

Motivational and Cognitive Characteristics of Secondary School Teachers in the Process of Professional Development

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Abstract

The goal of this research is the study of motivational and cognitive characteristics of the secondary school teachers who are at different stages of professional development: the stage of adaptation and professional maturity. Career orientation and indicators of metacognition (metacognitive knowledge and metacognitive activity) were considered. An empirical study on a sample of 60 people with the use of test methods and methods of mathematical statistics was conducted. All subjects were women. The age of the subjects in the group of adaption was under 30 years, in a group of mature educators- from 30 to 40 years old. As it turned out, career orientation and metacognition of teachers do not remain unchanged in the process of professionalization. If during the period of professional adaptation the greater importance is given to the formation in the professional sphere, service to people, the teachers with 10 to 15 years experience who have already established themselves in the professional sphere, put forward firstly personal values: the stability of employment and place of residence, their own interests. The importance of social values is being decreased. The components of metacognition have rectified dynamics: metacognitive activity with age and experience reduces, and the level of metacognitive knowledge of female teachers under 40 years old increases.

Keywords: metacognitive activity, metacognitive knowledge, career orientation, career "anchors".

1. Introduction

In the professional work of teachers self-perfection and self-realization are of particular significance. In this connection it is necessary to identify the factors and conditions for successful self-fulfillment of the teacher, unveiling his career potential. The desire for professional development depends on many factors. The most important among them are personal dispositions, attitudes, beliefs and interests. To describe the value orientations implemented in professional activities, it is possible to use the term "career orientation". In fact, the career orientation means something that has a personal meaning in the professional work. The system of career orientations affects the content and methods of professional self-development. On the other hand, we can't exclude the impact of cognitive and metacognitive performance on the professional formation of teachers, manifested in the success of learning as a process of knowledge creation and development of students' thinking. In the process of training the teacher broadcasts his cognitive style, ways of processing information, the process of solving intellectual problems. It can be assumed that the motivational and metacognitive characteristics do not remain unchanged in the process of professional development of teachers. This assumption is based on the methodological principles of development of the mind in action. Perhaps not only individual characteristics are changed, but also the structure of the correlations of motivational and cognitive characteristics. This assumption needs to be empirically tested.

2. Literature Review

When examining career orientations of teachers we relied on the theory of career "anchors" of the American organisational psychologist Edgar Schein (1990). This approach allows us to identify what is the motivation for employees in their professional career. According to E. Schein, "career anchor" is a set of notions about oneself, core values, motives which determine the direction of career and retaining it in the framework of the chosen strategy in professional development. E. Schein proposed to consider eight career anchors: "professional competence" (the importance of success in the professional field), management (the significance of the level of responsibility and contribution to the success of your organization), autonomy (the opportunity to decide on your own what and how to do), "stability" (minimum probability of dismissal), "stability of residence" (minimum of travelling, business trips), "challenge" (focus on

solving the obviously difficult tasks, competition, novelty), "service" (the opportunity to use the talents for the realization of socially important goals, the ability to see the concrete results of the work), "integration of life styles" (preservation of the harmony existing between personal life and career) and "entrepreneurship" (the desire to realize your project).

E. Schein believes that personal values influence a person's ability to solve tasks which arise at work successfully. The better an individual can understand his own career motives and values in certain areas, the more satisfaction he can get from work and career. Accordingly, the motivation to perform work will be the strongest when job assignments and responsibilities are performed in accordance with the leading career orientations and values.

In Russian psychological literature there are studies of career orientations in the teaching profession. R. Z. Sabanchieva studied the career orientation of high school teachers (Sabanchieva, 2010). N. B. Lisovskaya and K. V. Ermolina studied the career orientation of secondary school teachers (Lisovskaya & Ermolina, 2011). These results were obtained on a sample of young teachers at the stage of professional adaptation. It seems unlikely to apply them to different stages of professionalization of teachers. What attracts young teachers and contributes to their career growth ceases to be significant at later stages of professionalization. We assume that career orientations of teachers do not remain unchanged in the process of professionalization.

Along with this, the task to study metacognitive characteristics of the teachers was set.

Not having a task of analysis of the various concepts of metacognition, we only mention some approaches to the definition of this concept. The author of the concept of metacognition is an American researcher J. Flavell (1976). Metacognition is understood as the ability to analyze one's own thinking strategies and to manage cognitive activities (Flavell, 1979).

M.A. Kholodnaya (2002) considers the concept of "metacognitive experiences", which she understands as mental structures enabling to exercise involuntary and voluntary regulation of intellectual activity. This definition extends the definition given by J. Flavell, as it includes the regulation which is carried out on subconscious level. According to M. A. Kholodnaya, metacognitive experience consists of four types of mental structures providing various forms of self-regulation of intellectual activity: involuntary intellectual control, voluntary intellectual control, metacognitive awareness and open cognitive position (Kholodnaya, 2002)

Metacognitive awareness allows to view and to track and adjust the progress of intellectual activity. In the research of Skvorcova Y. V metacognition is defined as "knowledge about one's own thinking processes and strategies, the ability for conscious reflection, change and implementation of actions based on that knowledge" (Skvorcova, 2005, p. 72). Let us dwell on this study in more details, as metacognition has been studied on the example of pedagogical thinking which is of a particular interest. The empirical material was received on a sample of teachers of medical universities and colleges. It emphasizes that metacognition plays a special role in the professional activity of a teacher. It was shown that the higher the level of development of metacognition, the higher the level of thinking which is increasingly approaching to supra-situational thinking. Supra-situational level of solution of pedagogical situations indicates a higher level of understanding reality, which is expressed in a person's ability to see the problem, to formulate a problematic issue, to go beyond the specific situation.

Metacognitive knowledge and metacognitive activity, as features of mental activity of teachers affect the effectiveness of teaching activity, are manifested in the methods of teaching, peculiarities of organization of educational process, lesson planning, interactions with students. Thus, we can conclude that individual aspects of the problem have been studied, but a holistic view on the dynamic patterns of motivational and cognitive characteristics of the teachers is absent.

3. Tasks and Methods of Empirical Research

The purpose of this research is to study the dynamics of career orientations and metacognition of teachers of secondary school. There were selected two groups of teachers at different stages of professionalization: at the stage of adaptation (experience from 5 years and aged under 30 years old) and sufficient professional maturity (experience from 10 to 15 years and aged 30 to 40 years old). Such periodization of professional development of teachers is adopted in the national educational psychology. The choice of these stages of professionalization for research is explained to the fact that after the period of adaptation, in the following 5 years, there is a stabilization of the professional activity of a teacher. The professional position is formed, methods of perfection of professional skills are analyzed. With this potential a teacher comes into the next period of professional development from 10 to 15 years. Further on, the professional development of teachers is stagnating, therefore, the consideration of later stages in the context of tasks is less appropriate. There were examined 60 teachers with 30 people in each group. All of the subjects were women. The collection of empirical data was conducted in the 2014-2015 academic year, by the graduate of faculty of psychology of Yaroslavl State University A. V.

Serebryakova in the framework of research work carried out under our supervision. The technique of "Career Anchors" by E. Schein was used to study of career orientations of young and established teachers. A comparative analysis of career orientations of young and established teachers using U - Mann-Whitney test was conducted. The technique of self-metacognitive knowledge and metacognitive activity of S. M. Kashapov and Y. V. Skvortcova was used to study metacognition of young and established teachers (Skvortsova, 2005).

4. Results and Discussion

The most significant orientations of young teachers (see Table1) are the following: "service", "stability of work place", "integration of life styles". The obtained result overlaps with quality scaling and filtering research of Lisovskaya N. B. and Ermolina, V. K. (Lisovskaya & Ermolina, 2011). There in the first place is "stability of work place" and then "service" and "integration of life styles". In our study, the value is given to the service. Young teachers (under 30 years) tend to be of benefit to the people, it is important for them to realize their abilities and experience to achieve socially important goals, to see the results of their work. It is also important to have social guarantees, not to lose the job to improve professional skills. Finally, the career should not prevent the realization of other values, disrupt the usual lifestyle ("integration of life styles").

The least significance in the young teachers in our research are "challenge" and "stability of place of residence". Young teachers are not ambitious, do not seek to increase the difficulty of professional tasks. Claims for higher achievements, competition with more experienced colleagues are not expressed. Young teachers are also not demanding to the stability of residence. Many still do not have their own families, so being able to travel, business trips seem attractive. Such career orientation as "management" and "entrepreneurship" in young teachers are not significant. Similar results were obtained in the study of Lisovskaya N.B. and Ermolina K.V. that "entrepreneurship" and "management" are also less important career orientations (Lisovskaya & Ermolina, 2011).

Table 1. Career Orientation of Teachers at Different Stages of Professionalization

	Experience under 5 years		Experience under 15 years		p
	Average value	Standard deviation	Average value	Standard deviation	
Professional competence	5,9	1,8	4,8	1,8	0,044
Management	5,5	2,2	5,3	1,8	0,953
Autonomy	6,5	1,8	5,1	1,1	0,001
Stability of work place	7,7	1,5	8,7	1,0	0,005
Stability of place of residence	4,9	1,6	5,9	1,3	0,012
Service	7,9	1,6	6,4	1,8	0,001
Challenge	5,5	1,9	4,4	1,9	0,017
Integration of lifestyles	7,4	1,2	8,4	1,0	0,001
Entrepreneurship	5,7	2,2	5,7	2,3	0,976

Another picture can be seen in the experienced teachers. It is also a sample of women aged under 40 years old. The most important career orientations are "stable work", "integration of lifestyles." This means that for experienced teachers stability is important, as a social guarantee of a source of revenue that it does not infringe upon the personal interests, and gives an opportunity to devote oneself to the family. Personal interests take on a great value. The motive of "service" having the highest social value, is relegated to the third place. Female teachers, having worked for more than 10 years, established themselves professionally, made the most of their career aspirations. It seems no longer an important for them to have promotion in the professional sphere, the desire to improve skills, to increase the difficulties of professional tasks. Career orientation of "professional competence" and "challenge" occupy the last place in the hierarchy of values. Greater importance in comparison with these values is attained to stability, attachment to the home, the family, the lack of relocations and business trips.

When comparing the career orientations of beginners and experienced teachers there are significant differences (U-Mann-Whitney test) of all orientations except "entrepreneurship" and "management". It is believed that with age and experience the orientation "management" is enhanced. In our case, this was not confirmed. Apparently, the period of 10 years is not sufficient to change. The value of "entrepreneurship" is not changed. It can be assumed that education is not the scope for the implementation of entrepreneurship, innovation, the implementation of the projects. A teacher works in the framework of the curriculum and methodical guidelines in the situation of control over the content and methods of

work.

Young teachers to a greater extent compared with experienced teachers have pronounced career orientation of "professional competence", "autonomy", "service" and "challenge" in comparison with the experienced teachers. Thus, young teachers in comparison with experience done are more focused on achieving success in the professional field, to being released from organizational rules, regulations and restrictions. It shows a desire to do the work in their own way, at their own pace and standards. Career is perceived as a way to implement their own freedom. Also, young teachers are focused on bringing benefits to society, on the possibility to use to the maximum their skills and experience to implement important social objectives and to respond to challenges and overcome difficulties. Teachers at the stage of adaptation of the profession are seeking to achieve concrete results, recognition, they are aimed at achieving a certain level of professional skill. Young teachers' motives of professional work still do not compete with the motives to devote themselves to the family, children and husband.

Experienced teachers to a greater extent rather than young teachers have a pronounced orientation to "stable work", "stable place of residence" and "integration of lifestyles." This orientation is on security, economic stability, the minimum probability of layoffs. It is more important to stay on the same position than to get a new job in a new place, even if this is a promotion. The focus on the importance of balancing family and career with the minimum disruption of normal life style is traced. Teachers with experience already realized themselves in the professional sphere, achieved certain results. The established habits and determined status are not conducive to a desire for change, the search for a new place of residence and work. In addition, for female teachers, family, work and leisure are equally important. They strive for harmony of these spheres of life.

We analyze the results of the research of metacognitive knowledge and metacognitive activity of young and established teachers. Figure 1 shows the differences in metacognitive knowledge and metacognitive activity of young and established teachers.

Comparative analysis showed the presence of a number of significant differences. Young teachers have more evident metacognitive activity: average value is 12.6, but established teachers have 10.6. ($P = 0.000001$, differences are significant). Compared with established teachers, young teachers have a higher usage of components of metacognitive activity that are responsible for conscious control and regulation of their own intellectual behavior that is arbitrary intellectual control. These results may be related to the fact that young teachers tend to carefully monitor their behavior and use of any knowledge, as the lack of practical skills that develop with increasing of experience, can lead to a lack of results, or adverse effects. Thus, young teachers are seeking higher conscious control of their intellectual behavior.

Established teachers have more pronounced metacognitive knowledge: the average value is 15.0 and young teachers have average 13.2 for metacognitive knowledge ($P = 0.023$, difference is significant). Thus, compared to younger teachers, established teachers have a higher metacognitive awareness (knowledge of their individual intellectual qualities and the ability to evaluate them), allowing to view and track the progress of their intellectual activity with a correction some of its parts when necessary. These results can be explained by the fact that teachers, possessing great experience, really have a good understanding of their own cognitive mental processes (attention, memory, thinking), understanding the ease of acquisition of new knowledge and its ability to cope with various situations. They are able to apply the skills that effectively resolve any problem, including professional, and to regulate and correct the less suitable for a particular situation. This knowledge is formed with the help of the existing practical experience.

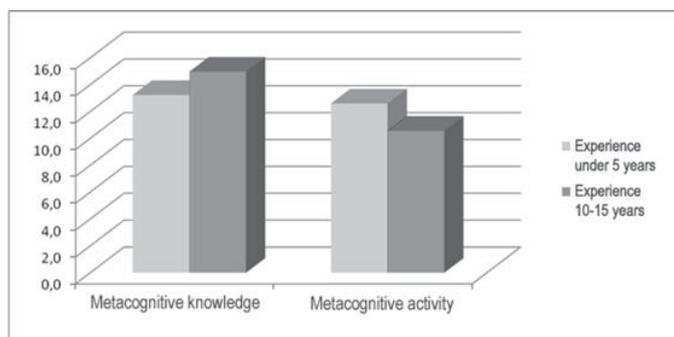


Figure 1. Metacognitive knowledge and metacognitive activity of young and established specialists

To investigate the relationship of career orientations and metacognition of young and established teachers the Spearman method of rank correlation was used. Correlation pleiads were built based on the obtained results.

For young teachers metacognitive knowledge is positively correlated with career orientations such as "professional competence" ($r = 0,56$ $p < 0,01$), «management» ($r = 0,39$ $p < 0,05$), «service» ($r = 0,64$ $p < 0,01$), «challenge» ($r = 0,36$ $p < 0,05$) and "entrepreneurship" ($r = 0,48$ $p < 0,01$). Thus, the higher the evaluation of the functioning of their intellectual processes, opportunities to acquire new knowledge by young teachers, the more they tend to develop and improve their skills and talents to achieve success in the professional field. Leadership tendencies and a desire to take on more responsibility, to create new projects, while seeking to be of benefit the people, respond to the challenges and overcome the obstacles are more often manifested. There are also aspirations and ideas for creating and running their business, private practice.

These results can be explained by the fact that high evaluation of their abilities by teachers of young age, undoubtedly, leads to the desire to implement them, while the more teachers employ their skills and talents, the more they get experience, which in turn leads to the completion of knowledge. The accumulation of specific knowledge and appreciation of their abilities can lead to a desire to further gaining experience and organization of various events and projects. The dominance of the set of career values in conjunction with metacognitive knowledge may indicate a desire to make the most of possessed knowledge to gain experience.

Metacognitive activity of young teachers is positively correlated with such career orientations as "professional competence" ($r = 0,44$ $p < 0,01$), «management» ($r = 0,53$ $p < 0,01$), «autonomy» ($r = 0,63$ $p < 0,01$), «service» ($r = 0,47$ $p < 0,01$), «challenge» ($r = 0,7$ $p < 0,01$) and "entrepreneurship" ($r = 0,72$ $p < 0,01$). Thus, the more often young teachers use their skills and manage their own intellectual processes, the more they are eager to develop in their professional field, to achieve success. More often appear leadership tendencies and a desire to take on more responsibility, desire for higher incomes is being increased. The desire to exercise their skills and abilities at their own discretion and initiative is being increased. It is also important to bring benefits to people, society, the ability to maximize the use of one's abilities. In addition to that a desire to respond to challenges and overcome difficulties in the professional sphere turns out to be increased. The desire and ideas to establish and maintain their businesses, private practice grow up.

These results can be explained by the fact that the more young teachers employ their skills, seek to manage and control their intellectual processes, the more experience they get. Thus, as they gain experience and continue to use their skills, there is a desire to develop and acquire other skills that are necessary in the profession and use them to succeed, to be of benefit to people, and create new activities and projects. At the same time active use of their skills promotes the desire to continue to rely on themselves, their professionalism and the results that have already been achieved.

In established teachers metacognitive knowledge is positively correlated with career orientations of "professional competence" ($r = 0,72$ $p < 0,01$) and "management" ($r = 0,57$ $p < 0,01$). Thus, the higher the evaluation of functioning of their intellectual processes, ability to acquire new knowledge by established teachers, the more they seek to develop their abilities and talents in the professional field, to achieve success, and besides, they also are more focused on the implementation of leadership trends and generation of more income. Accumulated knowledge in the course of professional activities may determine the dominance of orientation to the use of their talents and abilities in professional activities, as well as to comply with the desire for a higher payment for their work. Obviously, the higher established teachers assess their level of professionalism, the more they are focused on a proportionate compensation, in terms of income and recognition.

Metacognitive activity in the existing teachers is positively correlated with such career orientations as "autonomy" ($r = 0,41$ $p < 0,05$), «challenge» ($r = 0,32$ $p < 0,05$) and "entrepreneurship" ($r = 0,3$ $p < 0,05$). That is, the more pronounced is the intelligent control of the teachers, the more they are focused on the implementation of professional work in their own way. There is an increase in desire to solve complex problems, overcome difficulties, create new activities and projects. These results can be explained by the fact that the experience and skills of established teachers allow to direct their interest to more complex goals and objectives. The desire to plan their work based on their own opinions, to develop new promising projects is being increased. In addition, the active use of their own intellectual processes contributes to the development of their own style and peculiarities of activities.

When comparing structures of motivational-cognitive properties in young and established teachers the general trend can be found. Both young and established teachers with higher metacognitive activity increasingly focused on "autonomy", "challenge" and "entrepreneurship". Both young and established teachers with a higher metacognitive activity are in a greater degree oriented on "professional competence" and "management".

5. Conclusion

The conducted research provides a basis for the following conclusions:

Value-motivational components of the professional work of teachers of high school did not remain the same and at different stages of professionalization they have their own characteristics. If during the period of professional adaptation the greater importance is given to the establishment in the professional sphere, public service (more obvious are such career orientation as "professional competence", "autonomy", "service" and "challenge"), then the teachers with 10 to 15 years experience who have already established themselves in the professional sphere, in the first place put personal values: the stability of employment and place of residence, their own interests. The importance of social values is being decreased.

The research of peculiarities of metacognition of young and established teachers showed that metacognitive components vary in different directions: metacognitive activity with age and experience is reduced, and the level of metacognitive knowledge increases. It should be noted that this finding applies to female teachers under the age of 40.

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