

## PARTICIPATIVE AND DIGITAL READINESS OF TEACHERS OF SUPPLEMENTARY TECHNICAL EDUCATION: EXPERIENCE OF JOINT MOODLE COURSE

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**Abstract.** The article presents the experiment on the formation of participative and digital readiness of teachers of supplementary technical education (STE) through the joint creation of the Moodle course “Initial technical modeling” on the platform of the NCJSC “Baitursynov Kostanay Regional University” (Kostanay, Kazakhstan). The experiment was organized among 32 STE teachers of the Kostanay region; the stages of the experimental work included the initial stage (analysis of the formation of the participative and digital readiness of STE teachers; the forming stage (organization of an experiment on the joint creation of the Moodle course); final (determination of the achieved level of formation of the studied readiness). Research materials: the results of the joint activities of STE teachers on the creation of digital educational content (a jointly developed advanced training course on the Moodle platform of Kostanay Regional University named after A. Baitursynov; a YouTube channel jointly created by teachers; tools for summative and formative assessment, evaluating and measuring means of students' achievements in STE, texts of modernized training programs in the direction of the STE). The hypothesis of the study is as follows: the formation of participative and digital readiness of teachers of supplementary technical education is implemented on the principles of parity, flexibility and communicativeness of co-activity in creation of digital educational content. The experiment showed a significant impact of co-activity to create digital educational content on all components of the studied readiness (motivational, content-based, operational).

**Keywords:** supplementary technical education, readiness of teachers, digital readiness, participative and digital readiness, joint activity, Moodle course, digital education, participation

### Basic provisions

The participative and digital readiness of teachers of supplementary technical education (STE) is considered as a complex result of the system of pedagogical training.

The given research indicates the author definition of the core term as the active participation of teachers of organizations of supplementary technical education in joint activities with the subjects of the educational process to create, implement and reflectively analyze digital educational content on the principles of mutual responsibility and cooperation.

The studied readiness consists of three main components: motivational, content-oriented and operational components. According to the programme of the formation of the participative and digital readiness of teachers of supplementary

technical education that includes introductory, formal and final stages, the levels of the given readiness have been identified as low, intermediate and high.

The key factor in transition of participants from the lower to higher levels of the readiness lies in the joint co-creation of the Moodle course organized by BKRU (Kostanay) as a form of proliferation of the results of the study.

The research highlights in the following correlations: 1) involvement in the joint creation of digital educational content contributes to the intensification of the formation of digital skills of STE teachers (motivational and content-oriented components of the readiness); 2) real participation of the teachers into creation of the digital content when programming the Moodle course is an effective mechanism in the formation of the content-oriented and operational components of the participative and digital readiness of STE teachers; 3) the higher levels of formation of the content-oriented and operational components of readiness correlates with an increase in the motivational component.

### **Introduction**

The analysis of the readiness of teachers is one of the indicators of monitoring the system of the entire teacher education, which, in the modern era of world instability, is undergoing constant changes, both in the target and in the content aspects.

The system of supplementary education at the present stage of development requires a transition to the use of "high-intensity new, creative... pedagogical technologies" [1]. Considering the need for structural changes in the formation of the readiness of teachers of supplementary technical education, it should be emphasized the growing role of the system of supplementary education (SE) of children in the Republic of Kazakhstan, as a whole. Statistical data reflected in the Concept development of preschool, secondary, technical and vocational education of the Republic of Kazakhstan for 2023-2029 (hereinafter referred as *Concept*) demonstrate a decrease in the activity of involving children in the system of supplementary education (see Fig. 1) [2]. The reasons for this decline are both external (social, due to the decline in the involvement of children in organizations of SE during the pandemic), and internal factors (replacement of additional education by self-education, lack of interest in certain areas of SE).

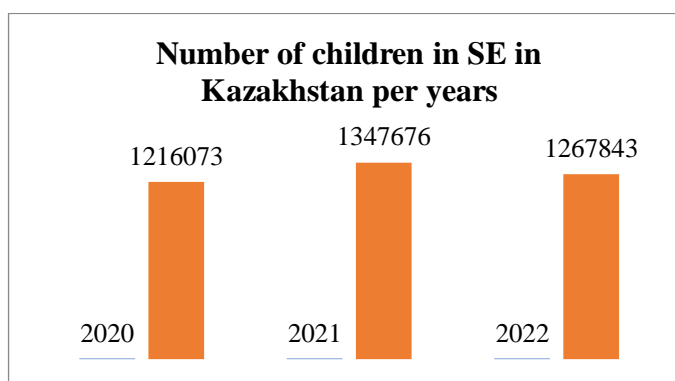


Figure 1 – The number of children involved into the supplementary education in the Republic of Kazakhstan (2020-2022)

Referring to the Concept, the problems of supplementary education in the Republic of Kazakhstan are related to “the lack of out-of-school organizations within walking distance from the place of residence of children and free school extracurricular activities; also low coverage of children with SEN (special educational needs) and those studying in rural areas with supplementary education” [2].

Thus, a partial transfer of the system of supplementary education to a distance format could solve the problem of the remoteness of supplementary education institutions and the coverage of students in rural areas in SE.

Based on the fact that there is a shortage of teachers of supplementary technical education in the Republic of Kazakhstan (482 teachers in 26 SE organizations according to the Report on supplementary technical education in the SE system “On stations and centers of young naturalists, ecologists and tourists”) [3, p. 11], remote the format of the organization of the STE (supplementary technical education) will be able to provide the possibility of access and mobility of participation of a wider number of students within this direction.

Thus, at the social level, the research problem is determined by the presence of a *contradiction* between the society need for high-quality training of teachers of supplementary technical education (STE) for the use of distance learning technologies and the insufficient readiness of the education system to meet this need. At the theoretical and technological levels, the research problem is determined by the presence of increased requirements on the part of stakeholders (consumers of educational services) for the readiness of STE teachers to use distance learning technologies and the insufficient effectiveness of the use of traditional pedagogical technologies in education.

Thus, it is the distance learning format in the system of supplementary technical education that requires fundamental changes in the formation of the readiness of STE teachers in new aspects: participative and digital.

## **Materials and methods**

*The aim* of this article is to present an experimental work on the formation of participative and digital readiness of teachers of supplementary technical education through the joint creation of the advanced training course on the Moodle platform.

Based on the aim of the study - to increase the level of formation of participative and digital readiness of teachers of supplementary technical education, the **objectives** of the study were formulated:

1. Studying the state of the research problem in the psychological, pedagogical, philosophical, social and methodological literature;
2. Definition of the concept of "participative and digital readiness of teachers of supplementary technical education";
3. Disclosure of the structural components of the studied readiness;
4. Presentation of the logistics of experimental work on the formation of participative and digital readiness of teachers of additional technical education;

5. Analysis and presentation of the results of the formation of the studied readiness.

*Methods of the research:* theoretical (analysis of sources of information, legal documentation); theoretical and practical (modeling the structure of readiness under study, presenting the main indicators of participative and digital readiness of teachers of supplementary technical education); empirical (collection and systematization of data on the formation of the studied readiness, experiment, modeling of digital educational content in the form of developing the advanced training course on the Moodle platform, analysis and presentation of research results).

*Research materials:* the results of the joint activities of STE teachers of on the creation of digital educational content (a jointly developed advanced training course on the Moodle platform of Kostanay Regional University named after A. Baitursynov; a YouTube channel jointly created by teachers; tools for summative and formative assessment, evaluating and measuring means of students' achievements in STE, texts of modernized training programs in the direction of the STE).

*Participants of the study:* 32 STE teachers of Kostanay region, who constitute the experimental group (EG).

## **Results and discussion**

Based on the research problem, we will define the main terminological apparatus in the framework of studying the formation of participative and digital readiness of teachers of supplementary technical education.

The main concept includes the *participative and digital readiness of teachers of supplementary technical education*, which includes specific complex concepts that require clarification.

Specific complex concepts include "participative readiness", "participative and digital readiness" and "supplementary technical education". Let us present the characteristics of these concepts in our study.

In the psychological and pedagogical literature, "*participativity*" is interpreted as a property of activity that reflects its "collegiate character" [4], as a way of interaction between community members on the principles of "mutual responsibility, cooperation" [5]. We position participation after E.B. Bystray, who considers participativity as a property of a pedagogical phenomenon, including "active participation of everyone" [6], participation and involvement of all participants in a certain aspect of activity.

*Readiness* is considered as a result of training, a personal state [7], a stable personality characteristic [8] or an integral part of competence [9].

Considering digital readiness, researchers T.E. Khavenson and M.A. Gizatullin distinguishes its specific features - manufacturability, a positive attitude towards digital technologies and innovativeness in pedagogical activity [10].

*Supplementary technical education* is a type of organization of supplementary education for children in the form of stations for young technicians (centers, schools of technical creativity for children and youth), which implements

"educational programs of supplementary education in order to meet the educational and cultural needs of students, including children with special educational needs, in the interests of the individual, society and the state" [11, p. 5].

Based on the key concepts, we position the *participative and digital readiness of teachers of supplementary technical education* as the active participation of teachers of organizations of supplementary technical education in joint activities with the subjects of the educational process to create, implement and reflectively analyze digital educational content on the principles of mutual responsibility and cooperation.

Considering the structural components of the participative and digital readiness of teachers of supplementary technical education, following V.V. Danilova, we single out the motivational, content-oriented and operational components [12, p. 122]. The expediency of highlighting these components is due to the universal nature of the approach to the readiness structure [13; 14].

The content of the structure of the studied readiness is presented in Table 1 (see Table 1).

Table 1 - Content of the components of participative and digital readiness of teachers of STE and methods for analyzing the formation of these components

<i>Component</i>	<i>The content of the component and criteria for its assessment</i>	<i>Methods and techniques for analyzing the formation of the component</i>
Motivational	Motives (external/internal, positive/negative) for joint planning, organizing and diagnosing STE in a remote format, presence/lack of interest in joint digital educational activities, awareness/non-acceptance of the values of joint activities in STE in a remote format	Survey on self-assessment of motivation for the digital format in STE, ranking the values of joint digital activities in STE, the methodology for diagnosing technological readiness "Technology Readiness Index (TRI 2.00)" - A. Parasuroman [15]
Content-oriented	Knowledge (consistency, strength, flexibility) in the field of digital education, STE and ways of joint educational activities to create digital content	Weighted average expert assessment of the STE curricula (ACADEMICA project index on WEA, 2015).
Operational	Skills and abilities (flexibility, adaptability and integrativity) of joint planning, organizing and diagnosing the results of co-creation of digital educational content in STE	ation, analysis of the results of the activities of teachers in the form of a portfolio of students

Three levels of formation of the studied readiness have been presented: *low, intermediate and high*. *Low level* (negative extrinsic/intrinsic motivation to co-organize to create digital educational content in STE, lack of interest and rejection of the remote format in STE, low level of knowledge about collaborative digital activities in STE, insufficient integration of digital format tools into the STE curricula, basic or maladaptive skills in the use of digital content in STE, lack of digital content in the portfolio of schoolchildren). *Intermediate level* (external positive motivation to jointly organize the creation of digital educational content in STE, interest in the remote format in STE, sufficient knowledge of joint digital activities in STE, fragmented integration of digital format tools into STE curricula, ability to jointly create a digital educational content are not reflected in STE

curricula or reflected superficially and not systematically. *High level* is characterized by the presence of internal positive motivation to jointly organize the creation of digital educational content in STE, sufficient and strong knowledge of a systematic and flexible nature about collaborative digital activities in STE; and skills to use and create digital educational content in STE curricula; the presence of digital content in the portfolio of schoolchildren).

The program of experimental work included the following stages:

1) *Introductory* (determination of the initial level of formation of the studied readiness);

2) *Formative* (joint development and implementation of the advanced training course on the Moodle platform);

3) *Final* (determination of the achieved level of formation of the studied readiness).

So, at the *introductory stage* of the experiment, the following results of the distribution of participants in the EG by levels were obtained (see Table 2).

Table 2 - Distribution by levels of formation of participative and digital readiness of STE teachers (before the introduction of the Moodle course, number of participants)

<i>Level/Component</i>	<i>Motivational</i>	<i>Content-oriented</i>	<i>Operational</i>
	15	17	16
mediate	10	10	11
	7	5	5

Based on the data obtained, it should be noted that the participative and digital readiness of STE teachers has the low and predominantly intermediate level due to the following reasons:

1) Low motivation to jointly develop digital educational content on STE, which is “recommendatory”, “optional and labor-intensive” (*quote from the motivation questionnaire*);

2) Sufficiently low level of formation of the content-oriented component of the studied readiness is explained by the fragmentary introduction of digital educational content into the STE curricula (the presence of separate instructions for completing tasks, links to Internet resources);

3) The operational component of readiness is reflected in the results in the form of a portfolio of schoolchildren's work and demonstrates partial digital educational content.

Thus, there was a need for additional specially organized activities to increase the level of formation of the components of the participative and digital readiness of STE teachers.

So, on the basis of the Moodle educational platform of the NJSC “Baitursynov Kostanay Regional University”, a special work was organized to jointly create and implement the advanced training course on the Moodle platform (January-April, 2023).

*The formative stage* of the experiment included the following steps: propaedeutic and actually forming.

The propaedeutic stage assumed (72 hours, 10 hours of contact and 62 hours of independent work) the organization of the work by the teaching staff of the university on test design in the Moodle environment (test typology, test creation, test setup, test access modes, etc.); methodology and technology for conducting webinars and video conferences, recording video resources (work on platforms and hosting MS Teams, BBB, Zoom, CamStudio, VideoScribe, Adobe Presenter, other resources for recording podcasts).

The *actual formative stage* of the experiment included the following steps:

1. Goal setting and course planning;
2. Distribution of thematic blocks of the course;
3. Development of content, evaluating elements of the course, digital educational resources;
4. Technical aspects of course design;
5. Primary piloting and implementation of the course.

The *course goal-setting stage* involved joint determination of the course direction by the participants of the experiment and its content.

As part of the study, a program for advanced training of STE teachers was developed based on the joint development of the course “Preparing STE teachers for remote interaction with schoolchildren” on the Moodle platform. The goal of the course is to develop practical competencies in the use of ready-made digital resources and the joint creation of new digital educational content (creating a YouTube channel, recording video instructions and an algorithm for working on design models, processing video and uploading content to the channel, creating a bank of assessment tasks, selecting existing digital resources).

*Course planning* included the development of the main topics of the course content, filling them with effective, reflective and evaluation tasks.

The stage of *distribution of thematic blocks* of the course developed 8 main modules of 9 hours of training (2 lecture hours, 2 practical classes, 7 hours of independent work within each module), the total number of hours is 72:

1. Introduction to the theory and practice of technical modeling;
2. Work operations, manual labor tools, materials;
3. Graphic preparation;
4. Flying models;
5. Cars;
6. Agricultural machinery;
7. Floating models;
8. Technology of the future. Robotics;
9. Fundamentals of safety in the implementation of technical modeling.

All topics were distributed among the participants of the experiment, united in subgroups on the principle of voluntary participation.

The *stage of developing* content, evaluating course elements, digital educational resources was central and time-consuming, involving: mutual assistance in creating video content, monitoring the process of creating digital

educational resources, tracking the process of filling out the course and its operational evaluation by experts from Baitursynov KRU (5 experts from the distance learning department and educational technologies, 3 teaching staff of the Department of Physics, Mathematics and DT).

The *technical course design stage* covers the final design of the course, its aesthetics and navigation, editing the main settings.

*Initial piloting* of the course included reconnecting course participants to learner mode, exploring all co-created course topics, writing reflective sheets for each course module, solving assignments, and getting a final grade on a 100-point scale for assessing course learning outcomes. An example of a course module co-created on the Moodle platform is shown below (see Figure 2).

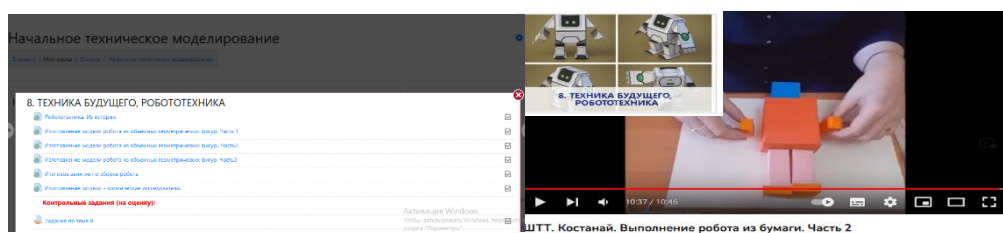


Figure 2 – The sample of the module “Technology of future. Robotics” on the co-created Moodle course (Kostanay)

The *final stage* of the experiment included the application of methods for assessing the achieved level of formation of the studied readiness. The following results of the distribution of EG participants by levels were obtained (see Table 3).

Table 3. Distribution by levels of formation of participative and digital readiness of STE teachers (after the introduction of the Moodle course)

Level/Component	Motivational	Content-oriented	Operational
Initial	15	10	10
Intermediate	10	15	12
Final	7	7	9

## Conclusion

As a result of the study, the largest transition in the levels of formation of the studied readiness is observed in both the motivational and content-oriented and operational components (transition from a level to a higher level - 10, 14 and 11 participants, respectively). This is due to the following reasons:

1. Involvement in the joint creation of digital educational content contributes to the intensification of the formation of digital skills of STE teachers;

2. "Knowledge in action" is a real mechanism in the formation of the content-oriented and operational components of the participative and digital readiness of STE teachers;

3. A high level of formation of the content-oriented and operational components of readiness correlates with an increase in the motivational component, since “knowing the basics of designing digital educational content, it is



easier and more interesting to modify it for the educational needs of the STE” (quote from a questionnaire conducted after the introduction of the course).

The prospects of the study lie in the possibility of analyzing the results of the activities of teachers of the STE based on the portfolio of students' achievements, the synthesis of practices in the field of digital design and modeling of the educational process in the STE.

### **Funding Information**

The article was carried out as part of a study on the project AP09261048 "Forming the readiness of future teachers for the development of technical creativity of schoolchildren using distance learning technologies" under contract No. 186/36-21-23 on the implementation of scientific, scientific and technical projects of grant funding from the Ministry of Education and Science of the Republic of Kazakhstan dated April 15, 2021.

### **REFERENCES**

- [1] Diri M.I., Yusupova O.V., Mihelkevich V.N. Theoretical model of the system for the formation of the readiness of teachers of a technical university for the development and use of innovative pedagogical technologies in the system of additional education //Pedagogical education in Russia. – 2019. – No. 1. – Pp. 5-18.
- [2] The concept of development of preschool, secondary, technical and vocational education of the Republic of Kazakhstan for 2023–2029. – March 28, 2023. – No. 249. – 29 p.
- [3] Report on supplementary technical education in the SE system “On stations and centers of young naturalists, ecologists and tourists”. – Astana, 2023. – 13 p.
- [4] Gavrikov A.L. Strategic management of the university: textbook. – M.: New Book, 2004. – P. 12.
- [5] Shkitina N.S. Cultural and historical prerequisites for the formation and development of pedagogical empathy as a basic characteristic of the empathic and participatory training of the future teacher //Bulletin of the Chelyabinsk State Pedagogical University. – 2009. – No. 6. – Pp. 193-201.
- [6] Bystraj E.B. Intercultural-participatory approach as a theoretical and methodological strategy for the formation of intercultural pedagogical competence //Bulletin of OSU. – 2003. – No. 6. – Pp. 78-83.
- [7] Slastenin V.A., Podymova L.S. Pedagogy: innovative activity. – M.: Publishing house “Magister”, 1997. – 308 p.
- [8] Kondrashova L.V. Theoretical foundations for the education of moral and psychological readiness of students of the pedagogical institute for professional activity: Abstract of the thesis of diss. of dr. ped. sci. – M., 1989. – 39 p.
- [9] Buharova G.D., Zhukov G.N. Readiness for professional and pedagogical activity of the future NPO master in modern socio-economic conditions // Bulletin of the Orenburg State University. – 2005. – No. 2. – Pp. 57-63.
- [10] Havenson T.E., Gizatullin M.A. Digital technological readiness of teachers: approaches to measurement //Trends in the development of education. Efficiency of educational institutions: materials of the XVI annual International scientific and practical conference. – 2020. – Pp. 188-195.
- [11] Order of the Minister of Education and Science of the Republic of Kazakhstan “On Approval of the Model Rules for the Activities of Types of Organizations of Additional Education for Children” - 2019. - No. 254. – 18 p.
- [12] Danilova V.V. Formation of the participatory readiness of future teachers for educational activities: diss. of cand. ped. sci. – Chelyabinsk, 2015. – 285 p.

[13] Kalitova A.Yu. Formation of the future teacher's readiness for the development of a tolerant attitude of students to a person: diss. of cand. ped. sci. – Samara, 2011. – 206 p.

[14] Scherer R., Siddiq F., Howard S.K., Tondeur J. The more experienced, the better prepared? New evidence on the relation between teachers' experience and their readiness for online teaching and learning // Computers in Human Behavior. – 2023. – Vol. 139. – Access mode: URL: <https://doi.org/10.1016/j.chb.2022.107530>. [Date of access: 19.05.2023]

[15] Parasuraman A. Technology Readiness Index (Tri): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies// Journal of Service Research. – 2000. – Vol. 2. – No. 4. – Pp. 307–320.

## **ҚОСЫМША ТЕХНИКАЛЫҚ БІЛІМ БЕРУ ПЕДАГОГТЕРІНІҢ ПАРТИСИПАТИВТІ-ЦИФРЛЫҚ ДАЙЫНДЫҒЫ: MOODLE КУРСЫН БІРЛЕСІП ЕНГІЗУ ТӘЖІРИБЕСІ**

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**Андатпа.** Мақалада «А.Байтұрсынов атындағы Қостанай Өңірлік университеті» КЕАҚ-ның (Қостанай қ., Қазақстан) Moodle платформасында «Бастапқы техникалық модельдеу» курсы бірлесіп құру арқылы қосымша техникалық білім беру (ҚТБ) педагогтерінің партисипативті-цифрлық дайындығын қалыптастыру бойынша эксперимент қаралды. Экспериментке Қостанай облысы бойынша 32 ҚБТ педагогы қатысты; эксперименттік жұмыстың кезеңдері қалыптастырушы (MOODLE курсы бірлесіп құру бойынша экспериментті ұйымдастыру); айқындаушы кезеңді (ҚТБ педагогтерінің партисипативті-цифрлық дайындығының қалыптасуын талдау); қорытынды кезеңді (зерттелетін дайындықтың қалыптасуының қол жеткізілген деңгейін айқындау) қамтыды. Зерттеу материалдары: ҚТБ педагогтерінің цифрлық білім беру контентін құру бойынша бірлескен іс-әрекетінің нәтижелері (А.Байтұрсынов атындағы Қостанай өңірлік университетінің Moodle платформасында бірлесіп әзірленген біліктілікті арттыру курсы; мұғалімдер бірлесіп жасаған YouTube арнасы; ҚТБ бойынша білім алушылардың жетістіктерін бағалайтын және өлшейтін жиынтық және формативті бағалау құралдары, ҚТБ бағыты бойынша жаңартылған оқу бағдарламаларының мәтіндері). Зерттеудің гипотезасы келесідей: қосымша техникалық білім беру педагогтерінің бірлескен цифрлық дайындығын қалыптастыру цифрлық білім беру мазмұнын құру бойынша бірлескен іс-әрекеттердің паритеттік, икемділік және коммуникативтілік принциптерінде жүзеге асырылады. Эксперимент цифрлық білім беру мазмұнын құру жөніндегі бірлескен қызметтің зерттелетін дайындықтың барлық компоненттеріне (мотивациялық, мазмұнды, операциялық) айтарлықтай әсерін көрсетті.

**Тірек сөздер:** қосымша техникалық білім, мұғалімдердің дайындығы, цифрлық дайындық, бірлескен цифрлық дайындық, бірлескен қызмет, Moodle курсы, цифрлық білім, партисипация

# ПАРТИСИПАТИВНО-ЦИФРОВАЯ ГОТОВНОСТЬ ПЕДАГОГОВ ДОПОЛНИТЕЛЬНОГО ТЕХНИЧЕСКОГО ОБРАЗОВАНИЯ: ОПЫТ СОВМЕСТНОГО ВНЕДРЕНИЯ КУРСА MOODLE

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**Аннотация.** В статье рассмотрен эксперимент по формированию партисипативно-цифровой готовности педагогов дополнительного технического образования (ДТО) через совместное создание курса Moodle «Начальное техническое моделирование» на платформе НАО «Костанайский региональный университет им.А.Байтурсынова» (г.Костанай, Казахстан). В эксперименте приняли участие 32 педагога ДТО Костанайской области; этапы экспериментальной работы включали констатирующий этап (анализ сформированности партисипативно-цифровой готовности педагогов ДТО); формирующий (организация эксперимента по совместному созданию курса Moodle); итоговый (определение достигнутого уровня сформированности исследуемой готовности). Материалы исследования: результаты совместной деятельности педагогов ДТО по созданию цифрового образовательного контента (совместно разработанный курс повышения квалификации на платформе Moodle Костанайского регионального университета им.А.Байтурсынова; совместно созданный учителями YouTube канал; инструменты суммативного и формативного оценивания, оценивающие и измерительные средства достижений учащихся в ДТО, тексты модернизированных программ обучения по направлению ДТО). Гипотеза исследования заключается в следующем: формирование партисипативно-цифровой готовности педагогов дополнительного технического образования реализуется на принципах паритетности, гибкости и коммуникативности совместной деятельности по созданию цифрового образовательного контента. Эксперимент показал значительное влияние совместной деятельности по созданию цифрового образовательного контента на все компоненты исследуемой готовности (мотивационный, содержательный, операциональный).

**Ключевые слова:** дополнительное техническое образование, готовность педагогов, цифровая готовность, партисипативно-цифровая готовность, совместная деятельность, курс Moodle, цифровое образование, партисипация

*Статья поступила 11.08.2023*