PEDAGOGICAL GOAL-SETTING IN A DIGITAL ENVIRONMENT: PROBLEM ACTUALIZATION

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Abstract: *The pedagogical activity strategic goals are associated with current trends in social development and society digitization. The goal-setting aspect of pedagogical competence is of particular importance in terms of changing demands for education and the increasing diversity of the digital educational environment. The "second digital divide" is clearly manifested in pedagogical activity by significant differences in the goal-setting of teachers who effectively, creatively apply digital technologies, and activities in a traditional paradigm. Constant updating of pedagogical priorities requires further multifaceted research.*
The purpose of the study is to review goal-setting perceptions by school teachers and academic teachers. Research methods: theoretical methods of studying psychological and pedagogical scientific publications associated with the problem of pedagogical goal-setting, as well as quantitative research methods, particularly anonymous surveys. The study supports the conclusion that significant pedagogical goal-setting transformation in the modern educational environment is crucial. The detected problem: the overwhelming majority of teachers do not perceive the importance of digital skills, soft skills and lifelong learning goals. It is required to adjust the advanced professional programs content for future teachers and for academic teachers in sections that contribute to shaping goal-setting skills to reflect the multifaceted capabilities of the digital environment.

Keywords: pedagogical goal-setting; digital educational environment; pedagogical competence; advanced professional programs.

INTRODUCTION

According to Leontiev (Leontiev, 1978) activity theory, goal-setting is a basis for any human activity. The professional activity goals have multiple relationships with the socio-cultural conditions, society demands, professional values, etc. Goal-

setting is always associated with understanding and anticipation of an activity re-
sult. The general strategic pedagogical activity goals are of particular importance,
predetermining particular goals in professional practice and continuous professional
development. The strategic modern teacher goal-setting rests on the current and long-
term society and education development trends, in particular "digital transformation
of education aimed at the availability of quality education and conditions for personal
comprehensive development in changing world" (Global Education Futures, 2014;
Future Skills for the 2020s, 2021). Strategic goals specification stressing aspiration
to enrich and transform learning outcomes can be detected in official documents,
predictive scientific publications and manifestos related to the development of the
digital educational environment. Long-range goals have significant differences in
comparison with traditional ones and require teacher's decisions to make changes
in professional activity.

The official Ministry of Education of Russia guidelines for digital technologies adop-
tion in the main general education programs highlighted the importance of "attune-
ment among all members of the teaching staff regarding the goals, desired actions for
effective response and management of changes in an uncertain and dynamic environ-
ment, overcoming the traditional educational problems of the industrial paradigm of
education" (Ministry of Education of Russia, 2020).

E-learning and distance learning technologies have continued to expand at different
education stages, and the availability of open educational content has significantly
increased. If during the period of forced distance learning, all efforts were aimed at
ensuring learning continuity, then after returning to classrooms and auditoriums,
teachers clearly had felt the need for a new comprehension of digital technologies
purpose based on the learner's and teacher's new experience. To what extent do
teachers perceive the problem of changing professional goal-setting in a digital edu-
cational environment as relevant? A basic assumption of the study is that an insuffi-
ciently shaped perspective of pedagogical activity objectives in a digital environment
prevents goal-setting in specific pedagogical situations adequate to the rich open net-
worked information space facilities, changing demands for education, and student's
requirements. In all current instructional programs for future teachers, professional
ICT competencies are shaped, and in continuous professional development, teach-
ers learn how to use various digital tools. But this is clearly not enough to produce
innovative educational outcomes. The study focuses on the need for a significant
transformation of pedagogical goals and objectives.

Therefore, following the identified problems, the purpose of the study is to review
the understanding of core changing issues in pedagogical goal-setting in a digital
educational environment for school teachers and academic teachers.

1. LITERATURE REVIEW

The pedagogical goal-setting issues have been studied in various contexts, and a fun-
damental role in professional activities and educational interaction has been identified
(Kuzmina, 1970; Markova, 1993; Louws et al., 2017; Bakkenes et al., 2010; Lauril-
lard, 2002, etc.). Gumerova distinguishes the following functions of pedagogical

goal-setting: "orientation-motivational, design-executive, organization-stimulating, analytical and diagnostic" (Gumerova, 2007). The system of functions substantiated by the author demonstrates that professional activity meaningful goals and priorities predetermine the solution of all teachers' professional tasks.

The importance of focusing pedagogical goal setting on 21st century skills and technology integration stressed in numerous publications (Teo et al., 2021; Kennedy & Sundberg, 2020; Desimone & Garet, 2015). Authors identify such important new learning objectives as «to prepare students for handling the complexity of modern societies with the globe call for 21st century skills» (Kennedy & Sundberg, 2020). In the modern sense, teaching involves a close integration of substantive objectives and «involving students in reflection and discussions in line with 21st century skills» (Desimone & Garet, 2015), including teachers' capacity to develop students' digital information and communication skills (Claro et al., 2018).

The new educational results framework associated with the need to change the nature of educational interaction substantially and to apply "sophisticated forms of teaching to develop 21st century student competencies" (Darling-Hammond et al., 2017). The peculiarity of the modern educational situation presented by focusing pedagogical activity not only on more effective ways to achieve traditional educational results but also ahead of time, on building together with learners an image of near-future society demanded outcomes. It is becoming increasingly important to address 21st-Century Skills and 21st-Century Digital Skills (Berit et al., 2021; Sberbank, 2018), soft skills (Wats & Wats, 2009), student's involvement in the implementation of "lifelong learning" strategy (Aspin & Chapman, 2007). Meaningful skills named "new technical skills to prepare for a new wave of the Fourth Industrial Revolution in the '20s", "basic skills that increase human adaptability, future-readiness, and proactive behavior" were suggested to move "from elite/top tier education into mass-scale education, and become part of the fundamental skill set that makes professionals employable and successful in the 2020s" (Future Skills for the 2020s. A New Hope. Fall 2020).

The level of professional ability to use digital teaching technologies is reflected not only in the ability to use certain tools, but also in the capabilities to set adequate goals for students' learning and development, which requires a deep understanding of transformative role of digital technology in education. Researchers assign categories of teachers depending on how they "perceive their own place and role vis-à-vis the digital revolution: 1) outside observers; 2) circumspect participants; 3) conscientious participants" (Tsybulsky & Levin, 2019). Louws et al. explored "the relationships between teachers' self-articulated professional learning goals and their current professional concerns" (Louws et al., 2017) and indicated that current professional concerns are largely attributable to the need to change their professional activities in the process of society and education digitization. Researchers of modern transformational processes in education emphasize that "On the one hand, teachers are supposed to use technology in their instruction in a way that is conducive to achieving meaningful pedagogical goals; on the other, teachers may be supposed to integrate new content into their instruction or change the instructional focus due to the digital transformation" (Guggemos et al., 2021).

Naturally, many teachers do not immediately perceive the need to enrich and change the range of educational goals. Webster-Wright (2009) remarks that teachers detect some professional development directions "next to useless" if they do not feel alignment with personally conscious goals.

The importance of identifying new pedagogical priorities in the process of dynamic digitization of society and education is emphasized in many studies, and these priorities should be manifested at all interrelated levels of pedagogical goal-setting. N. Gumerova states that "the process of pedagogical goal-setting is creative in nature since all its functions are associated with the search for the most effective, flexible operational and technological ways of teaching and professional upbringing" (Gumerova, 2008). In conditions of multidimensional pedagogical goal-setting, and the impossibility to identify uniform learning outcomes, the need to improve pedagogical goal-setting competences increases dramatically. Researchers have different perspectives on the problem of pedagogical goal-setting in the digitization of the education context. For example, Blinov et al. (2019) argue that in the didactic triad "expected results – content – forms and methods", digitization shifts the emphasis to forms and teaching methods. Authors affirm that "the primacy of forms and teaching methods over goals and expected results means a certain liberalization of learning aimed at individualization and personalization" (Blinov et al., 2019). Noskova (2020) reveals the influence of new digital tools on changing personal activities (goals, motives, operations and results), highlighting the importance of new goals setting and striving for new facets of the education quality that are inaccessible with previous teaching and learning practices.

Changing demands for education and increasing the variety of learning opportunities in an open information environment can be interpreted as a problematic situation in the educational process that requires significant changes in the teacher's activities. Interpreting problems directly related to the competence of pedagogical goal-setting in the digital environment, researchers note the "second digital divide" (Warschauer, 2003; Fishman et al., 2016), caused by significant differences in the activities of persons who productively, creatively apply multifunctional digital technologies, focusing on innovative results, and digital activities in the traditional paradigm. The greatest contribution to this gap is made precisely by the differences in pedagogical goal-setting in the changing educational environment.

2. METHODOLOGY

The study was carried out using theoretical methods of reviewing scientific publications on the problem of pedagogical goal-setting, as well as quantitative research methods, in particular, anonymous surveys.

The survey as a part of advanced training was conducted when trainees had already studied modules contributing to an innovative pedagogical perspective in the digital environment. But at the same time, it was taken into account that a significant change in teacher's professional position cannot be provided by even the most informative classes. It required personal experience, confirming the feasibility of innovative goals and ways to achieve them.

It has been hypothesized that an adequate change in pedagogical goal-setting ensures the functioning of the digital educational environment not as supplementary means in the learning process, but as a complex of innovative conditions for student's learning, development and socialisation.

The features of pedagogical goal-setting in a digital environment were tested using a questionnaire, divided into 5 blocks.

The questions of block 1 were designed to identify the survey participants' perception of general differences in pedagogical goal-setting in a traditional and digital educational environment.

The questions of block 2 were focused on identifying the respondents' ideas about the relationship between pedagogical goal-setting and educational facilities of the digital environment.

Block 3 aimed at identifying the participants' awareness of changes in pedagogical goal-setting, taking into account the information society and the digital economy demands.

Block 4 is focused on identifying the importance of pedagogical goal-setting in the soft skills area.

Block 5 is associated with identifying the importance of pedagogical goal-setting in a digital environment, taking into account the adoption of the long-life learning strategy.

Block 6 allows identifying the aspirations to improve the competence of pedagogical goal-setting in a digital environment.

The answers structure in each questionnaire block was set by the SAMR model (Substitution, Augmentation, Modification, Redefinition) of the ICT influence on the educational process (Puentedura, 2013).

The answers in all questionnaire blocks corresponded to 4 levels (L1–L4), where L1 matches the absence of changes in pedagogical goal-setting in the digital environment, L2 reflects functional improvement in traditional goals realising, L3 confirms the need to redesign pedagogical goals, and L4 is the level of significant goal-setting transformation in line with the innovative digital environment capacity considering new society demands for education.

Experimental work was carried out with the group of teachers in frame of the professional improvement program "Teacher of the Future" and with the group of pedagogical university academic teachers participating in an in-service training program related to the learning design in a digital environment. The selection of pilot groups was determined by the importance to assess and correlate the situation with goal-setting and priorities in a digital environment for current teachers, and for academic teachers providing professional training for future education specialists. The survey received responses from 148 teachers (49 academic teachers and 99 school teachers).

3. RESULTS

For each questionnaire block, obtained data were analysed for two groups of survey participants, school teachers and pedagogical university academic teachers. Before the survey started, the discussion aimed at systematizing the digital environment

educational facilities had been carried out. But as expected, the discussion did not have a decisive influence on the survey results, since its participants relied mainly on their own experience and an established system of pedagogical views. The survey results clearly demonstrate the teachers' cautious attitude to significant changes in pedagogical goal-setting in changing educational environment (Table 1). Since the school teachers and academic teachers answers did not show significant differences, the averaged values were analysed. Some differences by groups will be noted in the text.

T a b l e 1. Results of anonymous school teachers and pedagogical university academic teachers survey on the problem of pedagogical goal-setting in a digital environment

Question Blocks	Groups of respondents	Answers by levels			
QB1. General differences in pedagogical goal-setting in a traditional and digital educational environment		L1	L2	L3	L4
		No difference	A digital educational environment expand the scope to achieve traditional goals	A digital educational environment supports to expand the range of pedagogical goals	A digital educational environment significant transformation of pedagogical goals
	School teachers (%)	54	20	22	4
	Academic teachers (%)	50	24	14	12
QB2. Ideas on the relationship between pedagogical goal-setting and educational facilities of the digital environment		The educational facilities of a digital environment contribute to the achievement of the traditional goals	The educational facilities of a digital environment enrich opportunities to achieve traditional goals	The educational facilities of a digital environment should support the goals of developing digital skills	In a digital environment should be substantially transformed interconnected pedagogical goal-setting and educational conditions
	School teachers (%)	46	29	23	2
	Academic teachers (%)	42	35	17	6

QB3. Revealing awareness of changes in pedagogical goal-setting, considering information society and the digital economy demands		Do not see significant changes	The goals do not change significantly, but the possibilities to achieve them change. Incidentally new demanded skills are shaping	The goals of shaping digital skills and information culture are attached to the traditional educational goals	A significant transformation of educational goals is required in line with changing demands of the information society and the digital economy
	School teachers (%)	34	36	26	4
	Academic teachers (%)	38	28	30	4
QB4. Revealing the importance of goal-setting considering soft skills shaping in a digital environment		Do not see significant changes	Digital environment supports new opportunities for soft skills shaping	Digital environment enables to expand the range of goal-setting considering soft skills shaping	Digital environment provides a significant transformation of goal-setting considering soft skills shaping
	School teachers (%)	48	34	10	8
	Academic teachers (%)	56	34	6	4
QB5. Identifying the importance of pedagogical goal-setting in a digital environment considering lifelong learning		Do not see significant changes	Digital environment allows teachers to demonstrate 'lifelong learning' potential	Digital environment permits to expand the range of goals, encouraging learners to adopt a lifelong learning strategy	Digital environment requires a significant educational goals transformation to ensure students inclusion in implementation of «lifelong learning» strategy
	School teachers (%)	23	61	16	0
	Academic teachers (%)	21	55	24	0

QB6. Revealing the desire to improve the competence of pedagogical goal-setting in a digital environment		Currently, I don't feel such a desire	I should comprehend this problem	I strive to master new competencies of pedagogical goal-setting в in a digital environment	A significant transformation of pedagogical goal-setting in a digital environment required
	School teachers (%)	16	40	42	2
	Academic teachers (%)	12	43	45	0

Student's t-test detected no statistically significant difference between groups of school and academic teachers. The survey results clearly demonstrate the unwillingness of the majority of teachers and instructors to change significantly their professional position on pedagogical goal-setting in a digital environment. Analysis of the answers distribution by levels will reveal the most problematic areas of goal-setting (Figure 1).

The answers related to the significant transformation level of pedagogical goal-setting in a digital environment L4 are consistently at a low level, tending to zero. This testifies to the seriousness of the discrepancy between the available modern digital educational environment facilities and pedagogical goal-setting.

The answers related to the modification level of pedagogical goal-setting in a digital environment L3 demonstrate an unstable tendency.
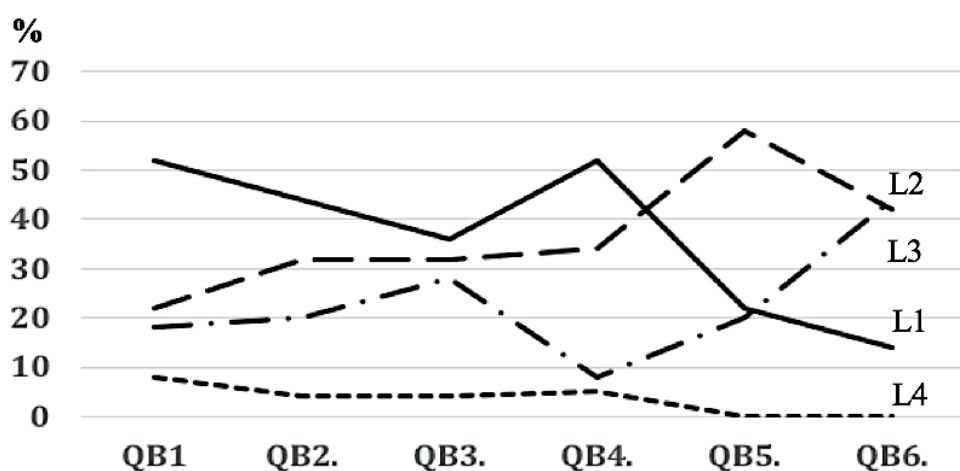

F i g u r e 1. Distribution of anonymous survey results on the problem of pedagogical goal-setting in a digital educational environment by levels

S o u r c e: Own work.

Survey respondents attributed more significance in pedagogical goal-setting to information society demands and the strategy of "lifelong learning" than goal-setting in the soft skills area. At the same time, it should be noted that 44% of respondents noted their own desire to master a new goal-setting competence in a digital environment. But since clear goals vision in changing information and socio-cultural conditions has not been shaped for the majority of survey participants, only 2% confirmed that they are currently aware of the need for a significant transformation of pedagogical goal-setting. Therefore, the overwhelming majority of teachers are still perceiving new information, communication and regulatory learning conditions as an expansion of opportunities to achieve traditional educational goals.

Both school and academic teachers do not yet attach sufficient importance to the purposeful development of students' soft skills. To a greater extent, university teachers are aware they need to purposefully undertake focused actions that improve students' longlife learning activity. Apparently, such results reflect the international educational platforms progress, and the implementation of the Open Education project, enhancing opportunities for active, motivated students not to limit their learning route by educational program disciplines.

The most positive and encouraging survey result is the overlapping of L1 and L3 graphs in QB6 section. Only 14% of teachers answered that they did not see the need to improve the goal-setting competence in a digital environment. Almost 42% of the respondents chose the answer "I need to comprehend this problem".

4. DISCUSSION

Undoubtedly, learning interaction in a digital environment empowers students with learning actions freedom with various digital resources, tools and communication methods. Free action choice reflecting personal capacities and preferences is the basis for the personal learning route. At the same time, we understand that the variability of the learner's actions will be in demand only in case of sufficient variability of learning goals. The main purpose of the pedagogical activity is to convey the idea of a multicomponent composition of perspective educational goals and results, which also generate a demand for the enrichment of the assessment system in a digital educational environment. In most examples of pedagogical practice, even the digital tools are actively applied in the learning process, the final assessment is carried out according to traditional principles.

Changing pedagogical goal-setting in the digital environment is a factor in significant changes in all professional functions. In this regard, a special role is played by the prognostic function, which ensures the construction of complex criterion-prognostic scenarios, reflecting the teacher's understanding of promising requests for educational results. Taking into account the general complication of educational results, the skills of decomposing pedagogical goals and creating conditions for their understanding and acceptance by students acquire special importance. Therefore, a key direction in improving educational programs is to stimulate teachers perception of a digital environment as a new educational reality that requires innovative goal-setting. The "mobility" of goal-setting in a digital environment becomes an integral

attribute of the pedagogical activity, aimed at equipping students for success in their future professional activities.

The study confirms that in mass pedagogical practice, there has not been sufficient focus on the idea of a close connection between encouraging demands for education and the digital educational environment, reflecting society current development trends. Consequently, the problem of pedagogical goal-setting in the changing socio-cultural and informational conditions is significantly actualized.

CONCLUSION

The obtained survey results lead to the conclusion that the pedagogical goal-setting issue appeared to require further research and study. The modern educational environment contains two parts: the traditional classroom interactions and the digital environment as an innovative educational activities complex. They are not always perceived by teachers as interrelated and mutually influencing. This is evidenced by a survey conducted among school and university teachers on the possibilities of enhanced pedagogical goal-setting in the digital environment. Unfortunately, more than 70% of teachers do not see significant differences nor attribute the potential of the digital environment to the expansion of traditional educational goals. But while answering questions about matching the possibilities of the digital environment to the new challenges of education, more than 50% of teachers chose options that a digital environment supports new opportunities and permits to expand the range of learning goals. More than 40% of teachers perceive the problem to improve the competence of pedagogical goal-setting in a digital environment as relevant. About 40% of teachers are willing to comprehend this problem in the future. The study results revealed a clear revision trend of the teacher's professional priorities in the progressive digital environment.

This unavoidably increases the value of further research of the pedagogical goal-setting, and consequently, the problems of disclosing the innovative pedagogical potential of a digital environment. The results of such research are urgently needed to strengthen the advanced professional programs content for future teachers and for academic teachers in sections that contribute to shaping skills in order to realize and set specific, controlled educational goals reflecting the multifaceted digital environment potential.

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