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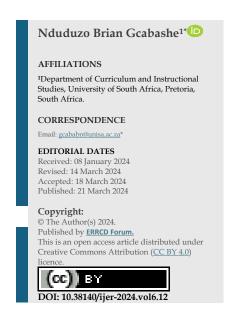# Empowering Teachers: Enhancing Business Studies Teachers' Technology Integration Skills Through Technology Peer Mentoring

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Abstract: Schools worldwide are continually seeking out various strategies to improve teachers' skills in integrating technology. One strategy that some schools adopt to enhance teachers' technology integration skills is technology peer mentoring. This qualitative study investigates how technology peer mentoring is used to enhance the technology integration skills of business studies teachers in selected schools in South Africa. Interpretivism was adopted as the research paradigm, and an exploratory case study was used as the research design for this study. Purposive sampling was used to select six business studies teachers from six secondary schools located in the Kwa-Zulu Natal province. Thematic analysis was used to analyse the data collected through semi-structured interviews. The study revealed that business studies teachers benefited immensely from their colleagues in the fields of Computer Application Technology and Information Technology during technology peer mentoring. This is because IT and CAT teachers possess both pedagogical and technological knowledge, which makes it easier for them to mentor business studies teachers in integrating technology into their instructional practices. The study concluded that technology peer mentoring helps enhance teachers' technology integration skills. Therefore, the study recommends that technology peer mentoring be adopted in South African schools as part of the strategies to enhance teachers' technology integration skills.

Keywords: Business studies, skills, peer mentoring, teachers, technology integration.

1. Introduction

Technology integration in teaching and learning has become a priority for many governments and ministries of education worldwide. The widespread use of technology continues to pose challenges for governments, schools, and teachers as they strive to integrate technology into classrooms (Ferri et al., 2020). Researchers also believe that technology integration helps promote meaningful and impactful learning in the 21st century (Dakhi et al., 2020; Haung, 2019). In South Africa, subjects like business studies benefit from technology integration due to compatibility with their curriculum (Govender & Maistry, 2012). Business studies, also known as business education in some regions (Oguejiofor, 2020), prepare learners for the modern working environment characterised by technological advancements. The South African Department of Basic Education (2011) states that business studies aims to develop knowledge, skills, attitudes, and values necessary for meaningful, responsible, and productive engagement in business activities. In South Africa, business studies is offered to learners in the Further Education and Training phase (FET), encompassing Grades 10-12 (DBE, 2011). While primarily taken by learners pursuing commercial subjects, some schools offer business studies as an elective to those not studying commercial subjects. Given the goal of equipping learners with skills required in the 21st-century business environment, it is essential for business studies teachers to integrate technology into their classrooms. Zafar (2019) asserts that technology

integration has become necessary for business studies classrooms, emphasising the need for teachers to effectively facilitate learners' learning through the use of technology.

In the midst of the pressing need for teachers to integrate technology in their classrooms, there is a serious concern about the lack of technology integration skills among South African teachers (Chisango et al., 2020). Teachers in township and rural schools, in particular, still lack the required skills to integrate technology into their classrooms (Kormos & Wisdom, 2021; Molise & Dube, 2020). Consequently, the South African government has implemented various technology initiatives, some of which include professional development programs, to address the lack of technology integration skills among teachers (Ajani, 2020). These professional development programs aim to equip teachers with the necessary skills to integrate technology into their classrooms. However, these programs have seen limited success. Scholars attribute the failure of these programs to the government's training approaches (Ajani, 2020; Dlamini & Mbatha, 2018; Moila et al., 2019). One such approach employed by the government is the "train the trainer" approach (Molotsi, 2014, p. 47). Under this approach, a small number of teachers from different districts receive training on technology integration and are expected to pass on these skills to their peers in their respective districts (Molotsi, 2014). However, this approach has failed due to a shortage of trainers and poor implementation of the technology infrastructure (Butcher & Associates, 2007). Additionally, professional development programs on technology integration often fall short because they are one-time events (Ajani, 2020) and lack continuity (Moila et al., 2019). This means that teachers are provided with training for a brief period and are then expected to apply the skills learned to integrate technology in their classrooms. Furthermore, these programs are often conducted outside of schools or classrooms, where teachers are expected to use such technologies (Janssen et al., 2019). Moreover, Mbatha (2020) criticises professional development programs on technology integration for being delivered by training providers who lack content and pedagogical knowledge.

Based on the preceding discussion, it is evident that many professional development programmes designed to equip teachers with technology integration skills are not sufficiently effective in instilling these skills among teachers. The issue at hand extends to business studies teachers within the South African cohort. Consequently, certain business studies teachers have taken the initiative to participate in technology peer mentoring, which provides them with informal but ongoing guidance on incorporating technology into their teaching practices. Thus, the objective of this study is to examine how business studies teachers engage in peer mentoring to enhance their technology integration skills.

1.1 Literature review

Mentoring plays a crucial role in education by effectively supporting teachers in their professional responsibilities. Scholars have identified mentoring as a valuable approach for familiarising teachers with new developments in the field of education (Skaniakos & Piirainen, 2019). Technology integration in schools located in township and rural areas is still considered a novel area, and many teachers lack the necessary skills for effective implementation (Chisango et al., 2020). As argued by Weddle et al. (2020), adopting technology peer mentoring can serve as a means to promote successful technology integration among teachers. In essence, schools should embrace technology peer mentoring as a strategy for enabling teachers to acquire technology integration skills. This approach entails experienced teachers who possess technological expertise offering guidance and support to their peers who require assistance with technology integration (Wiyono et al., 2022). By adopting technology peer mentoring, schools can ensure that teachers effectively incorporate technology into their instructional practices. Existing research in South Africa has emphasised that some schools in rural areas possess technological tools; however, teachers fail to integrate them into their classrooms due to a lack of technology integration skills (Graham et al., 2020; Zenda & Dlamini, 2023). This

discrepancy between teachers with technology integration skills and their colleagues who lack such abilities underscores the necessity for technology peer mentoring.

Technology peer mentoring is widely recognised for its ability to promote teacher engagement in hands-on activities while receiving guidance from their peers regarding effective technology integration in instructional practices (Yoon et al., 2018). In essence, technology peer mentoring offers teachers an opportunity to put into practice what they have learned. Allowing teachers to engage in hands-on activities during their learning experiences can facilitate the development of their technology integration skills, as they are able to learn and apply these skills within authentic school contexts. Moreover, the provision of technology training within actual school settings is commendable, as it aligns with the expectations for teachers to integrate technology into their business studies instruction. Criticisms have been lodged against certain professional development programs focused on technology integration due to their implementation outside of schools (Janssen et al., 2019). Such arrangements are deemed less effective, as they may fail to consider the unique contextual factors present within each school. Additionally, these programs often employ a standardised approach to training, assuming that all teachers possess the same level of proficiency (Mbatha, 2020). In contrast, technology peer mentoring offers a more tailored approach to supporting teachers in the development of their technology integration skills. By providing individualised attention, trainers are able to identify the specific needs of each teacher and offer personalised support accordingly (Sanchez et al., 2023).

Furthermore, technology peer mentoring provides ongoing and progressive training to teachers. This is because experienced mentors offer guidance on technology integration on a continuous basis (Kilpatrick & Fraser, 2019). In essence, technology peer mentoring is continuous due to the accessibility of mentors for business studies teachers seeking guidance on technology integration. Hilton and Canciello (2018) emphasise that technology peer mentoring fosters teachers' confidence and comfort in integrating technology. This is achieved through the ongoing support that mentors provide in relation to technology integration. A study conducted by Talip and Tiop (2020) discovered that teachers prefer technology integration professional development programs that are continuous and progressive. The presence of individuals who can offer support on technology integration in schools encourages teachers to integrate technology into their instructional practices without fear of failure or disruption (Talip & Tiop, 2020). This suggests that teachers find it easier to integrate technology when they have continuous exposure to their mentors. Additionally, teachers tend to develop less formal and more informal relationships with their trainers when they are present in their schools. Moorhouse and Kohnke (2021) also support this view, noting that teachers prefer more informal types of professional development on technology integration. Cultivating informal, open relationships between teachers and their trainers enables them to easily seek assistance when needed. The informal and supportive atmosphere among business studies teachers and their peers can be easily fostered due to their collegial relationship.

Numerous studies have explored the effectiveness of technology peer mentoring. For instance, Giles et al. (2020) conducted a mixed-methods study to examine how technology peer mentoring impacts student teachers' technology proficiency. The study found that mentees received adequate support from their mentors when engaging in technology-based tasks. Furthermore, a literature review by Belt and Lowenthal (2020) concluded that technology peer mentoring enhances teachers' technology integration skills. Another literature review by Edouard (2023) reached the same conclusion, stating that technology peer mentoring is an effective approach for teachers to develop their technology integration skills. Similarly, Wiyono et al. (2022) conducted a study revealing that technology peer mentoring intensifies technology integration among teachers. Based on the findings of these studies, it is evident that technology peer mentoring is a valuable model for promoting technology integration among teachers.

Despite the crucial role played by technology peer mentoring in enhancing teachers' technological integration skills, its application in the context of schooling has not been extensively examined. Most of the existing literature focuses on institutions of higher education, highlighting the need for research at the basic education level. Thus, this study aims to address this gap by investigating technology peer mentoring in South Africa, a developing country where the integration of technology in classrooms is still in the nascent stage. Specifically, the study explores the implementation of technology peer mentoring to enhance the technological integration skills of business studies teachers. Given that business studies aims to equip learners with skills necessary for success in the technology-driven 21st-century business environment, it is imperative that teachers possess up-to-date technological integration skills. The findings of this study can provide empirical evidence on the implementation and efficacy of technology peer mentoring in the South African context. These insights can prove valuable to policymakers in designing future professional development programs centred on technology integration, with technology peer mentoring as a key strategy to enhance teachers' technological integration skills in South Africa.

1.2 Research questions

The following research questions were formulated to guide this study:

- What activities do business studies teachers engage in with their mentors as part of technology peer mentoring?
- How do business studies teachers utilise the technology integration skills they gained through technology peer mentoring to integrate technology in their classrooms?

2. Theoretical Framework

Social Exchange Theory was utilised as the theoretical framework for this study. The fundamental assumptions of Social Exchange Theory are that individuals in the workplace seek to exchange both tangible and intangible resources and establish trusting relationships in order to meet their needs (Emerson, 1972). This implies that in the workplace, mentors and mentees form mentoring relationships to fulfil their respective needs. In this study, business studies teachers establish relationships with their technologically proficient colleagues to acquire skills in technology integration. In return, the colleagues who provide technology mentoring to business studies teachers may receive mentoring and guidance on other aspects of the teaching profession. Proponents of Social Exchange Theory argue that mentoring relationships should be characterised by reciprocity, where both the mentor and the mentee benefit from the relationship. Additionally, Social Exchange Theory has proven to be valuable in analysing knowledge sharing (Kankanhalli et al., 2005). This is because Social Exchange Theory emphasises that both the mentor and the mentee should contribute to each other's professional development. Consequently, both parties invest time and effort in the mentoring process, making it mutually beneficial. As a result of the mentoring process, the mentee gains professional development, which can lead to career advancement. The mentee also gains a role model through the mentoring process.

For business studies teachers, having a technology mentor can provide them with role models for technology integration. Consequently, engaging in technology integration may be less frustrating for them because they receive support and guidance from individuals who demonstrate how technology can be integrated to enhance teaching and learning. Social Exchange Theory is also associated with enhancing intrinsic satisfaction rather than solely focusing on tangible rewards (Sedighi et al., 2016). Through mentoring relationships, individuals can acquire knowledge and skills that allow them to be recognised within a specific community. Hesketh and Costa (1980) assert that Social Exchange Theory promotes the idea that a mentoring relationship should result in the mentee acquiring competence, status, and appreciation that elevate their standing in the world. This suggests that

through a technology mentoring relationship, business studies teachers may acquire technology integration skills that make them competent in incorporating technology into their classrooms.

Social Exchange Theory was deemed appropriate for this study because it provides valuable insights into mentoring relationships. SET views mentoring as a reciprocal process where both the mentor and the mentee benefit. By adopting SET as the framework for this study, it was possible to understand how business studies teachers invest their time and effort in technology mentoring to enhance their technology integration skills.

3. Methodology

This qualitative study is situated within the interpretive paradigm. Employing a qualitative research approach allows the researcher to gain insights into the perspectives of the participants (Hancock et al., 2001). This was also the case in this study, as the perspectives of business studies teachers were thoroughly explored through the adoption of a qualitative research approach. An exploratory case study design was chosen for this study. Yin (2003) describes exploratory case study research design as an empirical inquiry that explores a contemporary phenomenon within its real-life context, particularly when the boundaries between the phenomenon and the context are unclear. This study specifically examines the integration of technology by teachers, which is considered a contemporary phenomenon, especially in South African schools located in rural areas. A purposive sample of six business studies teachers from six secondary schools in the Kwa-Zulu Natal province of South Africa was selected. The selection was based on the criteria that the teachers taught business studies in the selected schools and were participating in technology peer mentoring. Data was collected through semi-structured interviews, which allowed the researcher to ask probing questions. Thematic analysis, as guided by Braun and Clarke (2006), was utilised to make sense of the data. Following the requirements of thematic analysis, data analysis involved transcription, initial coding, the development of initial themes, consolidation of themes, and refinement of themes. The emerging themes from the data analysis were used to report the findings.

3.1 Ethical consideration

This study adhered to all ethical standards required for empirical research involving human subjects. Permission to conduct the research was obtained from the academic institution where the study took place, as well as from the Department of Education in Kwa-Zulu Natal and the authorities of the research sites. Participants were provided with detailed information about the study and were asked to sign consent forms. The participants' rights, such as anonymity and the option to withdraw from the study at any time, were explained to them. In order to protect their identities, teachers are referred to as BST1- BST6 in this study, in compliance with ethical guidelines.

4. Presentation of Results

The data are presented under the two main themes that emerged from the data. These two themes are: activities associated with technology peer mentoring and the actual integration of technology by teachers.

Theme 1: Activities associated with technology peer mentoring

This theme focuses on the activities that business studies teachers participated in with their technology mentors as part of technology peer mentoring. The participants' commentaries revealed that Computer Applications Technology (CAT) and Information Technology (IT) teachers played a crucial role in mentoring business studies teachers on technology integration. For instance, BST1 mentioned that an IT teacher served as his technology mentor. He stated:

> *"The IT teacher assists me a lot because there are always new gadgets coming in and so he helps me to integrate them in my lessons, for example, we used to use CDs to teach, but now*

> *we have USBs, data projectors and so on...so he helps me to understand how to use those tools in my classrooms."*

Based on the assertions made by BST1, it is evident that he receives ongoing mentoring from the IT teacher regarding technology integration. Whenever new gadgets are introduced, the mentor instructs BST1 on how to use them to enhance his teaching practices.

Furthermore, BST4 get mentoring from the CAT teacher. She stated:

> *"I continuously get assistance from the CAT teacher because he is also a technician, so he is knowledgeable on technology issues, and he is familiar with integrating technologies when teaching."*

A commentary from BST4 suggests that she trusts the CAT teacher to guide her on technology integration because he is also a technician. This assertion implies that BST4 believes the CAT teacher possesses extensive knowledge of technology integration, and therefore, BST4 will benefit greatly from her mentor's expertise.

In BST6's school, it appears that the IT teacher not only serves as a technology mentor to individual teachers but also provides workshops on technology integration to the entire school. This is evident from BST6's sentiments below:

> *"I also attend workshops where the IT teacher introduces us to the various methods of using ICTs in our classrooms. For instance, he taught us how to use ICTs such as Interactive White Boards (IWBs) in our classes."*

The provision of workshops for all teachers by an IT teacher is commendable because it empowers a larger number of teachers within the school. More teachers gain technology integration skills, and they can serve as technology mentors to other teachers who need support in integrating technology in their classrooms.

From this theme, it became evident that most business studies teachers relied on their CAT and IT colleagues to mentor them on technology integration. This indicates that most teachers come from schools that do not have IT specialists responsible for guiding teachers on how to integrate technology. Only BST5 indicated that in her school, there is a designated IT specialist who provides support to teachers on technology integration. He said:

> *"There is an IT specialist that is on the plant (school). He is here for a Maths programme but now he assists all teachers to provide technical support."*

Based on the BST5 commentary, it is evident that she receives guidance from an IT specialist who was initially brought to the school for a Maths project, but is now responsible for assisting all teachers. However, it is unclear from BST5's comments whether the IT specialist serves as her mentor for technology integration, or if he only provides occasional technical support when the teacher encounters difficulties with integrating technology. Additionally, some IT specialists deployed to schools may lack pedagogical knowledge and possess only technological skills, which may not be as helpful for teachers in their efforts to integrate technology effectively in their classrooms.

Theme 2: Actual integration of technology by teachers

This theme explores how business studies teachers utilise the technology integration skills they acquire from the mentoring process to incorporate technology in their classrooms. Evidently, business studies teachers feel empowered by technology peer mentoring and subsequently apply the skills they gain from this mentoring to effectively integrate technology into their teaching practices.

> *"I use technology during lesson preparation where I decide on the videos that would help me to enhance my teaching. I take videos from learning channels, and I also download clips during lesson preparation. Then, during the lesson, I show learners those clips by playing them and linking them with the content I teach"- BST2.*

The teacher's assertion above shows that the technology integration skills she gains from technology peer mentoring empower her to decide which educational videos are available on the internet to integrate into her lessons. It is important for teachers to be able to examine and choose specific educational videos to enhance their lessons, as not all videos on different learning channels are suitable for business studies lessons. The teacher's choice of a particular video should be based on the educational value it will add to the lesson.

Furthermore, BST3 revealed that he uses his technology integration skills to incorporate various technologies in his classroom, such as a data projector and a laptop, to display real business scenarios. This allows learners to engage in the problem-solving process. He articulated:

> *"I use technology to display different challenges faced by real businesses so that learners can come up with novel ideas as part of solving a business-related problem. Using technology like this also helps me to facilitate brainstorming to get learners thinking about innovative solutions to a real business problem"- BST3.*

Based on the comment above, BST3 uses the skills gained from the technology peer mentoring process not only to integrate technology into his lesson presentations but also to facilitate learning activities that have the potential to enhance learners' problem-solving skills. By projecting real business scenarios using technology, learners are able to see a business-related problem displayed on the screen for them to solve. The teacher can also take advantage of technological tools such as laptops and data projectors, as these tools allow the teacher to display more than one business scenario at a time. This can help learners compare, contrast, and evaluate different real business scenarios, enriching their brainstorming activities and enhancing their problem-solving skills.

In their classrooms, BST5 and BST6 use their technology integration skills to expose learners to learning activities that have the potential to nurture their entrepreneurial skills. For example, BST5 mentioned that she uses technology to design learning activities that require learners to develop documents needed when starting a business venture. She underscored:

> *"I use technology to ask learners to develop business-related documents such as business plans. As they do business plans, learners have to come with the name of their proposed business, logo, and the projected budget of their individual businesses".*

According to the BST5 commentary, it is evident that she provides learners with learning activities that enhance their entrepreneurial skills while integrating technology. This approach to teaching business studies represents a departure from the traditional way it was taught. In the past, learners were taught how to develop business documents like business plans without actively engaging in the practical development process as part of their learning.

BST6 also give learners activities that would enhance their entrepreneurial skills:

> *"I give learners learning activities that require them to use technological tools such as computers to do projects such as advertisements, invitation cards, and posters. After marking those projects, I advise them to sell those items to their friends or in the community".*

According to the BST6 commentary above, it is evident that she also utilises her technology integration skills to foster the entrepreneurial abilities of business studies learners. When teachers implement activities that encourage learners to utilise technology in creating products that contribute to their business acumen, it demonstrates that some business studies teachers comprehend how

technology can influence the learning outcomes of their learners. This could be attributed to the fact that business studies teachers possess both content and pedagogical knowledge. By engaging in peer mentoring, they acquire additional skills that enable them to achieve the objectives outlined in the business studies curriculum.

5. **Discussion of Findings**

This study aimed to explore how technology peer mentoring enhances the technology integration skills of business studies teachers in selected schools in South Africa. The study revealed that business studies teachers primarily relied on Computer Application Technology (CAT) and Information Technology (IT) teachers to serve as their technology peer mentors. This reliance was due to a lack of designated IT specialists in their schools, making CAT and IT teachers the only individuals with technology integration skills. The study also found that business studies teachers received continuous and developmental support from their technology mentors, likely attributed to the full-time presence of CAT and IT teachers in schools. This finding aligns with previous research indicating that teachers prefer ongoing support for technology integration. The proponents of the Social Exchange Theory also support the idea that continuous support from mentors enables mentees to gain competence and skills. In this study, business studies teachers demonstrated competence in technology integration as a result of technology peer mentoring. Existing studies have similarly highlighted the important role of peer mentoring in strengthening technology integration in teaching and learning.

Additionally, this study discovered that business studies teachers integrate technology to design learning activities that cultivate learners' problem-solving skills. This finding underscores the impact of technology peer mentoring on teachers' technology integration skills and confirms that business studies teachers use these skills to equip learners with the 21st-century skills demanded by businesses. This finding aligns with previous research conducted by Del Mundo (2022), which found that teachers' ability to integrate technology enables them to equip learners with 21st-century skills. Agaoglu and Demir (2020) further recommend that teachers integrate technology in their instruction to equip learners with the skills required in the 21st-century business environment. Therefore, it is clear that business studies teachers not only aim to gain technology integration skills to facilitate their instructional practices but also use these skills to advance learners' skills as mandated by the curriculum. In line with the assumptions of the Social Exchange Theory, the transformed instructional practices resulting from technology integration may increase business studies teachers' intrinsic motivation.

The findings suggest that teachers' pedagogical practices have shifted from being teacher-centered to learner-centered due to the introduction of technology in their classrooms. This change is evident in the learning activities implemented by business studies teachers to nurture skills such as problem-solving and entrepreneurial skills. Multiple studies have confirmed that technology integration is compatible with a learner-centered environment.

6. **Conclusions and Recommendations**

This study concludes that technology peer mentoring is an effective strategy for empowering teachers with technology integration skills. The findings reveal that tech-savvy teachers play a crucial role in mentoring their fellow colleagues on technology integration in the classroom. Additionally, the study shows that teachers who receive mentoring from their tech-savvy colleagues perceive the mentoring process as continuous and developmental. Peer technology mentoring leads to transformed pedagogy as teachers feel more confident exploring different teaching methods with technology in their classrooms, thanks to the ongoing support provided by their mentors. Based on these findings, it is recommended that schools in South Africa adopt technology peer mentoring as

a means to equip teachers with technology integration skills. By doing so, schools can avoid relying solely on training programs from the government or private sector.

However, it is important to note that this study has some limitations. For instance, schools without tech-savvy teachers may struggle to implement technology peer mentoring as a strategy to enhance teachers' technology integration skills. To address this issue, such schools should collaborate with neighbouring schools that have tech-savvy teachers and organise technology integration workshops for their own teachers. This will empower their teachers and some may acquire technology integration skills from these workshops, which they can then pass on to their colleagues as part of the peer mentoring process. Consequently, schools should view technology peer mentoring as an ongoing initiative rather than a one-time event. Furthermore, tech-savvy teachers who are expected to serve as technology peer mentors already have full teaching loads. Some may view peer mentoring as an additional burden, resulting in their reluctance to participate. To overcome this, schools should emphasise the importance of reciprocal peer mentoring, where both parties benefit from the mentoring process. For example, technology peer mentors can receive mentoring on other aspects of the teaching profession from the colleagues they are mentoring on technology integration. Approaching mentoring as a two-way process may encourage tech-savvy teachers to view technology-peer mentoring in a more positive light.

For future research, studies of this nature should sample technology-affluent teachers who serve as technology mentors to gather their perspectives on their roles as mentors to teachers in need of technology guidance. Furthermore, a quantitative study should be conducted with a larger sample size of teachers to enable the generalisation of the study's findings in different contexts.

7. Declarations

Conflict of Interest: The author declares no conflict of interest.

Data Availability: Data for the study is available in the text and could be officially requested from the corresponding author.

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