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TikTok Videos Enhance the Understanding of Food Processing among Grade 9 Technology Learners

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ABSTRACT
This study investigated the effectiveness of TikTok videos in enhancing Grade 9 Technology learners' understanding of food processing. Grounded in constructivist theory, the research employed a mixed-method approach using a Concurrent Embedded Design. A total of 120 learners were sampled from three schools within the Lebowakgomo Circuit, Limpopo, South Africa. Quantitative data was collected through pre- and post-test scores, while qualitative data was collected through analysing the scripts of the learners. The findings revealed that learners who were taught using TikTok videos achieved higher scores than learners who received instruction through traditional lecture method. The findings further discovered that TikTok videos are effective in enhancing the understanding of subject matter. Our study results highlight the potential of digital platforms to enhance teaching, particularly in practical and conceptual subjects. This study recommends that teachers incorporate TikTok videos into their teaching methods to enhance conceptual understanding and make lessons more engaging. Teachers should consider creating TikTok accounts to share educational content, providing learners with accessible resources for self-study.

KEYWORDS
Critical thinking; digital-native learners; food preservation; food technology; teaching methods.

INTRODUCTION

In recent years, the integration of digital platforms into education has profoundly reshaped teaching and learning strategies (Dillon et al., 2023). The rise of social media and e-learning tools has given birth to a range of socio-educational platforms, with TikTok standing out as a particularly influential medium (Mtshali, 2023). Known for its short-form video content, TikTok has gained immense popularity among young people, offering a dynamic, engaging way to share information and ideas. This platform's ability to capture attention and present information in bite-sized, visual formats has made it an appealing tool for educators seeking innovative ways to connect with learners (Azman et al., 2021; Dillon at el., 2023; Rajan & Ismail, 2022). Given its widespread use and appeal, educators are increasingly exploring how TikTok can be leveraged to enhance learning, particularly in practical and conceptual subjects. One area where TikTok has shown promise is in technology education, specifically in topics such as drawing designs (Mtshali, 2023).

Food processing is included in the South African Technology Curriculum for Grade 9 and introduced earlier in Grade 6. However, many teachers avoid teaching this topic due to factors like inadequate academic skills, limited time, and the need for experimental activities (Orhan & Sahin, 2018). Additionally, personal views on teaching food processing further hinder its inclusion in classrooms. Despite its significance, food processing is rarely included as a module in South African university curricula, particularly within Technology education. Furthermore, it is often not given adequate attention or taught effectively in public schools, despite its vital relevance to everyday life. However, despite its importance, many learners find food processing challenging to comprehend. This issue extends beyond Grade 9 learners. Even university students, often possess limited knowledge about food processing (Costa et al., 2022). This gap in understanding is concerning, as these future educators will play a critical role in teaching the next generation of learners. The lack of conceptual clarity and engagement in traditional teaching methods can hinder both learners' comprehension and their long-term retention of the topic.

Traditional teaching methods such as lectures and textbooks, often fall short in engaging learners, especially in subjects that require practical, hands-on learning like food processing. While these methods may effectively convey theoretical content, they do not cater to the diverse learning styles of learners, particularly those who learn better through visual or interactive means (Ncisana et al., 2023). This is where digital platforms like TikTok can be a game-changer. TikTok offers an engaging, visually stimulating format that resonates with students, providing easily digestible content that captures their attention.

Studies by Azman et al. (2021) and Dillon et al. (2023) emphasize that digital tools, including TikTok, provide a more engaging and interactive learning environment compared to traditional lecture-based approaches. These tools foster active participation and enhance learners' interest, making complex concepts more accessible and enjoyable. TikTok videos, with their short, compelling clips and real-world applications, can effectively illustrate complex

processes such as food preservation, packaging, and production, making them more accessible to learners. In South African schools, various pedagogical strategies are used, including traditional methods, dialogues, project-based learning, and excursions (Ncisana et al., 2024a; Zenda, 2017). However, while these strategies are widely employed, digital teaching tools remain more prevalent in higher education, particularly at the tertiary level (Njura et al., 2020). This shift highlights the growing potential of digital platforms in enhancing learning outcomes across different educational contexts.

TikTok videos have significant potential to enhance conceptual understanding of food processing, particularly in resource-limited settings. Many rural schools face challenges such as inadequate laboratory facilities, limited access to practical equipment, and a lack of hands-on learning opportunities (Ncisana et al., 2024a). These constraints make it difficult for students to engage with topics that require practical experimentation. TikTok, however, can provide virtual demonstrations of food processing techniques, overcoming these limitations. This aligns with Khubayi et al. (2024), who stress the importance of innovative teaching methods in overcoming resource challenges and enhancing student engagement.

This study investigates how TikTok videos can improve Grade 9 Technology learners' understanding of food processing, particularly in contexts where traditional teaching methods and resources are inadequate. Research by Adnan, Ramli, and Ismail (2021) demonstrated that incorporating TikTok in English classrooms significantly enhanced learners' listening skills. Similarly, Zulkifli et al. (2022) found that integrating TikTok enabled learners to acquire new knowledge, improve their writing skills, and engage more effectively with content. Nordqvist and Aronsson (2019) highlight that teaching food processing increases learners' interest and motivation. Hii (2021) adds that the topic introduces learners to aspects like the food industry and properties of materials. Zhou et al. (2016) suggest that the Senior Phase is an optimal stage for introducing such concepts, as learners are in the process of developing lifelong habits. While studies in other educational contexts highlight the benefits of digital tools like TikTok, no research has specifically examined its impact on teaching food processing to Grade 9 learners.

Problem Statement

The Curriculum and Assessment Policy Statement (CAPS) for Technology Education requires Grade 9 learners to understand the concept of food processing and connect it to prior knowledge from Grade 7. According to Tumuluru (2023), food processing involves various techniques and methods to transform raw food ingredients into consumable products or intermediates. Swart, Richards, and Zhao (2020) suggest that exposing learners to food processing concepts helps develop their understanding and fosters deeper engagement with related topics.

However, Ncisana et al. (2024a) found that teachers often lack content knowledge in agricultural subjects, including food processing, which limits their ability to deliver effective instruction. They recommend that learners be evaluated on topics related to food sustainability to address this gap. Furthermore, achieving Sustainable Development Goal 2 (SDG2) which

focuses on eliminating hunger, ensuring food security, and improving nutrition requires teachers to play a crucial role in educating and empowering communities on sustainable agricultural practices and food system resilience (Ncisana et al., 2023).

Despite the importance of food processing knowledge, Grade 9 Technology learners often struggle with these concepts. Research also indicates that even university students, including Bachelor of Education students specializing in Technology Education, exhibit limited understanding of food processing (Costa et al., 2022). This suggests a broader knowledge gap that may contribute to learning challenges in secondary education, particularly in resource-limited schools where practical learning opportunities are scarce.

Innovative and engaging teaching methods are essential to bridge this knowledge gap. TikTok, a widely used social media platform, has emerged as an effective educational tool. Ardiana and Ananda (2022) argue that TikTok enhances learners' conceptual understanding, while Febrianti et al. (2022) found that using TikTok videos improves learning achievement, motivation, and interest. Given the urgent global challenge of food insecurity (Ncisana et al., 2024b), food processing was selected as the focus area due to its critical role in food security and sustainability education.

This study investigates how TikTok videos can enhance Grade 9 learners' understanding of food processing in Technology Education. By integrating digital tools into the curriculum, this research aims to improve both teaching and learning outcomes, addressing the persistent knowledge gap in food processing and contributing to broader efforts toward sustainable agricultural education.

Purpose of the Study

The purpose of this study was to explore the impact of TikTok videos on enhancing the understanding of food processing among grade 9 Technology learners.

The study guided by the following research questions:

1. What is the impact of TikTok videos on enhancing the understanding of food processing among grade 9 Technology learners?
2. What is grade 9 Technology learners’ understanding of food processing?

Hypothesis

TikTok videos would enhance the understanding of food processing among Grade 9 Technology learners.

LITERATURE REVIEW

Educational Use of Social Media

Social media platforms such as TikTok are influential in the process of teaching and learning as the applications are part of teachers and learners’ everyday lives. Tiktok videos assist learners to improve their knowledge and skills with existing knowledge (Azman et al., 2021). TikTok as learning strategy has improved learners’ knowledge and high level of engagement in the classroom (Rajan & Ismail, 2022). It has been found that TikTok as a learning tool increased

learner engagement and positively influenced the performance of the learners (Jacobs, Pan & Ho, 2022).

Similarly, it has been found that learners' learning performance and satisfaction increased using TikTok videos (Niyomsuk & Polyiem, 2022). Furthermore, it has been found that the use of TikTok videos in the classroom stimulate learners' interest in learning (Dillon at el., 2023). TikTok videos helps learners to become motivated to learn, creates an attractive learning environment, and encourages the development of skills like creativity (Escamilla-Fajardo, Alguacil & Lopez-Carril, 2021). In a study of Zhou (2019), TikTok encouraged learners to create and share videos for different purposes by providing simple innovative mode of interaction and co-creation. TikTok videos make learners to have interest in learning and participate in the classroom. It also helps learners to improve their conceptual understanding.

Conversely, they noted that TikTok videos with its qualities gives innovative way for teachers to interact with learners and teach valuable skills (Dali & Aziz, 2023). Mtshali (2023) avers that, many teachers have provided simple ways of comprehending challenging topics using TikTok videos for majority of learners at primary and secondary level, as well as post-secondary level. Teachers embrace the use of TikTok application in the classroom as it makes their assignments more interesting to learners (Otchie, Bardone & Pedaste, 2022). Moreover, Roderick (2020) echoes that, teachers believe that learners will retain more information if they are allowed to use TikTok for school projects than through traditional lecture-based lessons and homework.

Digital Learning and Multimedia Resources

Digital learning and multimedia use enhances user interaction and content visualization which have impact on learners' cognitive and affective development (So, Chen & Wan, 2019). Digital learning tools and multimedia resources such as videos and animations play vital role in enhancing learners' understanding of complex topics. It has been found that learners performed well in the test when videos were included in the lesson (Ljubojevic et al., 2014). Similarly, Hsin and Cigas (2013) conducted research and found that majority of the learners passed the subject after being taught using videos. Furthermore, the study of Wong (2020) found it being evident that learners benefit from watching video clips to better understand and engage in the teaching topic, it also makes the topic more fascinating. TikTok videos as well can encourage learners to learn and promote effective learning among them. Putri and Tarihoran (2024) noted that TikTok videos in learning are more understandable by learners, TikTok videos offer flexibility in teaching and learning process and are effective in enhancing learners' listening skills and visualization.

Animation is also discovered as imperative in the process of teaching and learning. Kwasu (2015) found that animations provide learners with more engaging activities that build tangible foundation for conceptual thinking in situations where many senses are engaged. Similarly, the study showed that animations are beneficial to learners by increasing the speed of understanding (Berney & Betrancourt, 2016). Additionally, animation helps in simplifying complex concepts, making learners be eager to learn, concentrate and create interest among learners (Shreesha & Tgayi, 2016). These researchers have indicated that animations play a huge

role in impelling learners to become critical thinkers, stimulating learners' interest to learn and academic performance. This study employs TikTok videos to enhance the understanding of food processing.

THEORETICAL FRAMEWORK

This study applies constructivist theory to examine the impact of TikTok videos on enhancing Grade 9 Technology learners' understanding of food processing. Originally proposed by Vygotsky (1978), constructivism asserts that individuals build knowledge by integrating new information with prior learning (Dagar & Yadav, 2016). It emphasizes learning through experience and interaction, allowing learners to develop and articulate their understanding (Bada & Olusegun, 2015; Mogashoa, 2014). Constructivism aligns with this study as it encourages active engagement, which is crucial for grasping food processing concepts.

Constructivism comprises of several principles that serve as pillars to support the theory. Therefore, this study applied constructivism theory based on two principles. The first principle is that knowledge is constructed rather than innate or passively absorbed. This principle postulates that learners learn new concepts by building upon existing knowledge instead of taking information from their teachers. In this study, learners construct knowledge of food processing from watching TikTok videos. The second principle is that learning is an active process. This principle claims that learners must be engaged and actively participate in their learning. In the context of this study, as learners were learning by watching TikTok videos, they participated and engaged by asking questions.

Unlike traditional multimedia tools such as PowerPoint presentations or passive video lectures, TikTok videos offer a unique platform for constructivist learning due to their highly interactive and engaging nature. TikTok's short-form video format makes complex concepts easier to digest, reducing cognitive overload and enhancing retention. Additionally, the platform encourages user interaction through features such as comments, duets, and challenges, allowing learners to ask questions, share insights, and engage in peer discussions. This interactivity promotes deeper understanding and supports knowledge construction by enabling students to relate concepts to real-life applications. Furthermore, TikTok's algorithm curates content based on user engagement, allowing learners to explore additional relevant videos, reinforcing learning through repeated exposure and variation in explanations.

METHODOLOGY

This study employed a mixed-method research approach using the Concurrent Embedded Design outlined by Creswell et al. (2003). Qualitative data were nested within a predominantly quantitative framework to enhance depth and context. According to Shorten and Smith (2017), mixed methods involve the purposeful integration of data collection, analysis, and interpretation to strengthen findings. Similarly, Terell (2012) emphasized that this approach

allows researchers to synthesize insights across methods, providing a more robust confirmation of results.

For this research, document analysis was used for qualitative data, while the quantitative approach compared the intervention's influence between the two groups, effectively leveraging the strengths of both methods.

Population and Sampling

Population is defined as a set or group of all participants in a study from which the researcher can collect data (Satishprakash, 2020). The population for this study comprises 227 Grade 9 Technology learners from three secondary schools located in Lebowakgomo, Limpopo Province, South Africa. This study employed purposive sampling, a non-probability technique in which specific groups of individuals are selected because they meet the characteristics required for the research (Nikolopoulou, 2022). The selection of these three schools from the Lebowakgomo circuit, Limpopo province, was based on specific criteria. They were chosen because they offer Technology as a subject at the Grade 9 level, ensuring that learners had relevant prior knowledge to engage with the study. Additionally, these schools have internet access and essential resources, such as classrooms equipped with projectors, to support the integration of digital learning tools. Using purposive sampling, 40 learners were selected from each school, summing up to 120 learners in total. This approach ensured that participants had exposure to the Technology subject and could meaningfully contribute to the study's objectives.

Data Collection

This study used class tests for data collection, employing both pre-test and post-test assessments to gather quantitative data. The same pre-test was administered to both the control and experimental groups to evaluate their initial levels of understanding. Following this, the experimental group received post-test assessments after being taught using TikTok videos, while the control group completed their post-tests after instruction through traditional lectures. The pre-test and post-test results were compared to assess and contrast the performance of both groups. Additionally, qualitative data was gathered through document analysis, where learners' test scripts were reviewed to identify their understanding of food processing. This method provided insights into learners' conceptual grasp of the topic

Data Analysis

The quantitative and qualitative data went under independent analysis. Initially, quantitative analysis focused on the test results obtained by the learners. Data from each school was examined separately using the Paired Sample T-test, with statistical significance declared when $p < 0.05$. All analyses were conducted using the Statistical Package for Social Science (SPSS) version 29.0, developed by International Business Machines (IBM).

Subsequently, learners' responses went under qualitative analysis through document analysis. As described by Bowen (2009), document analysis involves a systematic procedure for retrieving or evaluating both printed and electronic documents. These documents can serve various purposes, including tracking change and development (Bowen, 2009).

Validity (Internal and External)

Validity refers to the extent to which an instrument accurately measures what it is intended to measure in a quantitative study (Heale & Twycross, 2015). In this study, content and face validity were ensured for the pre-test and post-test assessments. Content validity was established by aligning the test items with the learning objectives and key concepts of food processing, ensuring that the questions adequately covered the intended content. Face validity was assessed through a review of the test items for clarity, grammar, and appropriate structure to ensure that they effectively measured learners' understanding.

Reliability

Reliability refers to the consistency and stability of a measurement instrument over time (Heale & Twycross, 2015). To ensure reliability, the pre-test and post-test assessments were piloted with a small group of learners to identify ambiguous questions and improve clarity. Additionally, test-retest reliability was considered, ensuring that the instrument yielded consistent results when administered under similar conditions. The internal consistency of the assessment was also evaluated, ensuring that the test items measured the same underlying construct of knowledge in food processing.

PRESENTATION OF FINDINGS

QUANTITATIVE RESULTS PRESENTATION

This study evaluated the impact of TikTok videos on grade 9 Technology learners' comprehension of food processing using pre-test and post-test assessments. Table 1 indicates a significant difference between post-test and pre-test scores, regardless of the treatment applied. The average scores, presented as mean ± standard error (M ± SE), showed significant differences in teaching methods across schools (Table 4).

Before the intervention, pre-test scores for TikTok videos and the lecture method were similar, with no significant difference ($p < 0.105$) (Table 2). However, post-intervention results revealed that learners taught with TikTok videos consistently outperformed those taught via the traditional lecture method across all schools (Table 3 & 4). TikTok videos significantly improved learners' performance and conceptual understanding, with 60 out of 120 learners comprehending food processing better through this method, compared to those taught with traditional lectures.

Table 1.

Summary of t-paired T-test for pre and post test

Parameter	Sd	t	*p*
Pre-test vs post-tests	29.41183	-25.801	<0.001

Table 2.

Summary of t-paired T-test for pre-test

Treatments	*Mean*	*Sd*	t	*p*
Lecture method	3.08	180	1.49	1.40
TikTok videos	2.56	182	149	1.40

Table 3.

Summary of t-paired T-test for post test

Treatments	*Mean*	*Sd*	t	*p*
Lecture method	7.2	3.4	-26.9	<0.001
TikTok videos	24.7	3.6	-26.9	<0.001

Table 4.

Teaching methods with marks (mean scores) obtained from Grade 9 Technology learners at all schools

Treatments	**School A**	**School B**	**School C**
Lecture method	$6.70 \pm 0.50^{\mathrm{b}}$	8.30 ± 0.50^{b}	6.50 ± 0.50^{b}
TikTok videos	23.70 ± 0.84^{a}	25.70 ± 0.62^{a}	5.75 ± 0.50^{a}

[a&b] means and SE in the column row with different superscripts are significantly different ($p < 0.05$), within schools.

Qualitative Results Presentation

This study employed document analysis to analyse learners' scripts. In this section, the findings are presented into theme. The data obtained from the learners' scripts were grouped into four categories which were utilized in the classification of linked data. The researcher grouped learners according to their performance.

Table 5.

Learners' categories and percentages according to their performances.

Category		**Percentage Value**
1.	Category A Low understanding (Poor)	10%
2.	Category B Insufficient understanding (Satisfactory)	15%
3.	Category C Sufficient understanding (Good)	25%
4.	Category D Complete understanding (Very Good)	50%

Food preservation

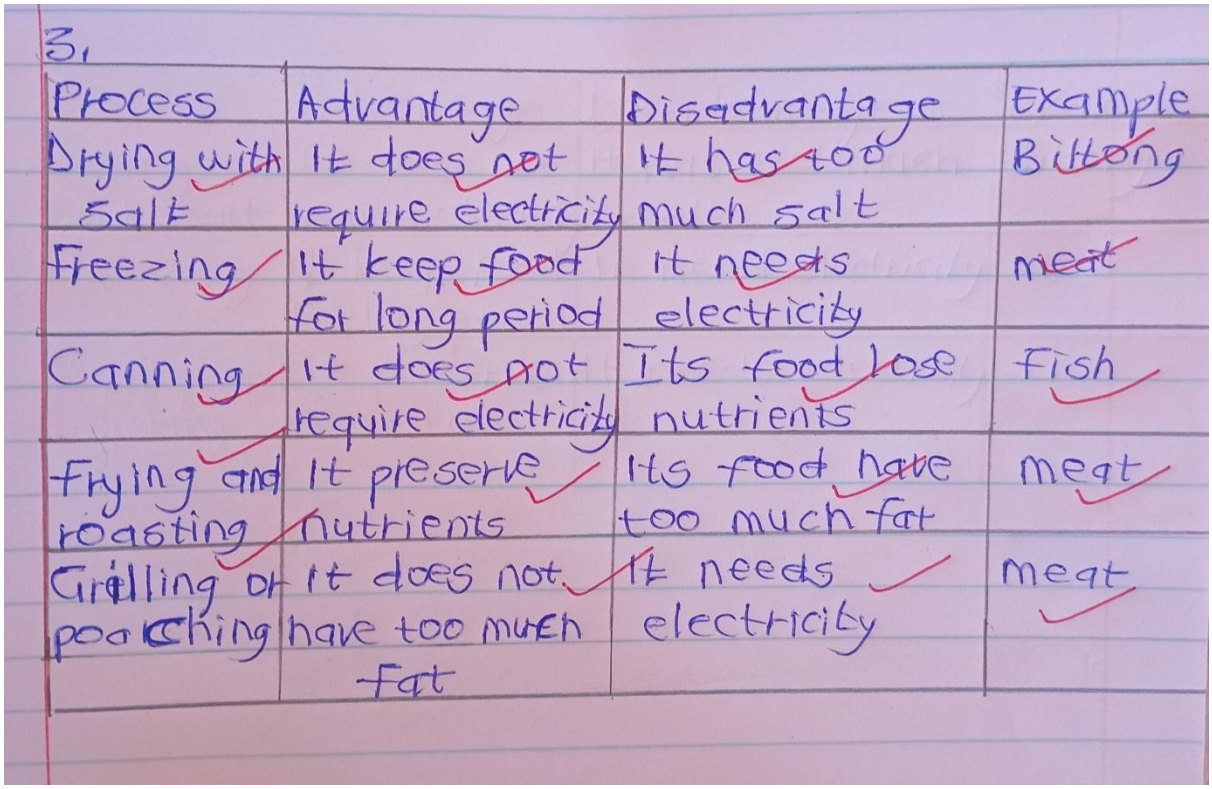
Food preservation is an important technique of preventing or slowing down the food from being spoiled, maintaining food quality and increasing nutritional benefits (Rahman, 2020). He further noted that food preserving help to minimize food waste and ensure consumption of safe and prolonged availability of fresh food. Learners who were taught using TikTok videos their performance is Category D (Table 5). This means that TikTok videos are effective in promoting

learning. Furthermore, Van den Bremer and Siebelink (2020) allude that multimedia resources such as TikTok videos are effective in fascinating the lessons and transform learners into critical thinkers. Category D were able to apply their knowledge of how food is preserved.

The below pictures in figure 1 and 2 are the responses from Category D displaying how they were successful in responding question 3.

Figure 1.

Learner A

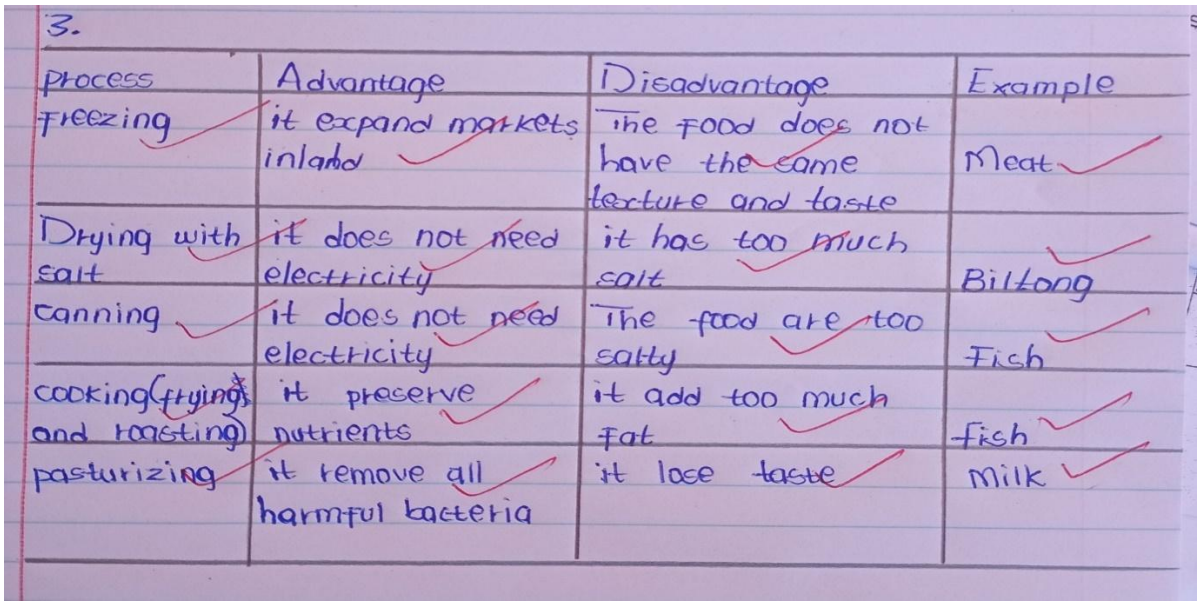


3.

Process	Advantage	Disadvantage	Example
Drying with salt	It does not require electricity	It has too much salt	Biltong
Freezing	It keep food for long period	It needs electricity	meat
Canning	It does not require electricity	Its food lose nutrients	Fish
Frying and roasting	It preserve nutrients	Its food have too much fat	meat
Grilling or poaching	It does not have too much fat	It needs electricity	meat

Figure 2.

Learner B



3.

process	Advantage	Disadvantage	Example
Freezing	it expand markets inland	The food does not have the same texture and taste	Meat
Drying with salt	it does not need electricity	it has too much salt	Biltong
canning	it does not need electricity	The food are too salty	Fish
cooking(frying and roasting)	it preserve nutrients	it add too much fat	fish
pasturizing	it remove all harmful bacteria	it lose taste	Milk

DISCUSSION

This study explored the impact of TikTok videos on improving Grade 9 Technology learners' understanding of food processing. Prior to the intervention, learners in both the experimental and control groups had comparable knowledge levels, with no significant differences in their performance. However, post-intervention results indicated that learners exposed to TikTok videos significantly outperformed those taught through the traditional lecture method. This finding supports the hypothesis that TikTok videos enhance learners' comprehension of food processing concepts.

The results align with Graefen et al. (2023), who found that TikTok videos were more effective than traditional lectures in improving student engagement and comprehension. Similarly, Ncisana et al. (2023) reported that YouTube videos outperformed traditional methods, highlighting the advantages of video-based instructional tools. Khubayi et al. (2024) also found that multimedia tools, such as YouTube, enhance learners' understanding, supporting the findings of this study.

Learners who were taught using TikTok videos outperformed those who received instruction through the traditional lecture method, primarily due to their active participation in the classroom. The integration of TikTok videos into lessons encouraged higher levels of engagement, fostering an interactive and stimulating learning environment. Beyond improved academic performance, learners in the TikTok group exhibited greater enthusiasm and willingness to participate in discussions, ask questions, and collaborate with peers. This finding aligns with Rofiki et al. (2024), who assert that TikTok creates an engaging and dynamic learning atmosphere that enhances knowledge construction and retention.

Conversely, learners in the control group, who were instructed through traditional lectures, exhibited lower levels of interaction and engagement. This finding aligns with the work of Ibrahim et al. (2018), who contend that lecture-based instruction often fails to sustain learners' interest, resulting in passive learning and diminished academic performance. The lack of multimedia stimulation and interactive components in traditional teaching methods may have contributed to the control group's reduced participation. This reinforces the necessity for innovative, technology-driven teaching approaches to optimize learning experiences and improve learning outcomes.

A more in-depth analysis of learner responses revealed that leaners in the control group particularly struggled with Question 3, which focused on food preservation. This suggests that the traditional lecture method may be less effective in teaching practical and complex concepts. Khubhayi et al. (2024) and Nurutdinova et al. (2016) similarly observed that lecture-based methods often fail to cultivate critical thinking skills, leading to difficulties in applying learned concepts. On the other hand, Liu (2023) emphasized that platforms like TikTok can convey knowledge in a visually engaging and interactive manner, helping learners grasp complex concepts more effectively.

Despite these advantages, TikTok as an educational tool has notable limitations. One major concern is accessibility, as not all learners have equal access to smartphones, stable internet connections, or sufficient data for streaming videos (Graefen et al. 2023). Additionally, excessive screen time is a concern, as prolonged exposure to digital content may lead to distractions and reduce deep learning (Graefen et al., 2023; Rajan & Ismail, 2022). Furthermore, while TikTok videos are effective in engaging learners, they may oversimplify complex topics, limiting opportunities for in-depth discussions that traditional methods can provide. Lastly, TikTok videos may not always be accurate or structured with pedagogical intent; therefore, it is essential for teachers to carefully evaluate and verify the content before integrating it into their lessons.

CONCLUSION

The study highlighted the limited impact of the traditional lecture method in fostering learners' conceptual understanding. In contrast, the findings demonstrated that TikTok videos significantly enhance learners' comprehension of the concepts. These videos create an engaging and stimulating learning environment, making lessons more fascinating and interactive. Notably, learners who were taught using TikTok videos consistently achieved higher scores compared to those who received instruction through the traditional lecture method. This suggests that TikTok videos not only facilitate deeper understanding but also sustain learners' interest and motivation, ultimately contributing to improved academic performance.

Recommendations

Based on these findings, the study recommends that teachers integrate TikTok videos into their teaching strategies to augment conceptual understanding and learner engagement, particularly in practical topics such as food processing. This approach is mainly valuable in South African public schools, particularly in rural areas, where resources such as laboratories for conducting practical lessons are often unavailable (Ncisana et al., 2024). By leveraging TikTok videos, educators can simulate practical experiences and provide visual demonstrations that help bridge the resource gap, making learning more accessible and effective for all learners. Additionally, educators are encouraged to create TikTok accounts to share educational content, enabling learners to access valuable resources for self-study and revision. This approach could bridge the gap between traditional teaching methods and modern, digital-native learners, fostering a more dynamic and effective educational experience.

Limitations of the Study

This study was limited to three schools within a single circuit in Lebowakgomo, specifically targeting grade 9 Technology classrooms, to examine the impact of TikTok videos' enhancement on learners' comprehension of food processing.

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REFERENCES

Adnan, N. I., Ramli, S., and Ismail, I. N. (2021). Investigating the usefulness of TikTok as an educational tool. *International Journal of Practices in Teaching and Learning (IJPTL)*, *1*(2), 1-5.

Ardiana, E., & Ananda, A. (2022). The Effect of Using the TikTok Application as a Learning Media on the Activeness and Learning Outcomes of Class XI Social Sciences Students in Sociology Subjects at SMA N 1 Ampek Angkek. *LANGGAM International Journal of Social Science Education, Art and Culture*, *1*(02), 22-29. https://doi.org/10.24036/langgam.v1i02.13

Azman, A. N., Rezal, N. S. A., Zulkeifli, N. Y., Mat, N. A. S., Saari, I. S., & Ab Hamid, A. S. (2021). Acceptance of TikTok on the youth towards education development. *Borneo International Journal eISSN 2636-9826*, *4*(3), 19-25. https://doi.org/10.9790/7388-05616670

Bada, S. O., & Olusegun, S. (2015). Constructivism learning theory: A paradigm for teaching and learning. *Journal of Research & Method in Education*, *5*(6), 66-70. https://doi.org/10.9790/7388-05616670

Berney, S., & Bétrancourt, M. (2016). Does animation enhance learning? A meta-analysis. *Computers & Education*, *101*, 150-167. https://doi.org/10.1016/j.compedu.2016.06.005

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative research journal*, *9*(2), 27-40. http://dx.doi.org/10.3316/QRJ0902027

Costa, M. L., da Silva Brandão, M., Oliveira, D. L., Silva, J. R. S., & Mendes-Netto, R. S. (2022). Food processing knowledge among university students. *Research, Society and Development*, *11*(6), https://doi.org/10.33448/rsd-v11i6.28748

Creswell, J. W., Clark, V. L. P., Gutmann, M. L., and Hanson, W. E. (2003). Advanced mixed. *Handbook of mixed methods in social & behavioral research*, *209*, 209-240.

Dagar, V., & Yadav, A. (2016). Constructivism: A paradigm for teaching and learning. *Arts and Social Sciences Journal*, *7*(4), 1-4. http://dx.doi.org/10.4172/2151-6200.1000200

Dali, S., & Aziz, H. (2023). TIKTOK AS AN EFFECTIVE MARKETING TOOL FOR HIGHER EDUCATION. *Advanced International Journal of Business, Entrepreneurship and SMEs.* *http://dx.doi.org/10.35631/AIJBES.518006*

Dillon, S. J., Liang, Y., Bernard, H. R., & Shu, K. (2023). Investigating Gender Euphoria and Dysphoria on TikTok: Characterization and Comparison. https://doi.org/10.48550/arXiv.2305.19552

Escamilla-Fajardo, P., Alguacil, M., & López-Carril, S. (2021). Incorporating TikTok in higher education: Pedagogical perspectives from a corporal expression sport sciences course. *Journal of Hospitality, Leisure, Sport & Tourism Education*, *28*, 100302. http://dx.doi.org/10.1016/j.jhlste.2021.100302

Febrianti, Y., Herawati, M., and Hanifah, S. (2022, December). Effect of using TikTok as learning media on academic achievement of pharmacy students. In *AIP Conference Proceedings* (Vol. 2645, No. 1). AIP Publishing. http://dx.doi.org/10.1063/5.0113787

Graefen, B., Emeakoroha, U., Qasmieh, S., and Fazal, N. (2023). The Impact of TikTok on Pharmacy Education: Enhancing Drug Information Mastery Through Video Learning. *Archives of Pharmacy Practice*, *14*(4-2023), 49-54. http://dx.doi.org/10.51847/GJXdvZJz7N

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing*, *18*(3), 66-67. https://doi.org/10.1136/eb-2015-102129

Hii, C. L. (2021). Integrating Food Processing Technology in Chemical Engineering Undergraduate Teaching. *Journal of Applied Food Technology*, *8*(2), 39-43. https://doi.org/10.17728/jaft.10002

Hsin, W. J., and Cigas, J. (2013). Short videos improve student learning in online education. *Journal of Computing Sciences in Colleges*, *28*(5), 253-259.

Ibrahim, M. S., Hamza, M. Y., Bello, M., & Adamu, M. (2018). Effects of inquiry and lecture methods of teaching on students' academic performance and retention ability among NCE 1 Chemistry students of Federal College of Education, Zaria. *Open Access Journal of Chemistry*, *2*(3), 1-8. http://dx.doi.org/10.22259/2637-5834.0203001

Jacobs, A., Pan, Y. C., & Ho, Y. C. (2022). More than just engaging? TikTok as an effective learning tool.

Khubayi, F. L., Ncisana, L., and Mtshali, T. I. (2024). Investigating the effectiveness of using YouTube videos as an alternative learning media for Grade 11 life sciences learners. *E-Journal of Humanities, Arts and Social Sciences*, *5*(6), 1001-1014. http://dx.doi.org/10.38159/ehass.20245616

Kwasu, I. A. (2015). Effectiveness of Animated Instructional Resource for Learning Facilitation among Secondary School Student in Bauchi Nigeria. *Journal of Education and Practice*, *6*(21), 113-120.

Liu, Y. (2023). TikTok's influence on Education. *Journal of Education, Humanities and Social Sciences*, *8*, 277-280. http://dx.doi.org/10.54097/ehss.v8i.4261

Ljubojevic, M., Vaskovic, V., Stankovic, S., & Vaskovic, J. (2014). Using supplementary video in multimedia instruction as a teaching tool to increase efficiency of learning and quality of experience. *The International Review of Research in Open and Distributed Learning*, *15*(3). http://dx.doi.org/10.19173/irrodl.v15i3.1825

Mogashoa, T. (2014). Applicability of constructivist theory in qualitative educational research. *American International Journal of Contemporary Research*, *4*(7), 51-59.

Mtshali, T. I. (2023). The impact of TikTok videos in creative designs of house plans in civil technology's practical assessment tasks. *INSANIA: Jurnal Pemikiran Alternatif Kependidikan*, *28*(1), 115-132. http://dx.doi.org/10.24090/insania.v28i1.7887

Ncisana, L., Ntuli, V. A., Sibisi, N. T., Masha, M. F., Mboweni, M. S., Satekge, M. A., Masha, M. F., Ntilini, W., Mkhize, N. R., & Singh, S. K. (2023). A Comparative study of teaching approaches in Agro-Ecology: an Investigation of 10th-grade agricultural sciences learners in selected schools. *Sustainability*, *15*(5), 4048. http://dx.doi.org/10.3390/su15054048

Ncisana, L., Nyathi, M. K., Mkhize, N. R., Mabhaudhi, T., Tjelele, T. J., Mbambalala, L., & Modi, A. T. (2024b). Water use efficiency (WUE) and nutrient concentration of selected fodder radish (*Raphanus sativus L.*) genotypes for sustainable diets. *Scientific Reports*, *14*(1), 31315. http://dx.doi.org/10.1016/j.heliyon.2024.e29203

Ncisana, L., Sibisi, N. T., Munyuku, R., & Masha, M. F. (2024a). From Theory to Practice: Teachers' Pedagogical Experiences in Animal Studies. *International Journal of Learning, Teaching and Educational Research*, *23*(1), 207-230. http://dx.doi.org/10.26803/ijlter.23.1.11

Nikolopoulou, K. (2022). What is purposive sampling?| Definition & examples. *Retrieved May*, *18*, 2023, from https://www.scribbr.com/methodology/purposive-sampling/

Niyomsuk, S., & Polyiem, T. (2022). The Application of TikTok in Instructing Grade 7 Students' Thai Traditional Dancing Art. *Journal of Educational Issues*, *8*(1), 480-490. http://dx.doi.org/10.5296/jei.v8i1.19800

Njura, H. J., Kubai, K. I., Taaliu, S. T., & Shem Khakame, K. (2020). The relationship between agricultural teaching approaches and food security in Kenya. *Education Research International*, *2020*(1), 8847864. http://dx.doi.org/10.1155/2020/8847864

Nordqvist, O., and Aronsson, H. (2019). It is time for a new direction in biotechnology education research. *Biochemistry and Molecular Biology Education*, *47*(2), 189-200. http://dx.doi.org/10.1002/bmb.21214

Nurutdinova, A. R., Perchatkina, V. G., Zinatullina, L. M., Zubkova, G. I., and Galeeva, F. T. (2016). Innovative teaching practice: traditional and alternative methods (challenges and implications). *International journal of environmental and science education*, *11*(10), 3807-3819.

Orhan, T. Y., & Sahin, N. (2018). The impact of innovative teaching approaches on biotechnology knowledge and laboratory experiences of science teachers. *Education Sciences*, *8*(4), 213. http://dx.doi.org/10.3390/educsci8040213

Otchie, W., Bardone, E., & Pedaste, M. (2022). Bridging the Pedagogical Gap Between Operational and Contextual Affordances with Social Media. *Encyclopaideia*, *26*(62), 57-80. http://dx.doi.org/10.6092/issn.1825-8670/13223

Putri, A., and Tarihoran, N. A. (2024). The Benefit of TikTok Usage and Its Effectiveness in Teaching English: A Systematic Review. *Formosa Journal of Sustainable Research (FJSR*, *3*(6), 147-162. http://dx.doi.org/10.55927/fjsr.v3i6.9007

Rahman, M. S. (2020). Food preservation: an overview. *Handbook of food preservation* (pp. 7-18). CRC Press. https://doi.org/10.1201/9780429091483

Rajan, S. T., & Ismail, H. H. (2022). TikTok Use as Strategy to Improve Knowledge Acquisition and Build Engagement to Learn Literature in ESL Classrooms. *International Journal of Learning, Teaching and Educational Research*, *21*(11), 33-53. http://dx.doi.org/10.26803/ijlter.21.11.3

Roderick, R. (2020). How teachers and students are using TikTok in the classroom. https://learningliftoff.com/student-activities/extracurricular-and-clubs/tiktok-in-the-classroom/

Rofiki, I., Darmawan, P., Hidayanto, E., Slamet, S., and Abdullah, M. N. S. (2024). Exploring TikTok videos as E-scaffolding on mathematics materials viewed from a cognitive aspect. In *AIP Conference Proceedings* (Vol. 3235, No. 1). AIP Publishing.

Satishprakash, S. (2020, June). *Concept of population and sample* [Conference presentation]. How to write a research paper? Gujarat University, Indore, M.P., India.

Shorten, A., and Smith, J. (2017). Mixed methods research: expanding the evidence base. *Evidence-based nursing*, *20*(3), 74-75. https://doi.org/10.1136/eb-2017-102699

Shreesha, M., & Tyagi, S. K. (2016). Does animation facilitate better learning in primary education? A comparative study of three different subjects. *Creative Education*, *7*(13), 1800-1809. http://dx.doi.org/10.4236/ce.2016.713183

So, W. W. M., Chen, Y., & Wan, Z. H. (2019). Multimedia e-learning and self-regulated science learning: A study of primary school learners' experiences and perceptions. *Journal of Science Education and Technology*, *28*, 508-522. https://link.springer.com/article/10.1007/s10956-019-09782-y

Swart, J. W., Richards, J., & Zhao, W. (2020). Understanding food processing and systems: Pilot testing a standards-aligned middle school curriculum. *Journal of Food Science Education*, *19*(2), 74-84. http://dx.doi.org/10.1111/1541-4329.12181

Terell, S. (2012). Mixed research methodology. *The Qualitative Report*, *17*(1). http://dx.doi.org/10.46743/2160-3715/2012.1819

Tumuluru, J. S. (2023). Introductory Chapter: Food Processing, Preservation, and Packaging–A Brief Overview. *Food Processing and Packaging Technologies-Recent Advances*. http://dx.doi.org/10.5772/intechopen.110229

Van den Bremer, A. J. M., and Siebelink, R. (2020). *Critical Thinking on TikTok* (Bachelor's thesis, University of Utrecht). https://studenttheses.uu.nl/handle/20.500.12932/38314

Wong, D. (2020). Effectiveness of learning through video clips and video learning improvements between business related postgraduate and undergraduate students.

International Journal of Modern Education, *2*(7), 119-127. http://dx.doi.org/10.35631/IJMOE.27009

Zenda, R. (2017). Essential teaching methods to enhance learner academic achievement in physical sciences in rural secondary schools: A South African case study. *Information and Learning Science*, *118*(3/4), 170-184. http://dx.doi.org/10.1108/ILS-03-2017-0014

Zhou, Q. (2019). *Understanding user behaviors of creative practice on short video sharing platforms-a case study of TikTok and Bilibili* (Doctoral dissertation, University of Cincinnati).

Zhou, W. J., Xu, X. L., Li, G., Sharma, M., Qie, Y. L., and Zhao, Y. (2016). Effectiveness of a school-based nutrition and food safety education program among primary and junior high school students in Chongqing, China. *Global health promotion*, *23*(1), 37-49. https://doi.org/10.1177/1757975914552914

Zulkifli, N. N., Letchumanan, M., Kamarudin, S., Abd Halim, N. D., and Hashim, S. (2022). A Review: The Effectiveness of Using TikTok in Teaching and Learning. In *Proceedings of the 30th International Conference on Computers in Education (ICCE). Malasia: Asia-Pacific Society for Computers in Education* (pp. 292-297). https://library.apsce.net/index.php/ICCE/article/view/4599