

Development of Universal Competencies in Teacher Education

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ABSTRACT

The article discusses the problem of developing universal competencies of future teachers (using the example of preschool teachers) in a pedagogical university's educational process. The ambiguity of the "21st century skills" concept and the absence of a single list of such skills are concluded. Their relevance for the teaching profession and the training through universal competencies in Russian higher education standards have been substantiated. The results of an empirical study of future preschool teachers on self-assessment of the development of universal competencies and their significance for the teaching activity are presented. It is shown that the level of development of universal competencies lags behind the level of significance. The deficiencies of such development are highlighted, including the group of such universal competencies as "Development and Implementation of Projects" and "Teamwork and Leadership" and "Self-Organisation and Self-Development" as the most critical and most pronounced competency. The ways of further solution of the stated problem using universal competencies assessment through training modules and substantiation of appropriate educational technologies are outlined.

Keywords: 21st century skills, Soft skills, Universal competencies, Students, Teachers, Teacher education, Teacher activity.

1. INTRODUCTION

Due to the global changes in technology brought by the fourth industrial revolution, some professions and, therefore, skills are fading away, and new professions and skills are emerging. The World Economic Forum's "The Future of Jobs Report 2018" states: "...skills such as creativity, originality and initiative, critical thinking, persuasion, and negotiation will likewise retain or increase their value [to employers], as will attention to detail, resilience, flexibility and complex problem-solving" [1]. These skills are supra-professional, meta disciplinary, universal skills that are not confined by any activity area. The teaching profession is also changing. This was actively facilitated by transitioning to a distance learning format at almost all education levels due to the 2020 pandemic challenges. We have set ourselves a task to find out what students most demand meta disciplinary skills of pedagogical universities (using the example of future preschool teachers) in their

professional activities and how students assess the development of these skills in themselves. Based on that, predict further research ways on the organisation of the educational process in a pedagogical university to develop these skills.

2. RESEARCH METHOD

The research is based on analytical and comparative approaches and the concept of a competency-based approach in education. The analysis methods, specification, generalisation, questionnaire survey, ranking, and qualitative and quantitative data processing have been used.

3. RESULTS AND DISCUSSION

21st century skills (critical, universal, meta, and soft skills) are the abilities/competencies that allow a person to adapt and be successful in the new world of

computerisation and digitalisation. This world is characterised by volatility, uncertainty, complexity, and ambiguity – the so-called VUCA-world. A person's life in such a world, and even more so one's success as a professional, requires mastering similar complex skills. The specification and generalisation of these skills are quite difficult since researchers from different countries present their set of such skills that are different both in content and in quantity. Active work on making lists of skills of the 21st century is underway. Organisations and task forces that address this issue: European Organization "Partnership for 21st Century Skills", "Partnership for 21st Century Learning" (USA), International Research Project "Assessment and Teaching of 21st Century Skills", European Union, Organization for Economic Cooperation and Development (OECD), International Society for Technology in Education and others. In Russia, these are Moscow School of Management SKOLKOVO, Higher School of Economics, 21st Century Skills Development Program (Sberbank's "Contribution to the Future" Foundation), and "Intelligence of the Future" Junior Academy of Sciences in Obninsk.

Here are some examples of such skills. A survey of several hundred leading US employers allowed T. Wagner to single out the 'seven skills of survival': critical thinking and problem solving, collaboration, adaptability, initiative and entrepreneurialism, accessing and analysing information, curiosity and imagination [2]. The international research project "Assessing and Teaching 21st Century Skills" (ATC21S) has identified four skill categories: ways of thinking (creativity and innovation; critical thinking, problem-solving and decision making; learning to learn and metacognition); ways of working (communication; collaboration); tools for working (information literacy; ICT literacy); and skills for living in the world (citizenship; life and career; personal and social responsibility) [3]. The Organization for Economic Cooperation and Development (OECD) has classified the 21st century skills into information, communication, ethics and social skills [4]. An attempt at generalisation was undertaken by J. Voogt and N. Roblin [5]: all definitions include skills related to ICT, collaboration, communication, and social and cultural competencies. E. Van Laar et al. identify seven critical and five contextual competencies with digital competencies [6].

Here, we note that sometimes digital competencies are treated as a separate group along with disciplinary competencies (professional, hard skills) and meta-disciplinary competencies (universal, soft skills). The "New Vision for Education" report at the 2016 World Forum in Davos outlined the necessary educational outcomes: basic literacy, competencies and character qualities of a modern person [7,8].

As a professional, let's look into the teacher to develop in them supra-disciplinary skills both in the process of training and in postgraduate education. The teaching profession is notable for its complexity, multitasking, time pressure (a large number of tasks per unit of time or an enormous task with insufficient time to complete), constant self-improvement, and psychological tension. Today's teacher is a master who can both teach specific subject skills and educate a moral and socially responsible citizen, a person of the future. The teacher's role in a multidimensional world is changing. The report of the Center for Strategic Research and the Higher School of Economics (Kuzminov, Frumin, 2018) states: "The functions of the organiser of educational, project and research activities and educational practices, the consultant, the researcher, the project manager, the 'navigator' in the educational, including digital, environment come to the fore" [9]. The Atlas of New Professions, developed by Skolkovo, describes the professions that will emerge after 2020 in education: developer of state of consciousness learning tools, game teacher, developer of educational trajectories, a mind fitness trainer. Among the supra-professional skills that these specialists should possess, there are several supra-disciplinary skills and abilities: systematic thinking, cross-industry communication, project management, interpersonal communication, customer focus, environmental thinking, artistic skills, multilingualism and multiculturalism, programming/robotics/artificial intelligence [10]. Hence, there is a need to train such specialists for all education levels, starting with the preschool level. Children of today are active explorers of the world, which they cognise with various gadgets and technologies.

We focus on the Federal State Educational Standards of Higher Teacher Education (FSSES HE) of the Russian Federation, where the interested skills are presented as universal competencies (UCs). Note that the UCs are typical for all areas and profiles of training, not just teacher training. There are eight of them in the Bachelor's standards, and six in the Master's standard. Universal competencies are grouped as follows: "Systematic and Critical Thinking", "Development and Implementation of Projects", "Teamwork and Leadership", "Communication", "Intercultural Collaboration", "Self-Organisation and Self-Development (including Health Protection)", and "Health and Wellness" (the latter group is not included in the Master's standard).

Our research (2020) included studying the degree of significance for professional activity and the strength of some universal competencies in students. The sample was made up of students – future specialists in preschool education (n=94). The respondents were students at the Omsk State Pedagogical University (n=67, including n=45 intramural students, n=22

extramural students) and the Omsk Academy of Humanities (n=27, extramural students). The sample was made up of students from different classes, in their 1st to 5th year of study (1st year: n = 15; 3rd year: n = 13; 4th year: n = 17, 5th year: n = 49). We have excluded "Communication" and "Health and Wellness" from the list of competency groups since the first one includes communication in a foreign language, difficult to assess.

The "Communication" competency is the focus of independent research (Savina, Murzina, Namsink, 2020), where the level of development of this competency was studied among preschool teachers of three kindergartens in Omsk, Russia (No. 2, No. 100, No. 311, n = 50). The aspects linked with foreign-language communication (knowing how to create written foreign-language texts of an official style on professional issues, etc.) had a low development level since they are not in demand in preschool education practice [11]. The second group, 'Health and Wellness', is not included in the Master's standard, and our further research involves the study of generalised groups of Bachelor's and Master's competencies. We have singled out "Health Protection" as a separate group since the generalised group of "Self-Organisation and Self-Development (including Health Protection)" of the Bachelor's standard includes two competencies, UC-6 and UC-7, which, in our opinion, need to be separated. They have no explicit connection. A student can quite successfully engage in self-development (UC-6), but at the same time have a low level of physical fitness (UC-7). We believe that this group's title – "Self-Organisation and Self-Development (including Health Protection)" – basically needs to be adjusted, since only UC-6, which does not reflect health protection, remains in this group in the Master's standard.

Respondents were asked to rate these competencies' significance and strength by assigning points from 0 to 5. The groups of core competencies ranked by the degree of strength in students are presented in table 1. The results analysis concludes that the significance of universal competencies is assessed by students higher than the strength of such competencies in themselves. We may assume that students have heightened

requirements to themselves, and at the same time, they have a good idea of the specifics of the future profession. The most pronounced among students are such groups of competencies as "Health Protection" and "Self-Organisation and Self-Development". The least pronounced ones are "Development and Implementation of Projects" and "Teamwork and Leadership"; however, their rank of significance is higher. Therefore, students are not ready to implement them in practice. Overall, it can be seen from the data in table 1 that, in addition to the groups of "Health Preservation" and "Intercultural Collaboration", the self-assessment by students of their competencies is lower than it is necessary based on the activity requirements, even among senior students. In the category of significance, "Health Protection" has been assigned the least scores by students, which shows their lack of awareness of the intensity of pedagogical work, the tendency to emotional burnout and a relatively large number of occupational diseases. The top place in the significance and the second in strength is held by "Self-Organisation and Self-Development". The student's learning activity partly simulates the teaching activity in terms of multitasking, tough deadlines, work with a large amount of information, and constant self-development requirements.

Note that the research was done in the first year of implementing the said FSES HE. Therefore, a comprehensive study of universal competencies with special assessment tools of training modules is planned to be carried out during the second year of study. This is due to these competencies' integrative nature and the testing of standards and new curricula for training profiles. We believe that it is the self-assessment of students that allows them to determine their attitude to developing universal (and professional) competencies and fully realise their importance in future professional activities. We agree with Yo. Ganieva et al. that "... knowledge about the value aspects of professional training of a university student, about the peculiarities of their correspondence to the demand and supply of the labour market, will help to avoid, localise or eliminate problems in the real educational process" [12]. The highlighted deficiencies are that "Development and Implementation of Projects" and "Teamwork and

Table 1. Results of diagnostics of the strength and significance of universal competencies in students

Competency groups	Strength, points	Rank	Significance, points	Rank
Systematic and Critical Thinking	362	3	458	2
Development and Implementation of Projects	336	6	450	4
Teamwork and Leadership	342	5	456	3
Intercultural Collaboration	350	4	448	5
Self-Organization and Self-Development	372	2	462	1
Health Protection	394	1	442	6
\bar{x}	22.93		28.89	

Leadership" require an analysis of the content of academic disciplines studied by future teachers at the university and educational technologies implemented by teachers.

Our past studies of a smaller sample of students showed a slight discrepancy in the ranking of universal competencies, with a small margin for the significance of "Teamwork and Leadership" having the top second place over "Systematic and Critical Thinking" having the third top place. A separate comparative study of interest to preschool and primary education practitioners has been conducted for one group of competencies – "Self-Organisation and Self-Development" (Savina, 2020). It allowed inferring the differences in self-assessment and assessing this competency's significance, depending on the profile and work experience. Preschool teachers consider themselves more prepared in this matter than primary school teachers, but at the same time, the latter rate its significance higher [13].

4. CONCLUSIONS

The development of methods, technology, and social processes is accelerating from year to year. Complex natural and technology-related challenges require restructuring the labour market in terms of rotation and development of professions and individual professional skills/competencies. This year, teachers' role at all levels of education has changed in almost all countries of the world. The world community pays special attention to developing 21st century skills (core, universal, meta, and soft skills). At the same time, there is no single, generally recognised list for the number of such skills. In Russia, these skills are included in the higher education training standards as universal competencies. These universal competencies do not include some critical skills, such as creativity and problem solving, while digital literacy has been a disciplinary competency. The wording of the "Self-Organisation and Self-Development (including Health Protection)" group of competencies also raises questions, since "Health Protection" should be singled out as a separate group. The study of self-assessment of the development of universal competencies of students who are future preschool teachers, as well as their assessment of the significance of these competencies for future professional activity has shown the following. The development level lags behind the significance level: students in four groups of competencies are not ready for their implementation in practice. The high scores of the strength are due to the respondents' young age for the "Health Protection" group, the similarity of the learning activity's characteristics and the teaching activity for the "Self-Organisation and Self-Development" group. It is alarming that the critical present-day competencies, such as "Teamwork and

Leadership" and "Development and Implementation of Projects" are on the bottom places in the rank of competencies. The findings have enabled us to define the goals and objectives of further research to develop and implement a diagnostic suite for assessing the universal competencies of future teachers and theoretical justification and testing of educational technologies for the development of these competencies.

AUTHORS' CONTRIBUTION

Natalia Viktorovna Savina: problem statement, development of empirical research, data analysis and interpretation, drafting of the initial version of the article;

Elena Valentinovna Lopanova: development of methodology, the conceptualisation of findings, work with the article text;

Irina Gidalyevna Schpakina: development of empirical research, data analysis and interpretation; work with the article text;

Lyudmila Vasilyevna Tymoshenko: analysis of scientific literature, the conceptualisation of findings, work with the article text.

REFERENCES

- [1] World Economic Forum, The Future of Jobs Report 2018. Retrieved from: https://kpfu.ru/portal/docs/F_2097205868/Budushhee.rabochikh.mest.2018.pdf
- [2] T. Wagner, The Global Achievement Gap: Why Even Our Best Schools Don't Teach the New Survival Skills Our Children Need – And What We Can Do About It., Basic Books, 2008, 290 p.
- [3] M. Binkley et al., Defining twenty-first-century skills assessment and teaching of 21st century skills, Springer. Dordrecht, 2012, p. 17-66. DOI: http://dx.doi.org/10.1007/978-94-007-2324-5_2
- [4] K. Ananiadou, M. Claro, "21st Century Skills and Competences for New Millennium Learners in OECD Countries", OECD Education Working Papers, Iss. 41, 2009, OECD Publishing. DOI: <http://dx.doi.org/10.1787/218525261154>
- [5] J. Voogt, N.P. Roblin, A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies, Journal of curriculum studies Vol. 44 Iss. 3 (2012) 299-321. DOI: <https://doi.org/10.1080/00220272.2012.668938>
- [6] E. Van Laar et al., The relation between 21st-century skills and digital skills: A systematic literature review, Computers in human behaviour,

Vol. 72 (2017) 577-588. DOI:
<https://doi.org/10.1016/j.chb.2017.03.010>

- [7] World Economic Forum, The 10 skills you need to thrive in the Fourth Industrial Revolution, 2016. Retrieved from: <https://www.weforum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution/>
- [8] M. Marope, P. Griffin, C. Gallagher, Future Competences and the Future of Curriculum, 2019. Retrieved from: <http://www.ibe.unesco.org/sites/default/files/resources/future-competences-and-the-future-of-curriculum.pdf>
- [9] Twelve Solutions for New Education. Report of the Center for Strategic Research and the Higher School of Economics, 2018. Retrieved from: <http://fgosvo.ru/news/21/3627>
- [10] Atlas of New Professions, 2020. Retrieved from: <http://atlas100.ru/>
- [11] N.V. Savina, N.P. Murzina and E.V. Namsing, On some problems of communicative competency of preschool teachers, International Scientific and Practical Conference "Teacher Professionalism: Psychological and Pedagogical Support of a Successful Career" (ICTP 2020) Vol. 87 (2020) 00029. DOI: <https://doi.org/10.1051/shsconf/20208700029>
- [12] Yo.N. Ganieva, A.V. Kiryakova, E.V.Lopanova, V.G. Gladkikh, A.N. Sazonova, G.V. Mitina, O.B. Shirokikh, Axiological aspect of student professional training: Matching demand and offers of the labour market. Humanities & Social Sciences Reviews eISSN: 2395-6518 Vol. 7 Iss. 4 (2019) 1255-1261 DOI: <https://doi.org/10.18510/hssr.2019.74173>
- [13] N. Savina, Professional Self-Organization and Self-Development of Preschool and Primary School Teachers, Preschool and Primary Education: Problems, Prospects, Development Innovations, Materials of the All-Russian Research-to-Practice Conference (with international researchers), Surgut, Russia, 2020, pp. 372-376, Editorial and Publishing Department, Surgut State Pedagogical University.