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Teacher self-education as a basis for enhancing professional skills

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Abstract

Relevance. The research is relevant as it explores the impact and methods of teacher self-education in Kazakhstan, highlighting its importance in enhancing professional skills and adapting to evolving educational demands.

Purpose. The purpose of this study was to explore how teacher self-education develops in Kazakhstan and what results can be accomplished.

Methodology. The study was based on theoretical methods, in particular an analysis of the scientific literature on the issue in question. A diagnostic method - a survey - was also used.

Results. The study has identified that the motivation for self-education in the majority of teachers is an intrinsic need to enhance their knowledge, skills, and abilities in the subject matter taught, as well as in psychology, education, and ICT. However, teachers use a variety of sources: academic journals and television programmes, methodological literature, the Internet, and social media.

Conclusions. The study identifies that teachers' self-education results in many positive changes in their professional work: improving the quality of their lessons, developing new methods, techniques, and forms, and expanding the opportunities to use digital technologies in the learning process. The study identified that teachers' self-education is an important element of lifelong learning and results in the improvement of their professional skills.

Keywords: development; media resources; internet; social network; open lesson; distance education; electronic test.

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Introduction

The permanent development of the field of education, due to the inflation of knowledge, requires educators to change professionally accordingly [1; 2]. Teacher development is an essential aspect of development in general since the latter relates to the skill level of the teacher. In addition, the teacher should be constantly learning new technologies and applying them in the learning process [3]. Also, in their professional life, teachers often encounter situations that are confusing and at the same time demand that they make the right decisions. This requires teachers to constantly improve their personal qualities as well as their knowledge, skills, and attitudes. To develop into an expert in the field of education, an educator must constantly be developing [4]. Teachers are assisted by special programmes, professional development courses, participation in conferences, seminars, symposiums, masterclasses, attending the lessons of colleagues, etc. [6]. Or a teacher can enhance himself or herself through self-education.

Self-education is a process that is only inherent in subjects of social interaction [7]. In the academic literature, there are many definitions of the term self-education. For example, it refers to the development of the existing knowledge, skills, and abilities of a specialist to improve professional competence. Or a process of independent learning and comprehension of the activities of a professional [8], in particular of a teacher. However, the teacher should feel the necessity to improve his or her professional competencies and be intrinsically motivated. In the self-education process, the teacher independently designs the process, using different sources of information, such as the Internet, media resources [9], etc.

Scientists have considered the impact of self-education on the professional qualities of a teacher [2; 10]. Consideration has been given to the factors that need to be acknowledged in self-education [5; 11]. Also A. Samuseviča and S. Striguna [1] identified the criteria by which the development process of the modern educator should be structured. The following include: professional qualities of the teacher, lifelong learning, a responsible approach to performing one's professional obligations, cooperation both with colleagues and with pupils and their parents, and flexibility. Self-education has been demonstrated to encourage following the principle of sustainable development, lifelong learning [8; 10]. The necessity for lifelong self-education is the rapid rate at which new information appears and how quickly it loses its relevance. Despite the relevance of the issue of self-education as a key tool for implementing one of the principles of sustainable development - lifelong learning, this issue has been under-researched, in particular in the field of teachers' self-education in many countries. The purpose of this study was to explore the process of teachers' self-education as a basis for improving professional skills using the example of teachers in Kazakhstan.

To achieve the study's objective, it was necessary to design a survey investigating the sources, forms, and areas of self-education, as well as assess the outcomes of teachers' self-directed learning efforts. Additionally, the research aimed to determine the impact of self-education on teachers' professional competence.

Literature Review

Researchers in the field of education have explored in detail the characteristics of self-education in different countries [12; 13]. However, they emphasised the expediency of starting to develop the necessary skills for its implementation from the student years [1; 14]. Various forms of work [10], teaching methods, and models [15; 16] are recommended for use in the learning process. And also to reform the education system as a whole [17]. Researchers [3; 12] demonstrated what qualities a teacher should have in terms of being able to effectively engage in self-education and what obstacles may occur in doing so. Various studies have explored the main sources of information that teachers use in self-education. As an example, I. Czaja-Chudyba [11], J.A.N. Ansari [17] explore the potential of the Internet for teacher self-education. Particular consideration is given to the study of social media as a source of information for self-education. Web applications have been researched by researchers [18], digital media resources [9], etc.

Self-education skills need to be developed while still in school [19]. According to researchers [20], there is a wide gap between the theoretical knowledge acquired by students in educational institutions and the practical skills that graduates encounter in the performance of their professional duties at their workplace, as well as the demands that society and the profession place on them. Among the professional requirements for teachers are knowledge of the subject matter they teach, mastery of teaching methods, knowledge of the basics of psychology and education, as well as many others [8]. Thus, one of the challenges for teacher education institutions is to design a learning process that develops students' self-education skills [1]. To meet the qualification requirements, young professionals need to educate themselves. The educator should also teach by setting his or her example of learning [16]. To teach students, the teacher needs to be interesting to them as an evolving person, able following new trends, competent not only in the subject they teach, but also in many other fields of the profession and many other areas of life.

The willingness to work on self-improvement should primarily emanate from the teacher himself/herself, not be motivated by the school management or other levers of control. The basis for effective self-improvement is the teacher's willingness to attain some sort of ideal [10]. At the same time, self-demanding and externally shown demands should not be excessive, otherwise, the opposite effect may occur - a loss of desire for improvement, through self-education and self-development. External motivators for teachers' self-education are diverse and interconnected. The need to prepare for classes and school events often drives teachers to process new information. Rapid developments in both information technology and social spheres create a constant pressure to stay updated. Competition among colleagues and the desire to maintain a positive reputation also play a role. Material incentives and the requirement to address various stakeholders, such as colleagues and parents, further encourage self-improvement. Additionally, the legally mandated requirement for ongoing professional development serves

as a formal external motivator for teachers to engage in self-education [8].

Materials and Methods

The following theoretical methods were used in the study: an analysis of the scientific literature on teacher self-education around the world to identify its main components and to examine the extent to which it influences the results of teachers' professional activity. A diagnostic method was also applied - a survey which allowed us to monitor the phenomenon of teachers' self-education in Kazakhstan, in terms of the forms used, sources, directions, and results obtained. The study used an author's survey. It included twenty-one questions, six of which were designed to determine the respondent's length of service, rank, age, gender, the location of the educational institution (urban or rural), the subject taught, and whether the teacher is engaged in self-education. The survey was reviewed by 3 experts and 1 linguist before being used in practice. It followed the ethical criteria of the study. Data coding was also implemented. Participation in the survey was anonymous, voluntary, safe and confidential. There were no rewards for answering the survey. Methods of mathematical statistics and graphical representation of the results were also applied.

A total of 380 teachers were involved in the survey. They are all involved in self-education while teaching in different disciplines. The respondents work and live in both urban and rural areas in Kazakhstan, particularly in the Karaganda, Akmalinsk, and Turkestan regions. The respondents ranged in age from 24 to 59 and in teaching experience from 3 to 35 years. Teachers with different professional degrees, category I and II teachers, higher category teachers, and methodologist teachers also responded to the survey.

The study was implemented in three phases. The first stage was a content analysis of the academic literature on the study of self-education around the world. Its purpose was to examine the state of research on the issue and to find ways and methods of investigating it. And also to analyse the specificities of the organisation of teacher self-education in different countries and to study its effectiveness.

In the second stage, an author's survey was designed to monitor the self-education level of teachers. The purpose of the survey was to explore in which areas self-education of teachers in Kazakhstan is provided and through which forms, components, and sources of information, and on whose initiative self-education is implemented. The results that teachers have obtained as a result of self-education have also been studied. Namely, ICT skills for a variety of learning objectives (documentation, preparation of electronic courses), methodological support for distance learning, and communication with colleagues in the digital environment. In addition, explore how self-education influences the effectiveness of the lessons delivered, contributes to research, develops own teaching methods, etc.

The third stage involved a survey of teachers in Kazakhstan who are engaged in self-education. The results of the survey were also analysed, and conclusions were formulated on this basis.

Results and Discussion

Table. 1 provides the results of a survey of teachers, according to the author's survey, who are engaged in self-education.

Table 1. Results of a survey conducted among self-educating teachers

Question	Answer option	Response rate, %
In which areas do you mainly conduct self-education?	the subject I teach	83
	psychology	67
	teaching	70
	methodology	75
	information and computer technologies	79
	cloud-based technology	55
What sources do you use for self-education?	scientific review	49
	scientific programmes	78
	methodical literature	82
	Internet	98
	social media	87
	seminars, conferences	54
	conducting my own scientific research	43
Which form of self-education do you prefer?	individual	37
	group	63
Who are the main initiator of self-education?	I am	59
	The management of the educational institution	41
Which of the following activities do you use for self-education?	Attending lessons of colleagues to learn from each other	76
	Analyse my professional competence	90
	Supplementing knowledge of the subject I teach in psychology, teaching, ICT	94

What are the results of your self-education?	conduct lessons more effectively, which has a positive impact on pupils' learning outcomes	89
	developed a teaching guide, wrote a research paper, conducted a scientific study	41
	established new didactic techniques, methods and forms	47
	gave a presentation at the conference	53
	conducted a open lesson based on the author's methodology	75
Has your demand for self-education been implemented?	Yes	81
	No	19
Could you self-evaluate your own teaching experience?	Yes	56
	No	44
Do you have ICT skills?	Yes	97
	No	3
Are your ICT skills sufficient for successful implementation in the learning process?	Yes	86
	No	14
Do you use the internet to communicate and exchange experiences in the international professional space?	Yes	24
	No	76
Do you have enough knowledge to develop electronic lessons, electronic tests?	Yes	63
	No	37
Do you have enough knowledge to conduct classes remotely using special platforms?	Yes	58
	No	42
Do you have enough knowledge to manage the documentation required for professional activities?	Yes	91
	No	9

The results of the study are described in more detail in Figures 1-7.

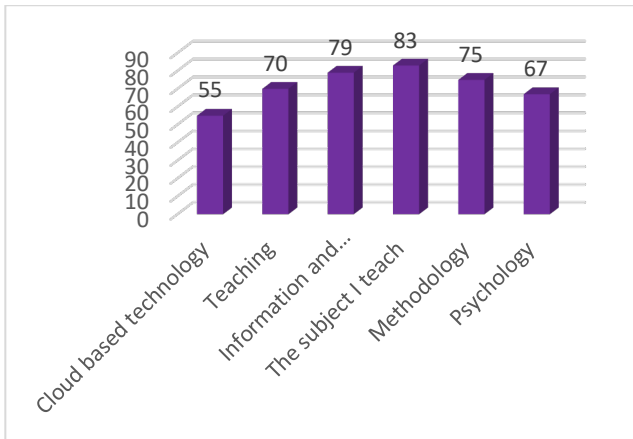


Figure 1. Quantity of answers to the question: "In which areas do you mainly conduct self-education?" as a percentage

According to Figure 1 and Table 1, each of the teachers surveyed conducts self-education in several directions at the same time. Teachers spend the majority of their time and effort in self-education on improving their knowledge of the subject they teach (83% of respondents). Information and computer technology and teaching methods also occupy a significant place in self-education 79% and 75% respectively. 67% and 70%, respectively,

are engaged in psychology and teaching. The least amount of respondents pay attention to learning about the features of cloud technology and the benefits of applying it in the learning process (55%).

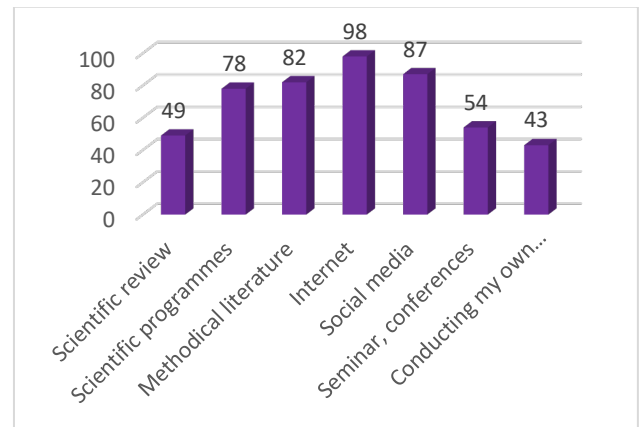


Figure 2. Quantity of answers to the question: "What sources do you use for self-education?" as a percentage

Figure 2 and Table 1 indicate teachers' preferences in the selection of sources of information they use during the process of self-education. The most requested sources of information for self-education are the Internet (98%) and social media (87%). In addition to the Internet, many of the teacher respondents also study methodological literature (82%) and watch science programmes (78%) for their

professional development. The least requested by teachers engaged in self-education is attendance at seminars and conferences (54%) and study of current scientific issues from scientific reviews (49%). And only 43% of teachers are engaged in scientific research. The respondents' answers varied according to their age.

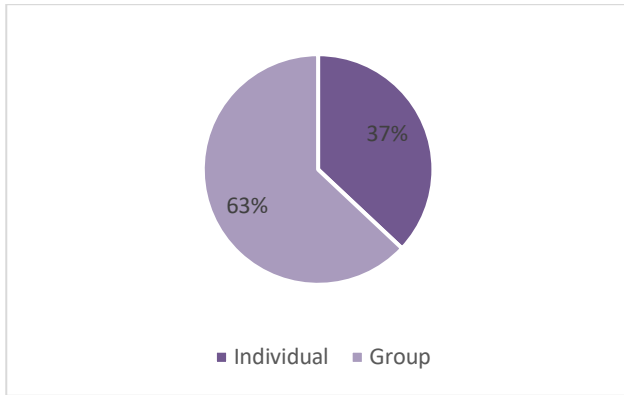


Figure 3. Quantity of answers to the question: "Which form of self-education do you prefer?" as a percentage

As Table 1 and Figure 3 indicate, the majority of teachers prefer self-education in groups (63%). For

example, by participating in discussions about different educational situations that occur in their professional life. Or by exchanging experiences on social media.

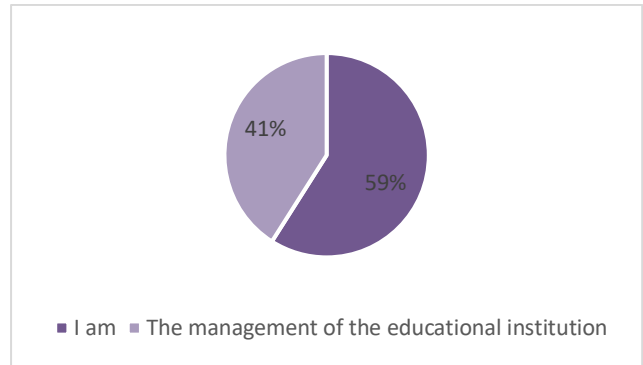


Figure 4. Quantity of answers to the question: "Who are the main initiator of self-education?" as a percentage

Most teachers (59%) are intrinsically motivated to educate themselves. And only 41% of the teachers surveyed are encouraged to improve their qualifications by the management of the educational institutions in which they work (Figure 4, Table 1).

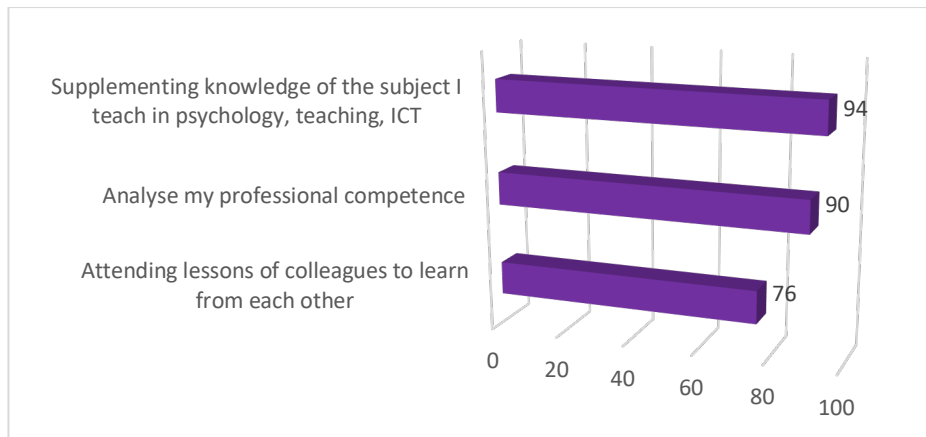


Figure 5. Quantity of answers to the question: "Which of the following activities do you use for self-education?" as a percentage

The process of self-education for 94% of teachers is an opportunity to complement their knowledge of the subject being studied, as well as to learn more about the psychological characteristics of contemporary students (Figure 5, Table 1). In addition, teachers study international best teaching practices to implement them in their work. Since all aspects of life, today rely on information and communication technology, and the education system is no exception, teachers must

continually explore its functionality to effectively integrate it into the learning process. To develop, a teacher must be aware of what he or she can do and compare it with the ideal to which he or she aspires in his or her professional life. Therefore, 90% of the teachers analyse their professional competence. 76% of the teachers questioned borrow positive teaching experiences from their colleagues by attending their lessons.



Figure 6. Quantity of answers to the question: "What are the results of your self-education?" as a percentage

Among the most common results of teachers' self-education (89%) is an increase in the effectiveness of lessons, which is reflected in students' learning results (Figure 6, Table 1). Self-education also has a positive effect on developing the creative potential of teachers. This appears in the development of teaching guides, or scientific study, or writing a research paper (41%). Also in the

development of new didactic techniques, methods, and forms (47%). Either in the development of authoring techniques, which 75% of the teachers questioned to share with their colleagues, through open lessons and 53% through conference presentations.

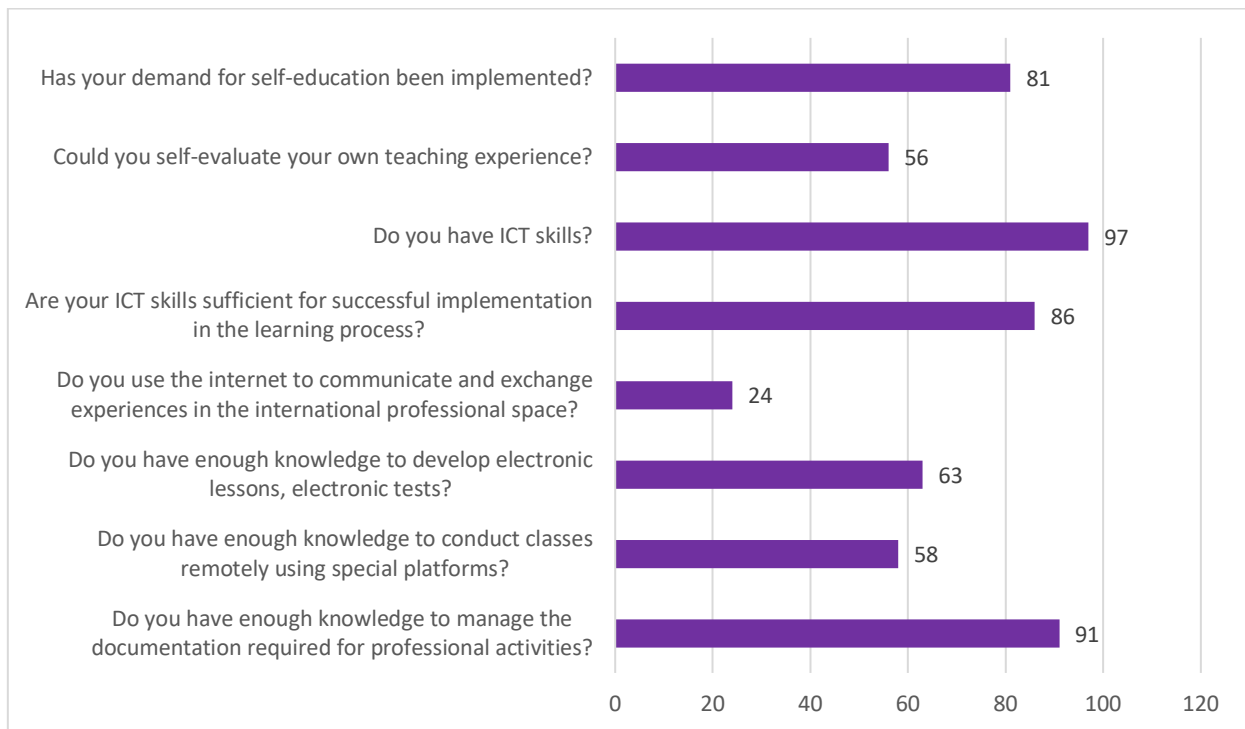


Figure 7. Quantity of positive answers to the questions in the survey, as a percentage

As indicated in Figure 7 and Table 1, 81% of the teachers questioned considered their self-education to be effective. However, 56% of teachers are self-aware and can

evaluate their professional experience. Almost all respondents (97%) have sufficient ICT skills. 91% use them without any problems for maintaining business

documents. Of these, 86% successfully use digital technology in the classroom. But slightly more than half (63%) use ICT to develop learning resources necessary for distance learning - electronic lessons, electronic tests. Even fewer (58%) have no problem conducting classes remotely through educational platforms. And only 24% of the teachers questioned can use the Internet to exchange experiences with teachers from other countries. Thus, the author's survey monitored the level of self-education of teachers in Kazakhstan. Which identifies the positive accomplishments of educators who are engaged in lifelong learning. There are also some issues that both teachers and heads of educational institutions still need to deal with.

An analysis of approaches to teacher self-education in different countries has identified that different forms of teacher self-education are used. The sources of motivation for implementing self-education are also different. In the USA, for example, teachers' self-education is legislated; in Poland, it is voluntary and often occurs at the teacher's initiative. At the same time, Polish teachers are also motivated externally: economically, as well as career opportunities. And by the American inner one, to enhance self-esteem, to attain a willingness to master the level of excellence. Despite this, the main coordinator of teacher self-education in the USA is the management of the educational institution where the teachers questioned work. In Poland, teachers explore self-study directions and materials themselves [12; 21]. The survey identified that 60% of teachers working in Poland and 87% of their colleagues working in the USA consider it appropriate to implement some form of self-education at least once a year. Much less frequently (once in three years), 40 % of Polish and 12 % of American teachers think so [12].

As regards the self-education of teachers in Kazakhstan, this process is also regulated by law. For example, the State Programme of Education Development of the Republic of Kazakhstan for 2011-2020. In accordance with this programme, every teacher is obliged to upgrade his or her qualifications at least once every five years [13; 22]. Although our research identified that almost every second teacher working in schools in Kazakhstan feels an intrinsic necessity for professional development and self-education. This suggested that a five-year gap between refresher courses was too long, in a context where lifelong learning was necessary to be competitive in the labour market.

93 % of the respondents in an online survey of 127 teachers [3] consider that teachers should enhance their qualifications, including competitiveness in the labour market. 37 % answered that they engaged in self-education by attending professional development courses and participating in competitions. 86 % are in favour of the principle of sustainable development, i.e., lifelong learning, and the remaining 14 % believe that this activity depends on the availability of free time. 23% say that their self-esteem increases and that they find it morally satisfying to be engaged in self-education. The study respondents confirmed the existence of problems that inhibit self-education. 14% believe that their self-education is hampered by psychological factors, 7% believe that the remote location of their residence from the regional centres is a problem for self-education. 21% identified excessive emotionality as an obstacle to self-

education. And only 7% do not consider there to be any obstacles to self-education [3].

The ability to educate oneself is established while still a student. And one of the most demanded competencies in teacher education is self-education [14; 23]. Research [1], with a sample of 67 students, has established that the average assessment of students' self-education competence varies from course to course. Thus, in the first year, the average mark for self-education competence is 3.45, in the second year it is 3.83 and in the fourth year it is 3.68 on a five-point scale. The following were evaluated: the inner necessity of personal development, self-study skills, the initiative in improving professional knowledge and skills, the ability to independently monitor the results of self-education, etc.

Various educational models are being developed in schools and universities to promote self-learning skills. For example, independent work that develops professional skills [10]. And also use different learning models, such as the Chinese education system [15], in particular "Shenban" [16], project methods, case methods, etc. Some countries are implementing reforms in the education system to use teaching methods that will help students develop the skills required in self-education [17; 24].

As proved [1], students should be self-disciplined, motivated, able to make their own decisions, adapt easily, and navigate the endless flow of information. In addition, the survey [3] helped to investigate the qualities that a teacher should have. 67% of the teachers consider it important to have a high level of professional training. 33% of teachers consider responsibility and discipline to be important components of an ideal teacher. Although slightly fewer respondents (27%) mentioned the importance of being creative, self-critical (13%) and optimistic about their work (7%). The creative component of a teacher's personality is also explored by researchers [12] as a guarantee of his or her professionalism. They conducted a survey of 120 Polish and American educators who are self-educating. All those questioned worked in the city's public educational institutions. Researchers have established the existence of a link between a teacher's creative approach to professional responsibilities and his or her self-education. And attitudes towards self-education depend on teachers' work experience, and for Polish teachers, this dependence is more significant.

As this study has identified, the teachers questioned believe that self-education has helped them to develop their creativity. It has occurred through the development of authoring methods and teaching guides, the creation of new didactic techniques, methods and forms, scientific research, the development of research papers, and the improvement of teaching sessions. The Internet is frequently a source of information for teachers' self-education [12; 25]. Our research has identified 98% of educators of this kind. Despite the prejudice that the Internet is mostly used for entertainment, 83% of respondents aged 18 to 29 rejected this judgement, stating that they use the World Wide Web to communicate with their colleagues [18].

As a study [18] identified, social networks have an important role in self-education from the student years and throughout life. For example, a survey of 360 students identified that the use of social media had a positive impact

on knowledge exchange and, as a result, on learning productivity. The most popular social media are Facebook, Twitter and YouTube. Our survey showed that 87% of respondents consider social media as a source of information for self-education. Researchers [18] have identified a correlation between learning experiences and the use of social media by learners. Social media are increasingly becoming an educational area, where learning materials for self-education are published. In addition, various web-based applications that can be applied to education and self-education are also growing in popularity. One of these, namely Edmodo, has been investigated by scientists [19; 26-28].

The benefits of using this platform in the educational process include increased cognitive engagement of the learners. Based on this platform, an educational space can be developed that contains: lectures, various kinds of tasks, and competitions. It can be applied to assess what you have learned. Technology has become part of life and is both an object of study and a tool for learning. They also have an essential place in self-education [29-31]. The benefits of Edmodo as a tool for lifelong learning include: opportunities for self-expression, flexibility or adaptability, motivation through non-conventional forms of learning, opportunities for good communication between participants in the learning process, etc. The authors [9] emphasise the effectiveness of the use of modern technologies in the process of self-education, in particular digital media resources. As the results of our study identify, almost all teachers use new technologies in the process of self-education and in their professional activities.

Online learning is another form of arranging the process of self-education. This form is considered promising and is now frequently used in universities at home and abroad. It can provide a solution to many educational objectives [32-34]. Among the 98% of internet users we surveyed, some also use online courses in their professional development. There are also various (many of them free) online internet tools. SELFIE, for example, is designed to improve the digital competence of teachers in Europe and elsewhere. It helps teachers assess their capabilities in applying digital technology in their professional practice and provides guidance on how to develop their abilities in using modern technology in the learning process of their students [35-38].

There are also various international forums for teachers. In particular, InFo-TED [39], which establishes knowledge bases for educators and makes them available to teachers around the world, thus enhancing the qualifications of educators. Teachers from different countries also work collaboratively to explore and exchange experiences on different ways of educator self-study. Such a forum is designed to develop the skills of educators in a global format, enhancing the skills of educators in every single country, in every single school, every single educator, while considering the current level of social development, information and communication technologies, the principles of identity, borders, communication and interaction, diversity, etc.

According to researchers [40], educators prefer a group form of self-education, which can occur through participation in professional learning communities. Self-

learning, where educators can observe the work of more experienced colleagues, will be productive. However, feedback is important. It is also a feature and necessary condition of self-education to consider the individual requirements for new knowledge, skills, and abilities of each teacher. In addition to the above-mentioned Internet resources, another important tool for teacher self-education is programmes that support teacher development. One such is [40] the EIS Action Research Grants (ARG) scheme, which provides awards for research findings in the field of teaching and learning, with the purpose of improving teaching practice. The EIS professional association, which is regarded as the oldest teaching association, practices discussions with colleagues and partners on current educational and methodical issues. As a result of the association's work, new knowledge about innovative practices in the teaching profession is spreading [41].

This study identified that 63% of teachers preferred a group form of work in the process of self-education. Such associations for such teachers would be useful in their professional development, but according to a survey, only a quarter of teachers use the Internet to exchange experiences with teachers from other countries. Thus, it is important to establish an internal network of teaching communication, through which the 24% can quickly exchange their international experience with their counterparts in their home country. In addition, to encourage other teachers to engage in international communication on teaching topics. Our study had certain limitations. In particular, the survey was designed for teachers in Kazakhstan living in only 3 regions of the state, which cannot accurately reflect the level of self-education of teachers in the whole country. The comparison of the sources, forms, methods, and results of self-education used in Kazakhstan with similar characteristics of self-education observed in other countries was based on the results of various scientific studies implemented using other methods, rather than on the survey developed in our work. Thus, as our research has established, teacher self-education in the contemporary world is not a periodic but a permanent nature; teachers need to develop throughout their lives, not once every three or five years, as legislated in many countries.

Conclusions

The study identified that educators are engaged in lifelong learning. However, teachers are most dedicated to improving their knowledge of the subject they are teaching. They are also concerned about the opportunities for using ICT in the learning process, teaching methods, the age-specific psychological characteristics of pupils, and the teaching experience of their colleagues. Sources of information for teachers' self-education include scientific reviews and programmes, methodological literature, the Internet, and scientific research. Teachers prefer to educate themselves collectively by joining groups on social media, or by attending Internet forums. A survey identified that self-education has a positive impact on the quality of the lessons provided by the teachers. They are enriched with different learning methods, visualised through digital technology. And, consequently, increases pupils' academic attainment, through the appropriate use of didactic techniques, methods, and forms that consider the

individual characteristics of pupils, their knowledge requirements, and the use of methods of knowledge transfer that can increase motivation, entrain the learning process and raise the cognitive activity of the pupils.

This study, based on the example of teachers living and working in Kazakhstan, has established the great importance of self-education in the process of improving their professional skills. The study identified a high degree of professional responsibility on the part of teachers who consider the process of self-education to be not a periodic one - from a professional development episode, with a frequency of every three or five years - but an ongoing one - throughout life. An essential objective for statesmen is to improve legislation that will support and motivate educators to educate themselves. Therefore, this will have

a positive effect on student attainment and, subsequently, on the development of the state as a whole. Due to the constant development of the field of education, it is necessary to further explore new forms and methods of self-education to make this process more effective. In particular, more consideration should be given in the future to exploring the functionality of digital technology and its incorporation into the process of self-education.

Acknowledgements

None.

Conflict of Interest

None.

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Самоосвіта вчителя як основа підвищення професійної майстерності

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Анотація

Актуальність. Дослідження є актуальним, оскільки воно вивчає вплив і методи самоосвіти вчителів у Казахстані, підкреслюючи її важливість у підвищенні професійних навичок та адаптації до мінливих освітніх вимог.

Мета. Метою цього дослідження було з'ясувати, як розвивається самоосвіта вчителів у Казахстані та яких результатів можна досягти.

Методологія. Дослідження ґрунтувалося на теоретичних методах, зокрема на аналізі наукової літератури з досліджуваної проблематики. Також було використано діагностичний метод - опитування.

Результати. Дослідження виявило, що мотивацією до самоосвіти у більшості вчителів є внутрішня потреба у вдосконаленні своїх знань, умінь і навичок з предмета, який вони викладають, а також у галузі психології, педагогіки та ІКТ. При цьому вчителі використовують різноманітні джерела: наукові журнали та телевізійні програми, методичну літературу, Інтернет та соціальні мережі.

Висновки. Дослідження показало, що самоосвіта вчителів призводить до багатьох позитивних змін у їхній професійній діяльності: підвищення якості уроків, розробка нових методів, прийомів і форм, розширення можливостей використання цифрових технологій у навчальному процесі. Дослідження показало, що самоосвіта вчителів є важливим елементом навчання впродовж життя і сприяє підвищенню їхньої професійної майстерності.

Ключові слова: розвиток; медіаресурси; інтернет; соціальна мережа; відкритий урок; дистанційна освіта; електронний тест.