DEVELOPING THE INTELLECTUAL COMPETENCE OF PROSPECTIVE PRESCHOOL TEACHERS THROUGH AN INNOVATIVE APPROACH: A TECHNOLOGY FOR RETRAINING COURSES

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Abstract. The rapid expansion of preschool provision in Uzbekistan has brought many graduates of other disciplines into the profession through retraining courses. These adults bring life and work experience, but preschool pedagogy is new to them, and they need to learn not only what to do with young children but how to think through unfamiliar situations on their own. This article describes a technology for developing the intellectual competence of prospective preschool teachers enrolled in retraining courses at a regional center of pedagogical skills. Intellectual competence is treated as an integrated professional quality with motivational-value, cognitive, operational and reflective-creative components. The technology consists of diagnostic, design, practical and evaluative-corrective stages and combines problem-based learning, case studies, design thinking and digital interactive tools, while drawing on adult learning principles. Trial implementation with course participants (experimental group n = 52; control group n = 50) showed that trainees taught with the technology made greater progress than those taught in the conventional format, particularly in the operational and reflective-creative components. Trainees began to propose and compare alternative solutions, to adapt session plans to children's responses and to analyse their own thinking more precisely. The technology requires no additional teaching hours and can be transferred to other retraining and in-service programmes.

Keywords: intellectual competence; prospective preschool teachers; retraining; adult learning; innovative approach; case study; design thinking; reflection.

1. INTRODUCTION

A preschool teacher today is expected to do far more than follow a curriculum. She must design activities around the interests and abilities of particular children and make quick, well-grounded decisions when something unexpected happens in the group. When a child asks “Why?”, a good teacher does not simply supply the answer but encourages the child to look for it. To do this, the teacher herself needs a developed culture of thinking. In the research literature, this cluster of qualities is described as *intellectual competence*.

The Law of the Republic of Uzbekistan “On Education” (2020) defines retraining and professional development as a distinct type of continuous education, and the Concept for the Development of Higher Education until 2030 (Presidential Decree PF-5847, 2019) gives priority to innovative teaching technologies and to the development of independent and critical thinking. In preschool education these goals are especially pressing, because a teacher’s way of thinking shows directly in how she talks with children, what questions she asks and how she organises play.

Intelligence and intellectual competence have been interpreted in various ways. Kholodnaya (2002) defined intelligence as a way of organising an individual’s mental experience and regarded competence as a specific form of that experience. Gardner (1983) argued for several relatively independent kinds of intelligence, while Sternberg (1985) distinguished analytical, creative and practical intelligence. Zimnyaya (2003) identified intellectual competence as a distinct group within key competences. The theory of pedagogical technology has been developed by Bespalko (1989) and, in Uzbekistan, by Yo‘ldoshev and Usmonov (2004).

In pedagogical skills centers the issue takes on a particular character. As the network of preschool organisations has grown, so has the demand for staff, and

many people with higher education in other fields are entering the profession through retraining courses. Among them are primary school teachers, philologists, psychologists and even economists. They have considerable life experience, but preschool pedagogy is new territory. Within a short period they must acquire the necessary knowledge and also become specialists who can think independently when working with children.

Our observations of these courses show that trainees remember lecture material well but find it hard to transfer it to concrete situations in a group of children, to compare several possible solutions or to justify their own view with evidence. Some carry over patterns from their previous professions, for example by transferring the structure of a school lesson directly to a preschool session. Questions such as “What would you do if a child refused to take part in an activity?” often receive general, abstract answers. Adult learning theory holds that adults learn best when they draw on their own experience and work on practical problems (Knowles, 1980). Yet retraining courses rarely have a technology, built on this principle, that deliberately develops intellectual competence.

The aim of this study was to design a technology, based on an innovative approach, for developing the intellectual competence of prospective preschool teachers in retraining courses at a pedagogical skills center, and to test it in practice. The objectives were: (1) to define the components, criteria and levels of intellectual competence; (2) to design the technology with the characteristics of adult learners in mind; and (3) to implement it in the course and compare outcomes with conventional instruction.

2. METHODS

2.1. Setting and participants. The study was carried out in 2025–2026 in preschool education retraining courses at the Fergana Regional Center of Pedagogical Skills. The experimental group (EG) comprised 52 trainees from two course groups, and the control group (CG) comprised 50 trainees from two other groups. Participants were aged 23 to 45. Most held a degree in education, and the

rest had degrees in other fields. The groups were comparable in educational background and work experience. Participation was voluntary, and all data were processed anonymously.

2.2. Criteria and instruments. Intellectual competence was assessed across four components: **motivational-value** (interest in mastering the new profession, commitment to professional growth); **cognitive** (depth and coherence of knowledge of preschool pedagogy and child psychology); **operational** (skills of analysis, synthesis, comparison, generalisation, critical thinking and problem solving); and **reflective-creative** (awareness of one's own thinking, ability to propose non-standard solutions). Each component was rated on a five-point scale, and the total score was used to assign trainees to high, medium or low levels.

Data were collected through a motivation questionnaire, a 25-item knowledge test, case tasks based on real situations in preschool organisations, a set of logical-analytical tasks, trainees' reflective essays and observation of the sessions they conducted during their placement. Case solutions were scored independently by two lecturers using a rubric prepared in advance.

2.3. The technology. In the EG, the technology was implemented in four stages within the course modules on preschool pedagogy, innovative educational technologies and teaching methods, and during the placement.

Diagnostic stage. In the first week of the course, each trainee's initial level was assessed and an individual profile of strengths and weaknesses was drawn up, noting the trainee's previous specialism and work experience. Trainees reviewed their profiles and wrote down their own goals for the course.

Design stage. Module topics were restructured around problem questions. For example, the topic "Developing attention in children" was presented as the problem "Why can a four-year-old not stay with one game for more than five to seven minutes, and how should the teacher respond?" Cases also drew on situations that trainees themselves brought from observing their own children or

from their previous workplaces, linking their personal experience directly to the learning process.

Practical stage. Sessions used case studies, brainstorming, clustering, the INSERT reading technique, SWOT analysis and design thinking (understanding the problem, generating ideas, prototyping, testing). Digital tools included Mentimeter for collecting opinions quickly, Padlet for collecting group projects and Kahoot for game-based knowledge checks. Trainees from different backgrounds were deliberately placed in mixed small groups. When a psychologist and a philologist worked together, for instance, the group could approach a problem from more than one angle. Each group developed a project addressing a real problem in a preschool organisation, such as "Involving parents in their children's reading", and defended it before the class. During the placement, trainees tried out part of their project in a partner preschool.

Evaluative-corrective stage. Interim and final assessments were compared with each trainee's individual profile. Trainees wrote reflective essays analysing changes in their way of thinking, and task difficulty was adjusted where needed.

In the CG, the course followed the existing curriculum in the conventional format of lectures and practical sessions.

3. RESULTS

The initial assessment showed that the two groups were at a similar level. Scores on the motivational component were relatively high, since trainees had chosen the course themselves. The lowest scores were on the operational and reflective-creative components. Trainees could identify the problem in a case but struggled to suggest alternative ways of solving it and to justify the solution they chose. Most settled on the first solution that came to mind.

By the end of the course, both groups had improved, but the gains in the EG were noticeably larger. The difference was smallest on the cognitive component and largest on the operational and reflective-creative components.

In case tasks, EG trainees typically offered two or three alternative solutions and compared their advantages and drawbacks. During project defences they more often supported their answers with evidence and gave reasoned criticism of other groups' projects. In the sessions they conducted during the placement, many abandoned the school-lesson template and began adjusting their plans in response to children's answers.

Reflective essays also changed in quality. Early essays consisted mainly of general statements, while later ones described specific shifts in thinking. One trainee, formerly a primary school teacher, wrote: "I realised I was used to giving children the right answer as quickly as possible. Now I am learning to give them time to work it out for themselves, and that has been the hardest part for me."

4. DISCUSSION

These results suggest that intellectual competence cannot be developed through the transmission of knowledge alone. Growth in the cognitive component was similar in both groups; the main difference lay in thinking operations and reflection. This is consistent with Sternberg's (1985) view that analytical, creative and practical intelligence develop together through solving real problems. It also supports the idea, reflected in the revised Bloom's taxonomy (Anderson & Krathwohl, 2001), that higher-order processes such as analysing, evaluating and creating develop through tasks designed specifically for them.

In the retraining context, trainees' previous professional experience played a double role. On the one hand, it was a source of habits that hindered learning the new profession. On the other hand, when properly used, it became a rich resource for looking at problems from different angles. Working in mixed groups and solving cases drawn from personal experience put this resource to use, in line with Knowles's (1980) principle that adults' experience should be a central resource for their learning.

Among the elements of the technology, problem-centred topics and design thinking proved the most effective. Design thinking requires trainees to see a

problem from the perspective of a child or parent, which matters especially for future preschool teachers, who constantly need to understand other people's needs (Brown, 2009). Digital tools were useful not in themselves but because they sped up the exchange of ideas and gave every trainee a voice. Through Mentimeter, even older trainees who usually stayed silent shared their views readily.

The study has several limitations. It was conducted at a single pedagogical skills center over a limited period, and groups were not randomly assigned. Some assessment methods, such as essays and case rubrics, were partly subjective, although the use of two independent raters reduced this effect. Long-term follow-up would be needed to establish whether the changes persist and how they show in graduates' work in preschool organisations.

In practical terms, the technology requires no additional teaching hours and is implemented by reorganising the content of existing course modules. The cases, logical tasks and assessment rubrics developed in the study can be used in pedagogical skills centers in other regions and in in-service courses for practising preschool teachers.

5. CONCLUSION

The intellectual competence of prospective preschool teachers is an integrated professional quality comprising motivational-value, cognitive, operational and reflective-creative components. It can be developed effectively through a technology made up of diagnostic, design, practical and evaluative-corrective stages that combines problem-based learning, case studies, design thinking and digital tools, and builds on trainees' own experience. The most important outcome was trainees' growing ability to approach a problem from different perspectives, to compare and justify alternative solutions and to reflect on their own thinking. Future research will test the technology in pedagogical skills centers in other regions and in in-service courses for practising teachers, and will follow course graduates through their first years of work in preschool organisations.

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