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## **Formation of Soft skills of professionals in the context of open education**

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**Abstract.** The article deals with the topical issue related to the formation of soft skills of a professional in the context of open education. As a complex modern system of acquiring knowledge in a digital environment, the open education is capable of responding quickly to challenges and is better suited to the objectives of the information society. The article notes that Soft skills perform the function of activating adaptive processes in education, which is a challenge of the present. The results of the Department of Education Management of the Ukrainian Open University on the creation of measuring tools Soft skills by constructing a qualimetric model are revealed. The results of the diagnosis are described and included in the educational programs of training courses.

Keywords: Soft skills, adaptive processes, open education, digitization, qualimetry

### **1. Introduction**

Global transformational changes have led to the reform of national education systems to promote the sustainable development of society through the development of competitive human capital and the creation of conditions for lifelong learning. In the context of globalization and digitization, it is open education, as a complex modern knowledge system, that is capable of responding quickly to challenges

and is better suited to the objectives of the information society [1]. New digital age technologies are stimulating future demand for new vacancies and skill sets. At the World Economic Forum the urgency and need to develop special skills as a key factor in the well-being, social cohesion and economic stability of the country was proclaimed. Open education achieves this with great potential in the context of globalization and digitization [4]. At the same time, it imposes new demands on the education system, on technologies, on methods and on means of learning. In view of this, it is important to introduce technologies for organizing educational process on formation and production into public practice soft (flexible / soft) skills of the professional oriented towards harmonious personal growth. The main characteristic of open education is self-organization, self-discipline, motivation and formation of soft skills in the learner and teacher [4].

The usefulness of the study stems from the growing role of education as an industry with a powerful potential to educate and prepare a new generation of individuals capable of successfully socializing, adapting as quickly as possible to the changing conditions of the present, to make decisions, to solve problems, to use critical and systemic thinking [7]. The normative documents justify the need to use modern teaching methods in the educational process, aimed at shaping attitudes, values and personal qualities, taking into account the possibilities of personal, social and professional choices, etc. [5].

The aim of the research: it is to analyze the essence of the concept of «soft skills» of a professional and describe the technology of their formation in conditions of open education, which will increase their formation level.

## **2. Material and method**

In writing the article, to formulate the essence of key definitions, at the time of writing the methods of analysis, synthesis, systematization, classification, factor-criterion modeling method were used to construct a qualimetric model of evaluation of the formation of soft skills of a professional.

Modern processes related to the comprehensive reform of the Ukrainian education system and to the global challenge of total digitization have led to the updating of the educational services content and teaching tools in the context of open education [8]. This has led to the development and adoption of both public education standards and professional standards for employees. Professional standards are currently being developed and approved in Ukraine in respect of the professions in which the relevant work functions and professional competencies are defined; their connection with the motivation and attitude to the work of employees in the process of acquiring professional experience is revealed. Specifically, professional standards are duly approved requirements for the qualifications of employees and their competencies, which are determined by employers and serve as a basis for the professional qualification of a professional (<https://hrliga.com/index.php?module=news&op=view&id=21727>). The normative documents state that professional qualification is recognized as an authorised subject and a standardized set of competences received by the person (results of practical training) certified by the relevant document. It is this population that allows the individual to perform at the appropriate level a certain type of work defined by the job description (<https://nqa.gov.ua/kvalifikacii/>). In addition, employers pay attention not only to the applicant's ability to demonstrate the competencies acquired during the training, but also to his or her personal qualities when hiring him or her. It is this approach that gives confidence that the applicant will be able to carry out professional activities at the appropriate level.

A high level of success and high results in the workplace is ensured by the personal qualities of the employee (soft skills). Researchers note that success due to technical skills and knowledge (hard skills) is negligible. The versatility of soft skills is ensured by the fact that they are not «tied» to a specific specialty (specialization) [6].

For Ukrainian scientists the concept of «soft skills» is relatively new and little explored. Soft skills have been introduced in response to the need to differentiate between skills of a particular quality which differ from those with a rigid sequence of actions and a measurable result including professional skills with technical equipment and production technologies. This was an important step that drew attention to the social and emotional components of the educational process.

The word skill is included in the name of the international WorldSkills movement and is widely used in discussions about the requirements for employees in the economy of the future. WorldSkills is a global hub implementing development projects focusing on skills most needed in a changing world in the perspective of 10-20 years. In the Ukrainian information area synonyms to the concept are also used, namely universal, flexible, unified and cross-cutting [1].

When we use soft skills we understand the personal skills that allow a person to interact effectively with a team in solving any work task. We have selected four groups of soft skills professionals: Learning skills; Literacy skills; Social skills; Personal skills. Comparing the research results of other scientists (<https://www.donnu.edu.ua/wp-content/uploads/sites/8/2018/07/Material-1.pdf>) we believe that these four groups most characterize the soft skills of the modern specialist.

Based on research by the State Institute of Family and Youth Policy (<https://dismp.gov.ua/>), analytical materials of the World Economic Forum (<https://www.weforum.org/agenda/2020/>) and taking into account the analysis of stakeholder requests we focused on the formation of four soft skills groups and included this position in the educational programs of advanced training courses of the Department of Education Management and Law of the SHEI “University of Education Management” (<http://umo.edu.ua/institutes/cippo/struktura/kafedra-dergavn-slugby/o-kafedry>) and the Department of Education Management (<https://uvu.org.ua/kafedra-upravlinnia-osvitoiu/>) of Ukrainian Open University of Postgraduate Education (UOUPE) (table 1).

**Table 1.** Integration indicators of the treatment of stakeholder requests as for Soft skills in education programs (4 skill groups)

Soft skills	Stakeholder requests (%)	Integration in education programs (%)
Learning skills	72	88
Literacy skills	83	89
Social skills	98	100
Personal skills	89	92

Ukrainian Open University of postgraduate education (UOUPE) provides development of the methodological support for the activities of postgraduate institutions in open education and the introduction of innovative approaches to the continuous development of the professional competence in general and to the formation of his personal skills in particular. The educational process in UOUPE is based on an action-oriented approach through the active inclusion of students in the process of learning the content taking into account the principles and approaches of formal, non-formal and informal education in the context of its digitization. The Department of Education Management of this University provides e-learning of the management and pedagogical staff on the educational programs of special courses 70% of which are devoted to the formation of soft skills. For example, «Self-management as a factor of professional and personal growth of a professional», «Management of educational institutions as project-oriented organizations», «Time-management as a trend in the organization of activities of a manager», «Leadership and effective communication in the command formation of the organization»; «Socio and pedagogical support of persons with special needs in conditions of inclusive education» etc [3]. Educational programs are available for 1 ECTS credits (30 hours) and are available online or offline (<http://umo.edu.ua/institutes/cippo/struktura/kafedra-dergavn-slugby/materialy>).

In the process of mastering the content of the educational program for the formation of soft skills the technology of consultative engineering is applied. Consulting engineering is connected with intellectual services for designing process of soft skills development of a professional. We have chosen the technology of consulting engineering because in open education it is necessary to construct an individual trajectory of development of a professional’s personality in general and formation of his soft skills in particular in order to ensure quality of educational services delivery. The individual trajectory development in this case acts as a project of personal growth of a professional. It includes both the

planning of such development and the organization and maintenance of the process. The consulting engineering technology consists of some stages, namely:

- determination of initial formation of soft skills (diagnosis);
- interpretation of results and formulation of proposals for its formation (individual trajectory development);
- provision of services for its formation (courses, special courses, etc.);
- initial diagnosis;
- preparation of a program for further formation of soft skills of a professional.

In technology the process of measuring (diagnosing) the initial, intermediate and final state of formation of soft skills of a professional is leading. For such diagnosis we have created a qualimetric model of assessment of the state of soft skills of the professional in the Microsoft Excel. The use of a qualimetric approach in pedagogical research is due to the fact that education defines the quality of any process as a complex characteristic can be decomposed into components and, evaluating each component, It is possible to get an idea of the state of the process as a whole. In other words it helps to form a quantitative picture of the qualitative state of the object. In addition the qualimetric approach contributes to the identification of the conditions necessary for the success of the educational process. It will determine the qualitative characteristic, the value and the criteria for the rating of each condition (the weighted average of all the conditions will be an assessment of the quality of the conditions for carrying out the educational process) [9]. The Qualimetric Soft Skills Assessment Model includes four factors (learning skills, literacy skills, personal skills, social skills) and eleven criteria (critical thinking; self-learning and self-development creativity; digital literacy; media literacy; initiative; flexibility; team management, time management; communication; emotional intelligence).

The usage of a qualimetric approach in consultative engineering technology in the organization and conduct of advanced training courses for professionals in the open education system has shown the significantly increasing of the level of formation of soft skills in those who went to university. In modern conditions the use of mobile testing is advisable in the process of measuring the state of formation of soft skills of a professional [2].

### 3. Results and discussion

The primary method used in consulting engineering technology to create a qualimetric model was the Delphi method. The Delphi method or expert assessment method (Delphi technique), is considered to be one of the main methods of developing a collective expert opinion on a particular issue. The central idea of this method is that independent experts work individually and do not influence each other's opinions. The key features of the method are anonymity of the participants, structuring of information flows, continuous feedback and involvement of the mediator. The result is an agreed conclusion on a certain issue. Comparing the results with the research of other scientists, it can be argued that the use of qualimetric models in diagnosing the level of soft skills of professionals provides objective indicators and promotes the formation of positive motivation for their development.

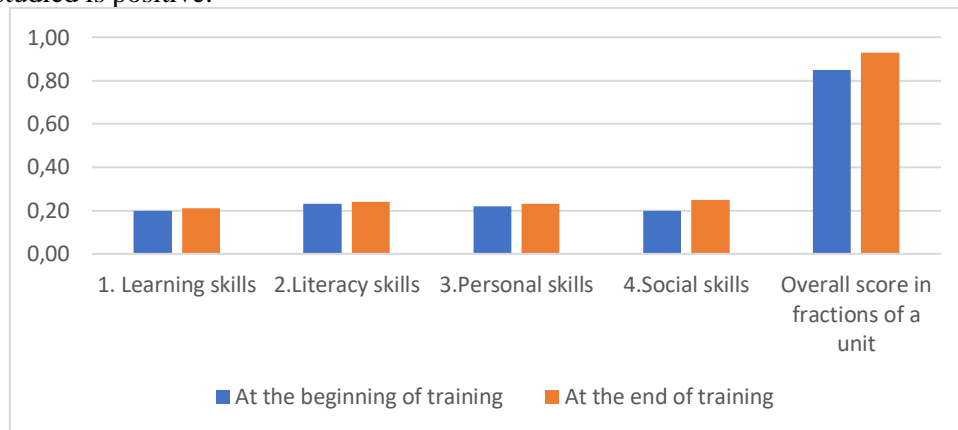
Thus, applying the Delphi method and taking into account the principles of qualimetry we have made a ranking of factors and criteria. Both students and teachers participated in the survey. At the beginning of the training respondents gave preference to learning skills and at the end of the training to social skills. There has been a change in the values of those who have attended refresher courses. It is social skills as skills that contribute to successful communication during teamwork and effective achievement of certain goals (work tasks) that are the leading and most needed in today's environment. The importance of the factors has followed this pattern, as shown in table 2.

**Table 2.** Distribution of importance of factors concerning an estimation of a condition of formation of soft skills of the professional

Factor	The importance of factors at the beginning of training	The importance of factors at the end of training
Learning skills	35	25

Literacy skills	30	20
Social skills	20	25
Personal skills	15	30

During the refresher courses certain measurements of the formation status of soft skills were made using the technology described above. The dynamics of the formation of soft skills of a professional during the incoming and outgoing diagnostics of students in the UOUPE refresher courses, presented in figure 1. By analysing the data it can be notice that the dynamics of the level of soft skills formation in those who studied is positive.



**Figure 1.** Dynamics of the level of soft skills formation during incoming and outgoing diagnosis at advanced training courses in UOUPE.

This shows that the technology we have chosen to develop soft skills of professionals in open education is effective. The educational process at an open university becomes personalized, oriented to the professional needs and requirements of the modern labour market. The learning environment in the UOUPE is such that it influences the positive motivation for lifelong learning and the desire for professional self-improvement.

#### 4. Conclusions

Modern processes of comprehensive reform of education in Ukraine have made it necessary to update its content and didactic tools in the context of open education which is the basis of our research. We analyzed the essence of «soft skills» of the professionals and the technology of their development in conditions of open education is described. The research contributed to the development of the content of educational programs for advanced training courses in open education, incorporating technology and the formation of soft skills of professionals. Modeling the formation of soft skills according to the described technology of consulting engineering in conditions of open education provides conditions for professional and personal growth of specialists. It also builds their capacity to compete in education and labour markets with dignity and to contribute to the realization of their professional potential.

In the context of modern challenges related to COVID-19 in education when the demand for acquisition of new skills has increased the formation of soft skills of professionals acquires new significance in the organization of remote and hybrid work of the professionals. The mentioned demonstrates the relevance and uniqueness of the introduction of soft skills formation technology described by us into the educational process.

The further perspective of the study is to develop the professional competence of teachers who ensure such implementation in the form of e-learning which is a component of open education. It includes: training and capacity-building programs for teachers to develop and use open educational facilities; support for teachers-experts in management to create open educational facilities in various fields;

introduction of a system of remuneration for teachers for creating open educational resources; allocation of appropriate time for the work on teaching materials in open education; develop and implement an accessible quality assessment program for open learning tools. There is also a need to study the skills model of the professional which includes soft (universal) skills about which there is already a debate among scientists from different countries.

## References

- [1] *10 Reasons Why Soft Skills are Important to Employers* URL: <https://www.indeed.com/career-advice/interviewing/why-are-soft-skills-important>
- [2] Bondarenko T, Kupriyanov O 2018 *Implementation of Mobile Testing System for Control of Students' Educational Outcomes*. In: Auer M., Guralnick D., Simonics I. (eds) *Teaching and Learning in a Digital World*. ICL 2017. *Advances in Intelligent Systems and Computing*. Springer Cham. 715 pp 760-765. URL: [https://doi.org/10.1007%2F978-3-319-73210-7\\_88](https://doi.org/10.1007%2F978-3-319-73210-7_88)
- [3] *Department of Education Management of the Ukrainian Open University of Postgraduate Education (UOUPE)* URL: <https://uvu.org.ua/kafedra-upravlinnia-osvitoiu/> [Request date 20 May 2021]
- [4] Kirichenko M, Sergeieva L 2018 *Open Education: Innovative Technologies and Management: Coll. Monograph* (Kyiv: Interservis) p 440
- [5] *Law of Ukraine «On Education»*. URL: <https://zakon.rada.gov.ua/laws/show/2145-19> [Request date 20 May 2021].
- [6] Muromets V *5 top Soft skills for the seccess in VUCA world*. URL: [https://kubg.edu.ua/images/stories/podii/2018/03\\_16\\_molodizhna\\_konf/6\\_muromets.pdf](https://kubg.edu.ua/images/stories/podii/2018/03_16_molodizhna_konf/6_muromets.pdf)
- [7] Olifira L, Liubchenko N 2018 *Team Management and Leadership Theory (Section 2). New Competency Requirements for School Managers in Ukraine: Manual for students of postgraduate pedagogical education institutions, heads of general education institutions, higher education applicants in specialties «Management of education institution» and «Project management»*. Edited by O. Otych, L. de Fontana (Kyiv: NAES of Ukraine, UOUPE, SHEI «University of educational management», HEI «Odessa Academy of Continuing Education» Kultur Kontakt Austria) pp 26–39
- [8] Yelnykova H, Ryabova Z *Adaptive technologies for training of specialists* 2021 IOP Conf. Ser.: Mater. Sci. Eng. 1031 012125 <https://iopscience.iop.org/article/10.1088/1757-899X/1031/1/012125/pdf> [Request date 20 May 2021]
- [9] Yelnykova H, Borova T, Ryabova Z. at al 2017 *Adaptive management: linkages, science and applied aspect: Coll. Monograph*. (Kharkiv: Machulin) p 440

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