Motivational features of teachers as a condition for the integration of social and digital systems

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Abstract. The purpose of this work is to study the motivational characteristics of preschool teachers with different levels of digital literacy. The study involved 60 people (30 teachers of kindergartens with a higher level of digital literacy and 30 teachers with a lower level of digital literacy). To study the motivational characteristics of teachers, we used: a questionnaire for determining digital literacy (Google Forms); A. Mehrabian's test questionnaire aimed at measuring achievement motivation (modification by M. Sh. Magamed-Eminov); N.P. Fetiskina "Diagnostics of the level of partial readiness for professional-pedagogical self-development", methodology "Scale of readiness for creative and innovative activity" by S.Yu. Stepanov. The study shows that teachers with higher and lower levels of digital literacy have differences in cognitive and motivational readiness for professional and pedagogical self-development, differ in the degree of readiness for creative and innovative activities. Motivational differences are identified among teachers with different levels of digital literacy. Keywords: digital literacy, educational environment, features of motivation, motivational and cognitive readiness for professional development.

1 Introduction

Today, the issues of the development of digital literacy of subjects of various professional activities, including in the field of education, are becoming increasingly important (Davis, N., 2007). Changes in the educational environment, global digitalization, active use of digital technologies and resources apply not only to higher education and schools (Makarenko et al., 2020). The preschool educational environment is also undergoing significant changes, involving preschoolers in the learning process using various digital technologies (Blackwell et al., 2014). The digitalization of preschool institutions includes not only the computer equipment of workplaces, the expansion of the technologies used in work and the replenishment of the bank of electronic didactic materials, but also the development and improvement of digital literacy of preschool teachers (Kraynyukov et al., 2019; Smirnova, 2019). The possibilities of digital technologies in working with preschoolers are varied, and they allow you to maintain the effectiveness of developmental games, to carry out the child's independent formulation of tasks and the choice of ways to solve them. The advantage of using digital technologies is the development of the preschooler's motivation for learning,
visibility, convenience (Ángel Rueda et al., 2018). Currently, the teacher's competitive advantage is the readiness for self-development, mastering new forms and technologies in education. The teacher must have the ability to assess and creatively process information, be capable and ready for personal and professional development, the use of modern digital technologies in building the educational and upbringing process (Puchkovskaya et al., 2020; Makarenko et al., 2020).

2 Literature review

An analysis of modern scientific and practical research has shown that there is not enough research devoted to the problem of studying digital literacy among preschool teachers. Making attempts to systematize the concept of "digital literacy", researchers strive to identify the types of competence and literacy associated with the use of computer and Internet technologies. So, P. Gilster considers digital literacy in the context of working with information obtained from a computer, the Internet. In the work of A. Martin digital literacy is defined as a person's ability to use digital tools to build new knowledge, communicate with other people for the purpose of constructive social actions in the context of specific life situations (Martin et al., 2006). The relevance of the study is related to two factors. First, modern research on the phenomenon of digital literacy and digital competence shows that an important component of development is a motivational component. For the successful mastery of digital technologies, teachers must form appropriate needs, a conscious attitude to digital activity in work (Soldatova et al, 2014). Secondly, in modern society, preschoolers are increasingly mastering virtual activity as a new form of leisure, which can have both positive and negative effects on children (Astapenko et al., 2021). Educators with digital literacy are able to form it in their students. (Parrisius, C., 2020).

Today, a teacher needs to be able to provide training not only in full-time format, but also with the help of distance technologies, as well as to be aware of the existing risks of using digital resources, to be able to ensure technical safety not only for himself, but also for his pupil. During the outbreak of the Covid 19 pandemic, there was a need for teachers who could teach classes in a distance format, using virtual methods of communication with children. Possession of modern digital technologies presupposes that the teacher of preschool institutions has a motivational readiness to develop in the mode of innovative search. For a successful transition to the level of digitalization in educational activities, it is important to form positive motivation among teachers, a desire to successfully master modern technologies.

3 Methodology

This paper presents the results of the study motivational characteristics of teachers with different levels of digital literacy. The aim of this work: the study of motivational characteristics preschool teachers with different levels of digital literacy...

Object of research: teachers of preschool institutions in Rostov-on-Don and the Rostov region at the age of 30-55 years.

Research hypotheses: 1. Motivational characteristics of teachers with different levels of digital literacy may have statistically significant differences. 2. There is a significant difference in the level of readiness for creative and innovative activities among teachers with different levels of digital literacy. 3. There is a relationship between the readiness for professional and pedagogical self-development and motivation for success.

The study was carried out on the basis of preschool institutions in Rostov-on-Don and the Rostov region. The number of participants left 60 people. Of these, 30 are kindergarten
teachers with a higher level of digital literacy (first group) and 30 teachers with a lower level of digital literacy (group 2).

The following techniques were used: A. Mehrabian's test questionnaire aimed at measuring achievement motivation (modification by M. Sh. Magamed-Eminov); N.P. Fetiskin "Diagnostics of the level of partial readiness for professional and pedagogical self-development"; “Scale of readiness for creative and innovative activity” (S.Yu. Stepanov); digital literacy questionnaire (Google Forms) ... Statistical data processing was carried out using Statistica 12. To assess the reliability of differences between the compared groups - the Mann-Whitney test, and to determine the presence of relationships - the Spearman correlation coefficient.

4 Results

Teachers with a higher level of digital literacy (first group) note that they enjoy using various digital devices and the Internet in their daily life (U = 12); use various chats, social networks for professional and personal purposes (U = 14); use various platforms, forums, chat rooms for communication in the professional community (U = 12), as well as the electronic library system (U = 21). In the second group of teachers, there is a lack of desire to actively use various educational platforms, social networks in preparation for work. Educators note that there are technical difficulties in using multimedia technologies. They note the internal resistance to work with computer technologies, electronic textbooks and prefer to use paper media.

<table>
<thead>
<tr>
<th>Average</th>
<th>First group</th>
<th>Second group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of use of professional sites, social networks on the Internet</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Skill in the use and variety of multimedia technologies in work</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Use of electronic library systems</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Ability to use various digital devices</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Experience in conducting classes using distance technologies</td>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 1 demonstrates that it is possible to single out teachers with different levels of digital literacy, which includes not only the ability to work with digital technologies, but also a positive attitude towards the use of modern multimedia technologies in their work. The survey data are presented graphically in Figure 1.
As seen from Figure 1, two groups of teachers can be distinguished, with a higher level of digital literacy (first group) and with a lower level of digital literacy (second group). Below in Table 2 presents data, obtained by the methodology "Diagnostics of the realization of needs in self-development" (NP Fetiskin).

**Table 2.** Results according to the methodology "Diagnostics of the realization of needs in self-development" (N.P. Fetiskin).

<table>
<thead>
<tr>
<th>Scales</th>
<th>First group</th>
<th>Second group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of motivational readiness for pedagogical self-development</td>
<td>51.1</td>
<td>34.5</td>
</tr>
<tr>
<td>Level of cognitive readiness for pedagogical self-development</td>
<td>33.2</td>
<td>22.6</td>
</tr>
</tbody>
</table>

Table 2 shows that the levels of motivational and cognitive readiness in both groups are different. To obtain significant differences in indicators, the Mann-Whitney U-test was used. The level of motivational readiness for pedagogical development (15), the level of cognitive readiness (12). In the first group of teachers with a higher level of digital literacy, motivational and cognitive readiness is higher in terms of the level than in the second group of teachers with more Figure 2.
As can be seen from Figure 2, teachers of the first group have a higher level of formation of ideas about the methods and forms of their own professional pedagogical development, they are more focused on learning new information, more confident in their abilities, and strive to improve their own professional skills.

Table 3 shows that teachers of both groups have different levels of readiness for creative and innovative activities.

**Table 3.** The results obtained by S. Yu. Stepanov's methodology "Scale of readiness for creative and innovative activity".

<table>
<thead>
<tr>
<th>Average</th>
<th>First group</th>
<th>Second group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of readiness for creative and innovative activities</td>
<td>114.5</td>
<td>81.3</td>
</tr>
</tbody>
</table>

The analysis of the data obtained by the methodology "Scale of readiness for creative and innovative activity" S. Yu. Stepanov, shows that between groups of teachers there are differences in the level of readiness for creative and innovative activity ($U = 47$).

In the Figure 3 it is shown that in the two groups of respondents there is a different ratio of the average and low level of hygiene to creative and innovative activity.

![Fig. 3. "Scale of readiness for creative and innovative activities".](image)

Based Figure 3 it is seen that the first group of respondents with a higher level of digital literacy has, on the whole, an average level of readiness for creative and innovative activities. And the second group is dominated by low level of readiness for creative and innovative activities. It should be noted that a high level of readiness for creative and innovative activity was not revealed in both groups of respondents. Perhaps this is due to the fact that the education sector does not often undergo reforms and it is difficult for teachers to adapt to the digitalization of pedagogical activity.

Table 4 presents the data obtained using A. Mehrabian's questionnaire, aimed at measuring achievement motivation (modification by M. Sh. Magamed-Eminov).

**Table 4.** Results obtained according to A. Mehrabian's test questionnaire aimed at measuring achievement motivation (modification by M. Sh. Magamed-Eminov).

<table>
<thead>
<tr>
<th>Research Scales</th>
<th>First group</th>
<th>Second group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Striving for success</td>
<td>60%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Dominates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoiding failure</td>
<td>40%</td>
<td>87.5%</td>
</tr>
<tr>
<td>Dominates</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The first group is dominated by a motivational tendency - striving for success - 60%, and striving to avoid failure - 40%. And in the second group, in the motivation for achieving
success, on the contrary, the desire to avoid failure dominates - 87.5% (U = 21), the desire to succeed - 12.5%. The data are graphically presented in Figure 4.

![Graph showing motivation for striving for success and motivation for avoiding failure among respondents from both groups of preschool teachers.](image)

Figure 4 shows that teachers with a higher level of digital literacy are more focused on achieving success; it is important for them to achieve a positive result in mastering new activities. Teachers in the second group are less confident in their abilities and prefer to give up learning new things in order to avoid possible risks and mistakes.

The Spearman correlation analysis showed that there is a significant relationship between the desire for success (M. Mehrabyan) and the level of motivational readiness for pedagogical development (M. NP Fetiskin) (r = 0.9). This means that the higher the level of motivational readiness for pedagogical development, the more the teacher is focused on success, and the more persistence he can show in achieving his professional goals. This can explain why teachers with more developed digital literacy are more focused on their development in comparison with the other group, they value success in the professional field.

4 Discussion

Based on the results of the study, it was revealed that teachers with a higher level of competence are distinguished by the presence of achievement motivation, a desire for success. Highlighted the correlation dependence between the desire for success and the level of motivational readiness for pedagogical development. Educators with a drive to avoid failure have lower levels of digital competence. Readiness for one's own pedagogical and personal development, mastering new activities is associated with the presence of motives for achievement, striving for success, orientation towards a positive assessment of the results of one's activities (Atkinson, JW, 1957; Dweck, CS, 1986; Nikitskaya et al., 2018). The main prerequisites for mastering new activities, in particular, possession of digital technologies, are the motivational characteristics of a teacher. The analysis of scientific and practical research made it possible to highlight the main contradictions in this issue: - between the need for the formation and development of digital competence of teachers in preschool educational institutions and the lack of a system of work aimed at studying the individual, personal, intellectual characteristics of teachers; - between the need for teachers to meet the requirements of the Federal State Educational Standard for DO and the lack of programs that develop the necessary competencies and qualities. Thus, the relevance of this study is determined by the scientific and practical interest in the issues of digital competence, the peculiarities of their development among preschool teachers and insufficient knowledge of the problem.
5 Conclusions

Thus, the comparative analysis made it possible to determine significant differences in the level of readiness for professional self-development, achievement motivation, orientation towards success or avoidance of failure among teachers who have different attitudes towards the use of digital technologies and resources in work. A promising area of further research can be the study of barriers and obstacles to the adoption of digital technologies in work. It becomes important to develop programs aimed at creating a supportive educational environment for preschool teachers who plan to use digital technologies and resources in their work, formation of a communicative platform for the exchange of experience. The data from the study can be used in the work of managers and psychologists of preschool institutions when planning advanced training courses for employees, and can be taken into account in the preparation of educational programs for employees of preschool institutions.

References

2. E.V. Astapenko, T.V. Klimova, G.A. Mololkhina, E.A. Petrenko, E3S Web of Conferences... 273(5-6), 10042 (2021) doi:10.1051 / e3sconf / 202127310042