



Economics Teachers' Integration of ICT for Enhanced Economics Curriculum Implementation

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ABSTRACT

Information and communication technology (ICT) has gained tremendous attention as a tool for instructional delivery and assessment. However, high school Economics teachers have yet to fully utilize this educational tool to implement the Economics curriculum effectively. Information and communication technology enables teachers to communicate with learners outside the physical classroom, encourages learner engagement, facilitates differentiated teaching, simplifies abstract concepts, and helps teachers design, distribute and provide immediate assessment feedback. Nevertheless, there is sparse research on Economics teachers' integration of ICT to enhance Economics curriculum implementation in South Africa. This empirical study explores Economics teachers' ICT integration to enhance Economics curriculum implementation. Mediated learning experience (MLE) was the theoretical framework which guided this study. A qualitative approach was used in this study. Three teachers from three different research sites were purposefully selected for the study. Using a case study design, data were obtained through semi-structured interviews and classroom observations. The study findings reveal that the teachers in this study were utilizing ICT to enhance their teaching. However, there is still room for improvement in teachers' ICT integration. The study recommends continuous teacher development on ICT integration to enhance economics curriculum implementation.

KEYWORDS

Information and communication technology (ICT); curriculum implementation; ICT integration; economics education; mediated learning experience (MLE).

INTRODUCTION

Information and communication technology (ICT) has ushered opportunities and challenges for different sectors of human activities: professional fields, industries and services. In the education sector, many countries across the globe have embraced ICT in teaching and learning to enhance curriculum implementation (Bicalho et al., 2022; de Castro & García-Peñalvo, 2021). There has been the realization that effective ICT integration improves human resources quality (Bicalho et al., 2022). For some Economics teachers, ICT has brought a tool to enhance their practices; for some, it has brought unsurmountable challenges (Andayani et al., 2020). However, what is certain is that there has been increased acknowledgement of the critical role ICT plays in education.

Information and communication technology (ICT) integration implements various applications and devices to support educational aims (Kimav & Aydin, 2020). Advocates of ICT integration deposit that when utilized optimally, it can improve the efficiency and effectiveness of Economics teaching and learning process and eventually improve learner academic achievement (Mursidi et al., 2022). An increasing number of experts have revealed numerous benefits of ICT integration in the teaching and learning process (Alkan & Sarikaya, 2018). ICT integration has been found to offer numerous advantages, including but not limited to facilitating broader access to learning materials, making information more affordable and accessible, providing tools for assessment, and saving time (Andayani et al., 2020). It is well documented that properly using ICT in the education sector can shift teaching and learning from teacher-centred to learner-centred (Aprianti & Sahid, 2020; Ogbonnaya et al., 2020). In addition, Mursidi et al. (2022) further posit that ICT integration enables self-regulated learning, creates a creative learning environment, promotes cooperative learning and provides more opportunities for developing problem-solving and critical thinking skills.

To achieve the high knowledge and skills envisaged in the Economics curriculum, global trends reveal that education systems have increasingly looked towards the advances in (ICT) to assist in scaffolding learners' cognitive abilities (Kieninger & Kopish, 2023; Maity & Haque, 2018; Ogbonnaya, 2022). This shift to ICT integration is based on research (Szymkowiak et al., 2021), which revealed that technology provides powerful tools to improve learner motivation and academic performance. Furthermore, given that 21st-century learners (digital natives) heavily rely on technology (Shafie et al., 2019), Economics teachers cannot afford to depend solely on the chalk-and-talk method anymore. More so, considering the high-level skills such as deductive and inductive reasoning embedded in the subject (Manzi et al., 2021), teachers must create an enabling environment where learners can achieve these skills. One way of developing complex skills such as analysis, critical thinking, decision making and problem-solving is through ICT integration in the teacher's daily practices (Arthur & Kaku, 2020; Santika et al., 2022).

Research on the significance of ICT integration in Economics education is not new (Arthur & Kaku, 2020; Kimanzi, 2021; Nji & Idika, 2018). The importance of ICT integration in Economics teaching has led to programs such as developing the ICT Competency Framework for Teachers

(ICT-CFT) (UNESCO, 2019), which assisted teachers in developing ICT competencies, even though controversial findings of the Programme for International Student Assessment (PISA) (2012) regarding technology use and learning, the above scholars and many others concur that ICTs are powerful tools which can be used to enhance curriculum implementation. Although the studies on ICT integration mentioned above were conducted in different countries, their findings point to similar challenges, such as low utilization of ICT in the teaching and learning process, lack of resources, lack of ICT infrastructure and slow pace in adopting to the use of ICT (Andyani et al., 2020; Kimanzi, 2021). Furthering research on ICT integration in the teaching of Economics were Ogbonnaya (2022) and Santika et al. (2022), who went further to try and explain why there was low utilization of ICT in the teaching and learning of Economics. Their studies place the lack of ICT integration in teaching Economics on the teachers' lack of Technological Pedagogical Content Knowledge (TPACK). These studies recommended further training economics teachers on ICT use through workshops and seminars. In addition, the studies suggested that more funds should be availed to acquire more ICT resources.

Notwithstanding that several studies have investigated the factors that affect ICT acceptance and lack of ICT infrastructure (Gao & Zhang, 2020), little research has explored how Economics teachers are using ICT to enhance Economics curriculum implementation, especially in developing countries such as South Africa. The few studies conducted in South Africa give voice to the teachers' lived experiences concerning ICT integration in teaching Economics (Kimanzi, 2021; Ogbonnaya, 2022). Thus, the lack of understanding of teachers' lived experiences regarding ICT integration in the teaching of Economics has opened an opportunity for this study to investigate the Economics teachers' integration of ICT to enhance Economics curriculum implementation. In this light, the study seeks to contribute to the body of knowledge by understanding how Economics teachers integrate ICT into their Economics classes. In pursuit of this aim, the following research question will be pursued;

How do Economics teachers integrate ICT to enhance Economics curriculum implementation?

Problem Statement

Comprehending what drives Economics teachers' integration of ICT is a complex issue. However, what is evident is that teachers lack proper training to integrate technology into their teaching (Olutola & Olatoye, 2015). Teachers are unable to integrate ICT to simplify abstract concepts in Economics (Shafie et al., 2019). Although integrating ICTs is meant to alleviate problems of passive learning and teacher-centred pedagogies (Persaud, 2018), literature such as Buda (2020) reports that some teachers are ineffective in using them and continue to exhibit traditional practices. Teachers cannot effectively use ICT to develop complex skills such as graphing, critical thinking and problem-solving in their lesson delivery. Moreso, the literature documents that teachers cannot use ICT to design effective lessons and assess learners meaningfully (Aprianti & Sahid, 2020). It is visible in the literature that unless ICT competency is given maximum

attention, it will remain a barrier to learners' learning (Aprianti & Sahid, 2020). As a result of the lack of effective ICT integration, Economics lessons have been dominated by teacher-centred pedagogy, which is not the preference of the 21st-century learner, resulting in learners failing to comprehend economics concepts (Ayers, 2019). The researchers' experience has also revealed that most Economics teachers do not know how to use ICT in their lesson delivery and assessment.

THEORETICAL FRAMEWORK

The study is anchored on Mediated learning experience (MLE) theoretical framework. This theory has its roots in the social constructivism theory developed by Piaget (Tzuriel, 2011). Reuven Feuerstein developed the theory over the period 1950-1963. Mediated learning experience theory focuses on how stimuli are experienced in the environment with the help of the mediator, who can be a parent, teacher or agent (Feuerstein et al., 1980; Tzuriel & Shamir, 2002; Tzuriel, 2011). This theory was deemed relevant to this study as it is anchored on the principle that a correlation exists between the learning environment and the development of the intended knowledge, skills and values in Economics; critical thinking, decision making and problem-solving skills (Greenberg, 2010). The theory focuses on how teachers, as mediation agents, provide learners with appropriate opportunities and resources to acquire the intended knowledge and skills (Tzuriel, 2011). Its application in this study is that the mediational efforts by Economics teachers through ICT integration play a pivotal role in Economics curriculum implementation and the quality of academic achievement.

It is the postulation of Feuerstein and Feuerstein (1991) that the overarching theme of MLE is based on 12 criteria. Still, only the first four are considered necessary and adequate for MLE. These parameters include intentionality, reciprocity, mediation of meaning and transcendence. *Intentionality and Reciprocity*- are concerned with the mediator's deliberate efforts to change the learners' perception, processing and response. Tzuriel (1999) further argues that intentionality has to be coupled with reciprocity. Reciprocity is achieved when a learner response verbal, non-verbally or vocally to the mediator's efforts. *Mediation of meaning* – the mediator should facilitate learners' reflection on how they found the solution to the problem and generalizations that can be made. *Transcendence* – the lessons learnt and experience should be transferred to new situations. Learners should be able to use the knowledge gained in different situations. Although transcendence relies on intentionality, reciprocity and mediation for meaning, combining the three provides a powerful tool for the "development of cognitive modifiability" (Isman & Tzuriel, 2008, p.548). What becomes clear is that MLE parameters are concerned with the quality of the teacher's instruction, the level at which the learners benefit from the teachers' mediational efforts and the ability of learners to apply the learnt knowledge and skills in different situations.

This study will consider the four parameters intertwined and not independent. The above parameters beg for consideration of learners' and teachers' roles in the learning process wherein

the teacher assumes the role of facilitator of learning and the learner is an active participant. To understand how teachers integrated ICT in mediating Economics curriculum implementation, it was deemed necessary to interrogate how teachers used ICT in their daily practices. As a practice theory, MLE provided the researcher with the lens to analyze how teachers used ICT to enhance Economics curriculum implementation. It was the researcher's conviction that the context of teachers' practices concerning ICT integration could be understood through interrogation obtained from semi-structured interviews and classroom observations.

An observation checklist and interview protocols were drawn by tapping from MLE parameters of; intentionality, reciprocity, meaning and transcendence. In analyzing data, the researcher was cognisant that the mediational effect is critical in effective curriculum implementation.

LITERATURE REVIEW

a) Curriculum Implementation

Curriculum implementation refers to daily teacher and learner classroom activities (Ogar & Opoh, 2015). According to Marques and Xavier (2020), it is when the teacher transforms the written curriculum into classroom activities, fulfilling officially prepared content. According to Nevenglosky (2018), it refers to how teachers teach and assesses learners. In Mabale's (2013) view, it is an application of thoughts and innovative ways to impart knowledge, skills, concepts and interpretations. It becomes apparent that curriculum implementation concerns teacher practices to create opportunities for learners to acquire knowledge and skills. These practices require the teacher to deliberate in planning, lesson delivery and assessment. The teacher must carefully select resources and materials to meet the learners' needs. Teachers are critical in implementing the curriculum (Lochner et al., 2015). As of late, the teacher's role has shifted from the transmitter of knowledge to the manager of the learning process. The new teachers provide activity-based teaching where learners collaborate, share and communicate their reasoning (Karakus, 2021). Recently, teachers have turned to Information and Communication Technology to assist them in implementing the curriculum. It has been at the backdrop of continuous realization of ICT's significant role in mediating the expected knowledge and skills (Bicalho et al., 2022).

b) Conceptualisation of ICT

Information communication technologies (ICT) are devices and all resources used to transmit, store, exchange or share information and improve communication (Santika et al., 2022; Shava, 2022). According to Singhavi and Basargekar (2019), ICT is an umbrella term which includes any device or application, which might consist of cell phones, television, radio computers and different applications which can be used in distance learning. Information and communication and technologies (ICT) used in the teaching and learning process include educational videos, music, PowerPoint presentations, World Wide Web(www), WhatsApp, Google Classroom, media apps, MOOC, zoom cloud meetings, YouTube, Team Link, and Telegram amongst other

platforms (Basilaia & Kvavadze, 2020; Gao & Zhang, 2020; Nkambule, 2023). ICT is commonly concerned with communicating through devices and software in these descriptions.

Habibi et al. (2020) submit that ICT integration refers to the purposeful and well-thought use of ICT in teaching and learning. In agreement is Maja (2023), who posit that integrating ICT in the teaching and learning process refers to the intentional use of computer-related communication in the teachers' practices. ICT integration uses information resources on the web, learning objects, multimedia programs in CD-ROMs and other tools to enhance learners' learning. In Guemide's (2019) view, ICT integration is the use of technology seamlessly in delivering curricular content and when assessing learners. The researchers view ICT integration as the deliberate infusion of electronic devices and software in teaching, learning and assessment. When the teacher imagines the potential of the technology available for learning in the context, it will be taught. Information, communication and technology (ICT) integration is more than just knowing how to use a program but a reflection on how the ICT tool will help learners achieve the learning outcomes set by the teacher; this means that ICT integration should be intentional and done thoughtfully.

Backfisch et al. (2021) argue that effective ICT integration is a complex process which has resulted in different models, structures and theories being developed to guide the education fraternity in integrating sophisticated technologies in pedagogical practices. Information and communication technology (ICT) integration has to be purposeful (Seufert et al., 2021). It should not just be an insertion or mere access to technology (Buda, 2020) but somewhat intentional, deliberate, and aimed at soliciting learners to reciprocate the teacher's intentional efforts. When ICT is infused into the teachers' practices, it should be aimed at enhancing curriculum implementation (Aprianti & Sahid, 2020). Whatever ICTs are employed, they should help mediate the complexity and abstractness of the concepts embedded in the Economics curriculum (Ejimonye et al., 2020). The infusion of ICT is more meaningful during lesson preparation and delivery and when learners' formative assessments occur so that learners' misconceptions can be identified and clarified immediately (Ejimonye et al., 2020). It should enable learners to apply the learnt knowledge and skills to different situations (transcendence).

c) *Economics Education*

Economics is a social science-based discipline which aims to explain how businesses, individuals and governments seek to solve the problem of scarcity using limited resources (Idika, 2020). It is a unique subject that encourages the development of specialized economic knowledge and skills which can be employed to solve the numerous economic challenges faced by 21st-century economies. The subject exposes learners to mathematical skills and graphing concepts to explain the dynamics of economies (Manzi et al., 2021). Many learners sometimes find this knowledge and skills abstract and complex (Khoo, 2017). Research studies indicate that learners struggle with Economics concepts which involve graphing and mathematical concepts (Angra & Gardner, 2018; Ejimonye et al., 2020). More so, the subject's intake has been dwindling in many countries.

For this reason, teachers have to find better ways of presenting these abstract concepts if the subject is to continue existing. With technology taking over every aspect of life, Economics teachers have not been left behind. Since the subject requires teachers who are competent and abreast with various teaching approaches and strategies (Ayers, 2019; Kaku & Arthur, 2020). Economics teachers have been expected to be deliberate and intentional in delivering the content and assessing the learners if the envisaged outcomes of the Economics curriculum are to be realized (Prasetyono et al., 2021; Wright-Maley et al., 2023).

The teachers' role in implementing the Economics curriculum can never be over-emphasized. The teachers must translate the subject aims into assessment objectives of skills to be examined, for instance, understanding, application, analysis, interpretation and organization (Aprianti & Sahid, 2020). These complex knowledge, skills and values embedded in the subject will enable learners to reason based on their analysis as juxtaposed to passively describing economic phenomena. Effective acquisition of Economics knowledge, analytical, critical and creative thinking and problem-solving skills heavily relies on the teachers' ability to effectively and intentionally plan, deliver and assess the Economics content (Arthur & Kaku, 2020; Santika et al., 2022). Teachers have to be thoughtful, informed and reflective in their daily practices if meaningful learning is to take place. The economics curriculum demands teachers to meet high pedagogical standards to help learners acquire the high-level knowledge and skills embedded in the subject (Kimanzi, 2021; Ogbonnaya, 2022; Sentsho & Mudau, 2023).

d) *Integration of ICT in the Teaching of Economics*

Advocates of ICT integration in Economics teaching posit that ICT enhances collaborative learning and establishes a rich network between learners (Rafei, 2015). Through ICT integration, learners can share information amongst themselves and with the teacher inside and outside the classroom. Learners can share their work and ideas, which they would have obtained due to broader access to materials provided by ICT (Bicalho, 2022). ICT integration makes information accessible and affordable while saving time (Andayani et al., 2020). In addition, Mursidi et al. (2022) further posit that ICT integration enables self-regulated learning, creates a creative learning environment, promotes cooperative learning and provides more opportunities for developing problem-solving and critical thinking skills, meaning that ICT allows learners to apply the learnt knowledge and skills in different situations (transcendence).

Further to the above studies, a study conducted by Ejimonye et al. (2020) revealed that ICT integration enables one to use a variety of videos and power point presentations to make teaching more visual to minimize the abstractness of certain Economics concepts. Concepts such as the law of marginal returns and multipliers are challenging to teach by lecture or discussion (Lim, 2003). Through ICT platforms such as Tubidy, YouTube and Khan Academy, learners are provided with visuals on how these concepts work. In agreement with Ejimonye were Candra and Retnawati (2020) who asserted that when images accompany thought processes, learners tend to comprehend concepts better and help to improve memory retention among learners. In addition, advocates of ICT-mediated teaching posit that game-based learning

can be used to develop problem-solving skills and engage learners more successfully (Szymkowiak et al., 2021). Technology also makes teaching and learning fun and interesting. When learners are taught through quizzes and games, their interest in schoolwork is boosted as they learn whilst playing (Aprianti & Sahid, 2020). Such games increase motivation among learners (Candra & Retnawati, 2020).

Most Economics concepts are usually interrelated (Gultepe, 2016), and learners find it challenging to establish the relationship between concepts, for instance, in the case of the multiplier, marginal propensity to consume (MPC) and marginal propensity to save (MPS). Learners struggle to understand how marginal propensity to consume impacts the size of the multiplier (Lim, 2003). However, through animations and videos, one can show the learners how an increase in MPC or a decrease in MPS influences the multiplier's size (Lim, 2003). Through the use of videos, software packages and drawing graphs using different colour codes, teachers can mediate the abstractness of economics concepts (Ejimonye et al., 2020). Through social media platforms such as TikTok, WhatsApp, YouTube, and PowerPoint presentations with voice, teachers can mediate abstract Economics concepts (Mursidi et al., 2022).

Further to the above, Setiadi and Ghofur (2020) submit that through ICT, teachers can construct, deliver and offer timely and continuous feedback on assessments. Various scholars such as Jo et al. (2018) concur that ICT-mediated assessment can take the shape of self-assessment, peer assessment, mobile assessment, and gamification, amongst others. Literature documents that most ICT packages are usually accompanied by assessments in the form of quizzes, matching exercises, flashcards, crossword puzzles, quizzes and tests and the responses to thereof (Link et al., 2020). Immediate feedback provided by ICT deals precisely with varying misconceptions that learners might have and, at the same time, assist in self-correction. Pratama and Sakti (2020) believe that when feedback is provided promptly after the act that initiated it, it acts as a powerful reinforcer and may allow learners to master economic terms and change their behaviour immediately.

What becomes apparent is that the integration of ICT in teaching and learning is a deliberate instructional choice by the teacher. ICT enhances curriculum implementation as it helps teachers introduce, reinforce, enrich, extend, assess and remedy the learner's comprehension of curricula.

METHODOLOGY

In this section, the researchers explain the research methods used, indicating ethical considerations, research approach, design, participants, instrumentation and data analysis procedures.

This study employed an interpretative paradigm where qualitative data were generated and analyzed to determine how Economics teachers integrated ICT into their teaching. Research paradigms represent the researcher's world views and interpretation of phenomena (Kamal, 2019). In this study, the researchers' choice of data collection and analysis was based on their

opinions towards the subject under investigation. The primary purpose of interpretivism was to understand the lived experiences of Economics teachers regarding ICT integration in their daily practices.

The researchers utilized a case study design to understand better how Economics teachers integrated ICT into their daily practices. More so, the case study design provided an opportunity to probe further by including follow-up questions to get more clarity from the participants' responses (Merriam & Tisdell, 2015).

The study sample consisted of three purposefully selected schools, where three Economics teachers were chosen to participate in this study in the Northern Cape Province, South Africa. The schools were purposefully selected based on the levels of experience and qualifications of the teachers teaching Economics in these schools. Teacher A is a male novice teacher aged 29 and has two years of experience in the teaching of Economics. He holds a Bachelor of Education degree in Secondary school teaching with specialization in Economics and Business Studies. Teacher B is a female teacher who holds a Diploma in Education and has ten years of Economics teaching experience. In the case of teacher C, he does not have an Education qualification but holds a Bachelor of Commerce Degree specializing in Business Management. He also holds a certificate in Computer Studies and has been teaching Economics for the past 20 years. The researchers deemed these sites to possess thick and rich information about the phenomenon under study and were accessible to the researchers (Creswell, 2014). Semi-structured interviews and classroom observations were used to generate data to answer the research question: *How do Economics teachers integrate ICT to enhance Economics curriculum implementation?* The researcher conducted forty-minute pre-interviews with the three teachers separately before observing their lessons. After the interviews, the researcher observed the lessons to understand better how Economics teachers integrated ICT into their teaching. Interviews were conducted with the teachers immediately after the observations to seek clarity on the teachers' practices during classroom observations and follow-up.

This study employed thematic analysis to make sense of the data from the semi-structured interviews and classroom observations. The researchers used thematic analysis as this method is used to classify, analyze and record themes that have been identified from the data. Thematic analysis facilitated the process of interpreting, analyzing and presenting a comprehensive report of the study findings.

Ethical Considerations

The Research Ethics Committee of the Faculty of Education, University of the Free State, approved this study (UFS-HSD2021/1088/21). The Northern Cape Department of Education also granted permission to conduct this study. The participants who took part in this study provided informed consent. It was made clear to the participants that their participation was voluntary and that there were no financial gains from participating in this study. To strengthen the study findings, triangulation of data sources was used (Patton, 2001)

FINDINGS AND DISCUSSION

The interview and observation data were analyzed to identify themes relevant to answer the question: *How do Economics teachers integrate ICT to enhance Economics curriculum implementation?* The following themes emerged: used to enhance interaction and increase learner engagement, used to enable teachers to differentiate their teaching to accommodate different learning styles, used to allow teachers to determine their teaching to accommodate different learning styles, used to improve assessment opportunities and provided immediate feedback.

a) *Used to enhance interaction and increase learner engagement*

Indeed, when ICT is effectively integrated in the classroom, it can increase learner engagement and encourage interaction (Siwi et al., 2018). Teachers can present long-established ideas more innovatively and engagingly. It helps to make learning fun, motivating learners to be actively engaged in their learning (Hayati et al., 2019). Information communication and technology allow teachers to build higher-order thinking skills espoused by Bloom's taxonomy while keeping learning interesting (Chowdhry, 2018). Given that the current generation is biased towards smart technology, ICT can allow learners to create team projects, collaborate and learn from one another. Through interviews, teachers revealed that ICT enhances learner interaction and engagement confessed the following:

"As I prepare for my lessons, I use Google Classroom to get interactive material in different formats such as podcasts" (Teacher A).

Teacher A's assertion is congruent with the dictates of intentionality and reciprocity, as Isman and Tzuriel (2008) stated. The teacher(mediator) was deliberate in using ICT in his planning(intentionality) so that learners could respond either vocally, verbally or non-verbally(reciprocity) to the lesson content.

"I can play an audio clip and ask learners to give their opinion either as individuals or as groups" (Teacher B).

When I probed the teacher on why the use of audio clips, this was his response:

"It is a creative way of breaking up monotony and for learners to collaborate and learn from each other and develop their confidence in discussing their views"

When I use platforms such as TikTok, Facebook, YouTube, Khan Academy and others, my learners become enthusiastic and get engaged in the lesson because these are familiar platforms to them" (Teacher C).

The use of videos, audio clips and social media platforms, such as TikTok, YouTube etc., to improve learner engagement has also been found to be useful and is confirmed in studies by Hayati et al. (2019) and Siwi et al. (2018) who state that videos and audios motivate and encourages learners to be actively involved in their learning. Through ICT integration, Economics

lessons are transformed from the traditional practices where learners were reduced from passive recipients of knowledge to active participants in their learning (Shiyyab, 2020).

The researcher observed how the teachers used ICT to initiate robust class discussions. For instance, Teacher A played a video on the causes of Business cycles whilst Teacher B played audio on the clip on the Monetary Policy Committee (MPC) statement by the Reserve Bank Governor, and Teacher C asked learners to go on TikTok with a given link to view a video on the concept Laffer Curve. It was interesting that Teachers A and B constantly paused the video or audio to ask learners questions based on the clips. This allowed discussions where ideas on the causes of Business cycles and repo rate increases justifications were deliberated. In the case of Teacher C, learners had to present to the class what the curve represents and how it helps governments to decide on the tax rate. This moves the subject away from being confined to the pages of the textbook to a practical subject. These practices meet the requirements of MLE parameter mediation of meaning and transcendence, where the teacher allows learners to reflect on how they got to the answer and how they can apply the learnt knowledge to different situations.

b) *Used to enable teachers to differentiate their teaching to accommodate different learning styles*

Information, communication and technology allow teachers to differentiate their teaching to suit individual learning levels and styles. Learners have varying learning styles and abilities, and technology enables teachers to cater for these varying needs (Garcia, 2021). For instance, some learners prefer watching videos and tutorials before doing a task or applying information (Seemiller & Grace, 2017). When effectively utilized, ICT has the potential to cater for all the varying needs of diverse learners (Granitz et al., 2021). ICT integration also means that learning is no longer restricted to time and space (Shuraimi et al., 2022). With ICT, teachers can carefully select and differentiate resource banks for learners based on their cognitive abilities and learning preferences. Teachers highlighted that ICT allowed them to determine their teaching. *"I make use of videos and audio tapes so that learners with visual and auditory learning preferences are catered for"* (Teacher A).

The teacher exhibits intentionality because he purposefully chooses video and audio clips to cater to different learner preferences. He intends learners to respond to the stimuli (Economics content). It is also documented in literature such as Granitz et al. (2021) that using ICTs such as videos has the potential to meet the varying needs of diverse learners.

"Sometimes I record my lessons and send learners to play the videos at their convenient time to recap what was taught" (Teacher B).

"Through Zoom and Google Meet, I am able to conduct intervention classes after school with my learners in the comfort of their homes" (Teacher C).

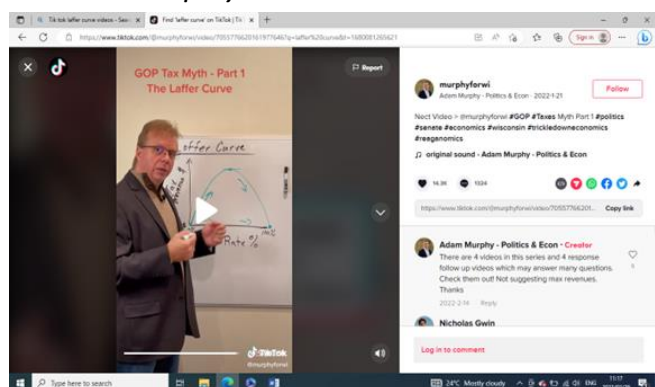
When the researcher probed further how the teacher would do this, Teacher C said *"I have three groups in this class, and we meet online to clarify grey areas at different times; it enables me to cater for learners with different abilities in my class."*

The assertions by three teachers are in agreement with the literature by Shuraimi et al. (2022), who postulate that with ICT, learning can now take place anywhere without being limited to the physical classroom.

When the researcher observed the classes, he understood that teachers knew how to use ICT to cater to learners with different learning preferences and abilities. For instance, in Teacher A's class, as the teacher moved from one group to the other, checking on what learners were discussing, the researcher noticed that there was one group where the teacher spent more time even replaying the video. When the researcher asked him why that was the case, he stated that the group had learners who took longer to grasp concepts; hence he took more time to guide them. In Teacher B's class, the teacher had sent learners a TikTok video explaining the Laffer Curve. In class, it was more of a discussion. The ones who had grasped the concept had to answer projected questions. These practices concur with the sentiments of Garcia, (2021). ICT allows teachers to pace their lessons differently to suit different learner needs.

Figure 1.

TikTok video played in Teacher B's class



https://www.tiktok.com/@murphyforwi/video/7055776620161977646?is_from_webapp=1&sender_device=pc&web_id=7215893906961483270

c) Used to Reduce Abstractness of Economics Concepts And Enhance Understanding

Using videos, PowerPoint, projectors, and other forms of multimedia makes concepts more visual and transparent (Zhang et al., 2019). Learners' learning opportunities are enhanced by presenting the same concept differently. Idika (2020) contends that instructional materials such as ICT assist teachers in teaching more conveniently and allows learners to learn abstract Economics concepts easily. Sharing the same sentiments with the above scholar is Granitz et al. (2021), who state that ICT gadgets enable easy comprehension of abstract concepts and lead to more positive attitudes and greater satisfaction towards academic work.

"With the advent of ICT, I am able to make use of diagrams, graphs, charts and animations to present the concepts and summaries of the topic" (Teacher A).

When the researcher probed him further on how this was different from making copies of the notes and how this was helping to enhance Economics curriculum implementation, he had this to say:

"Through the use of videos, concepts become clearer as learners can visualize some of the concepts being presented in real life situations, for instance, the multiplier effect and marginal utility" (Teacher A).

The teacher purposefully chose videos (intentionality), so abstract concepts like graphs can make sense to the learners (mediation of meaning) and enable learners to transfer the graphing skills in other situations.

"Through Smart Notebook 11 Application, I am able to draw graphs step by step using different colours to highlight different axis and curves on the graph" (Teacher B).

When I asked the teacher how this simplified the concept, Teacher C answered, *"Look, learners don't get to see graphs as a picture but rather as a representation of different variables and therefore, it makes it easy for them to interpret graphs. I use videos from YouTube, Tiktok and Khan Academy because videos enables learners to see and hear at the same time."*

She went further to say:

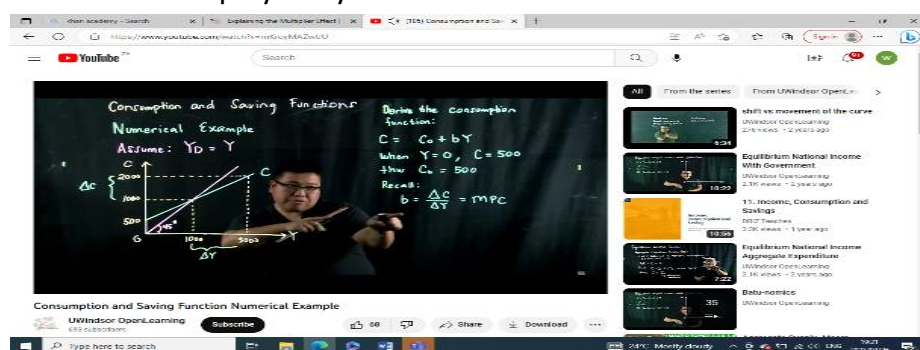
"When I play videos and use Powerpoint presentations, learners are able to make discoveries of their own from visualization or observations which promote creative and analytical skills as envisaged in the subject aims."

The three participants' efforts are intentional and aim to solicit reciprocity amongst the learners. Furthermore, through ICT integration, teachers are mediating meaning and transcendence; they seek to enable learners to get a better understanding and to be able to apply their knowledge in different situations (Isman & Tzuriel, 2008). Teacher C's assertion that *"learners are able to make discoveries of their own from visualization or observations which promote creative and analytical skills"* agrees with what Shuraimi et al. (2022) found in their studies that the use of ICT enables learners to be creative thinkers.

The researcher observed that the teacher used a video from YouTube where the concept multiplier and the graphical representation were presented. The teacher played the following video in class.

Figure 2.

YouTube video played by Teacher B



The following is the link to the video: <https://youtu.be/mKroyMAZwUU>

As the video was playing, the teacher constantly paused and asked learners questions based on the presentation of the multiplier concept. It also enabled the teacher to clarify grey areas as some learners were also posing questions to the teacher based on what was being

presented. This practice of using videos is in unison with previous studies such as Shuraimi et al. (2022), who found that videos effectively present abstract concepts such as graphs. Through ICT, such as videos, previous concerns Angra and Gardner (2018) raised that interpreting graphs is a complex and complicated task are addressed.

d) Used to Improve Assessment Opportunities and to Provide Immediate Feedback

Assessment is always considered a critical component in teaching and learning. The constructivist method of teaching and learning permits teachers to assess learners using modern technologies. Information communication and technology devices such as desktops, laptops, smartphones, iPads etc., play a central role in making the assessment process easy for teachers (Majid, 2020). Information communication and technology-mediated assessment can reinforce the comprehension of Economics concepts and terms through matching exercises, quizzes, flashcards and crossword puzzles (Karay et al., 2020; Nikou & Economides, 2017). Through digital technology, tasks can be constructed and delivered, and feedback and grades can be given to the learners timeously (Majid, 2020; Marina, 2015). The timeous feedback facilitated by ICT can help to enhance learning Economics outcomes. However, it should be noted that not all kinds of tasks can be evaluated by a computer (Majid, 2020)

"I usually send activities or homework on our subject WhatsApp group, and learners respond, and I mark and give them feedback" (Teacher A).

"I use online discursive activities through Quizlet" (Teacher B).

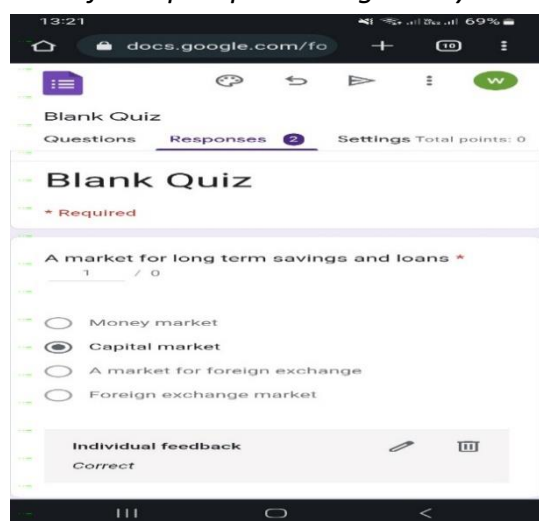
"I use computerized based assessment with an item bank where learners can write informal tests on their computer, laptop, tablet or cell phones" (Teacher C).

When I probed her how this was helping in enhancing Economics curriculum implementation, she had this to say:

"I can present learners with different questions based on their abilities, and my learners can sit for these tests as frequently as they find useful, and feedback is provided immediately."

Figure 3.

One of the quiz questions given by Teacher C



The day the researcher went to observe Teacher A's lesson, the researcher noticed that the teacher sent an activity on the subject WhatsApp group. This indicates that ICT-mediated assessment does not limit teachers' time and place to assess their learners. This practice aligns with Bicalho's (2022) and Hensley & Waters', 2023 findings, which postulate that ICT integration breaks assessment boundaries only on paper and in the physical classroom. Although Teacher B mentioned item bank and computer-based assessment, the teacher did not use this. However, in the case of Teacher C, the researcher noticed an in-class assessment where learners used their cell phones to log in and respond to a quiz posted on Google Classroom. Teacher C's use of Google Forms as an assessment tool which was also programmed to mark the learners' responses, is in unison with study findings such as Majid (2020) and Marina (2015), who posit that ICT-mediated assessment provides immediate feedback to the learners. One of the ingredients of effective curriculum implementation is the provision of immediate feedback, as this allows learners to identify and correct their mistakes whilst the concept is still vivid in the learners' minds (Pratama & Sakti, 2020).

ICT based assessment helps teachers to disseminate and grade learners' work promptly (Bilcalho, 2022). Platforms such as Google Classroom used by teachers in this study to administer assessments are advocated for by Granitz et al., (2021). These scholars posit that it makes assessment dissemination and grading easy. They further deposit that it enables teachers to spend more time correcting learners' misconceptions than grading learners' assessments. Further to the above, given that the current generation is technologically inclined (Zhang et al., 2019; Garcia, 2021), using ICT in administering assessments captivates and maintains learner engagement. The teachers' practices in this study were in line with this narrative. The teachers used WhatsApp and Google forms which are accessible through ICT gadgets. This made assessment fun as learners learnt through their preferred way; far away from the boring and historical pen and paper in the classroom

The use of ICT in assessing learners helps to provide immediate feedback to the teachers on the effectiveness of their teaching strategies and approaches so that where necessary, teachers can adjust their pedagogical practices (Granitz et al., 2021). ICT based assessment practices practiced by the participants in this study provided them with an opportunity to interrogate and modify their practices. When using ICT based assessment, learners can be afforded multiple opportunities as the teacher can promptly provide feedback and assign learners more assessments to practice (Motsoeneng et al., 2023)

CONCLUSION

This study intended to explore Economics teachers' ICT integration to enhance Economics curriculum implementation. The verdicts and practices of Economics teachers in this study provide compelling evidence to conclude that teachers are alive of the importance of ICT integration in their practices. This study contends that the parameters of MLE are powerful tools that, combined with ICT integration, can help teachers provide learners with opportunities to

develop negotiated meaning, critical thinking, decision making, problem solving and analytical skills as embedded in the aims of Economics Education.

Value of the Study

The study may help Economics teachers enhance their ICT integration to enhance Economics curriculum implementation. It might also inform departmental officials how to empower teachers and provide resources for more meaningful ICT integration in the high school Economics curriculum implementation.

Limitations

The study cannot be generalized as it was conducted in a few schools in the Frances Baard District. The schools chosen had access to ICT technologies which is not a typical reality, especially for most township schools.

Recommendations

Continuous teacher development on integrating ICT is as if teachers are facilitators of meaningful learning, which will enhance learners' academic performance. This continuous development can be in form of workshops organized by the Department of Basic Education and teachers, teachers developing each other through Professional Learning Communities (PLCs) and teachers enrolling at institutions where their ICT skills can be enhanced. There should be intense collaboration between the Department of Basic Education and the Department of Higher Education on what kind of a teacher should be produced for the 21st century educational needs. The Department of Education should also provide ICT facilities and gadgets to teachers and learners to be at par with 21st-century teaching and learning.

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REFERENCES

- Alkan, M. F., & Sarıkaya, E. E. (2018). Adaptation of preservice teachers' information and communication technology competencies scale into Turkish culture. *Bartın University Journal of Faculty of Education*, 7(2), 665-691. <https://doi.org/10.14686/buefad.375745>
- Andayani, R., Aulia, H. R., & Bilqis, M. (2020). Teachers' Reflection on E- Learning Exertion. *IOP Conf. Ser.: Earth Environ. Sci.* 485 012094. 28-29 Sept 2019. Doi 1088/1755-1315/485/1/012094
- Angra, A., & Gardner, S. M. (2018). The graph rubric: Development of a teaching, learning, and research tool. *CBE—Life Sciences Education*, 17(4), ar65. <https://doi.org/10.1187/cbe.18-01-0007>
- Aprianti, V., & Sahid, S. (2020). The relationship between teachers' competency and Fourth Industrial Revolution (4IR) learning among economics teachers. *Universal Journal of Educational Research*, 8(11A), 63-70. <https://doi.org/10.13189/ujer.2020.082108>

- Arthur, F., & Kaku, D. W. (2020). The use of technology in the teaching of economics: perspectives of economics students. *GSJ: Global Scientific Journals*, 8(8), 2906-2919.
- Ayers, C., A. (2019). "Teaching Students to Think like Economists" as Democratic Citizenship Preparation. *Journal of Social Studies Research*, 43(4).
<https://doi.org/10.1016/j.jssr.2018.10.002>
- Backfisch, I., Lachner, A., Stürmer, K., & Scheiter, K. (2021). Variability of teachers' technology integration in the classroom: A matter of utility! *Computers & Education*, 166, 104159.
<https://doi.org/10.31234/osf.io/87nav>
- Basilaia, G., & Kvavadze, D. (2020). Transition to online education in schools during a SARS-CoV-2 coronavirus (COVID-19) pandemic in Georgia. *Pedagogical Research*, 5(4), em0060. <https://doi.org/10.29333/pr/7937>
- Bicalho, R.N.d.M., et al. (2022). "Integration of ICTs in teaching practices: propositions to the SAMR model." Association for Educational communications & Technology: Springer, 1-16.
- Buda, A. (2020). Stumbling blocks and barriers to the use of ICT in schools: a case study of a Hungarian town. *Informatics in Education-An International Journal*, 19(2), 159-180.
<https://doi.org/10.15388/infedu.2020.08>
- Candra, & Retnawati, H. (2020). A Meta-Analysis of Constructivism Learning Implementation towards the Learning Outcomes on Civic Education Lesson. *International Journal of Instruction*, 13(2), 835-846. <https://doi.org/10.29333/iji.2020.13256a>
- Chowdhry, A. (2018). Study, relevant video content drives more engagement and revenue. *Forbes*. <https://www.forbes.com/sites/amitchowdhry/2018/09/18/study-relevant-video-content-drives-more-engagement-and-revenue/?sh=5d2bb52b6b7f>
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. SAGE Publications.
- de Castro, M. G. A., & García-Peñalvo, F. J. (2021). Erasmus+ Educational Projects on eLearning and Related Methodologies: Data from Erasmus+ Project Results Platform. In F. J. García-Peñalvo (Ed.), *Information Technology Trends for a Global and Interdisciplinary Research Community* (pp. 111-133). IGI Global. <https://doi.org/10.4018/978-1-7998-4156-2.ch006>
- Ejimonye, J. C., Ugwuanyi, C. S., Okeke, C. I. O., & Nwoye, M. N. (2020). Two-dimensional animation and students' achievement in mathematical economics: implications for science teaching. *International Journal of Engineering Research and Technology*, 13(6), 1220-1230. <https://doi.org/10.37624/ijert/13.6.2020.1220-1230>
- Feuerstein, R., & Feuerstein, S. (1991). Mediated learning experience: A theoretical review. In R. Feuerstein, P. S. Klein, & A. J. Tannenbaum (Eds.), *Mediated learning experience (MLE): Theoretical, psychosocial and learning implications* (pp.3-51). Freund Publishing House.
- Feuerstein, R., Rand, Y., Hoffman, M., & Miller, R. (1980). *Instrumental Enrichment*. University Park Press.

- Garcia, R. (2021). Factors That Influence Students' Learning Progress in the Science Spiral Progression Curriculum. *Journal Of Curriculum Studies Research*, 3(2), 79-99. <https://doi.org/10.46303/jcsr.2020.5>
- Granitz, N., Kohli, C., & Lancellotti, M. P. (2021). Textbooks for the YouTube generation? A case study on the shift from text to video. *Journal of Education for Business*, 96(5), 299-307. <https://doi.org/10.1080/08832323.2020.1828791>
- Greenberg, H., K. (2010). Inquiry: Critical Thinking Across the Disciplines. *Critical Thinking and Disability in Higher Education*, 25(1), 39-46, <https://doi.org/10.5840/inquiryctnews201025113>.
- Gultepe, N. (2016). High School Science Teachers' Views on Science Process Skills. *International Journal of Environmental and Science Education*, 11(5), 779-800. <https://doi.org/10.12973/ijese.2016.348a>
- Habibi, A., Yusop, F. D., & Razak, R. A. (2020). The role of TPACK in affecting pre-service language teachers' ICT integration during teaching practices: Indonesian context. *Education and Information Technologies*, 25, 1929-1949. <https://doi.org/10.1007/s10639-019-10040-2>
- Hayati, A. F., Oknaryana, O., Marna, J. E., Rahmat, Z., Tranitasari, W., & Yeni, G. (2022). Peningkatan Kualitas Pembelajaran Kelas Pengantar Ekonomi Pembangunan Melalui Metode Case Base Learning (CBL). *Jurnal Inovasi Pendidikan Ekonomi (JIPE)*, 12(2), 145-157.
- Hensley, M., & Waters, S. (2023). Using Social Media in Schools. *Research in Social Sciences and Technology*, 8(2), i-iii. <https://doi.org/10.46303/ressat.2023.15>
- Idika, E. O. (2021). Students' and teachers' factors hindering effective teaching and learning of economics in secondary schools in the Nsukka Local Government Area of Enugu State. *Journal of Culture and Values in Education*, 4(1), 49-63. <https://doi.org/10.46303/jcve.2020.4>
- Isman, E. B., & Tzuriel, D. (2008). The mediated learning experience (MLE) in a three generational perspective. *British Journal of Developmental Psychology*, 26(4), 545-560. <https://doi.org/10.1348/026151007x269786>
- Jo, J., Jun, H., & Lim, H. (2018). A comparative study on gamification of the flipped classroom in engineering education to enhance the effects of learning. *Computer Applications in Engineering Education*, 26(5), 1626-1640. <https://doi.org/10.1002/cae.21992>
- Kaku, D. W., & Arthur, F. (2020). Perceived effect of instructional materials on the effective teaching and learning of Economics. *European Journal of Education Studies*, 7(9), 26-36.
- Kamal, S. S. L. B. A. (2019). Research paradigm and the philosophical foundations of a qualitative study. *PEOPLE: International Journal of Social Sciences*, 4(3), 1386-1394. <https://doi.org/10.20319/pijss.2019.43.13861394>

- Karakus, G. (2021). A Literary Review on Curriculum Implementation Problems. *Shanlax International Journal of Education*, 9(3), 201-220.
<https://doi.org/10.34293/education.v9i3.3983>
- Karay, Y., Reiss, B., & Schaubert, S. K. (2020). Progress testing anytime and anywhere—Does a mobile-learning approach enhance the utility of a large-scale formative assessment tool? *Medical Teacher*, 42(10), 1154-1162.
<https://doi.org/10.1080/0142159x.2020.1798910>
- Kieninger, K. & Kopish, M.A. (2023). Developing an Understanding of Secondary Social Studies Teacher Candidates' Economic Pedagogical Content Knowledge, *Journal of Social Studies Education Research*, 14(3), 1-25.
<https://jsr.org/index.php/jsr/article/view/5100/623>
- Khoo, E. (2016). iPad-supported learning and development for a child with mild cerebral palsy. In N. Kucirkova, & G. Falloon (Eds.), *Apps, Technology and Younger Learners* (pp. 195-211). Routledge.
- Kimanzi, M. K. (2021). Integration of ICT in teaching and learning of economics and management sciences: student teachers' perspectives in South Africa. *Social Sciences International Research Conference* (p. 592).
- Kimav, A. U., & Aydin, B. (2020). A blueprint for in-service teacher training program in technology integration. *Journal of Educational Technology and Online Learning*, 3(3), 224-244. <https://doi.org/10.31681/jetol.761650>
- L. X. Gao, L. X., & Zhang, L. J. (2020). Teacher learning in difficult times: Examining foreign language teachers' cognitions about online teaching to tide over COVID-19. *Frontiers in Psychology*, 11, 2396. <https://doi.org/10.3389/fpsyg.2020.549653>
- Link, S., Mehrzad, M., & Rahimi, M. (2022). Impact of automated writing evaluation on teacher feedback, student revision, and writing improvement. *Computer Assisted Language Learning*, 35(4), 605-634. <https://doi.org/10.1080/09588221.2020.1743323>
- Lochner, B., Conrad, R. M., & Graham, E. (2015). Secondary teachers' concerns in adopting learning management systems: A US perspective. *TechTrends*, 59(5), 62-70.
<https://doi.org/10.1007/s11528-015-0892-4>
- Mabale, M. B. (2013). *Challenges faced by lecturers in the implementation of National Certificate Vocational curriculum at Mopani South East FET College* (Doctoral dissertation). University of Limpopo.
- Maja, M. (2023). Teachers' Perceptions of Integrating Technology in Rural Primary Schools to Enhance the Teaching of English First Additional Language. *Journal Of Curriculum Studies Research*, 5(1), 95-112. <https://doi.org/10.46303/jcsr.2023.8>
- Maity, C., & Haque, L. (2018). Integration of ICT in Cognitive Scaffolding in Learning Science: A Review. *Journal of Education and Development*, 9(17). 523-533.
- Majid, I. (2020). ICT in Assessment: A Backbone for Teaching and Learning Process. *Online Submission*, 1(3), 38-40.

- Manzi, W., Mosia, M., & Moreeng, B. (2021). Investigating Opportunities to Learn Mathematical and Graphing Skills in Imperfect Market Structures. *Universal Journal of Educational Research*, 9(6), 1113-1123. <https://doi.org/10.13189/ujer.2021.090601>
- Marina, M. (2015). Information and Communication Technology (ICT) and its role in educational assessment. *Englisia: Journal of Language, Education, and Humanities*, 3(1), 23-37. <https://doi.org/10.22373/ej.v3i1.664>
- Marques, R., & Xavier, C. R. (2020). The Challenges and Difficulties of Teachers in the Insertion and Practice of Environmental Education in the School Curriculum. *International Journal on Social and Education Sciences*, 2(1), 49-56.
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.
- Mursidi, A., Buyung, B., & Murdani, E. (2022). Digital Literacy Competence Levels of Indonesian Junior High School Students Based on Activities Through The 5m Approach. *JETL (Journal of Education, Teaching and Learning)*, 7(2), 229-236. <https://doi.org/10.26737/jetl.v7i2.3775>
- Nevenglosky, E. A. (2018). *Barriers to effective curriculum implementation* (Doctoral dissertation). Walden University.
- Nikou, S. A., & Economides, A. A. (2017). Mobile-Based Assessment: Integrating acceptance and motivational factors into a combined model of Self-Determination Theory and Technology Acceptance. *Computers in Human Behavior*, 68, 83-95. <https://doi.org/10.1016/j.chb.2016.11.020>
- Nkambule, B. (2023). WhatsApp Messenger as a Supplementary Tool for School Curriculum Knowledge Transfer and Acquisition During COVID-19 Stricter Lockdown: Educators' Perceptions. *Research in Social Sciences and Technology*, 8(2), 37-55. <https://doi.org/10.46303/ressat.2023.10>
- Ogar, O. E., & Opoh, F. A. (2015). Teachers Perceived Problems of Curriculum Implementation in Tertiary Institutions in Cross River State of Nigeria. *Journal of Education and Practice*, 6(19), 145-151.
- Ogbonnaya, I. C. (2022). Using TPACK framework to Examine Economics Teachers' Integration of Technology in the Teaching of Market Dynamics. *African Perspectives of Research in Teaching and Learning*, 6(1), 148-170.
- Ogbonnaya, I. C., Mji, A., Mafa-Theledi, O. N., & Ngulube, B. (2020). Economics Teachers' Topic Specific Pedagogical Content Knowledge Model for teaching Market Dynamics. *International Journal of Learning, Teaching and Educational Research*, 19(7), 320-341. <https://doi.org/10.26803/ijlter.19.7.18>
- Olutola, A. T., & Olatoye, O. O. (2015). Challenges of e-learning technologies in Nigerian university education. *Journal of Educational and Social Research*, 5(1), 301-306. <https://doi.org/10.5901/jesr.2015.v5n1p301>

- Patton, M., Q. (2001). *Qualitative evaluation and research methods (3rd Ed.)*. Thousand Oaks, CA: Sage Publications, Inc
- Prasetyono, H., Abdillah, A., Djuhartono, T., Ramdayana, I. P., & Desnaranti, L. (2021). Improvement of Teacher's Professional Competency in Strengthening Learning Methods to Maximize Curriculum Implementation. *International Journal of Evaluation and Research in Education*, 10(2), 720-727.
<https://doi.org/10.11591/ijere.v10i2.21010>
- Pratama, D. P. A., & Sakti, N. C. (2020). Pengembangan media pembelajaran handout digital berbasis Android. *Jurnal Pendidikan Ekonomi Undiksha*, 12(1), 15-28.
<https://doi.org/10.23887/jjpe.v12i1.25327>
- Rafei, C. (2015). *Effectiveness of ICT on teaching and learning case study on Basic Technology*.
<https://nairaproject.com/projects/1010.html>
- Santika, V., Indriayu, M., & Sangka, K. B. (2022). Policy in Covid-19 pandemic to increase ICT integration: what is the role of economics teachers' TPACK? *Journal of Positive School Psychology*, 6(8), 8503-8517.
- Seemiller, C., & Grace, M. (2017). Generation Z: Educating and engaging the next generation of students. *About Campus*, 22(3), 21-26. <https://doi.org/10.1002/abc.21293>
- Sentsho, T., & Mudau, P. (2023). Teachers' Experiences of Teaching the Financial Literacy Component to Enhance Learner Performance in Economic and Management Sciences. *Journal Of Curriculum Studies Research*, 5(3), 29-43.
<https://doi.org/10.46303/jcsr.2023.29>
- Setiadi, M. E., & and Ghofur, M. A. (2020). Pengembangan media pembelajaran mobile learning berbasis Android dengan pendekatan kontekstual pada mata pelajaran ekonomi kelas X IPS. *Didaktis: Jurnal Pendidikan dan Ilmu Pengetahuan*, 20(3), 291-307.
- Seufert, S., Guggemos, J., & Sailer, M. (2021). Technology-related knowledge, skills, and attitudes of pre-and in-service teachers: The current situation and emerging trends. *Computers in Human Behavior*, 115, 106552.
<https://doi.org/10.1016/j.chb.2020.106552>
- Shafie, H., Majid, F. A., & Ismail, I. S. (2019). Technological pedagogical content knowledge (TPACK) in teaching 21st century skills in the 21st century classroom. *Asian Journal of University Education*, 15(3), 24-33. <https://doi.org/10.24191/ajue.v15i3.7818>
- Shava, E. (2022). Reinforcing the Role of ICT in Enhancing Teaching and Learning Post-COVID-19 in Tertiary Institutions in South Africa. *Journal of Culture and Values in Education*, 5(1), 78-91. <https://doi.org/10.46303/jcve.2022.7>
- Shiyyab, M. M. (2020). Interrogation of Silent Features, Creative Reasoning and Function Sense for Graphing Functions. *Dirasat: Educational Sciences*, 47(4), 498-509.
<https://doi.org/10.35516/0102-047-004-005>

- Shuraimi, F. M., Global, R. N., & R. B. Lin, R. B. (2022). The Effectiveness of Using Graphs and Charts Video Presentation Guidelines for DUE50032 Communicative English 3. *Jurnal Kejuruteraan, Teknologi dan Sains Sosial*, 8(1), 227-239.
- Singhavi, C., & Basargekar, P. (2019). Demographic and other Influencers of Teachers' Perception about ICT Adoption in the Curriculum. *International Journal of Business Insights & Transformation*, 12(2), 41-45.
- Siwi, M. K., Syofyan, R., & Hayati, A. F. (2018). Pengembangan Webtoon Sebagai Media Pembelajaran Interaktif Dalam Meningkatkan Kemampuan Mengajar Mahasiswa Pada Mata Kuliah Micro Teaching di Fakultas Ekonomi Universitas Negeri Padang. *PAKAR PENDIDIKAN*, 16(1), 47-59. <https://doi.org/10.24036/pakar.v16i1.36>
- H. Suri, "Ethical Considerations of Conducting Systematic Reviews in Educational Research." *Systematic Reviews in Educational Research*, pp 41–54, 2019
- Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. *Technology in Society*, 65, 101565. <https://doi.org/10.1016/j.techsoc.2021.101565>
- Tzuriel, D. (1999). Parent-child mediated learning interactions as determinants of cognitive modifiability: Recent research and future directions. *Genetic, Social, and General Psychology Monographs*, 125(2), 109-156.
- Tzuriel, D. (2011). Revealing the effects of cognitive education programmes through Dynamic Assessment. *Assessment in Education: Principles, Policy & Practice*, 18(2), 113-131.
- Tzuriel, D., & Shamir, A. (2002). The effects of mediation in computer assisted dynamic assessment. *Journal of Computer Assisted Learning*, 18(1), 21-32. <https://doi.org/10.1046/j.0266-4909.2001.00204.x>
- UNESCO (2019). Classroom revolution through SMART education in the Republic of Korea: Case study by the UNESCO-Fazheng Project on best practices in mobile learning. United Nations.
- Wright-Maley, C., Hall, D. & Finley, S.Y. (2023). Evaporative Economics: A Truth-Telling Metaphor to Displace the Trickle-Down Lie that Just Won't Die, *Journal of Social Studies Education Research*, 14(2), 1-20. <https://jsser.org/index.php/jsser/article/view/4788/611>
- Zhang, T., Low, L. C., & Seow, P. S. (2020). Using online tutorials to teach the accounting cycle. *Journal of Education for Business*, 95(4), 263-274. <https://doi.org/10.2139/ssrn.3327139>