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**UPMARKET STRATEGY FOR THE PROFESSIONAL DEVELOPMENT
OF ENGINEERS WITH HEARING IMPAIRMENTS**

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Abstract

The paper is devoted to the recent issue of the professional development of people with hearing impairments. In the context of topical problems of inclusive higher education, the problem of studying professional development assumes a special scientific and practical prominence. The upmarket strategy is presented as a dynamic system of personal professional orientation, directed at a conscious change and designing of life in the context of its professionalism and forming a professional future. This research studies presented personal and environmental factors of the upmarket strategy for the professional development of engineers with hearing impairments. Based on the qualitative research method such as biographical interview, the scientific work revealed the characteristics of upmarket strategies for the professional development of engineers with hearing impairments. The paper identifies and discusses the main personal factors affecting the process of forming the competence of upmarket specialists with hearing impairments and the multi-functionality of their professional activities. It is due to the formation of operational and tactical psychological characteristics that an upmarket scenario of personal and professional development is materializing for engineers with hearing impairments.

Keywords

Professional development – Upmarket engineer – Physically challenged people – Upmarket strateg

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Introduction

Professional formation of a personality is a complex process that involves not only successful development of activity within a certain occupational framework, but also the development of the personality itself. As a result of this process a specialist with a certain style of behavior is formed; such behavior is based on one's psychological and personal characteristics. Under strategies for professional development we consider a choice of direction, development priorities and choice of actions that determine professionalizing. Professional development as a process of mastering of and immersion in the professional activity includes changes and development of motivational, cognitive and operational spheres of personality¹.

Professional strategies for the formation of personality as a complex and multilevel socio-psychological phenomenon are transformed under the influence of objective and subjective factors. It is a dynamic system of professional personal orientation aimed at consciously changing and designing one's life in the context of its professionalism and establishing a professional future. The main characteristics of professional strategies include: the direction to the future, the formation of an occupational self-concept, and features of style of solving problems of professional development. The main function of professional strategies is the professionalism of the individual in a changing social and professional environment.

Personality factors that determine the strategy of professional development are associated with motivational, cognitive and style features of an expert. The main motivational characteristics are a professional orientation and a stable system of value orientations that determine the life philosophy of an expert's personality. Cognitive-intellectual characteristics of development of activities reflect the conceptual model of professional development and determine the direction of professional development of a prospective specialist. The style features of behavior depend on the personal and professional resources of an employee².

The progressive organizational environment in the actual place of professional activity is an objective factor of professional development. Such environment creates conditions and opportunities for personal development, organizational socialization of specialists, and contributes to the realization of their intellectual and personal potential. The upmarket strategy for professional development is quite common for graduates with a high level of professional qualifications, committed to work effectively in a range of roles. These graduates are employed by major companies as *upmarket engineers*. Functional features of professional activity of upmarket engineers as a rule include research, project, entrepreneurial, managerial and expert work.

¹ S. A. Druzhilov, Psychology of professionalism. Engineering and psychological approach (Kharkov: Humanitarian Center, 2011); Evald Zeer, Psychology of professional self-determination in early adolescence: teaching guide (Moscow: MPSU Publishers; Voronezh: NGO MODEK publishing house, 2008); E. Zeer & E. E. Simanyuk, "Crises of professional establishment of personality". Psychological journal, Vol: 18 num 6 (1997): 35-44 y A.P. Isaev, Managerial professionalism: basic concepts, processes and mechanisms. Teaching guide (Yekaterinburg: Azhur publishing house, 2015).

² E. A. Klimov, Psychology of the professional (Moscow: Institute for Enterprise Issues Publishers, 2006); E. A. Klimov, Psychology of professional self-determination (Rostov-on-Don: Phoenix Publishers, 2006) y A. M. Novikov & D. A. Novikov, Methodology (Moscow: SINTEG publishing house, 2007).

The key areas of responsibility of upmarket engineers are due to their key roles in the whole establishment: strategic thinker, team leader, business operator, innovator and expert. The role of the strategic thinker or even policy maker is related to the evolvement and implementation of the development strategy of the organization, the organizational mechanisms for its provision on the basis of a “panoramic vision” of the prospects of the corporation, and the industry as a whole. As the head of a team, an upmarket engineer leads the project units and departments. As a business operator, the specialist attracts a variety of internal and external resources; most advantageously distributes existing ones; and ensures the promotion and realization of the output. As an innovator such an engineer acts as a researcher-developer of innovative projects; and also as a generator of ideas and scientific and technical knowledge, initiator of creative approaches in specific areas of activity. As expert consultants, upmarket engineers also participate in solving interdisciplinary issues.

The multi-functionality and complexity of the professional activity of upmarket engineers impose increased demands for professionally significant qualities, including a set of motivational, emotional and strong-willed, communicative, and intellectual groups of qualities: focus on achievement, self-development and creative initiative, corporate identity, self-control, self-efficacy, flexibility, working efficiency; leadership, social open-mindedness and commitment, optimism and creativity³.

The implementation of the upmarket scenario of professional development among engineers with hearing impairment is determined by the establishing operational and motivational preparedness in the training process. Operational (activity) preparedness is represented through the skills necessary for an upmarket specialist:

- 1) Leadership skills are manifested in ability to direct the attention of other people, express the thoughts in a clear, understandable and meaningful form, establish necessary social contacts, and expand business relationships and connections.
- 2) Innovative skills manifested to be in steady self-efficiency, i.e. to have self-confidence, able to achieve specified goals and solve problems.
- 3) Adaptive skills manifested in tolerance and ability to understand other people on the basis of adequate social perception and empathy; constructively overcome interpersonal problems.
- 4) Skills of activity and initiative manifested in ability to demonstrate independence and responsibility, strong internal locus of control in an integrated professional environment.

Motivational preparedness includes innovative, creative and leadership components of a professional activity. Leadership orientation is manifested in the desire for social interaction and inspiration in an integrated professional environment focused on achievements.

The innovative orientation of an engineer with hearing impairments is manifested as in expression of such innovative trends as desire to transform, optimize and improve the activities and prospective goals; open-mindedness to new experiences; utilization of modern advanced achievements of science and practice in the daily work.

³ A. P. Avdeeva, Psychological concept of professional elitism in the field of engineering (Moscow: MSTU Publishers, 2014).

Creative orientation reflects the aspiration of a specialist with hearing impairments for creativity as dedication to engineering activity: expansion and deepening of social and professional competences, striving for self-improvement and creative self-realization. Substantial psychological characteristics of creative orientation include: the desire to create new products; the desire to generate new ideas, to find original solutions and approaches to work, and what is very important is the focus on personal self-improvement and development⁴.

Materials and methods

The purpose of the research was to study the personal and social factors of the upmarket professional development and evolvement of specialists with hearing impairments. The traditions of the Russian school of training of upmarket engineers, in particular with hearing impairments, are laid and successfully developed in the leading technical university of Russia, Bauman Moscow State Technical University. This elite educational establishment has been providing vocational training for people with hearing disabilities (including hearing impaired) since 1934. The Lead Educational, Research and Methodological Vocational Rehabilitation Centre for Individuals with Health Disabilities (GUIMC) was organized at the Bauman Moscow State Technical University (MSTU) more than twenty years ago and successfully engaged in vocational rehabilitation of physically challenged and disabled people⁵.

The marker of professional choice strategies and establishment of the personality of a specialist is one's professional career. Special character and complexity of the subject of the research determined the choice of a qualitative research method such as a biographical interview⁶. The research was attended by engineers with hearing impairments, who gained higher professional education at the Bauman MSTU.

45 male respondents aged 26 to 40 participated in study. Based on the data of the graduates' survey, 5 engineers who implemented the upmarket scenario of professional development were selected. These engineers are the top notch specialists employed by the major companies.

⁴ Essential issues of occupational therapy of physically challenged: collected works. Part 1. (St. Petersburg: GAOORDI Publishers, 1999); L. V. Degteva & E. M. Babanova, "Problems of vocational education and employment of persons with health limitations and physically challenged", Bulletin of the Moscow State University of Humanities and Economics, num 2 (2012): 62–67; M. Ulchenkova & M. V. Starchikova, "Problems of professional formation and employment of physically challenged in contemporary Russia", Proceedings of International scientific and practical conference "Innovations, quality and service in engineering and technology", June 2014: In 3 volumes, vol: 3. (Kursk, 2014) y E. A. Khudorenko; E. A. Nazarova & K. A. Cherevyk, The role of innovative educational technologies in the formation of a competitive university graduate with health limitations. Monograph (Moscow: MESI Publishers, 2011).

⁵ Integrated vocational education for hearing impaired: collected works. A.G. Stanevsky (ed) (Moscow: Bauman Moscow State Technical University Publishers, 2000).

⁶ A.M. Ulanovsky "Qualitative research: approaches, strategies, methods". Psychological journal, vol: 30 num 2 (2009): 18-28; P. Banister; E. Burman; I. Parker et al., Qualitative methods in psychology: A Research guide (Buckingham, Philadelphia: Open University Press, 1994); N. K. Denzin & Y. S. Lincoln, Introduction: The discipline and practice of qualitative research. The handbook of qualitative research. Second edition. N.K. Denzin, Y.S. Lincoln (eds) (Thousand Oaks, CA: Sage, 2000) y M. B. Miles & A. M. Huberman, Qualitative data analysis: an expanded sourcebook (Thousand Oaks, CA: Sage, 1994).

Results

One of the most important social factors is the educational environment of a higher educational establishment, which paves the way to the formation of a social situation for professional development and commitment for the creative solution of professional tasks. The study of the educational environment of the Bauman MSTU has shown that it belongs to the developing type and is characterized by information-communicative hospitality and innovativeness⁷. Communicative and information space of the inclusive educational environment of the Bauman MSTU promoted the formation of a corporate community among students with hearing impairments. Cohesion, responsibility and cooperation are the most important corporate values of the Bauman MSTU. The internalization system of values of the educational environment serves as the semantic core of a professional activity. The formation of professional competences in the Bauman MSTU is traditionally carried out on the basis of fundamental theoretical training with research activities. This conceptual approach to engineering training has ensured the formation of operational and tactical psychological characteristics of professional engineering activities⁸. Professional training in the Bauman MSTU also contributed to the formation of professional competences, professionally important qualities and creative motivation of graduates implementing an upmarket strategy.

The analysis of personal factors influencing the choice and implementation of upmarket strategies of graduates with hearing impairments demonstrated the following: the common point in the educational and occupational life path of these specialists is a certain consolidating stage of the professional career. This consolidating stage of the career is carried out by employees within the range of 25 to 44 years. According to Donald Super, these years of professional development, are the most creative in their professional careers⁹.

First, it is important to note that the choice of the parameters of positioning in the labor market and the nature of social interaction in the professional environment were determined by the existence of a self-concept based on constructive identity associated with self-awareness of such professional, important professional motives, clarity of ideas about career goals and adequacy of personal capabilities' self-assessment.

Creative orientation, communicative competence and social interaction skills allowed them to successfully cope with tasks at the strategic level of professional activity. The dominant professional motives of these specialists include achievement, self-realization and creativity in the field of engineering. At the same time, independence, adaptability and responsibility, being professionally important qualities, ensured the reliability and quality of tactical engineering tasks performance. As a result, they have developed the experience of performing professional tasks in economical, technological and social production systems. This contributed to the strategic "panoramic vision" of a professional career and the ability to independently determine the goal of professional development in accordance with the overall objectives of a company or a business organization.

⁷ A.P. Avdeeva, "Socio-psychological commitment for inclusive education". Humanitarian foundations of social progress: Russia here and now: Proceedings of the International Scientific and Practical Conference in 8 volumes. Vol: 7 y V. S. Belgorodsky; O. V. Kashcheev; V. V. Zotov y I. V. Antonenko. (eds) (Moscow: FSEI Moscow State University of Design and Technology Publishers, 2016).

⁸ A. M. Novikov & D. A. Novikov, Methodology (Moscow: SINTEG publishing house, 2007).

⁹ D. E. Super et al., Vocational Development: A Framework of Research (New York, 1957).

Further on, as an example, the most striking scenarios of upmarket strategies for engineers with hearing impairments are presented. Reflecting on the prerequisites of personal and professional development, the graduates of 2014 noted that they are at the heart of family upbringing, which was built on the principle: “You don’t have to belong to aristocracy by origin, most importantly to be an aristocrat by spirit”. In 2012, as a student of the Automatic Information Processing and Control Systems Department of the Bauman MSTU, a young man completed an internship at a language school in De Montfort University in Leicester. During his studies at the university he was engaged in public activities. Working as a trade union organizer of his class at the university, he interacted with representatives of business and public organizations. This helped the student with the hearing impairment to build a network of business contacts; it also contributed to the formation of his administrative skills and accumulation of experience of constructive social and professional identity, such as self-conception and future life and career planning perception.

During the fifth year of the master's degree, he already combined professional internship, university education and active social duties. The motivational-cognitive aspects of the professional career clearly manifested themselves during the internship at Siemens at the graduate course. The company's environment and corporate culture had a strong emotional impact and therefore, made an indelible impression, contributing to the expansion of a communicative experience and social interaction skills.

After the graduation this person chosen as an example was hired by SAP SE as a global support engineer. During adaptation process in the company it became obvious for him that it was necessary to evolve further independently, both personally and professionally. The focus on results helped and motivated to gain the knowledge necessary in the field of business and social competences development. Therefore, the next stage of professional development was associated with the development of managerial competence. With this object in mind he enrolled at the British Higher School of Design on the Marketing and Brand Management Program, where the training was conducted as Mini MBA course. The most important result of this stage was career advancement in the company, participation in the development of projects of corporate strategy and social corporate responsibility and mentoring work in the project “Step into the Profession” by charity fund “Deystvuy” (<http://fond-deystvuy.ru/#mi-eto>).

The achievement of the goals of a successful organizational career this upmarket specialist associates with participation in these projects, since it allowed him to be in the public eye in the corporation and attracted attention. He also considers the social skills formed during the training at the university as the personality factors of career success.

Now this top notch expert is actively involved in the implementation of significant social projects; he is a member of IFHOHYP (International Federation of Hard of Hearing Young People), representing the interests of this organization at the European Disability Forum (EDF) in Brussels.

The next example we would like to consider is how the class of 2000 graduates of Bauman MSTU Department of Radio-Electronic Systems and Devices implements the upmarket strategy for professional development. It is quite significant that in this case the initial stage of professional self-determination was accompanied by awareness and the presence of interest in the technical field of activity, since during the school days he was engaged in radio hobby group. It was family and school education that contributed to the proper socialization of a teenager with hearing impairment. While choosing the engineering

occupation he already had adequate ideas about the “man and technology” field, working during school holidays at the plant. The key stage of professional self-determination took place on the 5th year of study during course project preparation. In the process of solving an applied scientific problem he gained experience of innovative professional activity and social interaction with leading specialists on the problem of high-temperature superconductivity and low temperatures from the Kurchatov Institute, Lomonosov Moscow State University, Moscow Power Engineering Institute, JCH All-Russian Scientific Research Institute of Inorganic Materials and dedicated academic departments of the Bauman Moscow State Technical University¹⁰.

By enrolling to the postgraduate course at the Bauman MSTU he continued his scientific work on this subject at the Department of Cryogenics, Refrigeration and Environmental Support Systems; later he successfully defended his Ph.D. thesis. He continued further to engage in scientific research on the problem of applied superconductivity in mobile communication systems, as well as providing environmental and fire safety of oil products facilities¹¹. The results of his scientific research are reflected in two monographs, fifty papers and seven patents of the Russian Federation.

The rise of his managerial career is associated with the work at the Bauman MSTU Experimental Plant. And in 2014 he took an office of deputy director of the Moscow Technical College of Space Instrument Engineering.

Along with professionalism he successfully implemented his sports career. A high level of achievement motivation focused on the successes brought him the bronze and silver medals of the world championships in judo in 2008 and 2016. In the sports field he also combines successful administrative and coaching work. Being vice-president of the All-Russian Federation of Oriental Combats of the Deaf he organized numerous Russian and international tournaments for athletes with hearing impairments. He pays much attention to the formation of physical culture among children with health limitations, organizing and opening the sports sections in correctional boarding schools, as well as adaptive physical training and sports departments in the different youth athletic centers and Specialized Children and Youth Sports School of the Olympic Reserve (SDYuSShOR)¹². He also personally trains deaf and hearing impaired students at the Department of Physical Education of Bauman MSTU. As a senior coach - judoka of the deaf in the Moscow region, he works with the main and substitutional athletes of the Russian national team; he trained athletes for European and two World championships, as well as for the 22nd Summer Deaflympics in Bulgaria (2013) and 23rd Summer Deaflympics in Turkey (2017).

¹⁰ A. A. Aleksandrov; V. Y. Emelyanov & V. N. Kirpichnikov, “Detection or recuperating of petroleum products vapor as one of the mechanisms for improving the air quality of metropolitan cities”, *Ecology and Industry of Russia* (August 2010): 30-33.

¹¹ M. A. Kolosov & V. Y. Emelyanov, “Thermoresistive level meter of a cryogenic liquid based on high-temperature superconductors”, *Bulletin of Bauman Moscow State Technical University, Instrument engineering series*, num 6 (2014).

¹² A. A. Andreykin; D. Y. Alekseevskikh & V. Y. Emelyanov, Psychological features of sambo training for hearing impaired, XIII International Scientific and Practical Conference dedicated to the memory of the Merited Master of Sport of the USSR, Professor E.M. Chumakov: “75 years of sambo. Results and prospects”. S.E. Tabakov (ed) (Russian State University of Physical Education, Sport, Youth and Tourism Publishers, Moscow, 2013); V. Y. Emelyanov, “Martial arts of the hearing impaired. History and present-days”, *Adaptive physical culture*, num 4 (64) (2015): 36-37 y V. Y. Emelyanov, “The establishment of sambo for the hearing impaired in Russia”, *Adaptive physical culture*, num 2 (66) (2016): 2-3.

Developed management skills helped him to find a way out in very complicated situations of sports life. So, in July 2016 the Russian national judo team was supposed to fly to the Turkish city of Samsun to participate in the World Cup, but their flight was suspended due to political events in Turkey. Despite the fact that the administrative authorities of the Ministry of Sport of the Russian Federation decided to cancel the participation of the team in the World Cup, he compelled the permission to participate in the tournament, and the team won a silver medal.

Conclusions

The implementation of upmarket strategies for the professional development of engineers with hearing impairments depends on social and personal factors. It is important that the vocational and educational environment exerts a complex indirect influence through personal factors of the upmarket scenario of professional development. The set of motivational, emotionally strong-willed, communicative, intellectual groups of qualities conditionally determines the formation and implementation of the upmarket strategy for professional development in specialists with hearing impairments. The career advancement of the above described engineers was carried out through active social interaction in a developing professional environment on the basis of a constructive individual self-concept.

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Upmarket strategy for the professional development of engineers with hearing impairments Pág. 657

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