Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

The Use of Educational Technologies for Creative Teaching in South African Technology Classrooms : A Social Constructivist Approach

Praygod Bonginkosi Nkosi[1]*, Sylvia Manto Ramaligela[2]
[1]*Department of Mathematics, Science and Technology Education, [2]Department of Science and Technology Education, University of Limpopo, Polokwane, South Africa.
*Corresponding Author. Email: Praygod.nkosi@ul.ac.za

Abstract: This study aims to explores how Technology teachers enhance their Creative Teaching Skills by integrating Educational Technologies into their classroom practices. This study followed a qualitative research approach where a case of seven teachers enrolled for honours degree were sampled. Qualitative thematic analysis was used for the data which was collected through non-participatory observation. Through a Social Constructivism frame, the findings of this study indicate that through the planning and presentation of several lessons, the teachers showed great improvement in the integration of Educational Technologies into their classroom practices. Teachers gained knowledge and skills about the integration of Educational Technologies for planning and presenting creative lessons. This finding suggests that the teachers developed Creative Teaching Skills, gained experience, and transformed their classroom practices. Lack of policy, infrastructure, and resources in rural public schools was also discovered to be a hindrance to teachers' inability to integrate Educational Technologies into their teaching. This finding suggests that teachers' proper training in technology integration alone is not a panacea to effective technology integration for Creative Teaching in the classroom. Therefore, it is recommended that for Creative Teaching through technology integration to flourish in the classroom, it needs to be considered along matters of ICT policy development and implementation as well as ICT infrastructure development in schools. Integration of Educational Technologies with the Creative Teaching Skills of Technology teachers were invigorated with knowledge facts as they gained insights during their participation in the multiple planning and presentation of creative lessons.

Article History
Received: 06-02-2025
Revised: 14-03-2025
Accepted: 03-04-2025
Published: 25-04-2025

Key Words:
Educational Technologies; Creative Teaching; Classroom Practices; Creative Lessons.

How to Cite: Nkosi, P., & Ramaligela, S. (2025). The Use of Educational Technologies for Creative Teaching in South African Technology Classrooms : A Social Constructivist Approach. *Jurnal Paedagogy, 12*(2), 252-262. doi:https://doi.org/10.33394/jp.v12i2.14886

https://doi.org/10.33394/jp.v12i2.14886

This is an open-access article under the CC-BY-SA License.

Introduction

The rapid advancement of technology has significantly transformed classroom dynamics, reshaping how lessons are planned, delivered, and experienced in modern education, while also presenting new creative opportunities for teachers. Modern technologies offer creative opportunities for teachers, allowing them to enhance engagement, communication, and knowledge dissemination (Haleem et al., 2022). Furthermore, the flexibility of Educational Technologies not only promotes multiple ways of content presentation but also enhances the comprehension of knowledge complementing learners' diverse learning styles (Onyema, et al, 2019). As such, teachers need to understand the many creative ways that Educational Technologies can be used to impart knowledge in the classroom and how these approaches interact with different pedagogies (Bakhmat et al.,2022).

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

Despite having access to various Educational Technologies, many teachers struggle to integrate them into their teaching practices (Mynaříková & Novotný, 2020). While Educational Technologies are frequently used for lesson planning and presentation, their full potential remains underutilized in classrooms, falling short of expectations for 21st-century teachers (Huang, 2019). The integration of Educational Technologies offers numerous opportunities for teachers to enhance the teaching and learning process; however, teachers primarily use these technologies to search for information and design lessons rather than to actively engage learners in the classroom (Mzimela et al., 2024). Mynaříková and Novotný (2020) further emphasize that although teachers have access to a range of digital tools, their ability to incorporate them meaningfully into classroom instruction is still quite limited. This is an illustration that teachers may lack inadequate training, limited pedagogical strategies, and resistance to change. Hence the need for comprehensive support to fully harness Educational Technologies in diverse learning environments.

The integration of Educational Technologies in classroom instruction offers numerous benefits for both teachers and learners. Educational Technologies enable teachers to adopt more creative approaches to lesson planning and delivery, fostering a more interactive and engaging learning experience (Henriksen et al., 2021). These technologies also facilitate the innovative presentation of lessons, optimizing knowledge acquisition in a dynamic and stimulating manner (Bereczki & Kárpáti, 2021). Moreover, the effectiveness of Creative Teaching can be significantly improved when instructional methods align with the preferences and learning styles of the current generation of learners, often referred to as 'Gen Z' (Hussin, 2018). However, teachers have inadequate knowledge and skills on how to effectively integrate Educational Technologies for Creative Teaching in a Technology classroom. Yet little has been done to understand how Technology teachers use Educational Technologies for Creative Teaching in their classrooms. The most obvious deficiency is the lack of knowledge and skill in teachers' ability to adopt and use Educational Technologies creatively design and present creative lessons. Thus, this article sought to close this knowledge gap by exploring how the integration of Educational Technologies into teaching may develop the Creative Teaching Skills of Technology teachers in their classroom practice.

So, this article explores the role of Educational Technologies in enhancing teaching and learning by highlighting the new opportunities modern technologies create for teachers. It examines how technology improves engagement, knowledge dissemination, and communication in classrooms while also discussing the potential of creative teaching methodologies supported by digital tools to foster learners' creativity and critical thinking. Additionally, the article identifies challenges in technology integration and emphasizes the need for better teacher preparedness to ensure effective implementation in diverse learning environments. Identification of ways to integrate technology to maximize learning outcomes could contribute to enabling teachers to present lessons in multiple creative ways, improving learner engagement and knowledge retention in an era where Educational Technologies play a crucial role in modern education. Therefore, teachers must be equipped with the necessary skills and pedagogical strategies to effectively integrate Educational Technologies into their teaching practices.

Research Method

This study adopted the interpretivist paradigm, which focuses on understanding the social world, as it aligned with the study's aim of gaining deep insights into a teacher's lived experiences while delivering a creative lesson using Educational Technologies (Gray, 2021;

 Copyright © 2025, The Author(s)

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

Kivunja & Kuyini, 2017). As such, allowing the researcher to examine the development of Creative Teaching Skills in a practical classroom setting (O'Donoghue, 2018). A qualitative approach was chosen to gain a comprehensive understanding of teachers' planning process in designing and delivering creative lessons, emphasising depth, and meaning by focusing on participants' interpretations as the core of the study (Tracy, 2024). This study employed a descriptive research design to provide a clear account of how Technology teachers integrate Educational Technologies into their lessons to foster Creative Teaching Skills. Through action, evaluation, and reflection in a two-cycle lesson presentation (Kim et al., 2017).

Convenience and purposive sampling techniques were used simultaneously. Purposive sampling and convenience were used in unison to produce a thorough, contextualized account of the study under investigation (Atinaf et al., 2023). Therefore, convenience sampling permitted the recruitment of seven (7) teachers who were registered for an Honours degree in Technology Education at a university in South Africa and already practicing as teachers at the time of research out of a possible thirteen (13). The use of purposive sampling ensured that the seven (7) in-service teachers recruited were all teaching Technology in the senior phase at the time of research.

Non-participant observations were conducted to collect data from seven participants to make sense of their decision-making and context from the planning process to the presentation of creative lessons. Non-participant observation enabled a systematic technique of taking notes and documenting participants' behavior and occurrences in a classroom without interfering (Ciesielska et al., 2018). This technique assisted the researcher in gathering data through observation, the researcher, as a non-participant observer, was able to extract more information in a more pragmatic setting, allowing the researcher to understand phenomena in nature, their relationships, and their interactions in a new way without prevalent categorisations and evaluations (Ciesielska et al., 2018). To extract data during the observations, the researcher used the developed observation schedule to understand how the teachers use Educational Technologies to present creative lessons in their classrooms. An observation schedule was used to categorise different segments of observed behavior in a classroom, enabling the researcher to generate data by taking notes of everything that occurs in the classroom space (Phellas et al., 2011). The observation schedule was designed considering teachers' use of various Educational Technologies and the Social Constructivism Approach, which included learners' Interaction with Prior Knowledge, Interaction with New Knowledge, and Construction of Own Knowledge. Ethical clearance was obtained from the university, permission was granted by the Department of Basic Education in various districts of Limpopo Province, and all participants provided informed consent for voluntary participation.

Qualitative content analysis was employed to create content categories related to interaction with prior knowledge, new knowledge, and construction of own knowledge, and test the established categories (Selvi, 2019). Therefore, the data collected during the observations through observation schedules and harmonised by reflecting and recasting on specific issues analysed. Through the qualitative content analysis, data were filtered, and dissected into significant elements, summarised, and provided details of all that transpired from the beginning of the lesson to the end.

Results and Discussion

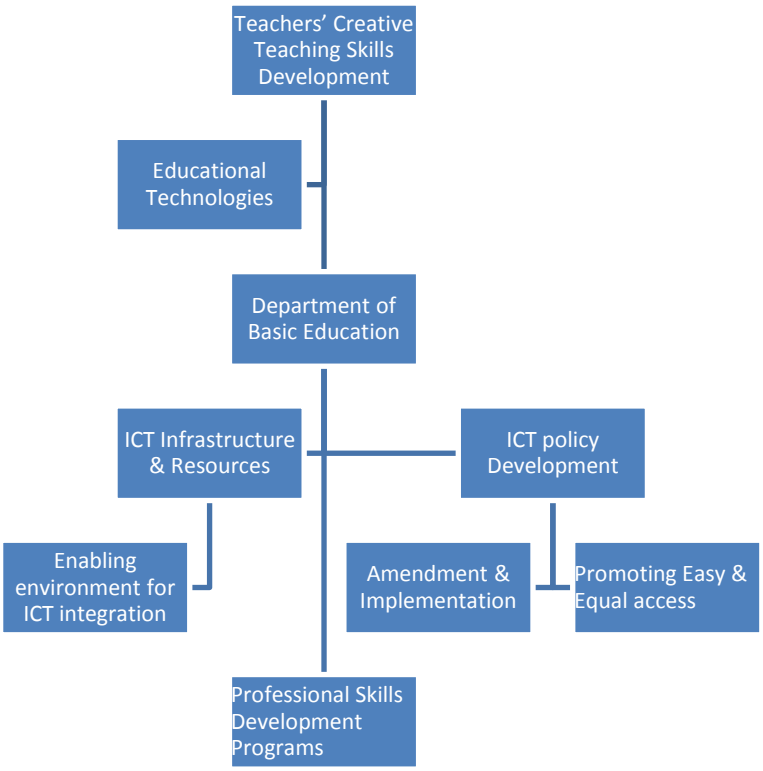
This study is concerned with understanding how Technology teachers use Educational Technologies to design and present creative lessons using non-participant observations. This

 Copyright © 2025, The Author(s)

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

study discovered that teachers had gone some way into integrating available technologies in their technology classrooms and that the Department of Basic Education needed to improve on their infrastructure and enforce the ICT policy, see figure one below.



Since this study was descriptively study, the lesson observations had two cycles. To determine if they understood the concept of creative teaching, and how they developed knowledge and skills for creative teaching over time with the integration of Educational Technologies during planning and presentation. The results are presented focusing on two aspects, human resources, and physical resources. The human aspect findings focus on the use of Educational Technologies, competence, and instructional strategies. The physical resources findings focus on the availability of resources in the schools and management in schools.

The first finding related to human resources revealed that teachers are knowledgeable and skilled in presenting creative lessons using Educational Technologies. During their participation in the intervention program facilitated by the researcher, the participants experienced perceptible changes to their teaching practices. As part of the intervention program teachers designed and presented lessons more than once, each time showing improvement in terms of the selection process during the planning stage and the use of Educational Technologies for lesson presentation. This was evident since most teachers used various Educational Technologies to present their lessons in both presentations.

During the first lesson presentation, the teachers succeeded in recapping and extracting knowledge from a previous lesson/grade/experience, but only to a limited extent because they did not fully capitalise on the opportunities provided by the Educational Technologies at their disposal. There were instances where they lacked creativity in teaching with technologies, and some would often switch and use traditional methods of teaching during their presentation. Some teachers employed hard copy documents (Word documents)

 Copyright © 2025, The Author(s)

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

to elicit learners' prior knowledge. In some cases, it was just a struggle to coherently use the technologies at their disposal, perhaps due to less use of technologies in their daily teaching.

> *For example, **Lebrone** in school A attempted to extract prior knowledge through simulation, which was perplexing because it appeared that new information was being delivered rather than prior knowledge from a previous lesson/grade/experience. **Calton** in school D, used a hard copy document to extract learners' prior knowledge, asking them questions referring to the document.*

Furthermore, while using YouTube videos to communicate information, teachers would often disrupt the flow of information by repeatedly playing and pausing the video. To ask a question like "Do you follow? /Do you understand? / Do have questions" In some instances the disruption would be to further explain concepts. In some circumstances, teachers choose to communicate the information using only one platform rather than two or more (for example, PowerPoint combined with a YouTube video), which would have resulted in higher comprehension of the information. Nonetheless, one teacher effectively distributed the material by using YouTube videos and PowerPoint presentations.

> *For instance, **Calton** in school D played and paused the video continually and engaged the learners through the question-and-answer method. The YouTube video unpacked Ohm's Law, and the question-and-answer method was aimed at introducing and guiding the learners to understand the relationship between current, voltage, and resistance about Ohm's Law. To complement the YouTube video clip, the teacher displayed the Word document on the whiteboard, continuing to unpack Ohm's Law, which was less interesting.*

The teachers used hard copy documents or presented Word documents, ignoring the more innovative methods for presenting information and improving the understanding that technology has to offer. Three teachers, on the other hand, used PowerPoint to give learners a platform to harmonise what they already knew and what they were learning now through an exercise. However, due to time constraints, learners of two of the teachers were unable to complete the activity, which hampered the achievement of the targeted results.

> *For instance, in school B **Judith**, distributed a black and white hard copy Word document for learners to complete an activity on calculating resistance, where the colours on the resistors are crucial in determining the resistance. The teacher could have designed the activity on the slides to enhance learners' visualisation since colours were key in completing the activity.*
>
> *Hence, during the first cycle, teachers failed to facilitate the class activity meant for their learners within the stipulated time frame in lesson plans.*

During their second lesson presentations, the teachers demonstrated significant growth and assurance in their ability to use technology to engage learners in new information, based on their experience from the first presentation. The teachers showed improvement in how they presented their lessons and carried out instruction. It was evident that the Educational Technologies used during their presentation were carefully thought of along with other factors such as content to be taught, learning objectives, and learners' learning styles. These teachers presented content in multiple ways to enhance comprehension, effectively catering to diverse learning styles in the classroom. This was evident during second lesson presentations as teachers were better composed, demonstrating improved use, and understanding of their choices in Educational Technologies integration.

> *For instance, in school teacher **Lebrone** used a laptop and the whiteboard to display the PowerPoint presentation slides containing all three parts of the lesson (introduction, main content, and learners class activity) and two YouTube videos. The first YouTube video was used to supplement the main content presented using PowerPoint slides and the second YouTube video was used to present information aimed at assisting learners to complete their class activity. **Jude** in school B used a smartphone, laptop, and smartboard to display*

 Copyright © 2025, The Author(s)

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

> *PowerPoint lesson slides containing all three parts of the lesson (introduction, main content, and learners' class activity). He also used a YouTube video supplementation for the main content presented. In school E,* ***Jolie*** *used a laptop and whiteboard to display the PowerPoint presentation slides, YouTube videos, and simulations to present different parts of the lesson. The PowerPoint presentation slides contained all three parts of the lesson (introduction, main content, and learners class activity), and the YouTube videos, supplementation, the simulations were conducted to assist learners to complete the activity.* ***Kim*** *in school F used the laptop and whiteboard to display the PowerPoint presentation slides and YouTube to present different parts of the lesson. PowerPoint presentation slides containing all three parts of the lesson (introduction, main content, and learners' class activity) and YouTube video aimed at assisting learners to complete the activity.*

These examples illustrate that teachers' creative teaching skills can be developed if they are properly trained in the use of Educational Technologies for classroom practices. Mynaříková and Novotný (2020) express that for Educational Technologies to be effectively integrated into the classroom, more time must be dedicated to lesson planning and preparation in addition to exploring new approaches to presenting and sharing information and cooperating with learners.

The second finding related to physical resources revealed that even with proper training, teachers in public schools, especially in rural areas, face significant challenges. These obstacles often make teachers reluctant to apply the knowledge and skills gained from professional development programs designed to enhance teaching and learning in the classroom. During observation, seven rural schools were visited, and only two out of the seven have smart classrooms equipped with basic tools such as projector smartboard/whiteboard and wi-fi internet. However, access to this space was a process that seemed to be due to micromanagement. In the other five schools, teachers used traditional classrooms where they had to set up everything to transform the class to enable them to creatively use technologies, and that proved to be time-consuming and perhaps discouraging.

> *For instance,* ***Judith*** *in School C had to move the learners from one class to another because her class did not have an electric outlet for her to make the necessary connections.* ***Jolie*** *in school E had to wait for a colleague to go and collect a school projector from her house.* ***Kevin*** *in school G had to first get permission to use the smart classroom from the sciences head of the department. The smart classroom was supposedly donated by the local mine for the sciences.*

This may be due to a lack of policy development/implementation on the provision, maintenance, security, keeping, and handling of school infrastructure and resources.

In summary, teachers' Creative Teaching Skills in the use of contemporary technologies were enhanced, enabling the teachers to perform more effectively in the classroom. These experiences demonstrated that the rapid transformation of classroom practices together with instructional change is worthwhile. Henceforth, diverse aspects of the teacher's classroom practice, and teaching strategies will be altered to match the requirements of the ever-changing scenery in teaching that is brought about through the advancement of technology to suit the content that is being taught. As expressed by Yurtseven Avci et al. (2020), the changes in classroom practices brought about by the effective integration of Educational Technologies can be seen in researching, planning, and presenting information. But let it be noted that training of teachers alone will not be good enough, if teachers will have challenges in accessing and using school resources aimed at aiding the process of teaching and learning due to a lack of policy development/implementation. Moreover, if the

 Copyright © 2025, The Author(s)

Jurnal Paedagogy:
Jurnal Penelitian dan Pengembangan Pendidikan
https://e-journal.undikma.ac.id/index.php/pedagogy/index
Email:paedagogy@undikma.ac.id

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

current school's infrastructure and physical resources do not cater for, nor support teachers' needs for good classroom practices for creative teaching in subjects like technology.

The discussion of the results, guided by the Social Constructivism Theory (Vygotsky, 1978), explores how teachers' creative teaching skills were transformed through the integration of Educational Technologies. It explored how this transformation promoted interaction with prior knowledge, interaction with new knowledge, and the construction of own knowledge during lesson presentations.

Interaction with Prior Knowledge

Teachers employ Educational Technologies to present creative lessons. During their initial lesson presentations, the teachers demonstrated their knowledge of integrating technology into teaching and learning. However, this was demonstrated with minimal success. The teachers with proper selection of Educational Technologies could not fully exploit the opportunities that come with them. The teachers with the technologies at their disposal often switched to traditional methods of teaching such as using hard copy documents to extract learners' prior knowledge. This may perhaps be due to a lack of confidence in the use of Educational Technologies since it was a usual practice. This was also expressed by Bahari (2022), who discovered that many teachers continue to struggle to fully capitalise on the opportunities provided by Educational Technologies and that during lesson presentations, they still alternate between conventional and modern methods of disseminating information.

During the presentation of their second lessons, most teachers demonstrated substantial improvement and calmness in their use of technology to elicit prior knowledge from a previous lesson/grade/experience. All the teachers used a laptop, or a smartphone connected to a projector and a smartboard to show their designed PowerPoint presentations to summarise and extract learners' prior knowledge from a previous lesson/grade/experience. The use of technology in this area allowed teachers to present knowledge more innovatively. It also gave them the ability to deliver explanations and 3D images in tandem for improved information visualization and understanding of a certain subject. This is consistent with the views of Haleem et al. (2022), who believe that using Educational Technologies for lesson presentation provides flexibility in terms of how information is shared in the classroom and allows a teacher to use text to provide descriptions as well as 3D images for better visualisation and understanding. In support, Lawrence and Tar (2018) emphasise that the incorporation of Educational Technologies allows teachers to convey material in a variety of ways, which improves how new knowledge is digested for greater understanding.

Interaction with New Knowledge

Teachers employ Educational Technologies to deliver creative lessons. During the presentation of their first lessons, the teachers demonstrated significant knowledge. To a limited extent, the teachers employed PowerPoint, YouTube, simulations, and animations to interest learners in new topics. How information was consumed by the learner was often disturbed by the Teacher's actions not allowing a flow during the presentation. Such as continual pausing and playing of the YouTube videos during presentation. In some cases, it seemed teachers did not cater to the needs of all learners concerning learners' diversity in learning styles. That could have been easily achieved if teachers were not open or comfortable with using multiple

 Copyright © 2025, The Author(s)

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

ways of presenting information. This supports the viewpoint of Haleem et al. (2022), who contend that to raise the standard of teaching and learning in a classroom, teachers should explore every advantage that technology may provide.

During their second lesson presentation, due to their increasing familiarity with using technology to create and deliver innovative lessons, all the teachers chose to use multiple channels to disseminate information. Furthermore, their presentations were more logical and coherent since the technologies allowed for greater flexibility and different methods to engage with new information. Furthermore, the widespread usage of Educational Technologies easily accommodates learners' diverse learning styles, demonstrating that if the technologies are well integrated, they have much to offer in terms of improving the teaching and learning process. This is consistent with the views expressed by Bizami et al. (2023), who believe that with the successful integration of Educational Technologies, the material can be delivered on a variety of platforms or in many ways to improve the teaching and learning process in classrooms.

Construction of Own Knowledge

Teachers employ Educational Technologies to provide creative lessons. During the first class, the teachers were unable to take advantage of the opportunities provided by the tools available. It seems like teachers were not comfortable in using technology through their presentation, this was evident since in some cases they looked unsure of what they were doing. This may be because they do not use technology often. According to Nayar (2018), incorporating Educational Technologies into a lesson presentation in the classroom can be a distraction and a time-consuming exercise if the teacher lacks the necessary skills and knowledge to champion the technologies for their intended use.

During the second lesson presentations, the teachers were successful in using the capabilities of Educational Technologies. The teachers employed a variety of avenues to convey content, including YouTube, simulation, and PowerPoint. At this point, they could all employ two or more methods to communicate the information (such as PowerPoint and simulations). Furthermore, the teachers had their learners do and complete the task in class as intended, allowing them to debate, discuss, discover, and draw conclusions about certain areas. This is consistent with Kilag et al.'s (2023) belief that the use of Educational Technologies is effective in education in a variety of ways, including increasing learners' excitement and engagement and making it easier for them to absorb knowledge. Furthermore, Munyengabe et al. (2017) argue that while Educational Technologies can be viewed as a ‘mediator or bridge' between various elements that hamper teaching and learning, their integration is undoubtedly critical to these processes.

What these findings bring forth is the notion that teachers’ Creative Teaching Skills can be nurtured through continuous professional skills development. Furthermore, the findings also provide insights into the broader discourse on educational equity, highlighting how ICT infrastructure gaps and resource shortages create disparities in teaching effectiveness particularly in rural schools. Lastly, the findings highlight a policy gap in ICT infrastructure and resource distribution, demonstrating that without clear guidelines and equitable access, the integration of Educational Technologies remains inconsistent. Therefore, for Creative Teaching to flourish through the effective integration of Educational Technologies in Technology classrooms, decisive actions are required. The Department of Basic Education

 Copyright © 2025, The Author(s)

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

should implement ongoing skills development programs tailored to teachers' needs, enabling them to integrate technology effectively. Additionally, ICT infrastructure development and resource allocation must be prioritised, particularly in rural and underprivileged schools, to support technology-driven learning. Finally, the DBE should establish and enforce comprehensive ICT policies to standardize the use, maintenance, and equitable distribution of Educational Technologies in schools.

Conclusion

The conclusions from the findings of this research are first, during the observations of the teachers' lesson presentations, the study found that Creative Teaching Skills with Educational Technologies can be developed through continual appropriate skills development programs. Secondly, the study discovered that the lack of ICT infrastructure and the shortage of resources in the schools proved to be limiting factors for teachers' integration of Educational Technologies into their teaching practices in the classroom. Lastly, the study uncovered the lack of policy on ICT infrastructure and resources is also a barrier to teachers using Educational Technologies in their teaching. In addition, some teachers would personalise the schools' few Technology resources (projector, folding whiteboard), not sharing them with other teachers even though they were the property of the school (NB: To be reflected on the results above). However, despite these constraints, the teachers showed determination during the intervention program to overcome all adversity and persevere in changing their classroom practices. The whole process proved to be time-consuming.

Recommendation

Given the challenges identified**,** particularly in rural public schools such as teachers' ICT knowledge and skills gaps, ICT inadequate infrastructure, and ICT policy limitations**,** several recommendations are proposed to enhance Creative Teaching through the integration of Educational Technologies in Technology Education**.** These recommendations emphasize the need for:

- continuous professional development,
- adequate ICT infrastructure,
- policy support while providing insights into challenges and
- advocating for systemic reforms to enhance equitable access in resource-constrained classrooms.

To be on par with the rapid advancement of technology, the Department of Basic Education should continuously design and implement skills development programs tailored to the specific needs of teachers. These programs should consider the unique nature of the subject to ensure that Technology teachers remain knowledgeable and up-to-date with current developments in their field. Regarding access to and use of ICT resources**,** there is a critical need for th**e** Department of Basic Education to develop or amend its ICT infrastructure policy to ensure that schools are equipped with the necessary infrastructure that supports, promotes, and facilitates seamless access to ICT resources for all teachers. This is a major contribution to the body of knowledge, highlighting the importance of developing Technology teachers' Creative Teaching Skills through the effective integration of Educational Technologies.

Acknowledgment

The author would like to express sincere gratitude to Dr. T.E. Mabila and Dr. T.I. Mtshali for their invaluable guidance and motivation throughout my studies. Special thanks are also

 Copyright © 2025, The Author(s)

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

extended to the Technology Education section at the University of Limpopo, as well as to all the teachers who participated in this study.

References

Atinaf, M., Anteneh, S., & Kifle, M. (2023). A Methodology for Context-Specific Information Systems Design Theorizing. *The African Journal of Information Systems*, *15*(2), 1.

Bahari, A. (2022). Teacher identity in technology-assisted language learning: Challenges and affordances. *E-Learning and Digital Media*, *19*(4), 396–420. https://doi.org/10.1177/2042753022109285

Bakhmat, N., Popadych, O., Derkach, L., Shvardak, M., Lukashchuk, M., & Romanenko, V. (2022). Using information technologies to train today teachers in the educational environment. *Revista Romaneasca Pentru Educatie Multidimensionala*, *14*(2), 479-499.

Bereczki, E. O., & Kárpáti, A. (2021). Technology-enhanced creativity: A multiple case study of digital technology-integration expert teachers' beliefs and practices. *Thinking Skills and Creativity*, *39*, 100791.

Bizami, N. A., Tasir, Z., & Kew, S. N. (2023). Innovative pedagogical principles and technological tools capabilities for immersive blended learning: A systematic literature review. *Education and Information Technologies*, *28*(2), 1373–1425. https://doi.org/10.1007/s10639-022-11243-w

Ciesielska, M., Boström, K. W., & Öhlander, M. (2018). Observation methods. *Qualitative methodologies in organization studies: Volume II: Methods and possibilities*, 33-52.

Cirneanu, A. L., & Moldoveanu, C. E. (2024). Use of digital technology in integrated mathematics education. *Applied System Innovation*, *7*(4), 66.

Gray, D. E. (2021). *Doing research in the real world* (3rd ed.). SAGE. pp. 1–100.

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, *3*, 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Henriksen, D., Creely, E., Henderson, M., & Mishra, P. (2021). Creativity and technology in teaching and learning: A literature review of the uneasy space of implementation. *Educational Technology Research and Development*, 1–18. https://doi.org/10.1007/s11423-020-09912-z

Huang, R. (2019). *Educational technology a primer for the 21st century*. Springer Nature Singapore Pte Ltd.

Hussin, A. A. (2018). Education 4.0 made simple: Ideas for teaching. *International Journal of Education and Literacy Studies*, *6*(3), 92–98. https://doi.org/10.7575/aiac.ijels.v.6n.3p.92

Kilag, O. K. T., Segarra, G. B., De Gracia, A. M. L., Del Socorro, A. S., Abendan, C. F. K., Camangyan, G. A., & Mahasol, E. T. (2023). ICT application in teaching and learning. *Science and Education*, *4*(2), 854–865.

Kim, H., Sefcik, J. S., & Bradway, C. (2017). Characteristics of qualitative descriptive studies: A systematic review. *Research in nursing & health*, *40*(1), 23-42.

Kivunja, C., & Kuyini, A. B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, *6*(5), 26–41. https://doi.org/10.5430/ijhe.v6n5p26

 Copyright © 2025, The Author(s)

Vol. 12 No. 2 : April 2025
E-ISSN: 2722-4627
pp. 252-262

Lawrence, J. E., & Tar, U. A. (2018). Factors that influence teachers' adoption and integration of ICT in teaching/learning process. *Educational Media International*, *55*(1), 79–105. https://doi.org/10.1080/09523987.2018.1439712

Munyengabe, S., Yiyi, Z., Haiyan, H., & Hitimana, S. (2017). Primary teachers' perceptions on ICT integration for enhancing teaching and learning through the implementation of one laptop per child program in primary schools of Rwanda. *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(11), 7193–7204. https://doi.org/10.12973/ejmste/79044

Mynaříková, L., & Novotný, L. (2020). Knowledge society failure? Barriers in the use of ICTs and further teacher education in the Czech Republic. *Sustainability*, *12*(17), 6933. https://doi.org/10.3390/su12176933

Mzimela, A., Banoobhai, M., Ramollo, J. K., & Mtshali, T. I. (2024). The Evolution of Teaching Resources in South African Schools: A Quest for Adaptive Teaching Strategies. *Jurnal Paedagogy*, *11*(4), 697-706.

Nayar, A. (2018). *Teaching and learning in technology empowered classrooms—Issues, contexts and practices*. Partridge Publishing.

O'Donoghue, T. (2018). *Planning your qualitative research thesis and project: An introduction to interpretivist research in education and the social sciences*. Routledge. https://doi.org/10.4324/9781351165563

Onyema, E. M., Ogechukwu, U., Anthonia, E. C. D., & Deborah, E. (2019). Potentials of mobile technologies in enhancing the effectiveness of inquiry-based learning approach. International Journal of Education (IJE), 2(01), 1-22. https://doi.org/10.5121/IJE.2019.1421

Phellas, C. N., Bloch, A., & Seale, C. (2011). Structured methods: Interviews, questionnaires and observation. In C. Seale (Ed.), *Researching society & culture* (3rd ed.). SAGE.

Selvi, A. F. (2019). Qualitative content analysis. In *The Routledge handbook of research methods in applied linguistics* (pp. 440-452). Routledge.

Tracy, S. J. (2024). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. John Wiley & Sons.

Vygotsky L. S. (1978). *Mind in society: The development of higher psychological processes (Vol. 86)*. Harvard University Press.

Yurtseven Avci, Z., O'Dwyer, L. M., & Lawson, J. (2020). Designing effective professional development for technology integration in schools. *Journal of Computer Assisted Learning*, *36*(2), 160–177. https://doi.org/10.1111/jcal.12394

 Copyright © 2025, The Author(s)