

Formation of Future Teachers' Motivation to Research and Experimental Activity at School

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Abstract

The paper considers the issue of a motivation formation of students of pedagogical specialties to professional research activity. The paper shows the data which were got as the result of doing a large-scale and a local stating experiment which preceded a forming pedagogical experiment, and also the criteria, indicators and levels of formation of students' motivation to research and experimental activity developed by the author for the efficiency assessment of the forming experiment. The author focuses her attention on three motivating factors which were especially effective in the course of formation of students' motivation to research activity. The network interaction of the higher education institution with the basic school, the system of creative (including research) tasks, the organization of the educational and research practice of students within the network interaction with school refer to them. The data which were got as the result of the forming experiment testify to good dynamics of the students' movement from the average level of a motivation formation to research activity to the high level and from the low level to the average one. It was reflected in the noticeable increase in a group of students with the high level of a motivation formation to research activity (17,48%); the essential reduction of students entering into a group which is characterized by the low level of a motivation formation to research activity (by 22,67%).

Keywords: motivation, research activity, teacher, school, student, experiment.

1. Introduction

Now many states conduct a search of ways for the professionalism increasing of school teachers on which the quality of education and, therefore, rates and the level of economics development, the social sphere of the country, its competitiveness directly depends. One of such effective ways is the training of a future teacher for professional and research activity and his inclusion in the active process of transformation of pedagogical reality. Both in Russia and abroad the research activity is considered as a kind of the activity promoting the professional growth of a teacher. So, V. I. Zagvyazinsky writes that now educational institutions have a new search and research function. Those educational institutions which will not realize it, will lose an appeal and will be not competitive. The new social situation causes a need of implementation of the research activity of an expert teacher (Zagvyazinsky V.I., 2010, p. 3-4).

M. M. Potashnik, considering the problem of management of the professional growth of a teacher, as one of the ways of its decision sees the doing pedagogical experiment. Among the forms of the professionalism increasing of teachers he also distinguishes such as departments, theoretical and scientific and practical conferences, schools of a researcher, scientific and practical laboratories, etc. (Potashnik M.M., 2009, p. 71-72; 87-90; 134-135; 153-157).

G. N. Litsman think that the research activity of a teacher promotes a training of professionally significant qualities of the personality, the increasing interest to the professional activity, the ensuring professional career (Litsman G.N., 2000, p. 77).

Foreign researchers as the considered problem note the essential influence of the research activity on the professional growth of a teacher. Ioannidou-Koutselinia M. and Patsalidoua F., for example, have the same opinion, Ioannidou-Koutselinia M. & Patsalidoua F. (2014).

Being supporters of the cooperation between researchers and teachers, Larike H. Bronkhorst, Paulien C. Meijer, Bob Koster, Sanne F. Akkerman, Jan D. Vermunt think that it becomes more widespread and brings a benefit for the educational practice. Such cooperation promotes an acquisition by teachers of new knowledge and beliefs, leads to the new behavior of the trainee. Teachers are not passive acceptors of the interventions of researchers in the training process, they become active modifiers, adapting the interventions to local conditions (Larike H., et all, p. 91).

The researches conducted by Sardar M. Anwaruddin and Nasrin Pervin have showed that the research activity makes a deep impact on teachers who are engaged in it, and in certain cases it makes a reformative impact on classes and schools. They have established that the research activity lightens the "critical thought" of teachers, raises their self-

57 assessment and awareness about pupils' needs Sardar M. Anwaruddin & Nasrin Pervin (2015).

58 Despite the unanimous opinion of scientists on professional advantage of the research activity of teachers with
59 which also teachers agree, not everyone among them shows the predisposition to this type of the professional activity.
60 Establishing this fact, it is necessary to recognize the senselessness of presentation to a teacher of the requirement to be
61 engaged in psychology and pedagogical research. It is known that success of any activity depends on the motivation
62 formation to it. The formation of the conscious relation to the professional and research activity as very difficult kind of
63 activity demanding a quite frequent overcoming of intellectual difficulties it is necessary to carry out even during a training
64 of students in the higher education institution. Future teachers created motivation is one of the important conditions of the
65 successful research activity in the future.

66 2. Main Part

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69 During the development of the "Strengthening of a practical orientation of a training of future teachers in programs of a
70 bachelor degree within the integrated group of the specialty "Education and Pedagogics" project on the direction of
71 "Pedagogical Education" preparation (a Teacher of the main general education) on the basis of the organization of the
72 network interaction of educational organizations realizing the programs of higher and main general education" financed
73 by the Ministry of education and science in Russia the "Research and experimental activity of a teacher" module was
74 developed. It included training programs as basic ("Research activity of a teacher", "Experimental work at the educational
75 institution"), and variable ("The organization of research activity of school students", "Pedagogical diagnostics" and
76 "Research culture and the professional growth of a teacher") subject matters, and also a program of the educational and
77 research practice of students. The main objective of its development and approbations is formation of a teacher's
78 readiness to the subject and author's research and the experimental pedagogical activity.

79 The diagnosing stage of an experiment could not be directed on the identification of levels of formation of students'
80 readiness to the professional and research activity since none of them had no corresponding training. It assumed the
81 development of the questionnaire for students directed on the identification of their motivation to the professional and
82 research activity of a teacher and included:

- 83 - the study of the relation of students from different regions of Russia to the professional and research activity of
84 a teacher of high comprehensive school
- 85 - the definition of criteria, indicators and levels of students' motivation formation to the research and
86 experimental activity;
- 87 - the diagnostics of levels of students' motivation formation to the professional and research activity selected for
88 a participation in the experimental-research work.

89 3. Terms and Base of Doing an Experiment

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92 The experimental and research work on approbation of disciplines of the module was done from 22 September to 11 May
93 2014/15 academic years. As the basic comprehensive school participating in doing the experimental and research work
94 MBOU SOSH "№3 of the Hero of Russia A.N. Epaneshnikov" of Elabuga of Tatarstan Republic was defined. One of its
95 tasks was the assistance to future teacher's motivation formation to the work on all directions of the professional and
96 research activity.

97 4. Research Methods

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100 In the course of doind experimental and research activities (the IV level of a pedagogical experiment) on the future
101 teachers' motivation formation to the research and experimental activity the complex of methods of the scientific and
102 pedagogical research was used:

- 103 - the methods of the theoretical research (the study and analysis of psychology and pedagogical literature);
- 104 - the methods of the empirical research: polling (questioning, conversation): observation (direct, indirect and
105 included supervision); the stating and forming experiment; the analysis of products of students' creative activity
106 (an essay, questions for discussions, etc.);
- 107 - the methods of mathematical statistics (statistical data processing of experiment, ranging).

5. Participants of Experiment

458 senior-years students of pedagogical specialties of the Elabuga institute of FGBOU VPO in the stating experiment "Kazan Federal University", FSBEI HPE "Institute of Social and Pedagogical Technologies and Resources" in Naberezhnye Chelny of Tatarstan Republic of, FSBEI HPE Tauride National University of V. I. Vernadsky in Simferopol, FSBEI HPE "Ural State Pedagogical University" in Yekaterinburg took part. Except them 70 students of the faculty of foreign languages of Elabuga Institute of Kazan Federal University who are trained at the "Pedagogical education" direction were interrogated. The same students participated in the forming experiment.

6. The Stating Experiment

Questioning was the main method of the research at this stage. It promoted the identification of interrogated students (four higher education institutions of three regions of Russia) of conviction that a teacher of the high comprehensive school has to be engaged in the research activity (64,4%). 58,07% of respondents consider this direction of the professional and pedagogical activity of a teacher as the most effective way of the professional formation and the growth. To the question "If you will work at school, would you like to be engaged in the research activity?" 44,54% of students participating in questioning said "yes", negative relation to this type of the professional activity of a teacher was shown by 8,52% of examinees, 20,96% found it difficult to answer. The rest respondents (25,98%) did not consider necessary to answer this question that it is also possible to consider as the manifestation of their relation to the professional and research activity of a teacher which is perhaps connected with the total absence by them of an information on this direction of the work of a school teacher.

Answering the question "If you plan to be engaged in the research activity at school, why?", 37,99% of respondents reasoned their choice by a desire to work effective and modern; 21,62% of examinees plan to build career; 12,5% like to do "unknown known"; 11,79% of students think that the research activity will help them to develop the leadership skills; 9,17% of interrogated students are guided by that the research activity will help them to gain the authority of school administration; 1,09% of students consider that the research activity promotes an expansion of the outlook and updating of knowledge. 5,84% of respondents were not defined in motives of their intentions.

Ranging offered answers to the question "What, in your opinion, does induce a modern teacher to the research activity?", students on the first place put the answer "a financial interest" then "a desire to the increasing competitiveness", "an advance on the career stairs", "requirements of administration", "an internal motivation", "spirits of time", "an aspiration to increase efficiency of a teaching and educational process" followed as important for teachers (from students' point of view) and on the last place students placed "a concern about each pupil's future, a desire to provide him a professional and vital success". The latest data testify about discrepancy of senior-years students' opinions, nonformation of a future teacher's centration on interests and development of pupils' identity, immaturity of their professional and pedagogical consciousness. The data which were got allow speaking in general about the insufficient formation of future teachers of such all-professional competence as the readiness to understand the social importance of the future profession, to have a motivation to the implementation of the professional activity (The project FGOS 3+ VO [http://kpfu.ru/umu/normativnoe-obepechenie-obrazovatelnye-standarty/proekty-fgos-3.](http://kpfu.ru/umu/normativnoe-obepechenie-obrazovatelnye-standarty/proekty-fgos-3)) and also, for example, such a labor action as "the systematic analysis of efficiency of studies and approaches to training" (Professionalnyi standart pedagoga, utverzhdennyi prikazom Ministerstva truda i socialnoi zashchity Rossijskoi Federatsii from «18» October 2013 № 544n., 2013).

Among the reasons interfering the professional and research activity of a teacher, students first of all specify on: 1) the lack of colleagues' moral support of; 2) the inertness of thinking; 3) the dependence on a foreign opinion; 4) the absence of special knowledge; 5) the no high professional level, etc. The first three reasons testify about no independence of future teachers, and the fourth and fifth reasons actually explain the current situation. The data received during the questioning of the great number of respondents (458 people) allow speaking about conclusions' objectivity.

For diagnostics of students' motivation formation levels to the professional and research activity selected for the participation in a pedagogical experiment (70 people) taking into account that, first, some of them had the participation experience in the research activity during a training at school; secondly, to the III year students participated in scientific and practical conferences at the higher education institution and have publications, and to the IV year they all have an experience of writing of the term paper on pedagogics or on psychology, there were defined such criteria and indicators as:

- awareness of social importance of the future profession and a role of the research activity in it (indicators: an aspiration to work effective and modern, a concern about each pupil's future and a desire to provide him a

- 165 professional and vital success, a desire to the increasing competitiveness, n aspiration to increase efficiency of
166 a teaching and educational process";
- 167 - emotional and strong-willed (indicators: positive relation to the professional and research activity, the
168 readiness for overcoming of intellectual difficulties, an aspiration to accumulation of professional independence
169 in the course of the subject and author's research and experimental activity; commitment, resistance to stress,
170 persistence, aspiration to become an intellectual leader in a pedagogical collective, etc.);
 - 171 - formation of students' research position (indicators: motivational and valuable relation to the research activity;
172 openness to an assimilation of new knowledge which are necessary for the implementation of the professional
173 and research activity; an aspiration to the research activity and search activity; a desire to expand
174 systematically knowledge and to gain new experience; psychological readiness for the creative activity;
175 conviction in a need of the research activity of a teacher, an orientation to the achievement of success.

176 On the basis of the allocated criteria and their indicators the students' motivation formation levels to the
177 professional and research activity were characterized. So, students who can be referred to the high level of motivation
178 formation to the professional and research activity, are characterized by the motivated aspiration to work for a benefit of
179 society, to the personal professional growth and increase of efficiency of their work. They are adjusted on the active
180 professional and pedagogical activity and manifestation of the humane attitude towards pupils. Students, who can be
181 referred to this group, seek for accumulation of professional independence and in general to success. To them the
182 situation in a pedagogical collective is not indifferent. They are purposeful, stress-resistant and ready for overcoming
183 intellectual difficulties, the leader ambitions are not alien to them. They consider the research activity of a teacher as
184 means of finding of a pedagogical skill, a kind of activity in which they will be able to increase and realize both their
185 potential and pupils' potential.

186 Students who have good mental abilities but do not seek for an accumulation of competitive advantages, forming
187 the personal career, focused "just to work" can be referred to the average level of motivation formation to the professional
188 and research activity. They differ in by that that their external motivation prevails over internal, they do not perceive the
189 research activity of a teacher as an organic part of the teaching and educational process, see in it possibility of increase
190 of compensation, but the activity in preparation for it do not show. The leadership skills at them are poorly created. Their
191 strong-willed sphere becomes more active only if their personal interests are infringed. Interests of pupils make on them a
192 weak stimulating impact.

193 It is impossible to claim that students belonging to the low level of motivation formation to the professional and
194 research activity do not show predisposition to the active intellectual activity though there are also these. Among them
195 there are a lot of intellectuals who hold an opinion that a teacher should not conduct researches (for this purpose there
196 are scientists). Many of them are excited by the question about whether a director has the right to force a teacher to be
197 engaged in this kind of activity. They do not show a tendency to the independent search of ways and ways for the
198 increasing efficiency of the teaching and educational process, do not seek for mastering research competence. Some of
199 them would like to test their strength in "other spheres of the pedagogical activity". Therefore a specially organized
200 preparation for the professional and research and experimental activity does not cause a particular interest by them.

201 On "entrance" to the forming experiment all students, selected for participation in it, were held a poll (70 students).
202 Thus the same questionnaire as for students of other Russian higher education institutions was used. As the result of
203 processing of the obtained data it was revealed that 50% of interrogated students held an opinion that a teacher has to be
204 engaged in the research activity at school. 31,43% of students participating in the questioning consider the professional
205 and research activity of a teacher as the most effective way of the professional formation and the growth. To the question
206 "If you will work at school, would you like to be engaged in the research activity?" students answered he following: "yes" -
207 24,29%; "no" - 7,14%; "I find it difficult to answer" - 31,43%. Other respondents (37,14%) did not answer this question. As
208 students selected for participation in the experiment think that to the professional and research activity of a teacher
209 induces: 1) an advance on the career stairs; 2) a financial interest; 3) a desire to the increasing competitiveness; 4) an
210 internal motivation; 5) an aspiration to increase efficiency of a teaching and educational process, etc. Unfortunately,
211 students of this group point such version of the answer as "a concern about each pupil's future and a desire to provide
212 him a professional and vital success" on the last place that points again an actual lack of a future teacher's centration on
213 interests and development of pupils' identity.

214 As the result of ranging by students the reasons interfering the professional and research activity of a teacher were
215 pointed out by them such of them as: 1) the uncertainty in itself; 2) the absence of special knowledge; 3) the lack of
216 interest in this kind of activity; 4) the low professional level; 5) the inertness of thinking of teachers; 6) the laziness, etc.

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219 **Table 1 – Students' opinion to the research activity of a teacher**
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No	Student's answers to the questionnaire	Russian higher education institutions (458 students)	EI of KSU (70 students)
1.	A teacher must be engaged in the research activity	64,4%	50%
2.	A teacher's research activity is the most effective way of a teacher's professional growth	58,07%	31,43%
3.	If I will work at school I would like to be engaged in the research activity	44,54%	24,29
4.	I will be engaged in the research activity at school because I want to work effective and modern	37,99%	21,43%

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222 The obtained data testify about a divergence in relation to the research activity of a teacher of students of the large higher
223 education institutions located in big cities and students of the small higher education institution of one of the small
224 Russian cities. It is possible to assume that a great number of students of large higher education institutions show a
225 positive opinion to the considered direction of the professional activity of a teacher because teachers in large cities are
226 engaged in the research activity more often, they are more often involved in large-scale experiments, take part in
227 scientific and practical conferences, professional competitions, etc. Lower data obtained as a result of a poll of students
228 of EI of KFU can be explained, first, by features of students' provincial mentality. Parents work for many of them at
229 schools of the nearby small cities of Tatarstan, including at rural schools which teachers are simply not ready to the
230 research activity and do not consider it significant for a teacher. Secondly, many students of the faculty of foreign
231 languages participating in the questioning are trained on the additional specialty "A Translator in the Sphere of
232 Professional Communication" and a part from them is focused on the professional activity, in particular, in a free
233 economic zone in Elabuga of Tatarstan Republic but not at school. Perhaps, the divergence in the obtained data was
234 affected by an essential difference in number of respondents (458 and 70). The revealed feature causes the relevance
235 and need of a training of future teachers who are trained in small cities to the professional and research activity.

236 Except questioning as the main method of information collection at a stage of the organization of the experimental
237 and research activity and also during its continuation up to its end, supervision methods, conversation and written
238 creative works were applied (the essay, tasks of individual and group character). Application of the included supervision
239 and free conversation promoted identification already at the initial stage of work of signs of curiosity and interest in
240 research activity of the teacher of one group of students, a reserved position and expectation of an explanation of
241 essence of the forthcoming work of other group of students, skeptical, time of undisguised negative attitude - the third
242 group of students. After an explanation of essence and the content of the forthcoming experiment the attitude of students
243 towards him was expressed even how they seated in audience. Negatively adjusted students kept together and in
244 questions which they asked, aggressive notes sometimes sounded spiteful. But their unity to some extent did not disturb,
245 and helped with work of the experimenter. First, it was connected with that they were brought (voluntary) together in one
246 place and therefore a teacher's attention did not dissipate; secondly, the presence of the discordant facilitated the
247 organization and carrying out discussions.

248 As the result of the stating experiment of students' motivation formation levels to the professional and research
249 activity of a teacher were determined, namely: the high - 5,71%; the average - 58,57%; the lower - 35,71%.

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251 **7. The Forming Experiment and Its Results**
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253 In the course of approbation of all subject matters of the "Research and Experimental Work of a Teacher" module taking
254 into account the data obtained during the stating experiment a special attention was paid on students' motivation
255 formation to the professional and research activity. Such methods of a training as discussion, a problem statement,
256 methods of stimulation and motivation of a debt and responsibility in the doctrine were applied for this purpose;
257 motivational speech; technicians "Traffic light", "Information labyrinth", "Priorities", "In the firing line" Panina T.S. &
258 Vavilova L.N. (2008); heuristic conversation, group exchange of opinions. Besides, the system of creative tasks assuming
259 both individual, and group work of students was developed. It should be noted that an application of a dialogue and
260 interactive methods of a training played a positive role in students' motivation formation to the research activity. So, they
261 had to define quickly the position in relation to this type of the professional activity and to a lag behind it (equipment
262 "Position"). On unmotivated or poorly motivated students a parallel impact as was made from a teacher and motivated
263 students.

264 It is necessary to allocate the most effective motivating factors which made a positive impact on students'
265 motivation formation to the professional and research and experimental activity. The first of them is the network
266 interaction with school with which the contract on cooperation in a training of future teachers was signed. During the
267 experiment meetings of students with a director and teachers of school were organized. They made quite strong

268 impression which they expressed in writing on students. So, in reviews of visit of school they wrote the following:
269 - "having come to school, after several years of training at institute we saw that occurs at it, it is possible to tell,
270 on the other hand. I cannot tell that I already looked at school the teacher-researcher's eyes, but saw that long
271 time was behind a curtain as if glanced inside. We did not know that teachers are engaged in research activity
272 therefore did not plan to be engaged in it";
273 - I very much liked this meeting, they are interesting and useful to us, future teachers. I would like to visit similar
274 meetings as I plan to be engaged in research activity when I work at school", etc.

275 The second the effective motivating factor is the developed system creative (including, and research) tasks,
276 assuming both individual, and group work of students.

277 As one more the effective motivating factor it should be noted the organization of educational and research
278 practice of students within network interaction with school. According to its program students developed research tools
279 (questionnaires, plans and questions for conversation, questions for interview, programs of supervision, etc. and
280 approved them in practice at school) that caused in them positive an emotional response.

282 8. Results and Conclusions

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284 For definition of results of experimental and research work the questionnaire and qualitative methods of scientific and
285 pedagogical research which are not assuming statistical processing (conversation, supervision, the analysis of products
286 of creative activity) were used. It was interesting to observe how the number of the students who are negatively adjusted
287 in relation to research activity of the teacher was reduced. Also admissions of occupations were quickly enough reduced
288 by them that it is possible to consider as positive shift in motivation to future professional and research activity. It should
289 be noted that the forming experiment coincided on carrying out terms with the first work practice of students in the course
290 of which passing they had opportunity to talk to teachers-researchers at schools and to be convinced that research
291 activity is one of functional duties of the modern teacher now.

292 During purposeful work on formation at students of motivation to research activity of the teacher the data testifying
293 to its efficiency (were obtained see: Table 2).

295 **Table 2.** Students' motivation formation levels to the research and experimental activity

№ n/n	Level	Before the experiment	After the experiment	Efficiency indicators
1.	High	5,71%	23,19%	+17,48%
2.	Average	58,57%	63,77%	+5,3%
3.	Lower	35,71%	13,04%	-22,67%

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298 The obtained data testify to the noticeable increase in a group of students with the high level of motivation formation to
299 the research activity (+17,48%); an essential reduction of students entering into a group which is characterized by the low
300 level of motivation formation to the research activity (for 22,67%) and good dynamics of students' movement from the
301 average level of motivation formation to the research activity on the high level and from the low level on the average one.

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