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RESEARCH ARTICLE

From Reflection to Practice: The Impact of Pedagogical Coaching on Pre-Service Primary Teachers' Professional Competence

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Abstract

The professional preparation of primary school teachers requires not only pedagogical knowledge but also reflective thinking, professional autonomy, and the ability to make independent instructional decisions. Pedagogical coaching offers a promising approach to developing these competencies through goal setting, reflective dialogue, practice, and feedback.

This study examined the effectiveness of a pedagogical coaching-based methodology for developing the professional competence of pre-service primary school teachers. A multi-site pretest–posttest study was conducted at three pedagogical higher education institutions in Uzbekistan with 474 students, including 235 participants in the experimental groups and 239 in the control groups. The intervention integrated the GROW model, SMART goal setting, reflective coaching, microteaching, peer coaching, and constructive feedback. Professional competence was assessed according to motivational-value, reflective-analytical, and practice-oriented criteria.

Following the intervention, the proportion of students demonstrating a high level of professional competence in the experimental group increased from 11.1% to 24.3%, while the low-level proportion decreased from 59.6% to 32.3%. Statistical analysis confirmed a significant posttest difference between the experimental and control groups ($t = 5.71$, $p < .001$).

The findings indicate that pedagogical coaching can effectively support the development of professional competence among pre-service primary school teachers.

KEYWORDS

Pedagogical coaching; professional competence; pre-service teachers; primary education; GROW model; reflective practice; microteaching; peer coaching.

INTRODUCTION

Contemporary teacher education increasingly requires future teachers to move beyond the reproduction of pedagogical knowledge toward reflective, autonomous, and practice-oriented professional activity. Primary school teachers, in particular, must integrate methodological knowledge with communication, classroom management, decision-making, reflection, and continuous professional development.

International educational frameworks emphasize the importance of adaptive, reflective, and self-directed professional capacities in preparing teachers for changing educational environments [1, 2]. Similar priorities are reflected in ongoing reforms of pedagogical higher education in Uzbekistan, where closer integration between theory and practice and the development of professionally competent

teachers have become strategic objectives [3].

Pedagogical coaching provides one possible response to these requirements. Unlike traditional consultation, in which an expert often proposes a solution, coaching encourages learners to identify professional problems, analyse their current situation, generate alternatives, and assume responsibility for further action. Whitmore's GROW model structures this process around four stages: Goal, Reality, Options, and Will [4].

In educational settings, coaching is closely associated with reflective dialogue, professional agency, feedback, and self-directed learning [5]. Instructional coaching further emphasizes partnership and reflection in improving pedagogical practice [6], while peer coaching enables teachers and student teachers to learn through mutual observation, feedback, and repeated practice [7].

These principles are particularly relevant to pre-service teacher education. Future teachers need opportunities not only to learn teaching methods but also to test them, analyse their effectiveness, receive feedback, and revise their professional actions. Microteaching, reflective journals, coaching questions, and peer interaction can therefore create a developmental cycle linking theoretical knowledge with professional practice.

Previous studies have demonstrated the potential of instructional, cognitive, peer, and solution-focused coaching for teacher learning and professional development [8–10]. However, most existing studies have focused on in-service teachers or examined individual coaching tools separately. Empirical evidence on the systematic integration of goal setting, reflective dialogue, microteaching, peer coaching, and structured feedback into the professional preparation of pre-service primary school teachers remains limited, particularly in Central Asian higher education contexts. Therefore, there is a need for large-scale empirical studies examining whether an integrated pedagogical coaching methodology can produce measurable changes in the professional competence of pre-service primary school teachers.

Building on earlier research concerning the developmental potential and methodological modelling of pedagogical coaching in pre-service primary teacher education [11, 12], the present study extends this line of inquiry through a large-scale, multi-site empirical evaluation involving 474 participants across three higher education institutions. The primary contribution of the study is therefore not the formulation of a new coaching model itself, but the empirical examination of its effectiveness under broader institutional conditions.

Accordingly, the purpose of this study was to evaluate the effectiveness of an integrated pedagogical coaching methodology for developing the professional competence of pre-service primary school teachers.

The study addressed three research questions:

1. Were the experimental and control groups comparable before the intervention?

2. How did professional competence levels change following the coaching-based intervention?

3. Did post-intervention professional competence differ significantly between the experimental and control groups?

Methods

1. Research design and participants

A multi-site quasi-experimental pretest–posttest design with experimental and control groups was employed to evaluate changes in the professional competence of pre-service primary school teachers. The same assessment framework was applied to both groups before and after the formative stage, enabling comparison of baseline equivalence and post-intervention differences.

The study was conducted at:

- Andijan State Pedagogical Institute;
- Jizzakh State Pedagogical University;
- Bukhara State Pedagogical Institute.

A total of 474 pre-service primary school teachers participated. The experimental groups included 235 students, while the control groups included 239 students.

Table 1. Distribution of participants

Institution	Experimental	Control	Total
Andijan State Pedagogical Institute	78	79	157

Jizzakh State Pedagogical University	80	81	161
Bukhara State Pedagogical Institute	77	79	156
Total	**235**	**239**	**474**

The study consisted of diagnostic, formative, and final stages. During the formative stage, students in the experimental groups participated in the pedagogical coaching-based methodology integrated into their professional training activities. Students in the control groups continued their regular instructional programme without systematic exposure to the integrated coaching intervention. Both groups were assessed using the same professional competence criteria and developmental levels at the pretest and posttest stages.

2. Pedagogical coaching intervention

The intervention was designed as an integrated pedagogical coaching cycle combining goal setting, reflective analysis, practice-based learning, peer interaction, feedback, and self-assessment. Rather than using individual coaching techniques in isolation, the methodology organized these components within sequential diagnostic, formative, and reflective-evaluative stages.

At the diagnostic stage, students used professional self-assessment, the Professional Competence Wheel, SMART goals, and coaching contracts to identify individual professional development needs.

The formative stage was organized primarily through the GROW model:

- Goal — defining the desired professional outcome;
- Reality — analysing the current professional situation;
- Options — identifying alternative solutions;
- Will — determining concrete actions and responsibility.

The GROW framework served as the organizing structure of the coaching process and was complemented by powerful questioning, active listening, reflective conversations, pedagogical problem situations, microteaching, peer coaching, role play, and constructive feedback [13]. These methods were selected to connect professional goal setting with reflection and subsequent practical action.

Microteaching followed a cyclical sequence:

planning → microteaching → observation → feedback → reflection → correction → repeated practice.

This cycle enabled students to revisit the same professional task after receiving structured feedback, thereby transforming reflection into observable changes in pedagogical performance [14].

At the final stage, students used reflective journals, portfolios, rubrics, checklists, final microteaching, and self-assessment to analyse their professional progress.

Thus, the methodology connected professional goal setting, reflective analysis, practical action, feedback, and correction within a continuous developmental cycle.

3. Assessment criteria

Professional competence was assessed through three interrelated criteria.

Table 2. Professional competence criteria and indicators

Criterion	Main indicators
Motivational-value	professional growth motivation; positive attitude toward teaching; independent professional goal setting; motivational stability
Reflective-analytical	self-evaluation; identification of professional difficulties; analysis of pedagogical situations; reflective conclusions
Practice-	interactive teaching; classroom management; professional

oriented	communication; application of contemporary methods; practical problem solving

The three criteria were interpreted through three developmental levels—high, medium, and low—reflecting the degree to which students demonstrated professional motivation, reflective independence, and the ability to apply pedagogical knowledge in practice.

A high level indicated stable professional motivation, independent decision-making, systematic reflection, and effective practical activity. A medium level reflected generally adequate competence with occasional need for external support. A low level was characterized by unstable motivation, limited reflection, and difficulty applying professional knowledge independently.

The assessment process included questionnaires, observation, practical tasks, microteaching, expert evaluation, reflective activities, rubrics, checklists, and self-assessment.

4. Statistical analysis

For descriptive comparison, high, medium, and low competence levels were coded as 3, 2, and 1, respectively. Mean scores were calculated to summarize the overall direction of change in each group. Student's t-test was used as a secondary comparison of the coded mean indicators, whereas Pearson's chi-square test was employed as the primary inferential test for differences in categorical competence-level distributions. Effect size for the chi-square analysis was estimated using Cramér's V. Statistical significance was set at $p < .05$.

RESULTS

1. Pre-intervention results

Before the intervention, the experimental and control groups showed similar distributions of professional competence.

Table 3. Professional competence before the intervention

Level	Experimental n (%)	Control n (%)
High	26 (11.1%)	23 (9.6%)
Medium	69 (29.4%)	67 (28.0%)
Low	140 (59.6%)	149 (62.3%)
Total	**235 (100%)**	**239 (100%)**

The initial mean scores were approximately 1.515 for the experimental group and 1.473 for the control group.

No statistically significant baseline difference was identified ($t = 0.68$, $p > .05$), indicating that the groups were comparable before the formative intervention.

2. Post-intervention results

The experimental groups demonstrated substantial positive changes following the coaching-based intervention.

The proportion of students at the high level increased from 11.1% to 24.3%, while the medium level increased from 29.4% to 43.4%.

The most substantial change occurred at the low level, which declined from 59.6% to 32.3%.

Changes in the control groups were considerably smaller.

Table 4. Professional competence after the intervention

Level	Experimental n (%)	Control n (%)
High	57 (24.3%)	28 (11.7%)

Medium	102 (43.4%)	73 (30.5%)
Low	76 (32.3%)	138 (57.7%)
Total	**235 (100%)**	**239 (100%)**

In the control groups, the high-level proportion increased only from 9.6% to 11.7%, while the low-level proportion decreased from 62.3% to 57.7%.

The positive tendency in the experimental groups was observed at all three participating institutions. In Andijan, the low-level proportion decreased from 61.5% to 32.1%; in Jizzakh, from 60.0% to 35.0%; and in Bukhara, from 57.1% to 29.9%.

3. Statistical comparison

After the intervention, the experimental group achieved a mean competence score of 1.919, whereas the control group achieved 1.540.

The posttest difference was statistically significant:

$t = 5.71$, $p < .001$.

Pearson's chi-square test demonstrated a statistically significant difference in the post-intervention distribution of professional competence levels between the experimental and control groups, $\chi^2(2) = 32.63$, $p < .001$, Cramér's $V = .262$. This effect-size estimate indicates a meaningful association between participation in the coaching-based intervention and posttest competence-level distribution.

The experimental group's integral competence indicator corresponded to approximately 64.0%, compared with 51.3% in the control group.

Taken together, these findings support the study hypothesis and indicate that participation in the systematic pedagogical coaching intervention was associated with substantially greater improvement in professional competence than participation in the regular instructional programme.

DISCUSSION

The findings demonstrate a clear post-intervention difference between students who participated in the integrated pedagogical coaching methodology and those who continued the regular instructional programme. The most notable outcome was not only the increase in the proportion of students at the high competence level but also the substantial reduction in the low-level group, suggesting that the intervention supported movement across the broader competence distribution.

One of the most important findings was the marked reduction in the proportion of experimental-group students classified at the low level of professional competence. This suggests that coaching was particularly useful in supporting students who initially experienced difficulties with professional motivation, reflection, and practical decision-making.

Several features of the intervention may explain this effect.

First, SMART goal setting and the GROW model strengthened students' professional agency. Rather than relying exclusively on externally defined learning objectives, students identified their own professional difficulties, analysed their current situation, generated alternative solutions, and developed concrete action plans. This reflects the central coaching principles of awareness and responsibility described by Whitmore [4].

Second, reflective dialogue and reflective journals helped students analyse the relationship between pedagogical decisions and their consequences. Coaching therefore encouraged reflection to function as an active component of professional learning rather than as an activity conducted only after teaching practice.

Third, microteaching enabled students to convert reflection into practical action. The sequence of teaching, observation, feedback, correction, and repeated teaching created an iterative learning process. This is particularly important in pre-service education, where students have relatively limited authentic teaching experience.

Peer coaching also contributed to the developmental environment. By observing one another and exchanging structured feedback, students learned to evaluate pedagogical actions from both teacher and observer perspectives. This is consistent with earlier research emphasizing the role of peer coaching in transferring professional learning into practice [7].

Another important feature was the integration of motivation,

reflection, and practice. These dimensions were not treated as independent outcomes. Motivation encouraged students to engage in professional development; reflection enabled them to understand their own practice; and practical activity provided opportunities to apply and revise professional decisions.

The findings are consistent with previous research describing instructional, cognitive, and pedagogical coaching as mechanisms for strengthening reflection, professional learning, and instructional practice [6, 10, 15, 16]. However, the present study extends this evidence in three respects: it focuses specifically on pre-service primary school teachers, integrates multiple coaching and practice-based techniques within a single methodological system, and evaluates the intervention across three higher education institutions rather than within a single local setting.

From a practical perspective, coaching does not necessarily require the introduction of a separate academic course. GROW, microteaching, peer coaching, reflective journals, and criterion-based feedback can be incorporated into teaching methodology courses, practical classes, independent learning, and pedagogical practice.

Several limitations should be considered when interpreting the findings. First, although the study involved three higher education institutions, all participating institutions were located within one national educational context, which may limit the generalizability of the results. Second, professional competence was summarized using three broad developmental levels, which inevitably reduces some of the complexity of individual competence profiles. Third, some diagnostic procedures incorporated self-assessment and reflective reporting and may therefore have been influenced by response bias. Finally, the study focused on immediate post-intervention outcomes and did not examine whether the observed gains were sustained during subsequent school-based professional practice. Future research should employ longitudinal designs, validated multidimensional instruments, and direct classroom-performance measures.

CONCLUSION

The findings provide empirical evidence that an integrated pedagogical coaching methodology can support the development of professional competence among pre-service primary school teachers.

Following the intervention, the proportion of experimental-group students demonstrating high professional competence increased from 11.1% to 24.3%, while the low-level proportion declined from 59.6% to 32.3%. The corresponding changes in the control group were substantially smaller. Statistical analysis confirmed significant post-intervention differences between the groups.

The effectiveness of the methodology can be associated with the integration of GROW-based goal setting, reflective dialogue, microteaching, peer coaching, constructive feedback, and self-assessment within a continuous professional-development cycle.

The findings suggest that pedagogical coaching may be conceptualized not merely as a communication or support technique, but as an integrated practice-oriented didactic technology that links professional goal setting, reflection, feedback, repeated practice, and self-assessment. Within pre-service primary teacher education, this integration appears particularly relevant for strengthening professional motivation, reflective thinking, independent decision-making, and professional agency.

Future research should examine the long-term sustainability of these outcomes and the transfer of coaching-developed competencies from university settings to authentic primary school classrooms.

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