



ISSUES IN DEVELOPING THE CONTENT OF
TEACHING AND LEARNING MATERIALS TO
ENHANCE THE DIGITAL COMPETENCE OF
PROFESSIONAL DEVELOPMENT COURSE
PARTICIPANTS

Nilufar Mirkadirovna Khalikova

*A. Avloni National Institute of Pedagogical Excellence
Tashkent, Uzbekistan*

ARTICLE INFO:

Received: 27.10.2026

Revised: 28.10.2026

Accepted: 29.10.2026

KEY WORDS:

*innovation,
innovative processes,
innovative activities,
teaching and learning
materials, information
technology.*

ABSTRACT

This article examines issues related to developing the content of teaching and learning materials aimed at enhancing the digital competence of participants in continuing professional development courses.

Introduction

Innovative activities are an integral part of teachers' professional practice. The introduction of innovations into education enables teachers to adapt to changing conditions and apply unconventional approaches in their lessons. In today's modernized educational environment, teachers are expected to move beyond traditional, well-established methods and adopt new perspectives and approaches. Teachers should be able to engage students actively in the learning process, foster creativity among the younger generation, and achieve effective educational outcomes. In this regard, innovative methods and approaches not only make the learning process more engaging but also create opportunities for further improvement in educational content.

This article addresses the development of teaching and learning materials for specific training modules within the system of teachers' professional development, with particular emphasis on designing their content through modern information technologies to prepare teachers for innovative pedagogical activities.



Main Part

The development of teaching and learning materials for the professional development system of public education personnel requires adherence to the following principles:

- preparing clear, accessible, and easily understandable texts that contribute to the development of teachers' existing knowledge and skills;
- incorporating engaging diagrams, charts, illustrations, and tables that help teachers expand their subject-specific knowledge;
- providing practical exercises, assessment questions, and activities designed to evaluate teachers' knowledge and skills;
- developing assignments that encourage teachers to find solutions to challenging situations encountered in their professional practice.

To ensure the quality of teaching and learning materials, attention should be paid to the following aspects:

- considering teachers' existing knowledge, practical experience, and professional needs;
- taking into account the capacities of regional professional development centres across the country, the characteristics of participating teachers, their qualification requirements, and individual abilities;
- adapting the language of teaching and learning materials to the age characteristics of the target audience;
- using the curriculum of a particular training module as the foundation for developing teaching and learning materials;
- encouraging participants' active engagement and creativity, guiding them towards innovative pedagogical activities based on clearly defined goals and objectives, and ensuring that instructional materials are closely connected with professional practice rather than being limited to the provision of information.

The preparation of teaching and learning materials begins with the development of an initial manuscript. At this stage, the following requirements should be observed:

- the teaching and learning materials should be based on the curriculum of the relevant subject included in the standard educational programmes of leading training institutions;
- recent advances in information technology should be reflected in the content;
- contemporary materials developed by international authors in the relevant subject area should be incorporated;
- assessment questions, tests, and practical assignments should be provided to enable participants to independently evaluate the knowledge acquired through active learning approaches;
- the materials should include illustrations, images, and diagrams that support the development of teachers' existing knowledge;



- recommendations for further reading should be included to encourage teachers to independently expand their knowledge.

Furthermore, it is advisable to follow established criteria when developing teaching and learning materials [1, 2]:

- organizing instructional texts in a clear and logical sequence;
- including relevant illustrations and diagrams throughout the materials to facilitate the learning process;
- presenting information in a clear, coherent, and engaging manner, taking into consideration participants' qualifications and ensuring that the examples correspond to their professional experience;
- providing concise descriptions of theoretical and practical activities and ensuring their close connection with the concluding sections;
- considering the professional learning needs of teachers from different regional training centres across the country;
- ensuring that the teaching and learning materials fully correspond to the curriculum and adequately cover its content;
- maintaining accuracy, consistency in the use of colours, and reliability in the presentation of instructional content;
- paying attention to the dimensions, appropriate use of colours, paper quality, and cover design of the developed materials;
- incorporating assignments that encourage teachers to engage actively with the presented content and participate in innovative pedagogical activities.

The content of teaching and learning materials should be designed to develop participants' independent and critical thinking skills, improve their existing knowledge, encourage self-directed learning, and stimulate their interest in acquiring new knowledge.

In addition, teaching and learning materials developed according to the above criteria should be convenient and accessible for participants and meet the following requirements:

- being engaging and visually appealing;
- providing participants with opportunities to develop subject-specific skills, knowledge, conceptual understanding, and broader perspectives;
- including the content required by the official curriculum;
- being clear, accessible, and easy to use;
- presenting examples, problems, real-life situations, and practical concepts;
- incorporating illustrations and diagrams that help establish connections between theory and practice;
- taking into account the national and cultural traditions and values of the country;
- being adaptable to participants' different levels of professional qualification and considering the needs of both highly qualified and less experienced teachers;



- ensuring that the content corresponds to participants' qualification levels and accommodates differences in their professional knowledge and experience.

The stages involved in developing teaching and learning materials for the professional development system can be represented schematically as follows:

1. Initiation of the process
2. Definition of objectives
3. Content development
4. Preparation of the initial version
5. Publication
6. Finalization and submission of the completed materials

The development of teaching and learning materials should follow the sequence outlined above. Each of these stages is discussed in greater detail below.

Initiation of the Process

Before developing teaching and learning materials, the author should clarify the following aspects:

- determining how the teaching and learning materials should be prepared and identifying the professional qualification area for which they are intended;
- reviewing the approved curriculum and determining the number of instructional hours allocated to the relevant module;
- identifying the intended users of the teaching and learning materials and the specific purposes for which they will be used;
- considering participants' qualification levels and the extent to which the materials can be applied in their professional practice;
- reviewing the existing literature related to the training module;
- examining and analysing other teaching and learning materials to identify relevant requirements and quality criteria.

Setting Objectives

Once the task has been defined, it is necessary to address the following questions:

- How and by whom will the teaching and learning materials be used? This involves identifying the areas of professional development for which the materials are intended and considering the specific requirements of their preparation.
- What knowledge and skills are participants expected to develop after using the teaching and learning materials?
- What should the teaching and learning materials include? This involves identifying the key concepts, terms, definitions, principles, and central ideas that need to be addressed within the main topic.



Content Development

The content of teaching and learning materials generally consists of the following components:

- a working curriculum;
- the application of active pedagogical technologies within the training module;
- theoretical learning materials;
- practical learning materials;
- a collection of practical assignments;
- topics for independent study;
- a glossary;
- references.

Preparation of the Initial Version

The text prepared for the teaching and learning materials is revised several times in accordance with participants' needs and the content of the training module. During the development of individual topics, the original text, illustrations, diagrams, and the overall content and structure are presented to other specialists for review. Their comments and recommendations are carefully examined and considered. Based on this feedback, the initial version of the teaching and learning materials is prepared.

Publication

The final version of the teaching and learning materials generally undergoes two types of editing.

- **Content editing.** A subject specialist reviews and revises the content of the text and makes necessary changes to the structure and organization of the teaching and learning materials.
- **Technical editing.** This stage involves improving the technical presentation of the materials, including their layout, interface, formatting, font sizes, sequence of content, presentation of illustrations, clarity of diagrams and tables, and other relevant elements.

Submission of the Completed Materials

At this stage, the completed teaching and learning materials are recommended for use by participants in professional development programmes.

One of the main advantages of using teaching and learning materials developed for the professional development system is that they provide participants with resources related to the competencies required for innovative pedagogical activities. These materials also allow participants to access the necessary information at a time that is convenient for them.

Experience suggests that a team of authors can generally produce higher-quality teaching and learning materials than an individual author working independently. When a collaborative approach is adopted, it is useful to consider the following aspects:

- organizing regular meetings to exchange ideas and discuss progress;



- making important decisions collaboratively;
- distributing responsibilities logically and in accordance with each author's expertise and capabilities;
- establishing clear deadlines and ensuring that they are strictly observed;
- defining the format and content of individual topics and sections to maintain a consistent style throughout the materials.

The role of pedagogical tools in supporting participants' innovative pedagogical activities can be examined through the teaching and learning materials entitled "Digital Technologies and Artificial Intelligence in Education", which were developed using innovative approaches, incorporate the requirements outlined above, and are currently used within the professional development system [2].

The topics included in these materials were developed based on an examination and analysis of the digital competencies of participants attending regional professional development centres across Uzbekistan.

The materials also take into account current developments in science and technology, interdisciplinary integration, and the requirements of modern education. Their primary objective is to develop participants' competencies in creating electronic educational resources through the use of pedagogical software tools in their professional activities.

During the development of the teaching and learning materials entitled "Digital Technologies and Artificial Intelligence in Education", particular attention was given to the competencies participants need to use digital technologies and artificial intelligence effectively in their professional practice, create educational materials in electronic formats, and ensure information security. The sequence of topics was also organized with consideration of participants' existing knowledge.

Accordingly, the theoretical component of the teaching and learning materials introduces the fundamental concepts of pedagogical software tools used in the educational process and provides a theoretical overview of the necessary technical resources.

When implementing the training module based on these teaching and learning materials within the continuing professional development system, particular attention should be paid to the objectives, content, forms, methods, and tools of instruction.

When these components are appropriately aligned, participants may achieve the following outcomes:

- development of media literacy and media culture;
- enhancement of creativity;
- increased engagement in innovative pedagogical activities.



Conclusion

As discussed above, the development of teaching and learning materials based on innovative approaches offers several advantages in preparing participants for innovative pedagogical activities.

References

1. Tayloqov, N. I. (2005). Scientific and Pedagogical Foundations for Developing New-Generation Informatics Textbooks for Continuing Education. Monograph. Tashkent: Uzbekistan National Encyclopedia State Publishing House, 160 pp.
2. Jumanazarov, S. S., Khalikova, N. M., et al. (2025). Digital Technologies and Artificial Intelligence in Education. Tashkent, 56 pp.