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Readiness of Socionomics Specialists for Using Information Technologies in Future Professional Activity

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Abstract: The article considers the problem of the readiness of future specialists in the field of socionomics who will use information technologies in their professional activity. The analysis of references in the field of our research revealed that the effecient intoduction of information technologies in the sphere of socionomics depends on the readiness of specialists for innovation activity, as such activity is one of important components of their professional readiness. We determined the components of readiness of the specialists in the field of socionomics (psychologists, teachers) for applying information technologies in their future professional work. Such components are motivational, cognitive, reflective, communication and creative components. In order to investigate the level of formaton of each component by the future specialists in socionomics we conducted testing and suggested quiestionnaires for the students of psychology at Khmenytskyi National University and pedagogical students at Khmelnytskyi Humanitarian-Pedagogical Academy. The diagnostic results demonstrate that the motivational component of readiness of the students in the field of socionomics to use information technologies in their future professional activity has been formed at a sufficiently high level. However, the diagnostic results of all other components of readiness for using innovations by students of socionomics revealed only sufficient and low levels of formation. Such results necessitate the research effective psychological and pedagogical conditions for increasing the level of development of the motivational, cognitive, reflexive, communicative and creative components of readiness to use information technologies in professional activity by future specialists in the sphere of socionomics.

Keywords: *readiness of specialists in the field of socionomics; information technologies (IT); the use of information technologies in professional activity.*

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Introduction

Due to the rapid changes in the social and economic sphere of the public life, Ukraine needs highly professional specialists at the present stage of its development. Thus, the educational system requires fundamental changes to be oriented to the day to day challenges and anticipate their productive solution in the future. This way the most important skills of a competitive specialist can be developed: intellectual skills, the ability to apply innovative methods, being aware of modern technologies and applying them in professional activity.

In general, the concept of "innovation" (Italian *innovatione* - innovation) means new forms of activity and management organizing, new types of technologies that cover different spheres of human activity (Buha, 2006). The application of innovations requires changes of the purpose, tasks, forms and methods of work, interaction of participants of the educational process at different levels.

The relevance of the topic is justified by the fact that mastering information technologies allows future specialists of socionomic sphere (teachers, psychologists) to effectively carry out their rofessional activities, to diversify forms and methods of work with clients. The ability to use information technology determines the success of the person's educational and professional activity, their effectiveness in the sphere of interpersonal interaction. This can explain the continued interest of scientists in this problem.

The work of Kovalenko (2017), Pavlyshyna (2015), Sinelnikova (2018) are devoted to the study of some aspects of the information technologies use in the professional training of future specialists in socionomic sphere. The problem of information and communication competence development of future specialists of socionomics (teachers, psychologists, social workers) is considered in the researches of Balakhtar (2018), Kolos and Luparenko (2016), Kolos and Spirin (2016), Semchuk et al. (2018) focus their scientific interest on the information and communication competence of students in the system of postgraduate pedagogical education. The works of scholars (Glatthorn, 1995; Day, 1999; Scheerens, 2010) discuss the problems of professional development and formation of specialists, formation of their professional competence.

Scholars D. Pešaković, A. Flogie & B. Aberšek believe that development of information competencies substantially support personal professional adaptability and employment opportunities in the labor market

as a whole, and at the same time enhance its adaptability in personal life (Pešaković et al., 2014).

A. Kuzminskyi, O. Bida, O. Kuchai, O. Yezhova and T. Kuchai argue that the use of information technology in the development of education provides prospects for the teaching staff employment, increases opportunities for professional and scientific needs, and at the same time poses huge requirements for teachers' readiness to use information technology in their professional activities (Kuzminskyi et al., 2019).

The scientists substantiate the positive impact of postgraduate training on the professional level of teachers and the use of different types of information resources in education (Ion & Iucu, 2016; Reid & Horváthová, 2016).

In their research, R. Ellis, J. Hughes, M. Weyers & P. Riding concluded that there are qualitatively different opinions about teaching technologies at those university teachers who have a positive attitude to different ways of teaching through learning technologies. The results of their research also show that students' learning success depends on the use of different educational technologies by teachers (Ellis et al., 2009).

To support this view, J. Záhorec, A. Hašková, M. Munk & M. Bílek point to the necessity of taking measures to ensure and maximize the competitive potential of higher education graduates, which involves mastering the newest knowledge and skills of using modern information technology (Záhorec et al., 2018). The researchers conducted a survey using the "My Professional Competencies" questionnaire developed by them to find out the views and opinions of students about subjects and topics related to computer science, which are an integral part of their curriculum, as well as to clarify the students' opinions regarding certain aspects of teaching computer science subjects included in their curricula. The survey results reflect the current state of implementation of information education within the curriculum (taking into account the graduates' professional spheres) (Záhorec et al., 2012, 2014).

Kapenieks and Salīte (2012) in their articleworks come to conclusion that project method in an e-learning environment is very effective for getting knowledge by students. As the method is collaborative, scientists emphasize the need to use software programs that allow access to other thoughts and complement them with own experiences, thus creating discourse and comparison. Researchers are convinced that this method greatly improves students' motivation, interest and engagement in learning. The quality of the knowledge is significantly increasing in this process as many students acquire the skills to express and substantiate their thoughts. Working in groups,

students influence the quality of each other's work, and the teacher increases students' motivation to express their opinions. In this way, students acquire information competence (Kapenieks & Salīte, 2012).

European scientists' researches also present educational models that reflect current requirements for the use of information and communication technologies in teaching subjects (Brečka & Valentová, 2017), factors that influence students' attitudes toward computer programming and development of information competency (Gurer et al., 2019), as well as opportunities for innovative forms of teaching, such as Responsible Research and Innovation (RRI), which have become an important part of EU research and innovation policy, including the EU program for research and innovation "Horizon 2020" (Burget et al., 2018).

S. Colognesi, C. V. Nieuwenhoven & S. Beausaert insist that along with the professional competence of teachers, an informal, safe and friendly learning climate is important. It is also necessary to assure the right of young teachers to choose professional advisors among the experienced colleagues who they trust and teach the same subject in the same year (Colognesi et al., 2020).

However, in spite of the researchers' interest in the problem of forming future specialists' willingness to use information technologies in their professional activity, it needs more detailed study. The educational reforms implemented in Ukraine in recent years define a qualitatively new role of information technologies in the educational process, and therefore require new approaches to training the future specialist.

Problem of Research

Nowadays, the main task of higher education institutions is to provide the student with the necessary theoretical and professional base of knowledge, skills to provide research and innovation activities, creative potential development, formation of self-education and self-development willingness. Recent changes in the educational process require the specialist to be able to not only perform the tasks assigned, but also to think creatively and implement their own innovations. Therefore, the readiness of future sociomics professionals to use information technologies depends mainly on their willingness to pursue innovative activities, which is one of the important components of professional readiness, maximizing their opportunities, and disclosing their creative potential (Penzai, 2019).

Also, the formation of the readiness of socionomics specialists to use information technologies is influenced by factors of objective and subjective

nature: education and self-education, peculiarities of personal development and self-development, professional orientation, professional self-determination, etc. Taking into account these factors along with the study of the components of the socionomics specialists' readiness for the use of information technologies, will enable the managers of higher educational institutions to create appropriate conditions for improving the efficiency of students' preparation for the use of information technologies in future professional activity.

Thus, **the purpose of the paper** is to determine the state of formation of the readiness components of socionomics professionals to use information technologies in future professional activity.

Methodology

The study involved socionomics students of Khmelnytskyi National University and Khmelnytskyi Humanitarian-Pedagogical Academy. In total, 65 psychology students of 18-20 years old and 49 pedagogy students of 18-20 years old were enrolled. It should be noted that all study participants provided their written consent to participate in the study and were tested for all study methods in their free time.

The research was carried out within the research work theme of the Department of Psychology and Pedagogics "Transformation of the human vital world in terms of personal and professional development" of Khmelnytskyi National University. The study was conducted in several stages over three months (September-November 2019).

The purpose of the first stage of the study was to determine the components of the readiness of socionomics specialists to use information technologies in future professional activity.

The purpose of the second stage of the study was to determine the levels of development of students' components of the readiness to use information technologies in future professional activity. The process involved the use of the diagnostic methods complex: the technique "Motives for professional activity" by Grinshpun (1995) (for the diagnosis of the *motivational component*); questionnaire to determine the level of the *cognitive component* development; the technique "Diagnosis of reflexivity" by Karpov (2004) (to study the *reflective component*); test of communicative skills by Michelson (as cited by Hibukh, 1978) (to diagnose the level of the *communicative component* development); test by Torrance (1974) and test for the individual's creative potential (to explore the *creative component*).

The third stage of the research was carried out to analyze the levels of development of the components of socionomics students' readiness to use information technologies in future professional activity, as well as to summarize the conducted research.

Research results

Training of the future specialist of socionomic sphere to use information technologies is a thorough, consistent and long-term process. It involves several stages: *motivational-objective, cognitive, and operational.*

The main purpose of the *motivational-objective* stage is to create the conditions for motivation and ability to set goals in the process of professional activity. Doing internship is particularly important at this stage as it helps the students to become aware of the use of information technology in practice. It should be noted that primary diagnostics of the student's readiness to use information technology in the work should be performed at this stage. (Skalych, 2015).

The *cognitive* stage involves the formation of a comprehensive system of theoretical knowledge of socionomics students about the general features of information technology, the possibility of their use, organizational requirements, forms of work, taking into account the specifics of the innovations use in work with different age categories. This stage allows to intensify students' willingness to rethink the use of information technologies taking into account their own characteristics. Groupwork, creative and problem solving tasks are worth using in the process of teaching the socionomics students at this stage (Stareva, 2003).

The third stage of preparation of the future socionomics specialist for the information technologies use is *operational.* It involves the development of the ability of socionomics students to use information technology in practice. At this stage they acquire the skills of modeling and designing their professional activities with regard to the information technologies they use, analyze the practical work stages, choose the appropriate methods and means of achieving the goal, as well as methods and forms of control.

The success and efficiency of the information technology use implies the specialist's awareness of the practical importance of these technologies not only at the professional but also at the personal level. However, the involvement of the specialist into the innovation process often occurs spontaneously, regardless of their psychological readiness for innovation. Therefore, the success of the information technology use in practice is

mediated by a personal factor in the structure of the specialist's readiness (Voitina, 2008, p. 84).

Thus, the analysis of innovative activity requires consideration of both external, subject, and internal, mental spheres of activity. From this point of view, this kind of activity is aimed at transforming the whole complex of personal resources, which provide not only adaptation to the rapidly changing social and professional reality, but also an opportunity to influence it (Volobueva, 2008, p. 24).

Based on the analysis of scientific sources on the problem of research, we have singled out the components of the socionomics specialist's willingness to use information technologies in future professional activity:

1) *motivational component* - a conscious attitude of the specialist to information technologies and awareness of their capabilities to solve certain professional problems. Motivation is the basis for the innovation activity of the specialist, because motivational readiness to innovate is an important condition for the innovation effectiveness in professional field. Cognitive interests manifesting themselves in the desire to understand the scientific nature of information technologies, to develop own attitude to the innovations implementation into the professional activity can be significant motives.

2) *cognitive component* - a set of scientific and theoretical knowledge about information technologies, their diversity, structure, application features. In addition, the cognitive component defines a system of the necessary skills for the successful implementation of information technology. Indicators of the formed cognitive component of the readiness of the socionomics specialist for the use of information technologies are: theoretical and methodological knowledge (understanding of the general theory of professional activity, taking into account the systematic approach); general theoretical and methodological knowledge (knowledge of principles, laws, methods of scientific research); ability to successfully apply information technologies in practice; knowledge of new scientific achievements, ways and methods of self-education.`

3) *reflective component* manifests itself in the specialist's ability to analyze the phenomena of personal consciousness and activity. The implementation of this component is possible through the implementation of reflective processes of self-understanding and understanding of others, self-esteem and evaluation of others. The reflective thinking is based on conscious self-activity, its critical analysis and the possibility of systematic improvement. The readiness of the socionomic specialist to use information technology from the position of the reflective component lies in the level of

the reflective position formation, that is, self-esteem features as the subject implementing information technology;

4) *communication component* implies the ability of the specialist to establish communication at different levels of interaction. This component is necessary to develop the specialist's readiness for the use of information technology, since the implementation of any technology requires a wide network of connections between the subjects of socionomic activity.

5) *creative component* is manifested in the openness of the socionomics specialist to existing innovative processes, as well as in the mobility, flexibility of thinking, the ability to critically assess and creatively interpret the use of information technologies. The creative component enables non-standard ways to solve professional problems. Implementing of information technology has the creative nature. Signs of the specialist's creativity is his ability to create and to find new approaches to solving professional problems.

Thus, the formation of motivational, cognitive, reflective, communicative and creative components make it possible to draw conclusions about the general degree of readiness of the socionomics specialist for the use of information technologies in future professional activity.

The study of the motivational component of the readiness of socionomics professionals to use information technologies in future professional activity was carried out using the method "Motives for professional activity" by Grinshpun (1995). This technique allowed to identify the following motives of choosing the profession: the prestige of the profession, material well-being, creative realization at work.

The results of 65 psychology students' motives for the profession choice are presented in the Table 1.

Table 1. Psychology students' motives for the profession choice (%)

Motive	Level of motives development			
	Motive not evident	Mild motive expression	Moderate motive expression	Evident motive
Prestigeous profession	29,2	47,7	15,4	7,7
Material well-being	10,8	16,9	41,5	30,8

Creative work	7,7	20	30,8	41,5

Source: Authors' own conception

According to the diagnosis results of motives for choosing the profession among the psychology students of Khmelnytskyi National University, the following conclusion is drawn: while choosing the future profession, the majority of respondents had willingness to get a creative work and to get the work that could satisfy their material needs. Diagnostic research data show that psychology students are open to existing innovative processes in modern social life, ready to use information technology and find non-standard ways to solve professional problems.

The results of 49 pedagogy students' motives for the profession choice are presented in the Table 2.

Table 2. Pedagogy students' motives for the profession choice (%)

Motive	Level of motives development			
	Motive not evident	Mild motive expression	Moderate motive expression	Evident motive
Prestigeous profession	36,67	25	20	18,33
Material well-being	25	26,67	28,33	20
Creative work	10	24,97	28,32	36,7

Source: Authors' own conception

The results of the study presented in Table 2 indicate that pedagogy students as well as the psychology students, express the desire to do creative work in future professional activity, which indicates their willingness to create new ideas and openness to new concepts, forms, methods and techniques of pedagogical activity.

The questionnaire created by the authors of this paper enables to define the development level of *cognitive component* of the readiness of socionomics specialists to use information technologies in future professional activity. Students were required to evaluate their knowledge of innovation and information technology implementation into the professional field on a 12-point scale.

The results of a survey among psychology students of Khmelnytskyi National University showed that the (58.5%) of them assess their familiarity with information technology with a rating of "10", while the other 41.5% said that their level of knowledge about the use of these technologies in the professional field can be rated as "8" and below. 64.6% students use information technologies mainly in the process of self-education. 35.4% of respondents use them to prepare for seminars, conferences, etc. It is interesting that 75.4% of the surveyed students were able to choose the right information technology among the proposed options for learning technologies, management activities, etc. To the of the questionnaire: The majority of respondents (87.7%) chose the answer "Computer technology" to the question"What modern information technologies (their elements) do you use in practice? ".

The analysis of the results of the questionnaire survey among pedagogy students of Khmelnytskyi Humanitarian-Pedagogical Academy made it possible to draw the following conclusions: the majority of students (70%) evaluate their own familiarity with information technologies with a grade of "9", which indicates that they are not sufficiently aware of this knowledge sphere. Getting through the questionnaire, 93% of respondents said that use information technologies to prepare for practical classes, seminars and conferences. The majority of respondents (64%) were able to choose the proper information technology among the suggested answer options. It should be noted that pedagogy students use not only computer technology, but also many others.

Based on the results of the questionnaire we can conclude that socionomics students have a sufficient level of familiarity with information technology, have the necessary skills to successfully apply them in practice. Therefore, the cognitive component of the readiness to use information technology in their future professional activity in their future levels.

To investigate the reflective component of the readiness of socionomic sphere specialists for the implementation of information technologies in future professional activity reflexivity diagnostics by A. Karpov was used (Karpov, 2004).

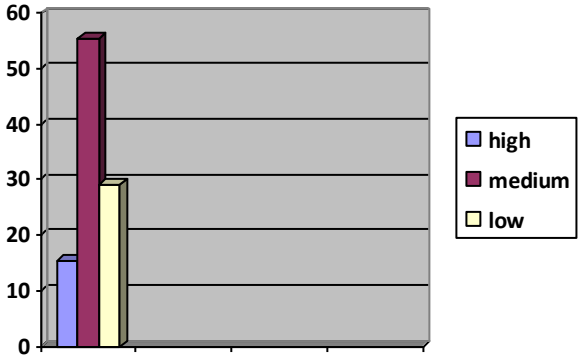

Figure 1. Reflexivity levels of psychology students (%)
Source: Authors' own conception

As Figure 1 shows, most psychology students (55.4%) have an optimal medium level of reflexivity. However, it is noteworthy that 15.4% of respondents have a high level of reflexivity. Such psychologists may be overly immersed in their own inner world, which can lead to the reality escapism. The fact that in 29.2% of psychology students' level of reflexivity is quite low can be interpreted as negative: it indicates the low ability of such specialists to analyze the phenomena of personal consciousness and activity.

Analyzing the research results of the reflexivity level of pedagogy students, it can be noted that almost half of them (45.1%) have low levels of reflexivity. A high level of reflexivity is demonstrated by 6.0% of students. And only 48.9% of pedagogy students have a medium level of reflexivity.

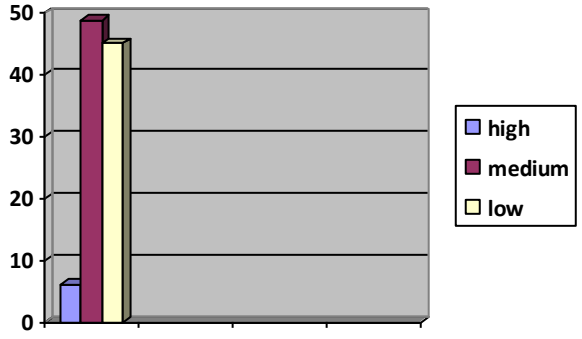

Figure 2. Reflexivity levels of pedagogy students (%)
Source: Authors' own conception

According to the research results, the indicators of the reflective component of the future socionomics specialists' readiness to use information technology in their professional activity are medium and low. Therefore, it is necessary to create situations that promote the reflective position of socionomics students, develop their positive self-attitude and self-assertiveness as professionals.

The test of communicative skills by Michelson (as cited by Hilbukh, 1978) was used to diagnose the development levels of the *communicative component* of socionomics students' readiness to use information technologies in future professional activity (Hilbukh, 1978).

The results of the study of the communicative component of the readiness of psychology students to use information technologies are presented in Figure 3.

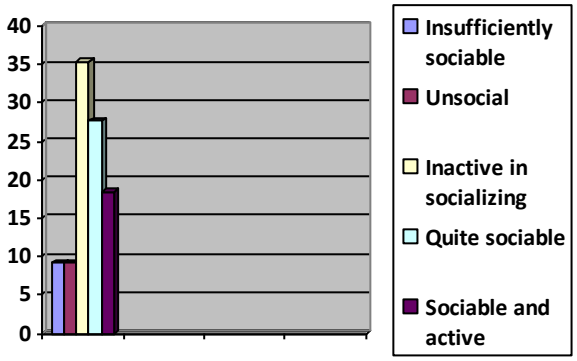

Figure 3. The results of the study of the communicative competence level and communication skills quality of the psychology students
Source: Authors' own conception

The analyses of the research results of the *communicative component* of the pedagogy students' readiness to use information technology in their professional activity is presented in the

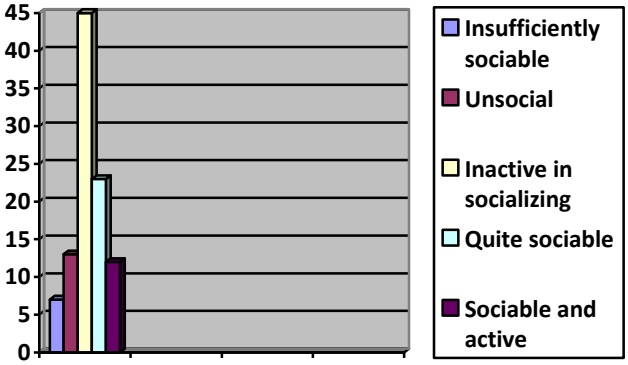

Figure 4. The results of the study of the communicative competence level and communication skills quality of the pedagogy students
Source: Authors' own conception

As Figures 3 and 4 show, most psychology students (35.4%) and pedagogy students (45%) lack confidence to speak in public. Only some of the psychology students (27.7%) pedagogy students (23%) are quite sociable and can confidently defend their position in communication. During the investigation it was found out that there is a significant number of unsocial and insufficiently sociable people among the interviewed students. This indicates that the level of communication component of the readiness of socionomics students to use information technology is low.

The study of the development level of the creative component of the readiness of socionomics students for innovation was carried out using two test methods: the test by E. Torrance and the test for the individual's creative potential "What is your creative potential?" (Torrance, 1974).

The results of general index diagnostics of the nonverbal creativity of the psychology students of Khmelnytskyi National University are presented in Figure 5.

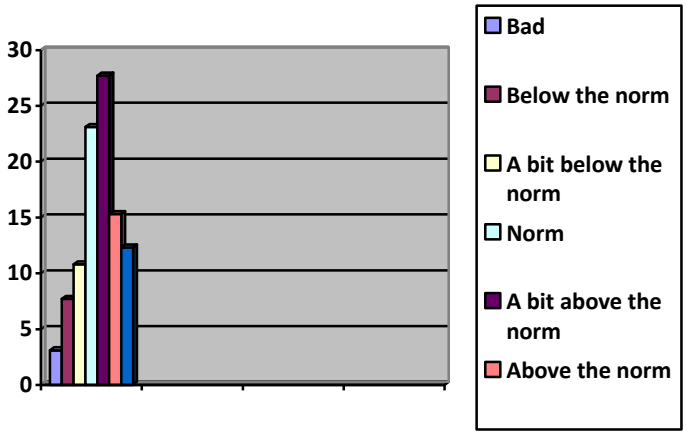

Figure 5. Study results of nonverbal creativity of psychology students (%)
Source: Authors' own conception

The results of general index diagnostics of the nonverbal creativity of the pedagogy students of Khmelnytskyi Humanitarian-Pedagogical Academy are presented in Figure 6.

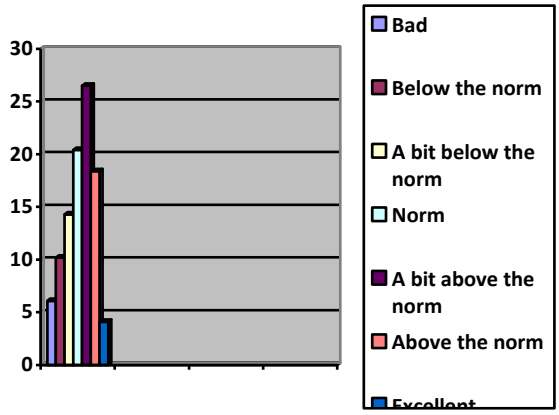

Figure 6. Study results of nonverbal creativity of pedagogy students (%)
Source: Authors' own conception

Therefore, according to the results of the conducted diagnostics, we can state mainly the average level of non-verbal creativity of most students. However, it should be noted that psychology students have a bit higher level of non-verbal creativity in comparison with pedagogy students: 8 (12.3%) students got the indicator "excellent", while "bad" is typical only for 2 students (3.1%). At the same time, only 2 pedagogy students (4.1%) have "excellent" and 3 of them (6.1%) – "bad" indicator.

To confirm the obtained data of this method, we used a test to identify the level of creativity potential "What is your creative potential?" (Mironova, 2006). This test is aimed at determining the level of creative potential of the individual, and also allows to reveal to what extent students are ready to take up innovative experience.

The results of the study of the creative potential levels of psychology students of Khmelnytskyi National University are shown in Figure 7.

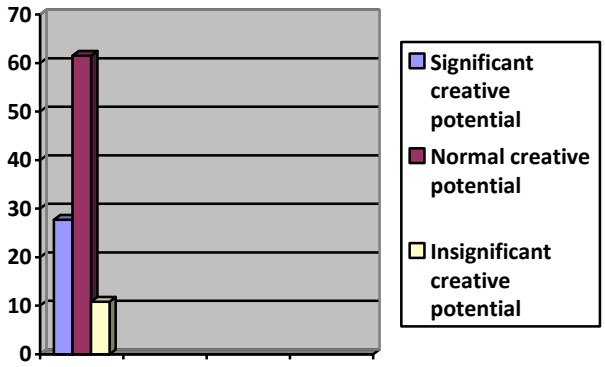

Figure 7. The results of the study of the creative potential levels of psychology students (%)
Source: Authors' own conception

The results of the study of the creative potential levels of pedagogy students of Khmelnytskyi Humanitarian-Pedagogical Academy are displayed in Figure 8.

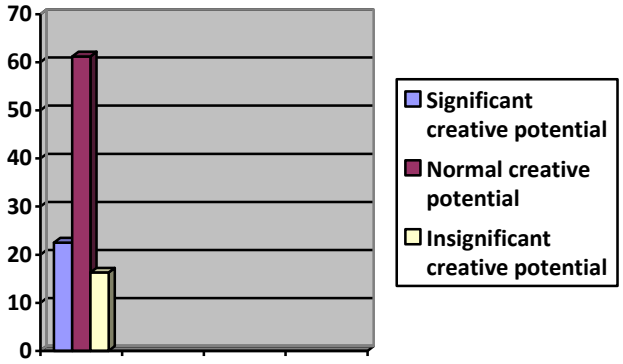

Figure 8. The results of the study of the creative potential levels of pedagogy students (%)
Source: Authors' own conception

Thus, as shown in Figures 7 and 8, average level of creativity is typical for the majority of psychology students (61.5%) and pedagogy students (61.2%). It means that the interviewed students have qualities that enable them to create the new, however they have some issues hindering the creativity processes. Their potential will allow them to express themselves creatively if they are intended to do so. However, the results of the study also showed that 10.8% of psychology students and 16.3% of pedagogy students have extremely low level of the creative potential. So, further work on its development is needed. The positive thing is that 27.7% of psychology students and 22.5% of pedagogy students have a rather high level of creativity potential, that provides them with a wide range of creative opportunities. If they are able to apply their skills in their professional activities, they will have access to various forms of creativity.

According to the research results, we can conclude that the creative component of the readiness of socionomic professionals to use information technology in future professional activity has an average level of development.

Conclusions and Research Prospects

Nowadays reforming and active implementation of innovations are typical for the educational process in Ukraine. New requirements of society for the personality of the teacher and psychologist necessitate new

approaches to the competitive specialist training, who must effectively act in the modern culture space, be able to predict the outcome of their actions, the processes course and the development of a particular situation. In order to carry out their professional activity, the professional must have a set of skills and knowledge, be ready to work in new socially defined conditions, be open to innovations, have a positive attitude towards their profession and innovations in general, work on their self-development and self-improvement.

Analysis of literature sources on the problem showed that the main components of the readiness of the specialist of socionomic sphere to use information technology include: a motivational component, which is expressed in the clear system of motivation; cognitive component, which is theoretical readiness for professional activity; a reflective component that manifests itself in the specialist's analysis of the phenomena of personal consciousness and activity; a communication component that involves specialist's ability to establish communications at different levels of interaction; a creative component that is expressed in finding non-standard ways to solve professional problems.

According to the results of the conducted research among psychology students and pedagogy students it was found that the motivational component of students' readiness to use information technologies in future professional activity is developed at a rather high level. They have shown readiness for innovative processes in public life, the introduction of various technologies, methods and techniques into practice, as well as finding non-standard ways of solving professional problems. However, other components of socionomics students' readiness to use information technology have low and average indicators and need to be further improved.

The prospects for further research in this area are considered in the developing and implementing of a complex of psychological and pedagogical conditions in higher education institutions to increase the level of readiness of future socionomics specialists to use information technologies in their professional activity.

References

Balakhtar, V. V. (2018). Vplyv informatsiino-komunikatsiinykh tekhnolohii na formuvannia profesiinoi kompetentnosti osobytosti fakhivtsia sotsialnoi roboty [Influence of information and communication technologies on the professional competence development of the social work specialist]. *Informatsiini Tekhnolohii i Zasoby Navchannia* [Information Technologies and

Learning Tools], *66*(4), 93-104. http://nbuv.gov.ua/UJRN/ITZN_2018_66_4_10

Brečka, P., & Valentová, M. (2017). Model of the students' key competences development through interactive whiteboard in the subject of technology. *Informatics in Education*, *16*(1), 25-38. https://doi.org/10.15388/infedu.2017.02

Buha, N. Y. (2006). Stanovlennia naukovoi ta innovatsiinoi diialnosti u vyshchykh navchalnykh zakladakh [Development of scientific and innovative activity in higher education institutions]. *Ekonomist* [Economist], *9*, 63 http://libtomcat.knute.edu.ua/library/DocDescription?doc_id=97612

Burget, M., Bardone, E., Pedaste, M., & Saage, K. (2018). Science teachers' perceptions of the emergence of responsible research and innovation in school. *Journal of Baltic Science Education*, *17*(4), 590-604. http://www.scientiasocialis.lt/jbse/?q=node/687

Colognesi, S., Nieuwenhoven, C. V., & Beausaert, S. (2020). Supporting newly-qualified teachers' professional development and perseverance in secondary education: On the role of informal learning. *European Journal of Teacher Education*, *43*(2), 258-276. https://doi.org/10.1080/02619768.2019.1681963

Day, S. (1999). *Developing teachers: the challenge of lifelong learning*. Falmer Press.

Ellis, R., Hughes, J., Weyers, M., & Riding, P. (2009). University teacher approaches to design and teaching and concepts of learning technologies. *Teaching and Teacher Education*, *25*(1), 109-117. https://doi.org/10.1016/j.tate.2008.06.010

Glatthorn, A. (1995). Teacher development. In L. W. Anderson (Ed.), *International encyclopedia of teaching and teacher education* (2nd ed.). Pergamon Press.

Grinshpun, S. S. (1995). Svojstva nervnoj sistemy i professional'naja dejatel'nost' [Nervous system properties and professional activity]. *Shkola i Proizvodstvo* [School and Manufacturing], *1*, 89-95.

Gurer, M. D., Cetin, I., & Top, E. (2019). Factors affecting students' attitudes toward computer programming. *Informatics in Education*, *18*(2), 281-296. https://doi.org/10.15388/infedu.2019.13

Hilbukh, Y. Z. (1978). Relevant problems of psychological tests validation. *Psychology Issues, 5*, 108-118.

Ion, G., & Iucu, R. (2016). The impact of postgraduate studies on the teachers' practice. *European Journal of Teacher Education*, *39*(5), 602-615. https://doi.org/10.1080/02619768.2016.1253674

Kapenieks, J., & Salīte I. (2012). Action research for creating knowledge in an e-learning environment. *Journal of Teacher Education for Sustainability, 14*(2), 111-129. https://doi.org/10.2478/v10099-012-0012-x

Karpov, A. V. (2004). *Psihologija refleksivnyh mehanizmov dejatel'nosti* [Psychology of activity reflective mechanisms]. Institute of Psychology, Russian Academy of Sciences.

Kolos, K. R., & Luparenko, L. A. (2016). Pedahohichnyi eksperyment iz rozvytku kompiuterno oriientovanoho navchalnoho seredovyshcha zakladu pisliadyplomnoi pedahohichnoi osvity [A pedagogical experiment in the development of a computer-based educational environment for a postgraduate educational institution]. *Informatsiini Tekhnolohii i Zasoby Navchannia* [Information Technologies and Learning Tools], *55*(5), 105-124. http://nbuv.gov.ua/UJRN/ITZN_2016_55_5_11

Kolos, K. R., & Spirin, O. M. (2016). Konstatuvalnyi etap eksperymentu z rozvytku kompiuterno oriientovanoho navchalnoho seredovyshcha zakladu pisliadyplomnoi pedahohichnoi osvity [Ascertaining stage of experiment on development of computer-oriented educational environment of postgraduate educational institution]. *Informatsiini Tekhnolohii i Zasoby Navchannia* [Information Technologies and Learning Tools], *54*(4), 183-205. http://nbuv.gov.ua/UJRN/ITZN_2016_54_4_16

Kovalenko, V. V. (2017). Problema rozvytku kompetentnosti pedahohichnykh pratsivnykiv z vykorystannia WEB-oriientovanykh i multymediinykh tekhnolohii u pedahohichnii teorii i praktytsi [The problem of competence development of pedagogical staff to the use of WEB-oriented and multimedia technologies in pedagogical theory and practice]. *Informatsiini Tekhnolohii i Zasoby Navchannia* [Information Technologies and Learning Tools], *57*(1), 189-206. http://nbuv.gov.ua/UJRN/ITZN_2017_57_1_18

Kuzminskyi, A. I., Bida, O. A., Kuchai, O. V., Yezhova, O. V. & Kuchai, T. P. (2019). Information support of educationalists as an important function of postgraduate education system. *Revista Romaneasca pentru Educatie Multidimensionala*, *10*(1), 263-279. https://doi.org/10.18662/rrem/150

Mironova, E. E. (2006). *Sbornik psihologicheskih testov* [Collection of psychological tests]. Women's Institute of Enville.

Pavlyshyna, N. B. (2015). *Analiz suchasnoho stanu zastosuvannia informatsiinykh tekhnolohii u profesiinii pidhotovtsi maibutnikh sotsialnykh pratsivnykiv* [Analysis of the current state of information technologies application in the training of future social workers]. *Informatsiini Tekhnolohii i Zasoby Navchannia* [Information Technologies and Learning Tools], *46*(2), 64-70. http://nbuv.gov.ua/UJRN/ITZN_2015_46_2_9

Penzai, L. I. (2013). *Hotovnist do innovatsiinoi diialnosti yak osoblyvyi vyd tvorchoho rozvytku pedahoha* [Willingness to innovative activity as a special kind of teacher's creative development]. *Forum Pedahohichnykh Idei «Urok»* [Forum of Pedagogical Ideas "Lesson"]. https://en.osvita.ua/school/lessons_summary/administration/38257/

Pešaković, D., Flogie, A., & Aberšek, B. (2014). Development and evaluation of a competence-based teaching process for science and technology education. *Journal of Baltic Science Education*, *13*(5), 740-755. https://www.researchgate.net/publication/269988640_Development_and_evaluation_of_a_competence-based_teaching_process_for_science_and_technology_education

Reid, E., & Horváthová, B. (2016). Teacher training programs for gifted education with focus on sustainability. *Journal of Teacher Education for Sustainability, 18*(2), 66-74, https://doi.org/10.1515/jtes-2016-0015

Scheerens, J. (2010). *Teachers' professional development. Europe in international comparison. An analysis of teachers' professional development based on the OECD's Teaching and Learning International Survey (TALIS)*. Office for Official Publications of the European Union.

Semchuk, S. I., Gavrilyuk, S. M., & Butenko, O. H. (2018). Metodolohichni pidkhody formuvannia informatsiino-komunikatsiinoi kompetentnosti maibutnikh fakhivtsiv doshkilnoi osvity [Methodological approaches to information and communication competence development of future specialists of preschool education]. *Informatsiini Tekhnolohii i Zasoby Navchannia* [Information Technologies and Learning Tools], *66*(4), 24-41. http://nbuv.gov.ua/UJRN/ITZN_2018_66_4_5

Sinelnikova, N. O. (2018). Pidhotovka maibutnikh uchyteliv pochatkovoi shkoly do pedahohichnoi vzaiemodii z batkamy zasobamy IKT [Preparing future primary school teachers for pedagogical interaction with parents by means of ICT]. *Informatsiini Tekhnolohii i Zasoby Navchannia* [Information Technologies and Learning Tools], *67*(5), 226-238. http://nbuv.gov.ua/UJRN/ITZN_2018_67_5_20

Skalych, L. Y. (2015). Pidhotovka maibutnoho vchytelia pochatkovoi shkoly do vykorystannia interaktyvnykh tekhnolohii navchannia [Preparing the future primary school teacher to use interactive teaching technologies]. *Aktualni Pytannia Humanitarnykh Nauk* [Current Problems in Humanities], *14*, 319-324. http://dspu.edu.ua/hsci/wp-content/uploads/2017/11/014-46.pdf

Stareva, A. M. (2003). Orhanizatsiia osobystisno oriientovanoho osvitnoho seredovyshcha [Organization of a personally oriented educational environment]. *Pedahohichni Nauky* [Pedagogical Sciences], *15*, 132-136. http://lib.chdu.edu.ua/pdf/naukpraci/pedagogika/2003/28-15-22.pdf

Torrance, E. P. (1974). *Norms-technical manual: Torrance tests of creative thinking*. Ginn.

Voitina, Y. (2008). *Shpargalka po obshhim osnovam pedagogiki* [Notes on the general fundamentals of pedagogy]. Allel.

Volobueva, T. (2008). Vitahenni tekhnolohii kompetentisnoho navchannia [Vitogenic technologies of competent learning]. http://en.osvita.ua/school/method/technol/637/

Záhorec, J., Hašková, A., & Munk, M. (2012). Results of a research evaluating quality of computer science education. *Informatics in Education*, *11*(2), 283-300. https://www.researchgate.net/publication/289769384_Results_of_a_Research_Evaluating_Quality_of_Computer_Science_Education

Záhorec, J., Hašková, A., & Munk, M. (2014). Development of informatics competencies of non-informatics study programme students at the ISCED 5 Level. In *The 10th International Scientific Conference Distance Learning in Applied Informatics* (pp. 537-547). Wolters Kluwer. https://link.springer.com/chapter/10.1007%2F978-3-319-73204-6_43

Záhorec, J., Hašková, A., Munk, M., & Bílek, M. (2018). Quality assurance of informatics education within tertiary economy and managerial study fields. *Problems of Education in the 21st Century, 76*(2), 250-278 https://www.researchgate.net/publication/324923816_Quality_assurance_of_informatics_education_within_tertiary_economy_and_managerial_study_fields