Abstract. The article is devoted to the study of digital competence as a component of work activity of a mediator specialising in education. The article analyses the professional standards of a mediator in Russia and abroad, the work duties of a mediator in educational organizations. The authors have developed a model of digital competence of a mediator in education, which includes the basic and professional level, represented by three spheres: online mediation, conflict prevention in the virtual environment; informational and psychological security. Empirical research has been carried out to identify indicators of digital competence of mediation specialists in education who work in the Siberian region. There have been determined deficiencies and dependencies of the indicators in terms of spheres and components of digital competence. In order to develop the digital competence of mediation specialists in education, the authors propose ways to improve the training of master’s students at the Siberian Federal University. The results presented in the article are supported by the charity fund of the V. Potanin’s program “Practically oriented master’s program ‘Mediation in Education’ with the strategic partnership of universities and professional communities of mediators from Siberia and Kazakhstan”.

Keywords: digitalization, mediator, digital competency model, index of digital competency, training model.

Research areas: pedagogy; psychology.

Introduction

The digitization of social and economic processes has led to the emergence of such concepts as digital literacy, digital competence, digital skills.

Within the framework of the project “Modern digital educational environment in the Russian Federation” a lot of research is being done to determine the level of digital literacy of Russian citizens. Non-profit innovative organizations “National Technology Initiative University 20.35” (Skolkovo) and “Regional Public Organization ‘Internet Technologies Centre” pioneer analytical activities in this area. According to the NAFI think tank, only 27% of the Russians have a high digital literacy rate (NAFI analytical centre, 2020). The digital literacy index as of Q1 2020 is 58, on a scale from 0 to 100. The study indicates that the digital literacy rate depends on the respondent’s professional activity.

In the field of education, the digital literacy requirements for professionals are quite high. According to UNESCO recommendations, teachers should be fluent in using digital technologies in the educational process to improve teaching methods and technologies, to develop students’ motivation, to apply information and communication technologies to facilitate interaction between parents and educational institutions (UNESCO, 2011).

The study “Digital Literacy of Russian Teachers” concludes that the digital literacy index of school and university teachers is significantly higher than the Russian average (Aimaletdinov et al., 2019) The authors of the study identify 5 components of digital literacy of teachers:

- informational literacy;
- computer literacy;
- communicative competency;
- media literacy;
- attitude to innovation.

Moreover, they particularly dwell on the competencies specific for teachers in the field of application of digital technologies in the educational process. It should be noted that the authors rely on the European Digital Competence Framework (2018). So, six blocks are defined for teachers:

- professional responsibilities;
- digital resources;
- teaching and study;
- assessment of students;
- enlarging the scope of students’ rights, opportunities and independence during the study process;
- development of the students’ digital competence.

In a modern educational institution psychologists, social pedagogues and mediators work along with teachers who are in charge of training and education. A mediator is an intermediary who creates conditions for a dialogue between the parties in a conflict, helps them to negotiate and make a decision that can be a way out of the situation (Professional Standard, 2014).

Digitalization of the mediation institution is currently one of the hot trends in the evolution of mediatory practices.

There are several trends in the development of digital mediation:

- online resolution for disputes arising in the virtual environment;
- creation of special platforms for access to mediator services;
- usage of existing digital services for consulting;
- application of media and social services for conflict prevention in various areas.

The successful professional performance of a specialist in mediation depends largely on his or her level of digital competence.

To study the digital competence of a mediator in education, it is necessary to define the structure of competence, develop diagnostic tools and conduct a survey. The study will result in building a model of digital competence of a mediator in education. This model can become a basis for designing a trajectory of development of digital competence during educating master’s students who have chosen to work as mediators in the field of education.

Theoretical framework

The notion of digital literacy was first introduced by Professor Paul Gilster of Illi-
nois, Chicago: “Digital literacy is the ability to understand and use information provided in multiple formats from a wide range of sources when it is presented via computers” (Gilster, 1997). In his monograph, Gilster highlights the following main components of digital literacy: media literacy and critical thinking. He also points out that “digital literacy focuses on social and communication aspects of human activity”. Further researches have expounded the structure of digital literacy.

In 2006, the DigEuLit project implemented in Europe identified 4 components of digital literacy: computer literacy, information and visual literacy, and media literacy (Martin, Grudziecki, 2006). In 2011, a UNESCO expert approach was published. It described digital literacy through a set of skills needed to work with digital media, to process information and search for it (Wilson et al., 2011).

The study “Digital Literacy of Russian Teachers” conducted by the NAFI analytical centre in 2019 to assess the digital literacy of teachers (Aimaletdinov et al., 2019) applied the approach proposed by a group of specialists at the G20 Summit held in Berlin in April 2017. The approach is based on the assessment of indicators of information, computer, communication, media literacy and attitude towards technology. Each of these indicators was measured in three aspects: cognitive (knowledge), technical (skills) and ethical (mental attitudes):

- the cognitive dimension characterizes how a person evaluates, creates, critically approaches information, computer, media, how this person communicates with other users and perceives technology;
- the technical part reflects the ability to find the right information, media content, and understand how digital devices and new technologies work;
- the ethical aspect assesses people’s readiness to follow generally accepted norms when using tools in the digital environment. For example, whether they can realize the need to verify the validity of information and its sources, comply with online communication norms, etc.

With the development of a competency-based approach, the concept of digital literacy is gradually transformed into digital competence.

According to the definition given in the study by I.A. Zimniaia, the competence is “the integrative personal quality which is formed during one’s lifetime; ethically and socioculturally conditioned; realised in activity, in interaction with other people; knowledge-based; intellectually and personally dependent; the trait which by developing in the educational process becomes its result” (Zimniaia, 2012).

A remark shall be made that approaches to the definition of digital competence vary with development in information and communication technology.

The report “Digital Skills for Life and Work” defines three necessary for the present day groups of digital competencies attributable to the level of fluency in digital technologies:

1. Basic functional skills. They are essential to start work with digital technologies. These skills include the ability to use devices, access the Internet, make an account, find required information or resource on the net.
2. Standard digital skills. These incorporate the ability to effectively use online applications and services; knowledge on how to assess the sources and relevance of the data received, to store and organize the information found; the ability to protect devices being used and the information received from viruses and Internet attacks. These skills imply understanding how copyright law functions on the web and what specific government legislation exists on the Internet.
3. Advanced skills. These can be subdivided into 1) technical skills: programming, application development, network administration, data analysis; and 2) “twenty-first century skills”: teamwork skills, critical thinking, innovative mindset, creativity, entrepreneurship (Report of UNESCO and ITU, 2017).

One of the most significant approaches to defining digital competence was covered in G.U. Soldatova’s all-Russian study “Digital Competence of Adolescents and Parents” (Soldatova et al., 2013). It formulates the following definition: “By digital competence we mean the ability of an individual to confidently, ef-
fectively, critically, and safely choose and apply info-communication technologies in various spheres of life (information environment, communications consumption, technosphere). This ability is supported by continuous mastering of competencies (knowledge, skills, motivation, responsibility), as well as the person’s readiness for such activity”. Writing about the structure of digital competence, G.U. Soldatova singles out several components (knowledge, skills, motivation, responsibility and safety) and spheres (content, communication, technical aspects and consumption).

In general, most researchers identify similar basic components of digital competence:

- technical or technological competency (skills in the fluency in devices, programs and services, security of information storage and transmission);
- information competency (information search and its evaluation, structuring and analysis);
- social and humanitarian (communication skills, teamwork competencies, critical thinking, responsibility and motivation).

Thus, it is possible to distinguish the basic component of digital competence of a modern professional. The digital competence of a specialist in a certain sphere is calculated after the analysis of one’s activity as well as a number of documents regulating requirements and professional duties.

To determine the structure of digital competence of a mediator in an educational organization, we have studied professional standards in the field of mediation in Russia, international professional standards of mediators, recommendations on the school mediation services in educational organizations, and research on the problems of communication security in the virtual environment and online conflict resolution.

The professional standard of a mediator defines the following crucial knowledge and skills to be used. The work activity “Organizational, technical and documentary support of mediation procedure” assumes knowledge of peculiarities of basic office programs (text editors and programs for making presentations) and skills of using office devices.

The website of the International Mediation Institute contains the professional standards of mediators, including those of a specialist in Internet dispute resolution (IMI, 2020), the analysis of which highlighted the following knowledge and practical skills.

Knowledge:

- Situational Awareness (in ICT);
- Basic Knowledge of online negotiation laws and regulations;
- knowledge of technologies and platforms for online media (Platform/Technology);
- impact of digital technology on the negotiation process (Process/Impact);
- compliance with the principles of mediation and consideration of the capabilities of parties in digital communication (Communication with Parties).

Practical skills:

- Skills related to technology;
- organizing the e-Mediation process (Skills related to the e-Mediation process);
- conducting online mediation (During e-Mediation),
- Reaching Agreement;
- organization of the Post-mediation process.

The studies devoted to the features of Internet communication of children and teenagers (Soldatova, Chigar’kova, Lvova, 2017) are unison in the opinion that the intensity of facing aggressive communication on the net increases. The most common types of aggression are flaming, trolling, and cyber-bullying. At the same time, the authors admit that children prefer to express aggression online rather than offline.

According to the research data (Soldatova et al., 2013), every third teenager has at least once dealt with communication risks, among which cyber-bullying is the leader, since every fourth teenager indicated that he/she suffered insults, humiliation or harassment online.

Meanwhile, the authors descry (Soldatova, Rasskazova, 2014) that the own capabilities of teenagers to ensure their safety on the Internet, as well as the capabilities of their parents are relatively small. Internet risks can be minimized when there are skills of safe behavior
on the Internet and if parents and teachers have the digital competence.

Recommendations on the school mediation services in educational organizations set their main goal the creation of safe, humane and secure space (environment) for the full development and socialization of children and adolescents, including problematic situations and conflicts with the law. The main areas of activity of the mediator in an educational organization comprise the prevention of conflicts in this organization, inter alia those related to the activities of students on the Internet.

Kalinina supposes in her research (Kalina, 2018) that the work on prevention of Internet risks in educational organizations involves about 70% of students. 83% of parents stated that schools and colleges, where their children study, carry out activities to prevent risks and threats of Internet communication. However, it is noted that preventive work has an informational and instructional inclination on the part of teachers. Only 16% of students mentioned that they had participated in specialized trainings and 10% had taken part in trainings for safe behaviour on the Internet.

The aforesaid allows distinguishing specific components of the digital competence of a mediator in education. These components can be represented by the following areas:

- online mediation;
- information-psychological security;
- conflict prevention.

**Discussion**

**Structure of the digital competence of a mediator in education**

Based on the research of G.U. Soldatova (Soldatova, 2003), we reveal several components in the structure of the digital competence of a mediator in education, namely knowledge, skills and motivation, as well as spheres of basic and professional levels (see Fig. 1).

To determine the digital competence indicator of a mediator in education we have developed specific parameters for selected areas of professional level (see Table 1).

In order to test the model empirically, we conducted a survey of specialists in mediation in education.

We polled 46 specialists in the field of mediation from various educational organizations: general education – 65%, additional education – 15%, professional education – 11%, other – 9%. Work experience in the position of a mediator: less than a year – 24% of the respondents, 1-3 years – 43%, 4-8 years – 22%, more than 8 years – 11%. The age structure of the interviewees: 20-29 years old – 20%, 30-39 years old – 33%, 40-49 years old – 30%, 50-59 years old – 13% and over 60 years old – 4%. The level of training in the field of mediation: specialized higher education – 22%, professional retraining (more than 250 hours) – 11%, advanced training courses (72 hours and more) – 46%, advanced training courses (less than 72 hours) – 22%.

To assess the digital competence of a mediator in education, the Digital Competence Indicator methodology was used (Soldatova et al., 2003). It allows the researchers to evaluate both the integral index of digital competence and its 4 components using a subscale of knowledge, skills, motivation and responsibility (the latter includes safety). The methodology also measures digital competence in four areas of Internet activities by the following subscale: communication (socialising), content (search for the content, its selection, creation and distribution), technical aspects of Internet services and consumption (use of services, payments, online shopping). The methodology was successfully tested and psychometrically processed during the all-Russian study of digital competence, the results of which confirmed its reliability and validity (Soldatova, Rasskazova, 2018).

In addition, a pool of questions was designed to assess the level of knowledge (9 points), skills (9 points), motivation (9 points) in the three professional areas of mediators who work in educational organizations (ensuring online mediation, conflict prevention, information and psychological security).

We took advantage of the Kruskal-Wallis criterion to review the statistical significance of the digital competence indicator for different groups of mediators.

The results of the study are presented in the form of values of digital competence indi-
The Basic Digital Competence Indicator (BDCI) of a mediator in education is 0.58 and the Professional Digital Competence Indicator (PDCI) is 0.49.

The comparative analysis of representatives of different age groups of mediators revealed a statistically significant connection with both the Basic Digital Competence Indicator (p = 0.0020) and the Professional Digital Competence Indicator (p = 0.0116).

High levels of BDCI were found in the group of 20-29 years old people – 0.67, and low levels are demonstrated by the group of 60 years and older – 0.36. PDCI in these groups are 0.56 and 0.24, respectively.

This confirms the conclusions made in the work studying the digital competence of Russian teachers (Soldatova, Shliapnikov, 2015), which found a higher indicator demonstrated by young specialists – representatives of the “digital generation”, and a lower indicator – by specialists of the elder age group.

At the same time, the group of 20-29 years old showed the highest indicators in the “knowledge” component – 0.92 of the Basic Digital Competence Indicator and the lowest
Table 1. Spheres, components and indicators of the digital competence of a mediator in education

<table>
<thead>
<tr>
<th>Spheres and components</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Motivation</th>
</tr>
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<tbody>
<tr>
<td><strong>Online mediation</strong> (online dispute resolution, services and programs to back up and conduct online mediation)</td>
<td>• Possibilities of using programs and e-services for organizational, technical and documentary support of the mediation procedure; • Digital services and platforms for online dispute resolution; • Features of the application of digital technology in online mediation</td>
<td>• Work with office programs and mobile applications for processing the documents in the course of mediation; • Using the Internet for online mediation; • Organization of a group video conference to discuss a conflict situation (online supervision)</td>
<td>• Automation of text documents creation; • Using cloud and mobile technologies to develop diagnostic tools; • Advantages of online services and platforms for online mediation</td>
</tr>
<tr>
<td><strong>Conflict prevention</strong> (digital technologies for educating and informational activities with members of educational organization)</td>
<td>• Using digital technologies for educational and informational activities in an educational organization; • Ways and means of developing learners’ digital competence in communication and constructive dispute resolution on the Internet; • Regulatory documents setting the directions of activities aimed at prevention of delinquency of children and adolescents on the Internet</td>
<td>• Development and distribution of multimedia content focused on explaining the pros of the mediatory approach in an educational organization (digital leaflets, videos, presentations, etc.); • Conducting classes targeted at developing the students’ skills of constructive communication and responsibility for activities on the Internet; • Running the events aimed at developing digital literacy among various participants in educational process (students, parents, teachers)</td>
<td>• Development and promotion of digital educational content for conflict prevention in educational organizations; • Legal basics of work with information in the Russian Federation (legislative acts, online information systems “Consultant Plus”, “Garant”); • Features of organizing preventive measures using digital technologies (social networks, messengers, webinar platforms)</td>
</tr>
<tr>
<td><strong>Informational &amp; psychological security</strong> (phenomena of society digitalization, generating new types of threats and conflicts, peculiarities of the process and ways of conflict resolution in virtual environment)</td>
<td>• Possible threats to the informational and psychological safety of children and adolescents on the Internet; • Risks associated with Internet communications and steps to minimize and eliminate them (cyber-bullying, trolling, flaming, hating, sexting, grooming); • Features of the course and ways of conflict resolution in the e-environment</td>
<td>• Set of rules and norms of Internet communication for different participants of educational relations (in social networks, messengers, forums, chats, etc.); • Analysis, interpretation and critical assessment of the causes and consequences of conflicts in the e-environment; • Work as a mediator in the resolution of disputes and conflicts in the e-environment</td>
<td>• Features of communication and socialization of children and adolescents in the virtual environment; • Theory and practice of successful digital communication through different technologies and platforms; • Ensuring digital security when using Internet services (legal and technological regulations)</td>
</tr>
</tbody>
</table>
value in the “motivation” component – 0.34. Simultaneously, the Professional Digital Competence Indicator values do not differ much – 0.56 and 0.58, respectively. This can be explained by the fact that the young specialist believes that he/she does not need to improve their digital competence in the basic field because they have already got the necessary knowledge, but as for the professional field they are motivated to develop to get promotion.

The highest values of the motivation component in the 50-59 years old group – 0.9 for BDCI and 0.93 for PDCI, and the lowest in the 60+ age group – 0.2 for BDCI and 0.39 for PDCI characterize the assessment of the importance of digital skills at this age.

The Professional Digital Competence Indicator values for specialists from different educational organizations do not differ much. However, there are differences in the value within the “Conflict Prevention” component. For mediators from general education organizations it is equal to 0.53, for professional education organizations – 0.49, for organizations of additional education – 0.38, and for others (educational centres and non-profit organizations) – 0.28. This divergence can be attributed to the specific activities of specialists in these organizations and the relevance for them of conflict prevention and aversion in the digital environment.

There is a statistically significant connection between the type of training of a specialist in the field of mediation and the component “motivation” of PDCI (p =.0127). Educators with specialized higher education (bachelor, specialist, master) have the highest value of PDCI “motivation” component – 0.77. Educators who have completed 72 hours or more of professional development courses – 0.67 of PDCI “motivation” component, professional development courses less than 72 hours – 0.56, professional retraining – 0.51. This indicates the need to raise awareness of the possibilities of digital technologies in mediation among specialists who work after professional retraining. No statistically significant link has been established between the level of mediator training and the value of digital competence indicators.

All in all, it should be summed that the Professional Digital Competence Indicator is at

<table>
<thead>
<tr>
<th>Components of spheres of digital competence indicator</th>
<th>Mean</th>
<th>Median</th>
<th>Std.Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital competence indicator (basic)</td>
<td>0.58</td>
<td>0.59</td>
<td>0.19</td>
</tr>
<tr>
<td>Content</td>
<td>0.62</td>
<td>0.60</td>
<td>0.20</td>
</tr>
<tr>
<td>Communication</td>
<td>0.63</td>
<td>0.62</td>
<td>0.20</td>
</tr>
<tr>
<td>Technical sphere</td>
<td>0.46</td>
<td>0.46</td>
<td>0.22</td>
</tr>
<tr>
<td>Consumption</td>
<td>0.58</td>
<td>0.58</td>
<td>0.25</td>
</tr>
<tr>
<td>Knowledge</td>
<td>0.72</td>
<td>0.70</td>
<td>0.24</td>
</tr>
<tr>
<td>Skills</td>
<td>0.59</td>
<td>0.54</td>
<td>0.22</td>
</tr>
<tr>
<td>Motivation</td>
<td>0.50</td>
<td>0.40</td>
<td>0.33</td>
</tr>
<tr>
<td>Responsibility/safety</td>
<td>0.50</td>
<td>0.45</td>
<td>0.28</td>
</tr>
<tr>
<td>Digital competence indicator (professional)</td>
<td>0.49</td>
<td>0.48</td>
<td>0.17</td>
</tr>
<tr>
<td>Online mediation</td>
<td>0.43</td>
<td>0.44</td>
<td>0.23</td>
</tr>
<tr>
<td>Conflict prevention</td>
<td>0.48</td>
<td>0.55</td>
<td>0.22</td>
</tr>
<tr>
<td>Informational and psychological safety</td>
<td>0.55</td>
<td>0.55</td>
<td>0.22</td>
</tr>
<tr>
<td>Knowledge</td>
<td>0.41</td>
<td>0.33</td>
<td>0.21</td>
</tr>
<tr>
<td>Skills</td>
<td>0.41</td>
<td>0.33</td>
<td>0.23</td>
</tr>
<tr>
<td>Motivation</td>
<td>0.64</td>
<td>0.66</td>
<td>0.28</td>
</tr>
</tbody>
</table>
the level of under 0.5, which evinces the insufficient knowledge and skills of specialists.

Conclusion / Results

The study of digital competence indicators made it possible to identify the main drawbacks and therefore to develop recommendations on improving the digital competence of mediators working in education. Eventually, the profile digital competence indicator is less than the basic one, which proves the lack of measures to develop the digital competence of mediators in education.

For training specialists who have applied for the master’s program “Mediation in Education” at the Siberian Federal University we introduced a course aimed at forming basic level knowledge and skills. The advanced level can be achieved either through doing a special course devoted to informational and psychological security, online mediation and conflict prevention in the virtual environment, or through the addition of digital technologies to the courses of profile mediator training.

Since the motivation in all areas is quite high and the level of knowledge and skills is lower, the educators should use professional tasks and cases for which it is necessary to use digital technologies. The teachers have to include in their syllabi tasks aimed at settling online disputes on the specialized platforms and resolving online conflicts in the virtual communication environment, like messengers and social networks. Furthermore, when online mediation in education and conflict prevention in the digital environment become the topics of masters’ theses, it will improve the digital competence of graduates.

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nization of school mediation services in educational organizations (approved by the Ministry of Education and Science of the Russian Federation on November, 18, 2013, No VK-54/07). Available at: https://www.garant.ru/products/ipo/prime/doc/70447852/


Цифровая компетентность специалиста по медиации в образовании

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Российская Федерация, Красноярск

Аннотация. Статья посвящена исследованию цифровой компетентности как компонента профессиональной деятельности специалиста по медиации в образовании. Выполнен анализ профессиональных стандартов специалиста по медиации в России и за рубежом, трудовых функций медиатора в образовательных организациях и разработана модель цифровой компетентности специалиста по медиации в образовании, включающая в себя базовый и профессиональный уровень, представленный тремя сферами: онлайн-медиация, профилактика конфликтов в виртуальной среде и информационно-психологическая безопасность. Проведено эмпирическое исследование, направленное на выявление индексов цифровой компетентности специалистов по медиации в образовании Сибирского региона. Определены дефициты и зависимости индексов в разрезе сфер и компонентов цифровой компетентности. С целью развития цифровой компетентности специалистов по медиации в образовании сформулированы предложения по совершенствованию подготовки магистрантов в Сибирском федеральном университете. Представленные в статье результаты выполнены при поддержке благотворительного фонда программы В. Потанина «Практико-ориентированная магистерская программа «Медиация в образовании» в стратегическом партнерстве университетов и профессиональных сообществ медиаторов Сибири и Казахстана».

Ключевые слова: цифровизация, медиатор, модель цифровой компетентности, индекс цифровой компетенции, модель обучения.

Научные специальности: 13.00.00 – педагогические науки; 19.00.00 – психологические науки.