. On a blind dream argue slogans of universities to ensure quality education"*. In this particular case, the student shifted the responsibility for the decision to manipulation on the part of universities. Extremes in this group are those who were not fully defined with their future profession, and perceived this training as a space for making decisions about their own profession: *"I hope that Master will help me to choose my future profession"*. In this case, the choice of practice-training areas, and the lack of certainty with the profession is absolutely illogical and rather contradictory.

The difference in the responses was found in the female essays from natural science department: *"After finishing undergraduate I had some thought what to do next, but I decided to continue training in a Master"*. In this case, the student took independent decisions, and was responsible for their consequences. The position of female students in natural science department in common with the position of male students in the humanities, which was allowed to stand similar to model of the decision-making about their master: *"Bachelor finished, I've been thinking what to do then. Army was not emerging. The opportunity to find a proper job was very low. After weighing all the pros and cons, I decided to increase my knowledge and to enter the Masters"*. The key distinction in this case from the above is the nature of decision-making - the decision came from the individual, it is more strategic (not spontaneous), as seen in the context of the available conditions and trajectories.

Independent decision-making affects the assessment of the quality of training, process and professors. Among those whose decisions were taken spontaneously and impersonal, dominated a negative assessment of both the process and the quality of training: *"From my point of view Master is completely wrongly inflated and intrusive form of education, the students pulled out of the next portion of the money. What knowledge does it offer? Nothing "*. On the contrary, the students who made their own decisions are positive about the experience: *"After studying for a semester, I do not regret my master degree," "go to master, I did not regret. A lot of new and interesting things can be found here "*.

Students from different departments differently assessed their skills and opportunities in the labor market. Humanitarians came to the training after they fail to find work, *"there was no opportunity to find a proper vacation with bachelor diploma"* or *"in general, not everyone can find a job after bachelor, so decided to study further"*. While students from natural science department evaluated themselves insufficiently prepared to work in terms of age and

experience, rather than knowledge and the quality of the education *"if we looking on master within its usefulness in relation to future employment. Well, the master's degree does not help ever. Most of the employers need a qualified specialist"*, or: *"go to work, in my opinion, after the bachelor, is really early, and I thought that I need to train a little more, to gain practical experience baggage"*.

On the contrary, those students with self-expression pattern mentioned in their essays two key themes: students described the purpose of their participation in training in the context of their existing professional experience, as well as describe the difficulties they face in process. In this group we can distinguish two opposites: those who came to receive an education with practical experience, as well as those who came to the training immediately after bachelor in order to continue their activity in science. This strategy is most common for male, than female (18-10). The distribution related to departments (natural science - Humanities) in favor of representatives of the natural sciences: 17-11.

In this group, we could found the deliberate nature of the action, as a rule, included in the master's choice of a common strategy of life. This feature is characteristic for those who already have practical experience, and came to the training some time after graduation: *"The main reason for admission to the master's degree was my inner need for self-expression. I have some experience, and clearly understand why I need a training, what result I want to achieve"*, and for those who just finished bachelor's training: *"Personally, I was going to go to master course since the first year of the bachelor, so Master was seen only as the next necessary step"*.

In this group, there are three micro-groups - those who came to the Masters for the pursuit of science in the future and considered the training as a necessary step to build a scientific career. The second micro-group is those who came to the training for a formal opportunity for teaching. Third microgroup - those who came to the training for business careers, government and industry in order to deepen their knowledge, to develop further. Despite the different orientation of the future aspirations of the students in the group: a) demonstrated awareness and independence of their actions; b) focused on self-expression in their chosen fields.

There is a branch distribution in small groups: students choose a career in science came preferably from natural sciences department (11-2), teaching career was chosen by students predominantly from natural science department (6-2), and the rest of the activities - students in the humanities.

Tab. 5: Distribution of development patterns across departments and in career prospective

Departments	Scientific career	Teacher's career	Business career
Political science	2	2	7
Natural science	11	6	-
Over all	13	8	7

Source: Authors' elaboration

Among students from natural science department, who chose for themselves a career in science, the dominant reason for choosing was a professor's influence: *"Firstly, this was due to the fact that we were in the friendly environment, and I did not want to leave it. Secondly, I really wanted to join the science, because I got excellent scientific supervisor, as well as an interesting topic of scientific work"*, or the professorial staff: *"the main is the people. It is not only classmates but also incomparable professors, leaving them was uncomfortable for me and felt like a betrayal of that, after what they have done for me"*. In addition, they all came to the training finished Baccalaureate in this university. In contrast, among those who chose teaching career are most received their first education outside the university.

Announced at the beginning of the study hypotheses were confirmed partly:

- students of different specializations (natural scientific, humanitarian) differently established their patterns – yes, but there is a gender aspect: female student in political department are quite different in their patterns from boys in the same department;
- students of the natural science department chose the master training program as a step toward their scientific career – yes, but a third of them wants to be a teachers after graduation; those who want to be a scientists came from the same university, where they are now;
- students of the political department chose the master training program as a guarantee of future employment – yes, but mainly female students.

Conclusion

This article describes the results of an empirical study of the local typology of students' patterns using the method of thematic analysis. Two patterns have been identified and described. Hypotheses that have been set, mostly confirmed - the grouping of patterns within homogeneous group were identified, and this grouping distinguished related to the type of the department.

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