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«FORMATION OF RESEARCH SKILLS OF FUTURE ENGLISH TEACHERS IN THE CONTEXT OF DIGITALIZATION: A QUASI-EXPERIMENTAL STUDY»

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Annotation: This study aims to investigate the formation of research skills of future English teachers in the context of digitalization using a quasi-experimental approach. The relevance of the research is determined by the increasing demand for teachers who are capable of conducting independent research in digital educational environments. The study evaluates the effectiveness of integrating digital tools into teacher education and identifies key components of research competence.
The findings indicate a significant improvement in students' research skills, including critical thinking, academic writing, data analysis, and information literacy. The results demonstrate that systematic integration of digital technologies contributes to higher levels of student engagement and autonomy. The study provides practical implications for improving teacher training programs and highlights the importance of balancing technological tools with pedagogical guidance.

Keywords: digitalization, research skills, future English teachers, digital tools, teacher education, quasi-experimental study.

1. Introduction

The rapid development of digital technologies has significantly transformed modern education systems worldwide. In particular, the field of foreign language teaching has undergone substantial changes due to the integration of digital tools, online resources, and interactive platforms. Future English teachers are now expected to possess not only linguistic and pedagogical competencies but also well-developed research skills that enable them to engage in evidence-based teaching and continuous professional development.

Research competence plays a crucial role in shaping reflective practitioners who are capable of analyzing educational problems, designing effective teaching strategies, and evaluating learning outcomes. In the context of digitalization, these skills become even more important, as teachers must navigate large volumes of information, assess the credibility of sources, and use technological tools effectively.

Despite the growing importance of research skills, many teacher education programs still face challenges in integrating research-oriented activities into the curriculum. Therefore, this study aims to explore how digital tools can enhance the formation of research skills among future English teachers and to identify effective pedagogical conditions for their development.

2. Literature Review

Research competence has been widely discussed in pedagogical and educational studies. According to Richards (2015), the development of research skills is essential for language teachers, as it enables them to reflect on their teaching practices and make informed decisions. Similarly, Bates (2019) emphasizes the importance of digital learning environments in fostering independent learning and critical thinking.

Digitalization has introduced new opportunities for accessing academic resources and conducting research. Platforms such as Google Scholar, ResearchGate, and online academic databases allow students to explore a wide range of scholarly materials. Redecker (2017) highlights that digital competence is a key component of modern teacher professionalism, as it involves the

ability to use technology critically and responsibly. However, previous studies also indicate several challenges associated with digitalization. These include insufficient digital literacy, lack of methodological support, and overreliance on automated tools. Selwyn (2016) argues that technology should not replace pedagogical thinking but rather support it. Therefore, it is essential to develop structured approaches to integrating digital tools into teacher education.

2.1 Author's Conceptual Framework of Research Skills Formation

In contrast to existing approaches that primarily focus on the technical use of digital tools, this study proposes an integrative conceptual framework for the formation of research skills in future English teachers. The author argues that research competence should be viewed not as a set of isolated abilities, but as a dynamic system consisting of interconnected components that evolve within a digital learning environment.

The proposed framework includes four key dimensions:

1.Cognitive dimension – the ability to understand research concepts, analyze academic texts, and interpret data;

2.Technological dimension – the ability to effectively use digital tools for searching, processing, and presenting information;

3.Reflective dimension – the capacity for self-assessment, critical reflection, and continuous improvement;

4.Motivational dimension – the willingness to engage in research activities and develop professionally.

Unlike traditional models, this framework emphasizes the interaction between digitalization and pedagogy, suggesting that technology alone does not guarantee the development of research competence. Instead, meaningful learning occurs when digital tools are embedded into structured pedagogical practices.

This conceptualization allows for a more holistic understanding of how research skills are formed and highlights the importance of integrating cognitive, technological, and reflective processes in teacher education.

3. Methodology

3.1 Research Design

The study employed a quasi-experimental design involving two groups: a control group (CG) and an experimental group (EG). The control group received traditional instruction, while the experimental group participated in a digitally enriched learning environment.

3.2 Participants

The participants consisted of 40 undergraduate students majoring in English Language Teaching. They were randomly divided into two groups of 20 students each.

3.3 Instruments

The following instruments were used:

-diagnostic test (assessment of research skills)
-observation
-questionnaire
-project-based assessment rubric

3.4 Procedure

The study was conducted over one academic semester and included three stages:

1.Pre-test (initial assessment)
2.Intervention (integration of digital tools)
3.Post-test (final assessment)

The experimental group used:

-Google Scholar and academic databases

-Grammarly and AI-based writing tools
-Padlet and collaborative platforms
-corpus analysis tools

4. Results

The results of the study indicate a significant improvement in the research skills of students in the experimental group compared to the control group. Students demonstrated enhanced ability to search for academic sources, evaluate information critically, and produce structured academic texts.

Table 1. Comparison of Research Skills Development

Group	Pre-Test (%)	Post-Test (%)	Iprovement
CG	55%	65%	+10%
EG	54%	84%	+30%

The experimental group showed a 30% improvement, which is significantly higher than the control group. This confirms the effectiveness of digital tools in enhancing research competence.

4.1 Interpretation of Quantitative Findings

The quantitative results presented in Table 1 indicate a substantial difference between the control and experimental groups. However, beyond numerical improvement, it is important to interpret these findings in relation to the learning process itself.

The 30% increase observed in the experimental group suggests not only improved performance but also a qualitative shift in students' approach to research activities. Students demonstrated greater independence in selecting sources, more confidence in structuring academic texts, and a higher level of engagement in analytical tasks.

In contrast, the control group showed limited progress, which may be attributed to the passive nature of traditional instruction. These findings support the assumption that active integration of digital tools fosters deeper cognitive engagement and promotes the development of higher-order thinking skills.

5. Discussion

The findings of the study confirm that digital technologies play a crucial role in developing research skills among future English teachers. The integration of digital tools promotes independent learning, increases student motivation, and enhances critical thinking.

However, the study also revealed several challenges. Some students demonstrated overreliance on AI tools, which may negatively affect originality. Additionally, differences in digital literacy levels among students created unequal learning conditions.

Therefore, it is essential to ensure that digital tools are used in a balanced way and supported by effective pedagogical strategies. Teachers should guide students in selecting reliable sources, interpreting data, and maintaining academic integrity.

5.1 Author's Interpretation and Theoretical Contribution

From a theoretical perspective, the results of this study contribute to the ongoing discussion about the role of digitalization in teacher education. While previous research has emphasized access to digital resources, this study highlights the importance of pedagogically structured digital engagement.

The author argues that the effectiveness of digital tools lies not in their availability but in the way they are integrated into the learning process. Digitalization should be understood as a mediating factor that enhances cognitive and reflective processes rather than an independent learning tool.

Moreover, the findings suggest that research skills development is closely linked to student autonomy. When students are provided with opportunities to explore digital resources independently, they develop not only technical skills but also critical thinking and academic responsibility.

This supports the idea that modern teacher education should move from a knowledge-transmission model to a research-oriented and student-centered paradigm, where learners actively construct knowledge through inquiry and digital interaction.

6. Pedagogical Implications

The results of this study have important implications for teacher education programs. Firstly, digital tools should be systematically integrated into the curriculum rather than used occasionally. Secondly, students should be provided with opportunities to engage in research-based activities, such as projects, case studies, and collaborative tasks.

Furthermore, teacher educators should focus on developing students' digital literacy and critical thinking skills. Training programs should include workshops on academic writing, data analysis, and research methodology.

Educational institutions should also ensure access to digital resources and create supportive learning environments that encourage innovation and independent inquiry.

7. Limitations and Future Research

This study has several limitations. The sample size was relatively small, and the duration of the experiment was limited to one semester. Therefore, the results may not be generalized to all educational contexts.

Future research should involve larger samples and longer experimental periods. Additionally, further studies may explore the impact of artificial intelligence tools on academic writing and research ethics.

8. Conclusion

In conclusion, digitalization significantly contributes to the formation of research skills among future English teachers. The integration of digital tools enhances key competencies such as critical thinking, academic writing, and data analysis.

The findings of this study highlight the importance of incorporating digital technologies into teacher education programs in a systematic and pedagogically sound manner. Future teachers must be prepared to work in dynamic digital environments and continuously develop their professional skills.

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