The OSCAR PUBLISHING Services
International Journal of Pedagogics

VOLUME Vol.05 Issue05 2025
PAGE NO. 292-294
DOI 10.37547/ijp/Volume05Issue05-74

Developing Lesson Planning Competence Based On A Differentiated Approach In Future Teachers

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Received: 29 March 2025; **Accepted:** 25 April 2025; **Published:** 30 May 2025

Abstract: The article investigates pedagogical conditions, methodological tools and empirical effects of cultivating lesson-planning competence grounded in differentiated instruction among preservice teachers. Drawing on constructivist and humanistic learning theories, a mixed-methods study was conducted with 124 undergraduate students at three Uzbek teacher-education universities. A specially designed training module integrating theory-to-practice cycles, case-based tasks and continuous reflective feedback was implemented over one academic semester. Qualitative results confirm a marked expansion of candidates' ability to align objectives with learner diversity, vary instruction and assessment, and anticipate flexible trajectories inside the same lesson plan. Quantitative analysis (paired-sample t-test, $p < 0.01$) shows a statistically significant rise in planning-competence index scores for the experimental group versus controls. The research substantiates that systematic immersion in differentiated-planning strategies during initial teacher preparation not only refines professional competence, but also embeds a mindset of inclusive, learner-centred pedagogy essential for twenty-first-century classrooms.

Keywords: Lesson planning; differentiated instruction; teacher education; pedagogical competence; inclusive pedagogy.

Introduction: Modern schooling is characterised by heterogeneous classes in which cognitive styles, motivational profiles and socio-cultural backgrounds vary considerably. Within this context, lesson planning—traditionally perceived as a purely organisational routine—evolves into a strategic act of instructional design that must anticipate such diversity. Global and national educational standards, including Uzbekistan's renewed State Educational Standard (2023), explicitly demand that future teachers be capable of orchestrating learning trajectories responsive to individual differences while maintaining collective curricular benchmarks.

Differentiated instruction provides a robust conceptual and practical framework for addressing this mandate. It posits purposeful variation of content, process, product and learning environment according to learners' readiness, interests and profiles. The challenge facing teacher-education institutions lies in moving differentiation from theoretical awareness to habitual planning practice. Research across North America and Europe notes that preservice teachers often value the idea but struggle to operationalise it, largely because training experiences remain fragmentation-prone and assessment-heavy rather than design-centred.

In Uzbekistan, scholarly attention to differentiation has increased, yet empirical evidence concerning its deliberate cultivation in undergraduate programmes remains sparse. The present study seeks to fill this gap by testing a structured pedagogical model aimed at embedding differentiated-planning competence in future teachers and by analysing its impact on the quality of students' lesson-plan outputs.

A convergent parallel mixed-methods design blended quantitative measurement of competence growth with qualitative exploration of participants' reflective narratives. Ethical approval was obtained from each university's academic council.

The sample comprised 124 third-year students majoring in Primary Education (81 female, 43 male; average age = 20.3 years). Random assignment produced an experimental group ($n = 62$) and a control group ($n = 62$). Baseline academic performance, measured by GPA, did not differ significantly ($p = 0.64$).

The experimental cohort received a 32-hour training

module titled "Designing Differentiated Lessons," integrated into the regular course on Methodology of Teaching. Core elements included:

- brief theoretical lectures linking differentiation to Bloom–Anderson taxonomy and Universal Design for Learning;
- analysis of anonymised lesson plans featuring embedded differentiation;
- micro-teaching followed by formative peer and mentor feedback;
- iterative revision of personal lesson plans using a six-dimension rubric (objectives, content variation, process adaptation, product options, assessment alignment, reflection prompts).

The control cohort pursued the standard curriculum without the specialised module.

To ensure a comprehensive assessment of the intervention's impact, a combination of quantitative and qualitative instruments was employed. The primary tool for measuring lesson planning competence was the Lesson-Planning Competence Rubric (LPCR), which was developed by the researchers specifically for this study. The rubric assessed six key dimensions of differentiated lesson planning, each rated on a 0 to 4 scale. The inter-rater reliability, measured using Cohen's kappa coefficient, was 0.81, indicating a high level of agreement among evaluators.

In addition to rubric-based evaluations, students maintained reflective journals throughout the semester. These journals served as a qualitative tool for capturing participants' weekly insights, perceived challenges, evolving understanding, and personal growth related to differentiated instruction and lesson planning.

Finally, to further enrich the qualitative data and validate emerging themes, focus-group interviews were conducted at the conclusion of the semester. Each session included twelve volunteers from both the experimental and control groups. These discussions provided deeper perspectives on participants' experiences and perceptions regarding the effectiveness and applicability of differentiated planning strategies.

Pre- and post-intervention lesson plans were blind-scored by three independent teacher-educators. Quantitative data were processed in SPSS 28; qualitative materials underwent thematic coding via NVivo 14.

Mean total LPCR scores for the experimental group rose from 10.8 (SD = 2.1) to 17.4 (SD = 2.3), whereas control scores increased marginally from 10.5 (SD = 2.0) to 11.2 (SD = 2.2). A paired-sample t-test confirmed significant internal gain for the experimental group ($t = 18.97$, $df = 61$, $p < 0.001$) and a large Cohen's d effect size of 1.79. Between-group comparison at post-test stage also revealed significance ($t = 14.56$, $p < 0.001$). Notably, the "assessment alignment" and "process adaptation" dimensions exhibited the most pronounced growth ($\Delta = 2.4$ and $\Delta = 2.2$ points, respectively).

The research utilizes a mixed-methods design, combining qualitative analysis of pedagogical literature with quantitative data derived from experimental training conducted in teacher education institutions. The theoretical framework is grounded in constructivist and humanistic pedagogies, which emphasize learner-centered teaching and the recognition of individual differences.

Empirical data were gathered through a series of pedagogical experiments involving 124 students enrolled in undergraduate teacher training programs at three universities in Uzbekistan. The experimental group was exposed to a specialized training module focused on differentiated lesson planning, while the control group continued with standard instructional strategies. Data collection tools included pre- and post-assessment tests, lesson plan evaluations, student reflections, and focus group discussions.

Data were analyzed using descriptive and inferential statistical methods, with SPSS software employed to determine statistical significance. Thematic analysis was used to interpret qualitative feedback and observations from participants and teacher educators.

Findings affirm international scholarship asserting that competence emerges when theoretical constructs are entwined with authentic, mentored practice. Constructivist theory suggests that cognitive schemata evolve through active engagement with contextualised problems. In our module, case-based analysis and micro-teaching triggered disequilibrium, prompting schema modification toward differentiated thinking. Concurrently, humanistic principles—particularly the creation of a psychologically safe, feedback-oriented environment—nourished intrinsic motivation and risk-taking necessary for pedagogical innovation.

The pronounced gain in "assessment alignment" dimension underscores the potency of embedding formative-assessment literacy into differentiation training. Aligning assessments with varied learning trajectories encourages preservice teachers to view evaluation not merely as summative judgment but as ongoing dialogue supporting individual growth—precisely the ethos differentiation requires.

Implementation challenges included time constraints within the crowded curriculum and initial resistance to

abandoning comfortable, uniform lesson templates. These obstacles mirror global reports and suggest that sustainable change demands both curricular revision and consistent mentor modelling across practicum placements.

CONCLUSION

The study demonstrates that intentionally designed training focused on differentiated lesson planning effectively elevates professional competence in future teachers. Statistical evidence confirms substantive skill acquisition, while qualitative data illuminate accompanying attitudinal shifts critical for long-term pedagogical adaptability.

Teacher-preparation programmes should institutionalise dedicated modules on differentiated planning, embed iterative design cycles in practicum experiences and cultivate mentor cultures attuned to inclusive pedagogy. Future research might longitudinally track graduates to determine how early competence translates into classroom practice and learner outcomes. Comparative studies across cultural contexts would further elucidate the universality and specificity of successful differentiation training models.

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