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## **E-tutors' Understanding and Level of Confidence in Using a Technological Pedagogical Knowledge Model in Open Distance E-Learning**

### **Abstract**

The article aimed to investigate the perspectives of e-tutors regarding the importance of Technological Pedagogical Knowledge in an Open Distance e-Learning Institution. The article employs a quantitative survey method to allow students to articulate their impressions of how e-tutors leverage their topic expertise to impart knowledge. The study includes 350 students who are enrolled in a module. Its objective was to gain insights, using quantitative analysis, into the techniques used by e-tutors in delivering content. During the delivery of content, e-tutors provided explanations and support for different viewpoints, taking into account students' input on the choice, execution, and overall impact of teaching methods. The collected data were arranged and presented in tables. E-tutors recognized the use of Technological Pedagogical Knowledge (TPK) to assist and enhance online student activities. Therefore, it was found that constructivism could help to incorporate the TPK framework, thereby enhancing students' understanding of the instructional design process. However, the study discovered a lack of comprehension among e-tutors regarding the TPK concept in relation to curriculum design.

**Key words:** Technological Pedagogical Knowledge (TPK); Open Distance e-Learning (ODEL); e-tutors; constructivism

Technological Pedagogical Knowledge refers to integrating technology into pedagogical practices to facilitate effective teaching and learning (Koehler & Mishra, 2009). The model is based on the pedagogical knowledge components of the TPACK framework (Mishra, 2006; Misha & Koehler, 2009). TPK takes a broader perspective encompassing the understanding of how to leverage technology to attain instructional objectives, it involves a nuanced awareness of the strengths and limitations of different technologies in specific educational contexts (Ali et al., 2024). In Open and Distance e-Learning (ODeL) institutions, where virtual interactions are central, TPK enables e-tutors to design engaging and interactive learning experiences (Liaw, 2008). The trained learning facilitators are the first point of contact for the students and fulfil various tasks, e.g., motivation, feedback, and conflict resolution (Langesee & Ukhova, 2023). E-tutors are crucial facilitators of online learning, requiring a nuanced understanding of TPK to navigate digital platforms and engage learners effectively (Ally, 2008). Their perspectives shed light on the practical application and challenges of integrating technology with pedagogy. The research objective is to investigate e-tutor perceptions of TPK during the facilitation of content in an ODeL space. How do e-tutors perceive TPK during the facilitation of content in an ODeL space?, became the research question of the paper.

The aim of the paper is a dual purpose where at first it aims to develop and validate an instrument to examine e-tutors' perspectives about their TPK in an ODeL context. In addition, it aimed to develop a model to investigate TPK influence on constructs describing: 1) e-tutor usage abilities of digital media for online assessment; 2) e-tutor abilities to encourage students to do online classroom platform discussions; 3) e-tutor abilities to encourage students to use online technologies for content learning. The constructs statements were topic-specific and aimed to seek clarity for specific competence. It is common to adapt TPACK for different purposes (Celik, 2023).

TPK framework best-suited e-tutors in this paper based on the assumption that they serve as agents to facilitate technological communications with students at a distance. E-tutors have a firm grip and skills for technological pedagogical choices which will allow creative capacity to build appropriate instructional strategies for the students they teach (Foulger et al., 2022; Lyublinskaya & Kaplon-Schillis, 2022). The generation of students at a distance is imbued with technological DNA, making the pedagogy with technology and associated strategies critical to consider (Tanyi, 2022).

At the outset of its existence, the idea that technology might exist while at the same time also becoming an educational instructional tool for teaching and learning was a far-fetched one. Knowing which technologies are well-aligned with teaching and learning methodologies as well as which technologies adapt themselves best to educational situations is beneficial for students (Harris et al., 2009). The same technology has become a most influential force in shaping the world of education in

that its pedagogy in classrooms is being highlighted as a necessary need to optimize 21st-century abilities (Imaduddin & Astuti, 2022). The technology exists in various forms of tools including software and hardware and can be effectively employed through a range of teaching methods (Karsenti, 2009; Nsouli & Vlachopoulos, 2021). The diverse technologies can affect teaching and learning including their pedagogical instructional affordances and limits (Radmehr & Goodchild, 2022). Studies, (Wu et al., 2022; Zhang & Chen, 2022) results alluded that technologies and pedagogy are fundamental principles that positively influence pedagogy when technology is involved. Because of the COVID-19 epidemic the need for technology pedagogy during teaching, particularly in a virtual setting, became even more vital in 2020 when the entire world moved to online instruction (Lyublinskaya & Kaplon-Schillis, 2022).

## **Review of Related Literature**

This section presents a literature review from previous studies. The initial presentation of this section is focused on e-tutor usage abilities of digital media for online assessment. The second focal point is based on e-tutor abilities to encourage students to do online classroom platform discussions. The final section presents a construct based on e-tutor abilities to encourage students to use online technologies for content learning.

### **E-tutor usage abilities of digital media for online assessment**

TPK accounts for 30 percent of the variance of technology integration practices for online assessment (Knezek & Christensen, 2015). Evidence exists on the positive impacts of digital media on online assessment. The era of Covid-19 provided development opportunities where e-tutors used digital media to enable online assessments since they were not all new to assessing online (Coker et al., 2024). The sampled 3 e-tutors indicated their positive abilities in using digital learning media for online assessment with a score of 61.6% of their TPK (Taek et al., 2024). There was a moderate relationship between e-tutors' attitudes toward online assessment and digital media where the association could be attributed to their skills in linking pedagogy with technology (Alhamid & Mohammad-Salehi, 2024). Additional positive study results were linked to e-tutors and students. E-tutors played an active pedagogical role in instructing students with digital abilities for online platform discussions and directly influenced their TPK (Oikarinen et al., 2022). In the results, more e-tutor participants in online classrooms demonstrated

online platforms cooperation and discussions with the students rather than instructor-centeredness (Cheng et al., 2022). E-tutors' influences benefited students to manipulate technology to benefit their online classroom platform discussions during a course module content delivery (Nuruzzakiah et al., 2022). The online students were positively influenced by knowledge of Web 2.0 technologies and pedagogy (platform technology discussions) which contributed to developing a new understanding of content in the modules they were taught (Mohammad-Salehi & Vaez, 2022).

Some literature arguments presented non-positive results about e-tutor usage abilities of digital media for online assessment. The integration of digital media for online assessment from the e-tutors did not appear to influence the ICT literacy of the students (Kastorff & Stegmann, 2024). E-tutor participants preparations for digital media programs needed development so that they could develop critical skills that would allow them to use new and creative technologies for the students' online assessment (Tafazoli & Meihami, 2022). E-tutors were unaware of their digital media online assessment skills levels important in a course program (Ogalo et al., 2022). E-tutors believed that more weight could be put on programs that nurtured how digital media could be exploited to assist them with obstacles to build their digital media skills for online assessment (Radmehr & Goodchild, 2022). E-tutors felt that their technical knowledge was not adequately developed for their heightened usage abilities of digital media for online assessment (Lee & Ogawa, 2021). It was observed that the e-tutors' digital skills were at the lowest and influenced their preparations for online assessments preparations for students (Nguyen et al., 2022).

### **E-tutor abilities to encourage students to do online classroom platform discussions**

This construct was developed to evaluate the e-tutor abilities to encourage students to do classroom platform discussions. Online learning platforms pose comprehension and navigation challenges for students, leading to them feeling excluded during the online learning process discussions (Sun & Zhang, 2024). Students' participation levels for online platforms were generally at the lowest based on the limited technical knowledge of online platforms (Guzmán et al., 2024). Students felt that their e-tutors were unfamiliar with technology in workshops on how to create online breakout rooms for online platform discussions (Lee & Ogawa, 2021). There were some non-similar arguments about the construct above. All the students could participate to do online platforms processes and were almost equally actively involved in the learning process from their e-tutors 'encouragements (Keramati et al., 2024). Encouragement influences that the students received from online platform discussions from their e-tutors positively influenced their positive online classroom platform discussion (Vanacore et al., 2024).

## **E-tutor abilities to encourage students to use online technologies for content learning**

The construct was developed to ascertain the levels of e-tutor encouragement for students to use online technologies. Students improved their learning performances significantly in content where the number of students exhibited high scores from the encouragement to use gamification online technology (He et al., 2024). E-tutor respondents stated they could guide and encourage students towards online technologies that supported and improved their content learning (Alsayed et al., 2022). E-tutors used online technologies to reinforce the traditional delivery of content, their students can perform procedures with technologies outside of the teachers' intervention after the initial encouragements (Filho & Gitirana, 2022). Students were at an average, indicating that the value was a positive result after the online students were encouraged to use online technologies for their content learning (Ferdiansyah et al., 2022).

Some contrasting results were obtained contrary to the positive results that grounded the construct, some non-preferred results were also obtained from the literature. The different characteristics of the students were lowered based on their under-engagement with online technologies and how adaptable technologies underscored the online education which did not cater for achievements for content learning (Shofiyyah et al., 2024). E-tutor participants felt less confident in their technological applications and experienced inadequacies for students who were engaged with online learning for module content (Wea & Budiraharjo, 2022). E-tutors lacked knowledge of technologies knowledge to encourage student engagement with online technologies during content learning (Ma et al., 2021). There was a need for additional mentorship for technology-based learning for e-tutors as well as to develop abilities to encourage students to use online applications relevant to their course contents (Imaduddin & Astuti, 2022).

## **Theoretical Framework**

### **Constructivism**

Constructivism learning theory grounded an understanding of how e-tutors understood TPK knowledge forms during the facilitation of content in an ODeL space. Constructivism teaching prioritizes the students and emphasizes their active involvement in the learning process, along with the integration of ICT has become more prevalent in the current paradigm of teaching (Barak, 2014, 2017; Leshem et al., 2018). Technology-enhanced constructivist learning environments advanced

educational technologies that have enabled the development of interactive and multimedia-rich constructivist learning environments in ODeL (Bates & Poole (2003). The intersection of constructivism and TPK advances towards leveraging technology for active learning where students engage in hands-on activities and exploration. TPK helps educators select and use appropriate technologies (e.g., simulations, and interactive platforms) that promote active learning experiences (Mishra & Koehler, 2006). An anticipation is that the students who engage with e-tutors online might construct new knowledge based on their comprehension of the theory.

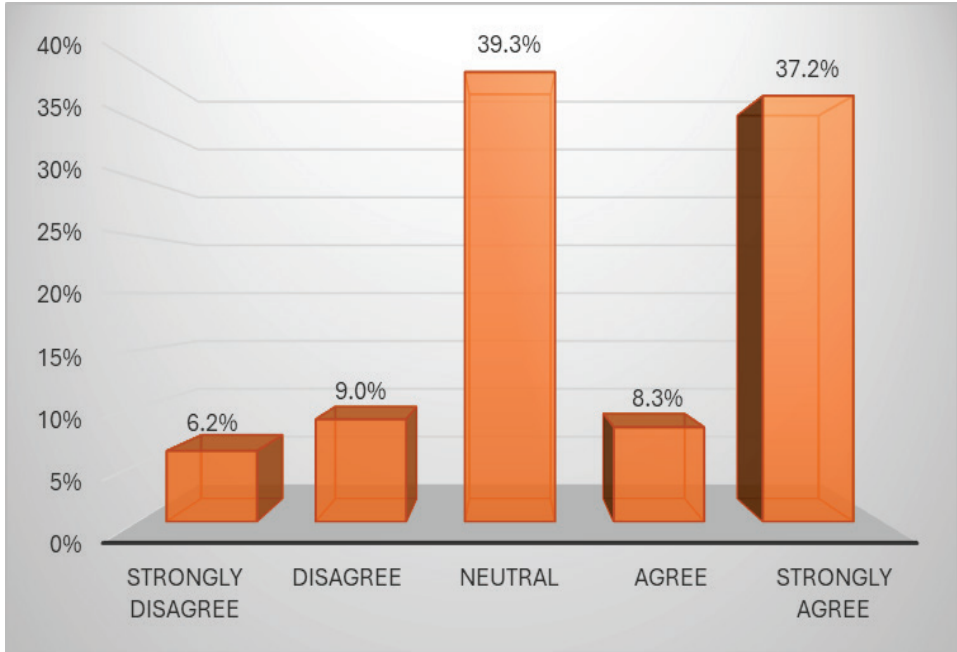
## **Method**

The study employed both quantitative and web questionnaires for data collection. Questionnaires were used as data collection instruments designed to gather specific information from respondents (Babbie, 2016). The Microsoft forms assisted with the collection process. Within the forms, a five-point Lickert Scale with rating scales was used. The scale's simplicity ranges typically from "Strongly Disagree" to "Strongly Agree"; "Disagree to Agree" and "Neutral"), which makes it easy for respondents to understand and respond to survey items (Jamieson, 2004). For this study, the three constructs were based on the data obtained from a research project. The original instrument contained TPACK sections (Section A: biographic information with gender, age qualifications, Section B: contained 8 aspects of Technological Knowledge, (TK), Section C: contained 6 items on Pedagogical Knowledge, PK), Section D: contained 4 items on Content Knowledge, CK). The last sections were based on TPK, Technological Content Knowledge (TCK), and Pedagogical Content Knowledge (PCK), each containing 6 items. This paper focused on three constructs within TPK where each needed to ascertain a particularised competency guided by the main research question formulated for the study. The validity and reliability of the measurement instruments accurately assess intended constructs and yield consistent results from the design and pretest by senior experts in the field specialization (Bryman, 2016; Trochim & Donnelly, 2008)

## **Participants**

This study included a total of 350 students who were enrolled in a module. The primary goal was to provide detailed accounts based on a quantitative analysis of how their e-tutors teach the content in the modules. During the teaching process, e-tutors clarified and attempted to defend viewpoints that gave information from students on their selection, usage, and general application of their technology integrations and methodologies.

## Results of Research



*Figure 1.* My e-tutor uses digital media for online assessment

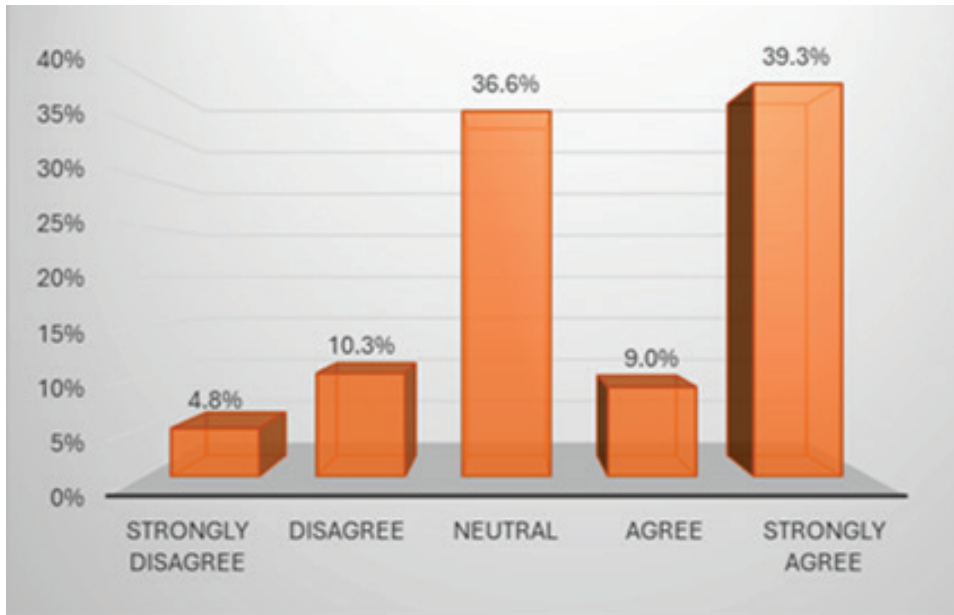
Source: Own work.

Figure 1 displays the responses to an item in which students were asked to rate their e-tutors' proficiency in using digital media for online assessment. According to the figure, 45.5 percent of students highly agreed or agreed on their e-tutors' skill level, particularly when it came to the usage of digital media for online assessment. Those who highly disagreed or disagreed were worth 11.2 percent of the total, with no direct influence on those who strongly agreed or agreed. Another notable category was those who were undecided about the construct, accounting for 39.3 percent of the total. Based on the percentage of those who strongly agreed or agreed at a percentage less than half, it can be concluded that the e-tutors cannot still use digital media for online design process assessment.

Figure 2 shows the responses to the question on whether e-tutors had sufficient expertise to encourage students to participate in online classroom platform discussions. In terms of the construct, the figure showed that 48.3 percent of the students highly agreed or agreed that their e-tutors' level of expertise encouraged them to participate in online classroom platform conversations. The number of people who became ambivalent regarding the construct increased to 36.6 percent.



Finally, those who strongly opposed or disagreed were valued at 15.1 percent in the table, with no direct influence on the conclusions acquired earlier from the two sets of concept outcomes. Based on the information that only 48.3 percent of students strongly agreed or agreed about their e-tutors' competence level, it can be concluded that e-tutors' proficiency levels were insufficient to encourage students to participate in online classroom platform conversations.



*Figure 2.* My e-tutor encourages students to do online classroom platform discussions

Source: Own work.

Figure 3 shows the responses to the item that asked for evidence of e-tutors' ability to encourage students to use online technologies to solve their learning. The issue received a favourable reaction, with 51% of students strongly agreeing or agreeing that their e-tutors' competence level should encourage them to employ online technologies for their design process challenges. The students who were neutral about the item at a 33.8 percent value produced a non-influential consequence. In addition, 15.2 percent of respondents either strongly agreed or disagreed with the contents of the topic, according to another set of results. The positive responses from 51% of the respondents offered useful information about the construct, allowing us to conclude that e-tutors perform on par with the average in terms of their ability to inspire students to adopt online technologies for their design process issues.



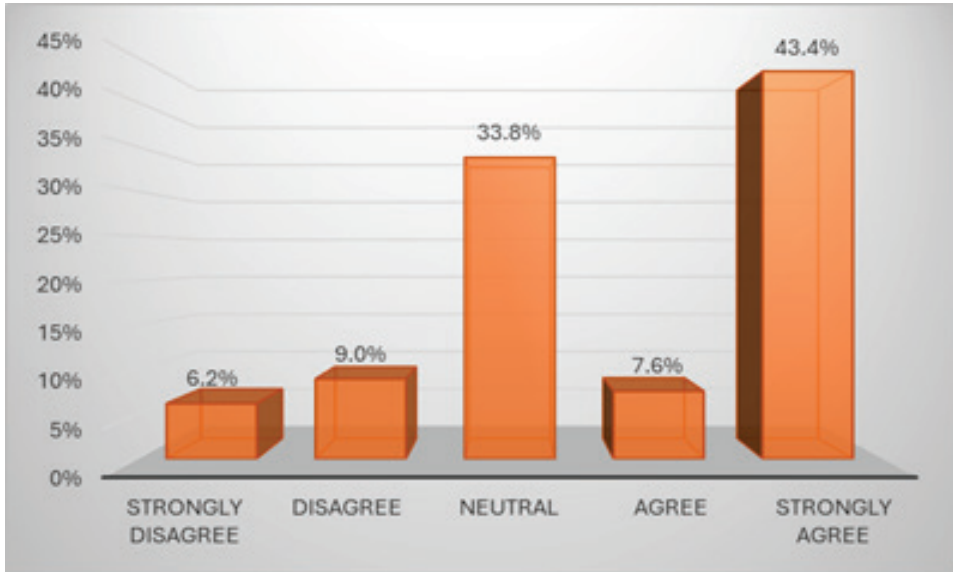


Figure 3. My e-tutor encourages students to use online technologies for learning

Source: Own work.

## Data Analysis

The results of the quantitative research aimed to identify differences and similarities by way of qualitative presentation. The analysis was based on each figure in comparison to other results of the same construct. The results together with the conclusions were compared to those which were available from the literature.

A single aim guided the arguments in this article, which were expanded utilizing three tables. Each of the three tables was built around a specific construct that dealt with a specific problematized issue related to the paper's goal of including TPK specificity.

Figure 1 was prepared as a result to determine the skill level of e-tutors' use of digital media for online assessment. Figure 1 shows that the percentage of those who strongly agreed or agreed was lower than half of those who strongly disagreed. The results lead to the conclusion that the e-tutors still could not use digital media for online assessment of the design process. Kastorff and Stegmann (2024) confirmed the results in Figure 1 with findings that the e-tutors' professional knowledge of TPK despite the integration of digital media for online assessment did

not influence the ICT literacy of the students for learning the content. Some more papers (Ma et al., 2021; Mutmainnah & Nurkamilah, 2021; Nguyen et al., 2022) support the findings in Figure 1 and provide additional insight into the goal stated in this study. Currently, Nguyen et al.,'s (2022) report revealed that the participants' TPK was at its lowest in comparison to other constructs under investigation, and Mutmainnah and Nurkamilah's (2021) report also revealed that teachers indicated that they needed development programs to improve their TPK because, while they use technology in their classrooms, they could not mention such technologies to conduct practical lessons during online learning. Furthermore, Ma et al.,'s (2021) study corroborated (Mutmainnah & Nurkamilah 2021; Nguyen et al., 2022) reports with the assertion that teachers lacked TPK, with the recommendation that teachers should be provided with regular professional development that focused on continuous online teaching capabilities.

A curricular study by Cheng et al., (2022) found that more participants demonstrated higher performance and confidence as a result of increased group cooperation, which led to an increase in TPK. The reports mentioned (Cheng et al., 2022; Ma et al., 2021; Mutmainnah & Nurkamilah, 2021; Nguyen et al., 2022) were less than positive resultant indicators' catalysts for this paper, but they did provide some direction on how the design process curriculum benefits from such engagements in various ODeL classrooms.

Figure 2 produced a report based on the finding that e-tutors had poor competence levels to encourage students to participate in online classroom platform conversations. This outcome was in line with what was published in the literature about TPK priority research.

The direct implications were seen with low TPK scores during learning. Results from Sun and Zhang (2024) indicated that online learning platforms posed comprehension and navigation challenges to some students, leading to them feeling excluded during the online learning process with the consequences of low TPK. A report by Radmehr and Goodchild (2022) indicated that teachers believed that greater emphasis should be placed on programs that nurtured how technology could be integrated into education to assist obstacles for students to experience and build their TPK. Simultaneously, Imaduddin and Astuti (2022) revealed that there was still a need for additional mentorship for instructors in the management of technology-based learning as well as the use of applications relevant to particular approaches during the mentoring activities. Lee and Ogawa (2021) found that lecturers believe their technology-related knowledge is not well-developed enough to combine with teaching during courses. In TPK research, several sets of less favourable outcomes were produced. One was from Wea and Budiraharjo (2022), who stated that the teacher participants in an English class felt less confident in her technological applications. The findings were supported in a previous study by Lee and Ogawa (2021), who found that some other participants were still unfamiliar with technology in workshops on how to create teaching breakout rooms. At the

same time, Tafazoli and Meihami (2022) found that teacher participants in teacher preparation programs needed TPK development so that they could develop critical skills that would allow them to use new and creative methods of teaching a course online more practically than theory-based methods. Studies (Lee & Ogawa, 2021; Tafazoli & Meihami 2022; Wea & Budiraharjo 2022) were supported by Ogalo et al., (2022), who found that teachers in the study were unaware of their TPK levels and lacked enough TPK for integrating ICTs into a course program. The few authors who made justifiable criticisms of their results in the TK domain were in line with the construct that was defined in Figure 2. It is reasonable to assume that the authors' conclusions about TPK outcomes are similar to what this section of the paper discovered.

Figure 3 shows submissions with favourable TPK domain results, with 51 percent of total respondents providing useful information on the construct. Based on the responses, it was determined that e-tutors outperform the average in terms of their ability to persuade students to adopt online technology for their design process issues. In study reports, more positive additional reports about TPK were acquired.

In the report from He et al., (2024) students were at a better chance to adopt gamification as an online tool from the encouragement of their e-tutors. The results improved learning performances in content with students who exhibited high scores in TPK. Further reports were recorded. According to the report by Alsayed et al., (2022), more survey respondents stated they could choose technology that supported and improved their teaching and learning process. Filho and Gitirana (2022) supported Alsayed et al., (2022) with their findings, which found that when teachers use technology to reinforce traditional practices, their students can perform procedures with technologies outside of the teachers' intervention, which increases the potential for TPK. Teachers' TPK was immediately and positively influenced by knowledge of Web 2.0 technologies and pedagogy contributed to developed new pedagogical practices with Web 2.0 technologies, according to Mohammad-Salehi and Vaez (2022) Dalili's study. Studies by Alsayed et al., (2022), (Filho & Gitirana, 2022), (Mohammad-Salehi & Vaez-Dalili, 2022) were corroborated by Ferdiansyah et al.,(2022), where it was reported that the TPK of students was at an average, indicating that the value was positive as a result At the same time, Hasanuddin et al., (2022) reported that the TPK of student teachers in a course was in a very good category in terms of how technology might affect a classroom's teaching style. In TPK research, several sets of less favourable outcomes were produced. Oikarinen et al., (2022) added to the evidence by stating that the students' TPK was at the greatest level for particular themes, confirming the e-tutors' active pedagogical role in instructing students with digital skills.

## Recommendations

### *Enhanced professional development programmes*

It is advised to put in place through frequent professional development programmes in light of the findings that the e-tutors have difficulty using digital media for online assessment. Enhancing the e-tutors' TPK, especially as it relates to online assessment procedures should be the main goal of such programmes.

### *Encouragement of e-tutor engagement*

TPK results and student outcomes may be enhanced by putting tactics into place to raise e-tutors' levels of interactions with students on online platforms.

### *Integration of collaborative learning:*

Promoting cooperative learning activities on online platforms may increase self-assurance and output which will increase the efficacy of e-tutors when they are teaching online.

### *Encourage creative pedagogical practices:*

More effective teaching practices may result in encouraging online e-tutors to investigate and apply innovative technology-integrated teaching strategies.

## Conclusion

The study undertaken aimed to examine the Technological Pedagogical Knowledge (TPK) of e-tutors during the facilitation of content in an Open and Distance e-Learning (ODeL) environment. The survey respondents provided insights that led to two key conclusions: E-tutors still struggled to effectively use digital media for online content evaluation. This suggests a gap in their understanding of how to leverage technology to enhance the learning experience. E-tutors did not fully comprehend the significance of TPK in their implementation practices for the given context. This meant that students were not provided adequate opportunities to actively participate in the creation of new knowledge during content learning, as per the constructivist approach that guided the study. The findings reveal a ripple effect, where e-tutors' lack of TPK in content facilitation negatively impacted the students' ability to benefit from distance learning. This implies that the students were not cognitively equipped to profit from the ODeL setting, as their e-tutors lacked the necessary digital teaching skills.

The study also highlighted a potential disparity in how students from different cohorts (practicing and learning) were supported in the curriculum. However, the findings did indicate that e-tutors were able to effectively encourage students to adopt online technologies for content learning, suggesting some positive aspects in their pedagogical approach. Overall, the study underscores the importance of enhancing e-tutors' TPK to ensure that students in ODeL environments can fully engage in the construction of new knowledge and benefit from the affordances of technology-enabled learning.

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Mpipo Zipporah Sedio

## **Zrozumienie i poziom pewności e-tutorów w korzystaniu z technologicznego modelu wiedzy pedagogicznej w otwartym e-learningu na odległość**

### Streszczenie

Artykuł miał na celu zbadanie perspektyw e-tutorów dotyczących znaczenia Wiedzy Technologiczno-Pedagogicznej (TPK) w Instytucji Kształcenia na Odległość (ODL). W artykule zastosowano metodę ankiety ilościowej, aby umożliwić studentom wyrażenie swoich opinii na temat tego, jak e-tutorzy wykorzystują swoją wiedzę fachową do przekazywania wiedzy. Badanie obejmuje 350 studentów zapisanych na moduł. Jego celem było uzyskanie wglądu, przy użyciu analizy ilościowej, w techniki stosowane przez e-tutorów w dostarczaniu treści. Podczas przekazywania treści e-tutorzy dostarczali wyjaśnień i wsparcia dla różnych punktów widzenia, uwzględniając opinie studentów na temat wyboru, wykonania i ogólnego wpływu metod nauczania. Zebrane dane zostały uporządkowane i przedstawione w tabelach. E-tutorzy podkreślali wykorzystanie TPK w celu wspierania i ulepszania działań studentów online. W związku z tym stwierdzono, że konstruktywizm może pomóc w włączeniu ram TPK, co z kolei zwiększa zrozumienie procesu projektowania instrukcji przez studentów. Jednak badanie wykazało brak zrozumienia wśród e-tutorów koncepcji TPK w odniesieniu do projektowania programu nauczania.

**Słowa kluczowe:** Wiedza Technologiczno-Pedagogiczna; Kształcenie na Odległość; e-tutorzy; konstruktywizm

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## **Comprensión y nivel de confianza de los tutores electrónicos en el uso de un modelo de conocimiento pedagógico tecnológico en el aprendizaje electrónico a distancia abierto**

### Resumen

El artículo tenía como objetivo investigar las perspectivas de los e-tutores respecto a la importancia del Conocimiento Pedagógico Tecnológico en una Institución de Aprendizaje a Distancia Abierta. El artículo emplea un método de encuesta cuantitativa para permitir a los estudiantes articular sus impresiones sobre cómo los e-tutores aprovechan su experiencia temática para impartir conocimiento. El estudio incluye 350 estudiantes que están inscritos en un módulo. Su objetivo era obtener una comprensión profunda, utilizando análisis cuantitativos, de las técnicas utilizadas por los e-tutores en la entrega de contenido. Durante la entrega del contenido, los e-tutores proporcionaron explicaciones y apoyo para diferentes puntos de vista, teniendo en cuenta las opiniones de los estudiantes sobre la elección, ejecución e impacto general de los métodos de enseñanza. Los datos recopilados se organizaron y presentaron en tablas. Los e-tutores reconocieron el uso del Conocimiento Pedagógico Tecnológico (CPT) para asistir y mejorar las actividades en línea de los estudiantes. Por lo tanto, se encontró que el constructivismo podría ayudar a incorporar el marco de CPT, mejorando así la comprensión de los estudiantes del proceso de diseño instruccional. Sin embargo, el estudio descubrió una falta de comprensión entre los e-tutores respecto al concepto de CPT en relación con el diseño del currículo.

Palabras clave: Conocimiento Pedagógico Tecnológico (CPT); Aprendizaje a Distancia Abierta (ADA); e-tutores; constructivismo

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**Понимание и уровень уверенности электронных преподавателей  
в использовании модели технолого-педагогических знаний  
в открытом дистанционном электронном обучении**

**Аннотация**

Статья нацелена на изучение точек зрения электронных репетиторов относительно важности технологических педагогических знаний в учреждении открытого дистанционного обучения. Статья использует количественный метод опроса для того, чтобы студенты могли выразить свои впечатления о том, как электронные репетиторы используют свою тематическую экспертизу для передачи знаний. Исследование включает 350 студентов, которые обучаются на модуле. Его целью было получение глубоких инсайтов с использованием количественного анализа в техниках, используемых э-тренерами при доставке контента. Во время доставки контента электронные репетиторы предоставляли объяснения и поддержку различным точкам зрения, учитывая вклад студентов в выбор, выполнение и общее влияние методов преподавания. Собранные данные были упорядочены и представлены в таблицах. Электронные репетиторы признали использование технологических педагогических знаний (ТПЗ) для помощи и улучшения онлайн-активностей студентов. Таким образом, было обнаружено, что конструктивизм может помочь в интеграции фреймворка ТПЗ, тем самым улучшая понимание студентов процесса конструктивизма. Однако исследование выявило недостаток понимания среди электронных репетиторов относительно концепции ТПЗ в контексте разработки учебных планов.

**Ключевые слова:** технологические и педагогические знания (ТПЗ); дистанционное обучение; электронные репетиторы; конструктивизм