# DEVELOPING TPACK COMPETENCIES THROUGH REFLECTIVE MICROTEACHING IN LANGUAGE EDUCATION

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**Annotation:** This article explores methodological approaches to developing Technological Pedagogical Content Knowledge (TPaCK) among pre-service English language teachers. It highlights the integration of microteaching and reflective journaling as essential tools for enhancing TPaCK competencies. These methods promote deeper reflection on the teaching process, foster professional self-awareness, and support the ability to design and implement technology-integrated lessons. The study presents the results of an experimental implementation of this pedagogical model with philology students, discussing its didactic potential and overall effectiveness. The findings indicate a notable improvement in technological literacy, pedagogical flexibility, and the participants' capacity for critical reflection on their own teaching practices. Therefore, the proposed model serves as a valuable framework for preparing qualified foreign language teachers in the context of digital transformation in education.

**Key words:**TPaCK, microteaching, reflective practice, digital pedagogy, teacher education.

**Аннотация:** В статье рассматриваются методологические подходы к формированию технологических, педагогических и содержательных знаний (TPaCK) у будущих преподавателей английского языка. Исследование подчеркивает важность интеграции майкротичинг и ведения рефлексивных дневников как ключевых инструментов в развитии TPaCK-компетенций. Использование этих методов способствует более глубокому осмыслению учебного процесса, повышению профессиональной саморефлексии и развитию умений проектировать и реализовывать уроки с использованием цифровых технологий. В статье анализируются результаты экспериментального внедрения данной модели в процесс подготовки студентов-филологов, а также обсуждаются её дидактические возможности и эффективность. Представленные данные свидетельствуют о значительном росте технологической осведомлённости, педагогической гибкости и способности к критическому осмыслению собственной преподавательской практики у участников. Таким образом, предложенная модель может служить эффективной основой для подготовки высококвалифицированных



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преподавателей иностранного языка в условиях цифровой трансформации образования.

**Ключевые слова**: TPaCK, короткие тренировочные занятия (microteaching), рефлексивная практика, цифровая педагогика, подготовка преподавателей.

**Annotatsiya:** Ushbu maqolada bo‘lajak ingliz tili o‘qituvchilarida texnologik, pedagogik va mazmuniy bilimlarni (TPaCK) shakllantirishga oid metodologik yondashuvlar tahlil qilinadi. Maykrotiching o‘tkazish va reflektiv kundaliklar yuritish TPaCK kompetensiyalarini rivojlantirishda muhim vositalar sifatida ko‘rib chiqiladi. Ushbu usullar o‘qitish jarayonini chuqur tahlil qilish, professional o‘z-o‘zini anglashni kuchaytirish va raqamli texnologiyalarni o‘qituv jarayoniga samarali integratsiyalash ko‘nikmalarini rivojlantirishga xizmat qiladi. Maqolada ushbu modelni filologiya yo‘nalishidagi talabalar bilan tajriba asosida qo‘llash natijalari, uning didaktik imkoniyatlari va samaradorligi muhokama qilinadi. Tadqiqot natijalari talabalar texnologik savodxonligi, pedagogik moslashuvchanligi va o‘z o‘qituv amaliyotini tanqidiy tahlil qilish qobiliyatida sezilarli o‘sish borligini ko‘rsatadi. Shunday qilib, taklif etilgan model raqamli transformatsiya sharoitida yuqori malakali chet tili o‘qituvchilarini tayyorlashda samarali asos bo‘la oladi.

**Kalit so‘zlar:**TPaCK, qisqa mashg’ulot darslari (microteaching) , reflektiv amaliyot, raqamli pedagogika, o‘qituvchilarni tayyorlash.

**Introduction**

“The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them.”

—Sir William Henry Bragg

The way people obtain information, learn, and connect with others across the world has changed dramatically as a result of technological advancements. Technology has eliminated distance constraints, allowing higher education to efficiently teach anybody. In order to improve teaching and learning, technology integration is becoming more common in classrooms. A better pattern for recognizing new teaching models has evolved as a result of the fast expansion of technology integration. As a result, it is critical in both learning and teaching language skills. There are numerous advantages to using technology to offer an environment for teaching and learning English skills.

Therefore, in the digital age, integrating technology into the education sector is a pivotal concern. The Technological Pedagogical Content Knowledge (TPaCK) framework, introduced by Mishra and Koehler, has offered educators a powerful perspective by highlighting the interaction between technological knowledge, pedagogical knowledge, and content knowledge (Swallow & Olofson, 2017).



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TPaCK is one of the theories of integrating digital resources into the teaching and learning process. It is designed to elucidate the essential knowledge that educators must possess to teach a subject, employ effective teaching methods, and properly harness technology as a teaching tool. This theory identifies three key knowledge domains: Technology, Pedagogy, and Content Knowledge (Tseng et al., 2022). TPaCK has enriched teaching and learning experiences, but challenges remain in its implementation (Archambault & Barnett, 2010). [figure 1.]

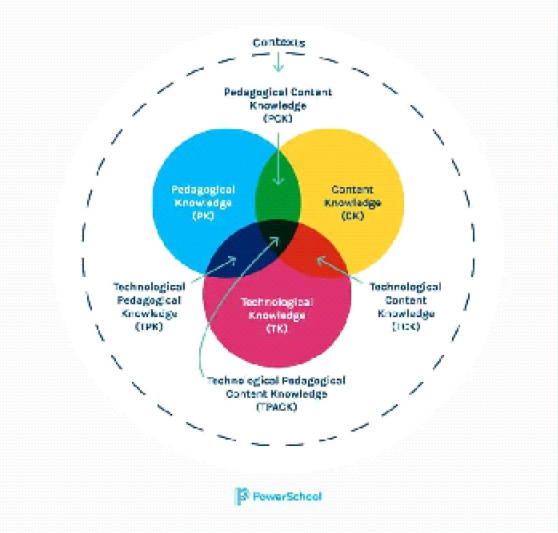



**Figure 1. Image based on the original on TPACK.org**

On the one hand, most research that has explored the integration of the Technological Pedagogical Content Knowledge (TPaCK) framework into teacher education programs primarily utilized context-unspecific self-report instruments. Voogt et al. (2013) noted that empirical studies that addressed TPaCK focused mostly on exploring teachers' beliefs, preservice teachers' TPaCK level, and ways to enhance in-service teachers' use of TPaCK. Few studies investigated the use of the TPaCK model as a theoretical framework for designing professional development or teacher preparation programs (Dysart & Weckerle, 2015).

Several studies have been revealed that pre-service teachers are showing proper development of all domains of TPaCK during the graduate preparation program (Gill & Dalgarno, 2017; Redmond & Peled, 2019). Another study also revealed that pre-service teachers who had more constructivist perceptions of teaching using mobile devices, such as conveniently facilitating students' understanding or supporting student learning more actively, appeared to attain better quality technology integration in their lesson plans than those pre-service teachers with traditional conceptions (Tsai & Tsai, 2019). However, what kind of support provided by preparation programs may be varied, and it needs further investigation to know the challenges and success for preparing them with



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technology integration for their prospective profession as teachers and benefitted for improving the future teachers' education programs.

This article's goal is to present a pedagogical model that incorporates microteaching and reflective journaling as key tactics to support pre-service English language teachers' acquisition of Technological Pedagogical and Content Knowledge (TPaCK). This model aims to assist aspiring teachers in making meaningful connections between technology, pedagogy, and content in their professional practice by integrating structured self-reflection with real-world teaching experiences.

## LITERATURE REVIEW

The TPACK framework, developed by Punya Mishra and Matthew J. Koehler in 2006, emphasizes technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK), providing an effective solution to numerous challenges educators encounter when integrating educational technology (edtech) in their classrooms. The TPACK framework delineates the necessity for content (the subject matter) and pedagogy (the instructional methods) to serve as the cornerstone for efficient integration of educational technology by distinguishing among three forms of knowledge. This order is crucial as the technology being deployed must convey the information and reinforce the pedagogy to improve students' learning experience.

The TPaCK paradigm posits that particular technological instruments (hardware, software, apps, and related information literacy practices) are optimally employed to train and direct students towards a deeper, more comprehensive grasp of the subject matter. The three categories of knowledge – Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) – are integrated and reconfigured in multiple manners within the TPaCK framework. Technological pedagogical knowledge (TPK) defines the connections and interactions between technological tools and particular pedagogical practices, whereas pedagogical content knowledge (PCK) clarifies the relationships between pedagogical practices and specific learning objectives; lastly, technological content knowledge (TCK) characterizes the intersections among technologies and learning objectives. The triangulated regions form TPaCK, which examines the interrelations among all three domains and recognizes that educators operate within this intricate framework.

Michigan State University scholars Mishra and Koehler created TPaCK because no other theory explained or guided edtech integration. TPaCK has become a major theory on edtech and integration since its 2006 debut. Research and professional development use it substantially. TPaCK has remained powerful



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for almost 12 years because its varied parts allow for a variety of instructional scenarios. Effective classroom technology implementation involves understanding the dynamic, transactional link between curriculum, pedagogy, and incoming technology in different schools, classrooms, and cultures. Every edtech integration situation will be different due to factors including the educator, grade level, class demographics, and more. No one content, pedagogy, and edtech combination will work in every situation, therefore TPaCK allows academics and practitioners to adjust its framework and improve their reflections on the lessons they conduct.

When addressing the term "reflective practice," two of the most influential theorists, Dewey (1933) and Schön (1983), have provided some basic ideas for a common understanding of the term. Dewey sees reflective practice as a systematic thinking task where teachers use evidence obtained from past experience and their knowledge or beliefs to make sensible decisions about their teaching instead of reaching poor decisions based on routine. In other words, reflective practice and problem-solving tasks are similar in Dewey's view. Building on Dewey's work, Schön (1983) extends the concept of reflective practice to account for the continuity of the thinking process by introducing the aspect of timeframes in which reflection takes place. Reflection occurs not only after gaining a teaching experience (reflection-on-action), but it can also take place during the process of teaching (reflection-in-action)

## METHODS

The connection between reflective practice and TPaCK abilities is clearly evident and serves as a crucial mechanism in modern education. Young professionals encounter challenges in delivering lessons with modern technologies. Consequently, it is essential to assist in directing their ambitions towards teaching classes that match with contemporary trends while evaluating and analyzing their instructional practices. This article seeks to clarify the significance of "microteaching" for future teachers and the integration of reflective practice in their everyday routines.

According to Dr.Ambili Remesh: "Microteaching is a teacher training technique for learning teaching skills. It employs real teaching situation for developing skills and helps to get deeper knowledge regarding the art of teaching. This Stanford technique involved the steps of "*plan, teach, observe, re-plan, re-teach and re-observe*". Most of the pre-service teacher education programs widely use microteaching, and it is a proven method to attain gross improvement in the instructional experiences. Effective student teaching should be the prime quality of a teacher. As an innovative method of equipping teachers to be effective, skills and practices of microteaching have been implemented."



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"Observing a fellow teacher and using a trial-and-error in own teaching sessions are very common way of self-training. But, both of them have their own demerits. On the other hand, microteaching helps in eliminating errors and builds stronger teaching skills for the beginners and senior teachers. Microteaching increases the self-confidence, improves the in-class teaching performances, and develops the classroom management skills," states Dr.Ambili Remesh (2012).

In modern science there are many examples of implementing microteaching and reflective practice in teacher education training. Such internationally certified programs as TESOL, CELTA, TEFL and other similar programs have long practiced the implementation of microteaching and reflective practice after the application of microteaching skills during practical lessons. The same structure is in use for pre-service teachers. Only for its successful implementation is it necessary to introduce the stages of mastering effective training. Here are the components of a model framework to implement effective usage of TPaCK development and reflective practice for pre-service teachers:

Phase 1: **TPaCK awareness study** – lesson plans, digital tool demos, and lesson analysis.

Phase 2: **Microteaching planning with TPaCK** – student-teachers design mini-lessons with explicit TPaCK goals.

Phase 3: **Reflective forms** – After each microteaching session, students reflect on their integration of technology, pedagogy, and content through Google Form reflection template. (https://forms.gle/cg8MithQyPSjkoMJ6)

Phase 4: **Peer and mentor feedback** – structured feedback loops for refining practice.

Phase 5: **Repetetive improvement and reflection** – use insights from reflection form and feedback to improve lesson design.

## DISCUSSION AND IMPLEMENTATION

Integrating the "Teaching ladder" (see Figure 2.) and TPaCK implementation framework will definitely have a positive effect on both learners and pre-service teachers as well as **microteaching** and **reflective practice** into teacher education programs, which offers a powerful pathway to developing pre-service teachers' **Technological Pedagogical Content Knowledge (TPaCK)**. Several key strengths emerge from this model. One major strength is **personalization**. Through reflective analysis of microteaching sessions, pre-service teachers tailor their learning to individual needs and teaching contexts. As Schön (1983) emphasized in his concept of the "reflective practitioner," personal reflection enables teachers to engage in professional growth that is context-



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sensitive and adaptive. Similarly, Korthagen and Vasalos (2005) advocated for reflection as a means to develop personalized and authentic teacher identities.

A second strength lies in the model's support for repetetive **growth**. Microteaching offers a safe space for repeated experimentation, enabling pre-service teachers to refine their teaching through cycles of practice and feedback (Allen & Ryan, 1969). This repetetive nature is aligned with Kolb's (1984) experiential learning theory, which underpins many reflective teacher education frameworks. Each cycle builds deeper understanding of how technology, pedagogy, and content intersect—a core principle of the TPaCK framework (Mishra & Koehler, 2006).

Another key strength is the model's capacity to **foster critical thinking**. Reflective practice promotes analysis, synthesis, and evaluation of teaching decisions, which are essential for developing higher-order thinking skills. According to Larrivee (2000), reflection can help teachers become critical inquirers who question assumptions and examine the ethical and pedagogical implications of their practice. When combined with video analysis in microteaching, this process deepens awareness of how technology is used to support learning goals.

Despite its potential, integrating microteaching and reflective practice also presents several challenges. One significant barrier is **time constraints**. Reflective analysis and repeated microteaching cycles are time-intensive and often compete with other course requirements. Zeichner & Liston (1996) noted that meaningful reflection is often compromised by limited time and institutional pressures.

Another challenge is the **need for trained mentors** who can facilitate the reflective process. Not all teacher educators are familiar with the TPaCK framework or with how to guide pre-service teachers through structured reflection. As noted by Loughran (2002), mentors play a critical role in scaffolding reflection, but they require specific pedagogical content knowledge and experience to be effective.

**Resistance to reflection** is also a common issue among pre-service teachers, especially those new to reflective writing or critical self-evaluation. Calderhead (1989) observed that student teachers may initially see reflection as artificial or judgmental. Without clear guidance, they may resort to surface-level commentary rather than deep analysis of their teaching.

## CONCLUSION

In the digital age, preparing future teachers to effectively integrate technology into pedagogy and subject content is no longer optional—it is essential. The integration of the TPaCK framework into pre-service teacher education, when combined with structured microteaching and reflective practice, provides a



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powerful approach for developing adaptive, thoughtful, and competent educators. This model fosters an environment where student-teachers can explore, experiment, and refine their teaching in a cyclical, feedback-driven process. As demonstrated, microteaching supports hands-on skill development, while reflective journaling encourages critical self-awareness and continuous improvement—both of which are fundamental for mastering TPaCK.

The proposed five-phase model addresses not only the theoretical understanding of TPaCK, but also the practical challenges associated with its application. By grounding the model in experiential learning theory, reflective practitioner theory, and TPaCK's intersecting domains, this approach offers a holistic path for cultivating professional competence. However, as the discussion has shown, implementation demands significant time, mentor expertise, and a cultural shift toward reflective thinking within teacher preparation programs.

Future research should explore scalable strategies for institutionalizing this model, such as integrating digital tools for automated reflection analysis, mentoring programs aligned with TPaCK principles, and curriculum policies that allow for repeated microteaching cycles. With intentional support, this model can bridge the gap between theoretical knowledge and authentic classroom practice, equipping pre-service English language teachers with the skills, confidence, and mindset needed for teaching in technologically dynamic environments.

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**APPENDIX**



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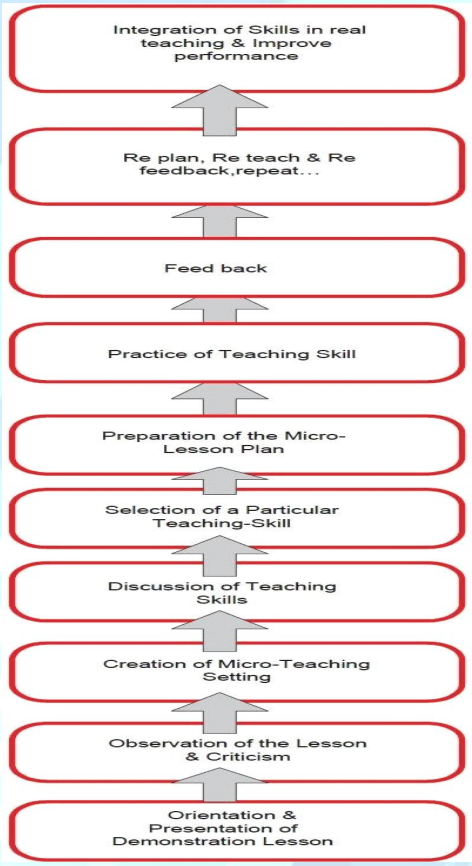



**Figure 2. Teaching ladder-10 steps to make effective teaching**



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