

EFFECTIVE USE OF RESEARCH TOOLS FOR DATA COLLECTION IN TRAINING FUTURE EDUCATORS AS QUALIFIED SPECIALISTS*Musoyeva A.B.¹**Abstract:*

Evidence-based approaches guided by data-driven decision-making are the foundation of the training of future teachers as competent professionals. The main purpose of research tools in obtaining accurate, relevant data for teacher preparation programs is investigated in this article. The methodical use of qualitative, quantitative, and mixed-method data collecting tools to assess pedagogical readiness, topic mastery, and reflective practices among pre-service teachers is of paramount importance. Based on present studies in applied linguistics, educational psychology, and teacher development, the article stresses the significance of matching research tools with educational goals to raise instructional quality and research competency.

Key words: pre-service teachers, educator preparation, research tools, data collecting, research competence

In the ever-changing field of education, training future teachers calls for not only the acquisition of academic information but also the supply of practical skills and a research-oriented viewpoint. Research tools included into teacher preparation courses improve pre-service teachers' pedagogical abilities and promote critical thinking and data literacy (Creswell & Creswell, 2018). For teachers assigned to make wise decisions in dynamic classroom environments, these attributes are absolutely essential.

The foundation of educational research is data gathering tools, which allow systematic information on teaching methods, student development, and institutional effectiveness to be obtained. The choice of research tools in teacher preparation has to match the main goal of producing intelligent and competent teachers.

Surveys, standardized assessments, and structured observation checklists among other quantitative tools provide pre-service teachers' development as well as quantitative information on the effectiveness of educational interventions (Fraenkel, Wallen, & Hyun, 2019). For evaluating knowledge acquisition, behavioral patterns, and trends among large populations, these instruments are very successful.

Depth and contextual relevance abound from qualitative tools including interviews, focus groups, classroom observations, and reflective diaries. They let teacher educators probe pre-service teachers' viewpoints, attitudes, and experiences inside of training courses (Merriam & Tisdell, 2016). The data gathered from these instruments expose the subtleties of teacher development frequently overlooked in purely quantitative approaches.

Widely accepted for their capacity to provide entire data sets, mixed-method technologies combine qualitative and quantitative approaches. Combining quantitative data with thorough narratives helps mixed-method designs improve understanding of the learning process and teacher effectiveness (Dörnyei, 2007).

Programs for teacher training aim to produce reflective practitioners able of undertaking action research, environmental analysis, and student needs accommodation. Good usage of research tools is very necessary.

Microteaching feedback forms and peer observation checklists are among formative assessment tools that help to immediately identify areas for development as well as strengths (Brookhart, 2010). Using these instruments during their practicum, pre-service teachers foster peer collaboration and data-informed reflection.

Furthermore, helping to improve metacognitive awareness are qualitative tools such reflection diaries and teaching portfolios. By means of organized reflection, students absorb the logic behind instructional decisions and connect theory to practice (Schön, 1983). This approach is crucial for acquiring the flexible competence required in contemporary classrooms.

Quantitative tools help to evaluate educational effectiveness and teacher knowledge. Likert-scale questions and standardized content evaluations let companies gauge candidates for professional certification and employment's academic and attitudinal preparation (Creswell & Creswell, 2018).

Therefore, including research tools into teacher preparation calls for a methodical, ordered approach. Programs have to ensure that pre-service teachers use research tools under understanding of their design, constraints, and ethical consequences (Musoeva, 2024). One such a good example is integrating action research projects into courses on teaching practicum. Examining classroom challenges in this research usually

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requires observation, questionnaires, and interviews. By means of data collecting and analysis, pre-service teachers develop to question assumptions and base instructional changes in evidence (Burns, 2010).

Excellent examples of the use of these approaches come from teacher educators. For example, teachers may let students create pre- and post-lesson surveys, jointly review observation notes, or code interview transcripts. These exercises clarify the research process and promote group projects.

Nowadays, digital technology has transformed the terrain of data collection. For trainees, platforms such as Google Forms, SurveyMonkey, and qualitative data analysis tools, e.g., NVivo offers quick data collecting and analysis. Technology-augmented research approaches improve data accuracy and foster digital literacy which is a vital ability in 21st-century education by means of which they supplement technological innovation (Hine, 2013).

Still, there are some challenges that exist. Sometimes pre-service teachers run into anxiety regarding statistical concepts and research terminology. Teacher education initiatives must therefore include early in the curriculum methodological training and provide continuous support via seminars, peer mentoring, and practical research projects (Dörnyei, 2007).

Institutions must go beyond traditional content distribution if they are to produce effective teachers. Emphasizing research-oriented training helps pre-service teachers to be change agents, able to spot learning opportunities and apply informed solutions (Botirovna, 2024).

Faculty members have to give top priority to improving research competency by means of coursework in educational research methodology, support chances for empirical data collecting under practicum and service-learning projects, and foster a culture of inquiry emphasizing reflective practice.

Institutions have to support these projects by enforcing policies that reward research involvement and provide access to tools for data collecting, software, and mentorship. Including research as a necessary component of professional growth helps teacher education initiatives to follow global standards of evidence-based learning and continuous improvement.

Training of qualified future teachers depends critically on the effective use of research tools for data collecting. Teacher education initiatives might foster critical thinking, data literacy, and professional growth by combining qualitative, quantitative, and mixed-method approaches.

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