Social networking as teachers' innovative mode to enhance teaching: A case study of teachers in Bojanala District North-West Province[1]

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ABSTRACT

Social networking is increasingly becoming a popular platform that helps teachers connect with their colleagues, learners and other professionals globally. This tool enables communication and strengthens ties by sharing information over the internet. The purpose of this research was to explore secondary-school teachers' experiences of using social networking tools as an innovative mode to enhance teaching. This paper is founded on a qualitative research approach to understand teachers' experiences of using social networking tools in their teaching. Drawing from Vygotskian social constructivist theory, the account for the use of social networking tools was understood. Eight secondary-school teachers were purposefully sampled to share their practical experiences of using these tools. Data were generated using semi-structured interviews and document analysis. The thematic data-analysis process was suitable for this study. The data coding led to the formation of themes. The research questions used to guide this study were (i) How do secondary-school teachers use social networking tools to enhance teaching? and (ii) What support do secondary-school teachers receive for integrating social networking tools in teaching? The findings revealed secondary-school teachers' limited knowledge of using social networking tools to enhance teaching. It is recommended that teachers be provided with undisrupted internet connection. That would enable them to interact and share information using social networking tools. Teachers should be trained on the use of social networking tools, and this training should include the three components of Vygotsky's zone of proximal development: more knowledgeable other, social interaction and scaffolding.

Keywords: connectivism, experiences, innovative, internet, social networking tools, secondary-school teachers

INTRODUCTION

The emergence of social networking represents a paradigm shift in terms of how teachers engage with and use technology to collaborate and share knowledge in everyday life (Ractham & Firpo, 2011). The context of teaching is moving away from face-to-face interaction to virtual (online) interaction by using social networking tools in teaching. These tools have rapidly become popular as the vehicles used to share knowledge in a generated environment that fosters collaboration and cooperation (Li et al., 2012). Social

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networking tools allow communication between users and strengthen the ties between them in the space of the internet (Zaidieh, 2012). It is becoming increasingly important for teachers to explore the existing opportunities provided by these new technologies (Seaman, 2013). Learners are unique individuals in a teaching and learning environment. Therefore, teachers as agents of educational transformation should accommodate their uniqueness by transforming content delivery using various technological devices. In the context of this study, social networking is important for teachers and learners as its use can encourage collaboration and active learning (Dany, 2017).

Learners in the 21st century can multitask in a teaching and learning environment that is not confined to the four walls of a classroom but in an environment that enables them to see representations of real-life situations. According to Alabdulkareem (2018), social media plays a major role in widening the limits of teaching from class walls to being within a community of practice (COP).

While the use of social networking tools has made learning easier and faster (Dany, 2017), teachers need to understand the magnitude of this new style of learning. However, Alabdulkareem (2018) claims that teachers are more likely to embrace social networking if their use connects with pedagogical strategies that improve the delivery of subject content. It is teachers' responsibility to facilitate the learning environment, and this could be done by employing social networking tools, but, at the same time, they should provide learners with the necessary skills in the context of social learning (Gorghiu et al., 2018).

Ideally, the power of using social networking tools is reflected in interactions: the more learners communicate, the more they become innovative and accountable for their learning, and, most importantly, take ownership of their learning. As learners navigate social networking tools, they develop 21st-century skills, which, according to Shelly, Gunter and Gunter (2015), include critical thinking, problem-solving, communication, collaboration, creativity and innovation. These skills enable them to face challenges in rich, technological learning environments. Hence, teachers' knowledge of social networking would assist to develop learners' 21st-century skills. This study provides an overview of how secondary-school teachers use social networking tools as an innovative mode to enhance the delivery of subject content.

Following the above introduction, this article is organised as follows: firstly, the problem statement explains the motive for writing this article; secondly is the literature review, which embraces other authors' opinions about the use of social networking tools as innovative tools to enhance the delivery of lessons. The research methodology is discussed in section three. Fourthly, Vygotsky's social constructivist theory is discussed, followed by research findings in section five. This article ends with recommendations section and a conclusion. The term 'social networking tools' in this study is used interchangeably with 'social media' to describe communication undertaken via the internet.

PROBLEM STATEMENT

Teachers in the 21st century have varying perceptions about the use of technology in teaching and learning. In my experience as a former Computer Application Technology teacher, I noted that teachers in the district where this study was conducted used laptops and desktop computers to enhance teaching and learning. The computers were not connected to the internet, and so the use of social networking tools was sacrificed. Teachers showcased computer literacy, which, according to Shelly et al. (2012), entails knowledge of computers and how to use them in teaching and learning. Conversely, they lacked integration literacy, which implies the ability to use modern technology to help reinforce core strategies of the curriculum (Gunter & Gunter, 2015). I noticed teachers did not engage with social networking tools in teaching and learning but rather used computers that were not connected to the internet in their everyday classroom activities. For example, most of the teachers created slides and used Microsoft PowerPoint to deliver their lessons. I cannot deny that using slides eases the flow of the lesson presentation, but its

drawback is that learners simply absorb information passively and are not actively involved in learning. Unfortunately, they may not benefit from this teacher-centred approach as it is limited to the information transmission mode of delivering content. This study explored secondary-school teachers' experiences of using social networking tools as an innovative mode to enhance teaching. Abe and Jordan (2014) assert that social media provide educators with the exciting new opportunity to connect with students in a manner that continues to provoke thought and discussion outside of the classroom setting.

In addition, the South African Education e-Education policy (2004) mandated teachers to integrate technology in teaching and learning and assist learners in becoming technologically informed by 2013. This is a cause for concern in South African schools. Integration of social networking tools in teaching and learning is mandatory as with all other digital technologies. The use of social networking tools would undoubtedly be an added, innovative teaching mode that assists teachers in augmenting their delivery of subject content. This article draws on a major study that investigated secondary-school teachers' information and communication technology (ICT) competencies in teaching and learning.

LITERATURE REVIEW

The use of social networking tools in teaching and learning

Learners' reliance on social networking tools is undeniable (Sacks & Graves, 2012). They are constantly active on social media, transmitting information to peers and families and other connections (Fuglei, 2014). Teachers should take cognisance of learners' reliance on these tools and develop lessons that suit learners' learning styles. Veletsianos and Navarrete (2012) found that learners enjoyed and appreciated the social learning experience provided by social networking tools: supporting one another, and enhancing their own experiences and those of others. For Burns (2017), using social media is an easy way for teachers to integrate technology in teaching and learning. Teachers can create a collaborative learning environment and post learning activities that would encourage learners to share knowledge and skills. Burns (2017) demonstrated that the integration of social media in teaching and learning is a great way to interact with learners and parents wherever they may be. Moreover, social media can provide learners with a better understanding of the interconnected nature of the 21st-century world. Fuglei (2014) shared the same sentiments. She indicated that teachers could use social networking to help their learners connect and collaborate at a deeper level. These networks provide shy learners a comfortable space to interact with their peers (Fuglei, 2014). If teachers do not use social networking tools to deliver lessons, who will do it? It is worth trying because 21st-century learners are self-taught when it comes to operating technological devices. If used appropriately by teachers, social networking tools can pave new ways of learning and learners' career paths.

Teachers can create and post information about study materials, examinations, and other scholastic information to learners. They can share a wealth of study information that they would not have had access to in the 20th century. It is also ideal if a teacher initiates collaboration by posting a threaded discussion in a platform; this would stimulate an interactive learning environment.

Table 1:
Illustration of some examples of social networking tools highlighted by different authors

Social networking tool	Usage
Blogs	Teachers can use blogs to enable the collaboration and sharing of information (Foroughi, 2015). Learner-learner interaction works well in blogging. Learners get the opportunity to experiment with connecting their thoughts and ideas across this platform (Knight & Rochon, 2012).

Social networking tool	Usage
LinkedIn	Teachers can be encouraged to participate on LinkedIn to pursue their professional development by sharing in-depth information, making comments and guiding each other. They can engage with other teachers globally (Liu, 2010).
Podcasts	This tool offers the opportunity to easily broadcast using audio content, which learners can listen to anytime, wherever they are (Gray, 2017). A teacher can use this platform to clarify some key concepts included in lesson delivery. It can be downloaded to mobile devices for ready accessibility and learning can take place anytime 24/7.
YouTube	A teacher can explain the key concepts of a subject by using this tool (Oxford University Press, 2011). YouTube videos can also be utilised when learners conduct a project and have been asked to present their findings through it.
Facebook	A teacher can ask the learners to post photos to augment their findings on a particular topic (Edudemic Staff, 2015). Then learners can amend or make some inputs to the topic. This device enables collaborative learning and the sharing of scholastic content (Bouhnik & Deshen, 2014). The users also experience a fluent conversation (Bouhnik & Deshen, 2014).
Twitter	Hashtag-driven chats on Twitter encourage learners' interactions and a teacher can ask them to collaborate on matters pertaining to real-time data collection, class field trips and other related scholastics tasks (Fuglei, 2018). Announcements and reminders can be done through Twitter. Learners can also be tasked with posting their favourite study pictures or comments on this platform. It is doable and enables collaborative learning and the sharing of scholastic content (Bouhnik & Deshen, 2014).
Instagram	A teacher can ask learners to do artwork through Instagram (Edudemic Staff, 2015) and display evidence thereof by posting their work. This platform enables learners to showcase their creativity.
WhatsApp	Learners can access learning materials. It enables collaborative learning and the sharing of scholastic content (Bouhnik & Deshen, 2014). In addition to chatting, this platform has voice calls, voice recording and status updates that can be used to augment learning. A WhatsApp group also allows fluent conversation (Bouhnik & Deshen, 2014).
Email	A teacher can instruct learners to use it to contact a subject specialist to ask for clarity on a particular concept. In addition, participants are enabled to collaborate and share scholastic content (Bouhnik & Deshen, 2014). This platform can be used to facilitate interaction and information sharing among teachers and learners.

Table 1 illustrates how learners and teachers can engage with each other by sharing information outside classrooms and how learners are provided with the opportunities to learn on their own. They are excellent platforms for sharing information and resources. The common element in all these tools is that they are designed for collaboration and discussion. Learners, in most instances, use social media tools for their personal lives, but it is the responsibility of a teacher to shift their mindset and let them know that these same tools can be used to augment their learning. Hence, teachers should recognise that these devices are suitable for teaching and learning. Alabdulkareem (2018) noted that both teachers and students use social media to interact with others in their personal capacity and not for educational purposes.

Interaction plays a major role in the use of social media tools. In support of interaction, the use of social media tools assists teachers in becoming competent connectors of information. The more teachers know about the effective uses of social media tools for teaching, the better and more fruitfully teaching takes

place. However, they need to use social media tools wisely and assess their impact carefully. Otherwise, they may find learners failing to make connections between the intended learning outcomes and their social media activities (Seaman, 2013). Teachers who wish to embrace social media tools to enhance their teaching are advised to follow the steps listed below (Bell, 2009: 7):

- Follow the blogs of those who innovate with educational technologies
- Experiment (within your comfort zones) with web services and tools that might enrich teaching and learning in your practice
- Use, publish and share resources through blogs, wikis, and photo- and video-sharing sites
- Encourage students to use the web for scholarly resources – being critical and selective, and attributing sources
- Assign student activities that enable the effective use of media to report processes and, where appropriate, outcomes.

The bulleted information above illustrates that the use of social networking tools has made teaching and learning more open in the 21st century than in the 20th century. Teachers should tap into the distribution of content knowledge and skill, which is made possible by social networking tools. The sharing of thoughts now strengthens ties in teaching, without boundaries. A teacher's experience in a COP would assist in motivating learners to connect and learn with peers worldwide.

RESEARCH METHODOLOGY

An interpretive research paradigm was used in this study to explore teachers' experience in the use of social networking tools as an innovative mode to enhance teaching. A qualitative research method was used as knowledge was acquired from a natural setting (Bertram & Christiansen, 2020). Creswell (2007) maintains that the problem in a qualitative research process is studied in its natural settings. In the context of this study, the participants shared their experiences of using social networking platforms in the natural environment of four secondary schools. I used a multiple case study research design in order to develop a more extensive description of the issue being explored. These multiple case study locations were two secondary schools, which had computer laboratories fully furnished with computers, and another two schools, which were under-resourced in terms of ICT infrastructure. One school was situated in an urban area and the three others were in rural areas. Geographical proximity was the key criterion which led to the selection of the secondary schools.

Sample selection

The data sources were eight secondary-school teachers who were purposively sampled. The selection was based on their knowledge of using technology in teaching. Convenient sampling was also applied as the principals of the selected secondary schools assisted by requesting teachers who were available and who would share the most information about the phenomenon under scrutiny to take part in the study. I explained to them the purpose of the research and their roles in the study. Upon agreement, they signed informed consent forms. All eight teachers participated voluntarily. For Creswell (2007), sampling works well when participants are willing to share their experiences about the phenomenon being studied. The participants ranged between 30 and 40 years of age. They were six males and two females. Their ICT qualifications varied widely. One of them had no ICT-related qualification; the use of ICT in teaching and learning was driven by passion. Two received Computer Application as a course; one acquired ICT skills at a university; one had an Honour's degree in Multimedia Integration Program (MIP); one obtained a Bachelor of Technology in Information Technology (BTech-IT); one had a Bachelor of Science in Information Technology (BSc IT); and one had a certificate, an Advanced Diploma in Information Technology (AD

IT). As the focus was on the exploration of the use of social networking platforms, there was no specific reason intended on the subject offered by the participants. *The purpose of this study was to explore their experiences of using social networking tools as an innovative mode to enhance teaching*. One participant offered Computer Application Technology, three of them taught Mathematics, one Accounting, two Physical Sciences, and one Life Orientation.

Data collection

Data were generated using semi-structured interviews and document analysis. Semi-structured interviews were conducted face to face with participants at their respective schools. Individual participants were interviewed for approximately 45 minutes, but the duration depended on the deliberation. The first section of the interview guide elicited demographic information, which was limited to gender and age, from the participants. The last section was guidance on asking open-ended questions. The participants responded to nine open-ended, semi-structured interview questions. Prompting was applied which gave room to draw in-depth data about *how secondary-school teachers use social networking tools to enhance teaching*. The opinions unearthed were recorded with the permission of the participants.

Document analysis was used to address the question: *What support do secondary-school teachers receive for integrating social networking tools in teaching*? The following documents were requested from four principals: staff-meeting minutes, a policy on integrating technology in schools and the participants' lesson plans. The participants were requested to submit their technology-integrated lesson plans. The participants' lesson plans were requested to find out if they included the use of social networking tools in their lesson plans and how they use these tools. The teaching and learning activities would assist in this regard. The purpose of requesting the staff-meeting minutes was to find out whether the use of social networking tools in a school was discussed in their staff meetings. It was also important to find out the availability of the schools' ICT policies, which could have been used as a guide to implementing social networking tools in teaching. The aforementioned documents played an essential role in the study as they contextualised the practical experience of social networking tool usage in schools.

Data Analysis

Data analysis was done using Creswell's (2007) process of data analysis. The semi-structured interview allowed the researcher to gather data and to manually transcribe document analysis data. Participants' responses were organised and sorted in tabulated form to facilitate analysis. 'In this process the researcher looks for categories, themes and patterns in the data' (Bertram & Christiansen 2020: 133). This process was followed by code formation through noting the relationships between the categories. The themes emerged. Then the reporting and the interpretation of information were displayed, which consisted of verbatim quotes from interviews.

Ethical considerations

McMillan and Schumacher's (2010) guidelines on ethics were adopted. These included voluntary participation, informed consent, anonymity and confidentiality. From the outset, the participants were informed that participation in the study was voluntary and that they could be exempted from participation if they so wished. They were informed of the purpose of the study and the roles they were being asked to fulfil. Upon agreement, each participant was requested to complete an informed consent form. Anonymity was maintained by using letters of the alphabet instead of their names; they were designated as Participants A to H. In terms of confidentiality, the participants' names were kept secret and were not published.

Validity

Babbie and Mouton's (2012) credibility measure to ensure trustworthiness was used. Member checks were used to address credibility. This was done by requesting that the participants verify whether information

gathered tallied with what transpired in the fieldwork. Triangulation of sources was employed using different data sources. The same questions were used to interview participants at their respective schools at different times.

SOCIAL CONSTRUCTIVIST THEORY

Vygotsky's social constructivist theory was applied in this study as it stresses the fundamental role of social interaction in the teaching and learning environment. This theory is called 'social constructivist' because learners benefit from social interaction in the learning process with the assistance of other people (McLeod, 2019). This study aligns with Vygotsky's social constructivist theory to investigate teachers' experiences as they interact with learners in the platforms using social networking tools.

Vygotsky's (1896-1934) theory was based on the fundamental aspect of the zone of proximal development (ZPD). The ZPD, according to McLeod (2019), is the difference between what a learner can do without help and what the learner can achieve with guidance and encouragement from a more skilled person. Vygotsky believed that, when a learner is in the ZPD for a particular task, providing the appropriate assistance will give that learner enough of a boost to perform the task (McLeod, 2019).

Three important components of ZPD are noted: (i) the more knowledgeable other (MKO), (ii) social interaction and (iii) scaffolding (McLeod, 2019). According to (McLeod, 2019), the 'MKO' refers to the assistance provided by a person who is more knowledge about and more skilled in a task than a learner. The MKO, in the context of this study, was the expectation of the participants to assist learners with content knowledge and to initiate discussions as experts in the subject they offered using social networking tools.

'Social interaction' refers to technological knowledge displayed by someone for learners to practice the same skill (McLeod, 2019). Within this study, the participants were expected to get the collaboration off the ground by using verbal cues and prompts to assist learners (Gunter & Gunter, 2015), when the need arose. Furthermore, they were expected to be technologically savvy in terms of navigating a platform and facilitating a collaborative learning environment using social networking platforms.

'Scaffolding', according to (McLeod, 2019), is referred to as supportive activities provided by a teacher to learners as they are led through the ZPD. Scaffolding is proposed in this study as teachers were expected to provide learners with subject activities that would enable and support learners to achieve the learning outcomes.

THE FINDINGS

In an effort to determine whether secondary-school teachers used social networking tools as an innovative mode to enhance teaching, I presented the empirical findings with the participants' verbatim extracts supported by the literature. Teachers' experiences were explored using semi-structured interviews, an open-ended question guide and a document analysis checklist to gather data. The discussion section was based on the themes that emerged from the findings, and these included (i) unfamiliarity with social networking tools, (ii) sharing of information and (iii) internet inaccessibility.

Semi-structured interviews

Unfamiliarity with social networking tools

Reporting on the research follows below and is based on the following questions: (i) How do secondary-school teachers use social networking tools as an innovative mode to enhance teaching? and (ii) What support do secondary-school teachers receive to integrate social networking tools in teaching? To make it more focused, the participants were provided with the following examples of social networking tools:

Twitter, Facebook, Mxit, WhatsApp, chat rooms, wikis, mailing lists, email and the Thutong portal. They were expected to share their knowledge of selecting the appropriate tools for their lessons and how to use those tools.

The findings revealed that most of the participants were unfamiliar with the use of the social networking tools. However, some of them mentioned the use of email. Email was used as a communication tool between secondary schools and the circuit managers' offices. The following excerpt demonstrates the use of emails:

> Yes, we receive e-mails daily from the Area Office or send information to them, in terms of teaching and learning, no. (Participant A)

From the empirical findings above, it is evident that the majority of the participants were unfamiliar with the use of social networking tools but could use email to communicate with district officials on issues pertaining to their work. The use of email could have been an innovative way used by teachers to reach learners and make learning stimulating in the teaching process. This revelation is confirmed by social interaction led in ZPD of Vygotsky' social constructivist theory. The theory emphasises that important learning occurs through social interaction with a skilful tutor (McLeod, 2019). The participants could have used emails to interact with learners or send them information as attachments and further deliberate on the attachment as learning enrichment for an activity. Bouhnik and Deshen (2014) declare that email has become an educational tool that enables collaborative learning to take place beyond confined time.

Sharing of information

The findings revealed that three out of eight participants used the Thutong portal as the available platform for sharing information. The following comments evidence the use of this platform:

> We use it frequently like searching for question papers. (Participant B)

> Download questions from item bank to get support material. (Participant D)

The Thutong portal platform was created to share scholastic information and skills among South African teachers (Isaac, 2007). However, according to the findings above, only three participants accessed this platform. They had found it very helpful as they were able to download scholastic information or sources for their subjects. They could also share their teaching experience with colleagues. Accessing the Thutong portal to download online pedagogic sources appears to be advantageous as the participants could provide learners with relevant information about various activities included in their subjects. Be that as it may, scaffolding evidences the support provided by teachers to enable learners to achieve tasks that may be beyond their current capability.

Internet inaccessibility

Moreover, the participants unanimously indicated internet shortage as the most challenging barrier for them in accessing social networking tools. They further indicated that they had to buy data to use email and search engines. One participant from School A indicated that they received data-bundle assistance from a neighbouring mine. The following excerpt evidences assistance from the mine:

> The mine also assists us with the connectivity. They have given us a router and we bought a SIM card but the data bundles, we had to buy those ourselves. (Participant B)

According to the findings above, internet inaccessibility frustrated the participants as, without the internet, sharing of information through social networking tools would not be possible. The use of social networking

tools is impossible without internet connectivity (Pichette, 2011); hence, schools must be committed to keeping internet services up and running for teachers to engage learners in social networking tools.

Hardman (2018), in addition, affirmed that the use of social networking tools requires the internet to create online accounts. In essence, this explains the participants' technological knowledge aligned to MKO: a teacher should possess relevant knowledge in order to guide learners on how to create a platform account and let them navigate a platform to become acquainted with it. The use of the internet makes it possible for teachers and learners to engage with various social networking tools that sustain the sharing of knowledge and technological skills. Limited internet connectivity, in the context of this study, prevented the participants from exploring social networking tools and interacting with learners as they might have modelled their expertise and led learners effectively through the ZPD. Vygotsky's social interaction confirms this as there is no interaction without the internet. The literature also evidences this concern as Zaidieh (2012) posits that internet connectivity plays an essential role in a space that allows interaction between users.

Document analysis

Staff meetings

With regards to document analysis, the following documents were read and studied: staff-meeting minutes, ICT policy and the participants' technology-integrated lesson plans. When reading and studying the documents submitted by the participants, the findings indicated that, in the staff meetings, the discussion centred around the use of ICTs in general. The site managers encouraged staff members to use technology to enhance teaching and learning and to attend ICT workshops. The findings showed support and a positive attitude displayed by the site managers at schools. However, the use of social networking tools remains a cause for concern as teachers still do not deliver content using them.

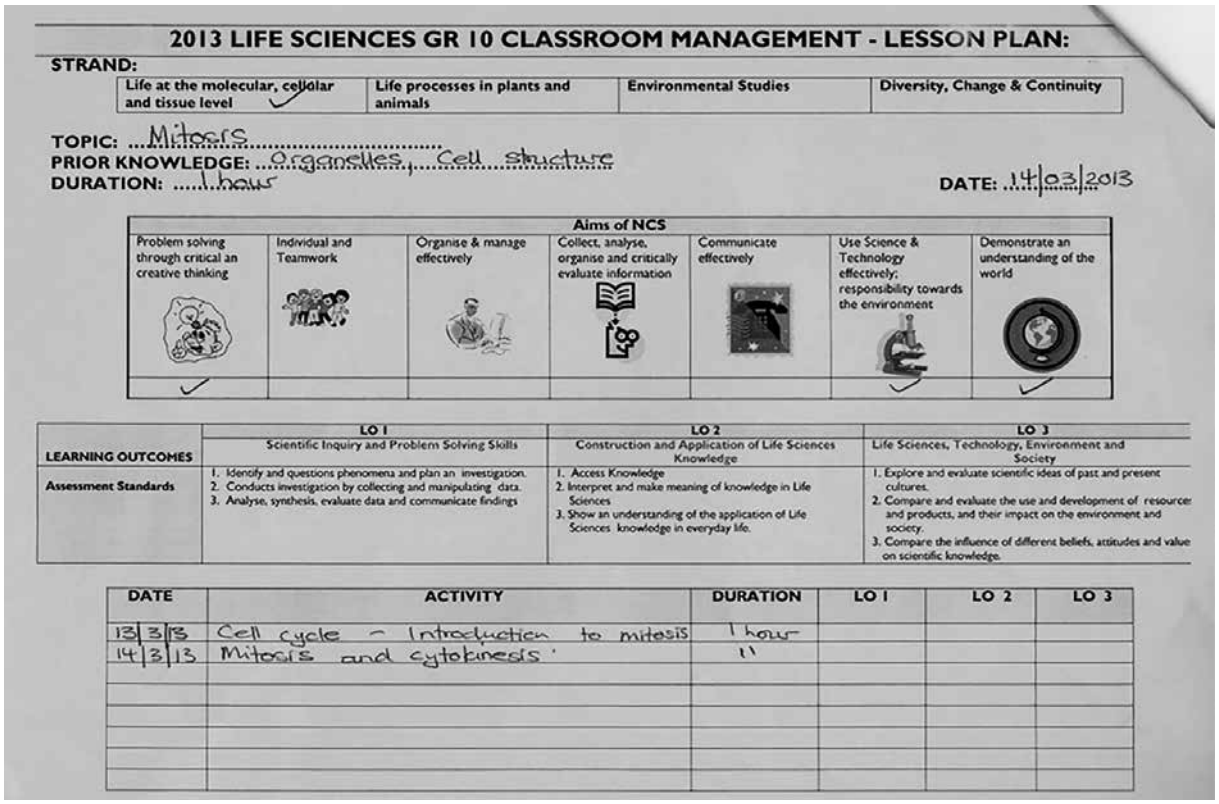
ICT policy

The findings have shown that all the schools have neither the department's ICT policy nor their schools' ICT policy. It is ideal for a school to have a policy that can be used to bring about the desired goal or objective concerning the use of technology in a school. The availability of an ICT policy at the selected schools could have provided teachers with information on how to plan and implement ICT usage in their classroom activities. Similarly, the department's ICT policy might have assisted the participants in mapping their way to using social networking tools. According to the South African e-Education policy (Department of Education, 2004), learners in South Africa were supposed to have been knowledgeable about technology by 2013. Surprisingly, the selected schools did not receive this support in terms of explaining and outlining the important issues pertaining to the use of platforms.

Lesson plans

The findings from the lesson plans indicated a weakness in terms of planning or preparing technology-integrated lessons. Most participants used readymade lesson plans provided by their subject advisors. Lesson planning is a highly professional skill that a teacher should acquire to enable facilitation of technology-integrated content. The use of a readymade lesson plan may compromise participants' expertise of selecting the relevant social networking tool to enhance teaching and learning. When planning to deliver technology-integrated lessons, teachers should have technological knowledge that would enable them to select the appropriate ICT to enhance their teaching. Koehler, Mishra and Yahya (2007) emphasised the importance of possessing technological knowledge: in-depth knowledge of selecting the appropriate ICT device to augment teaching and the ability to navigate such a device are important. In the context of this study, the participants were expected to have identified particular social networking tools that could have been used to enhance lesson delivery. In light of this view, teachers are expected to adopt new teaching strategies in the 21st century; otherwise, they will not be able to facilitate online learning using social networking tools (Seaman, 2013).

Figure 1:
A lesson plan used by one of the participants



2013 LIFE SCIENCES GR 10 CLASSROOM MANAGEMENT - LESSON PLAN:

STRAND:

Life at the molecular, cellular and tissue level ✓	Life processes in plants and animals	Environmental Studies	Diversity, Change & Continuity

TOPIC: Mitosis
PRIOR KNOWLEDGE: Organelles, Cell structure
DURATION: 1 hour
DATE: 14/03/2013

Aims of NCS

Problem solving through critical an creative thinking	Individual and Teamwork	Organise & manage effectively	Collect, analyse, organise and critically evaluate information	Communicate effectively	Use Science & Technology effectively; responsibility towards the environment	Demonstrate an understanding of the world
✓					✓	✓

LEARNING OUTCOMES	LO 1 Scientific Inquiry and Problem Solving Skills	LO 2 Construction and Application of Life Sciences Knowledge	LO 3 Life Sciences, Technology, Environment and Society
Assessment Standards	1. Identify and questions phenomena and plan an investigation. 2. Conducts investigation by collecting and manipulating data. 3. Analyse, synthesis, evaluate data and communicate findings	1. Access Knowledge 2. Interpret and make meaning of knowledge in Life Sciences 3. Show an understanding of the application of Life Sciences knowledge in everyday life.	1. Explore and evaluate scientific ideas of past and present cultures. 2. Compare and evaluate the use and development of resources and products, and their impact on the environment and society. 3. Compare the influence of different beliefs, attitudes and value on scientific knowledge.

DATE	ACTIVITY	DURATION	LO 1	LO 2	LO 3
13/3/13	Cell cycle - Introduction to mitosis	1 hour			
14/3/13	Mitosis and cytokinesis	11			

EDUCATOR'S ACTIONS	LEARNER ACTIVITIES	RESOURCES & SUPPORT MATERIALS	DAILY ASSESSMENT
Monitor	Brainstorm	Clinics	Diagram
Facilitates	Follows instructions	Charts	Calculation
Sets Questions	Observation / view	Pamphlets	Graph
Defining terms	Present info / communicate data	Playing field	Structured Essay
Form groups	Write report	Newspapers	Practical experiment
Questions & Answers	Demonstrate	Textbook	Worksheet
Demonstrate	Measure	Interviews	Assignment
Explain	Discusses	Library	Model
Support	Generate & questions hypotheses	Microscope	Class test
Notes	Evaluate	Magazines	Examination
Experiential Learning	Display	Nursery	Standardised test
Observation	Calculates	Zoo	Song
Contextualization	Set up experiment	Visit University	Role-play
Prepare workstations	Conduct experiment	TV	Oral presentation
Provide resources	Compare	Educational Software	Written report
	Research	Industry	Poster
ASSESSMENT FOR LEARNING	Record results/finding	Wetland	Team work
Sharing learning goals	Summarise	Case study	Interview
Strategic Questioning:	Manipulate data	Local people	Questionnaire
- Wait time	Interview	Community	Individual Practical
- No hands up	Note making	Town council	Table of data
- Talking Partners	Tabulate	Video	Group Investigation
Effective feedback	Draws / plot	Specialist	Drawing & Scaling
- Traffic light	Identify & question phenomena	Picture/Photo	Group Practical
- Thumbs	Collect data	OHP	Newspaper/-letter
Self assessment	Analyse data	Textbook	Case Studies
Peer assessment	Link with career	Poster	
	Entrepreneurial skills	Radio	**TYPES** / **METHOD**
	Plans investigation	Hospital	Baseline / Self
	Design tests/ surveys	Gauteng-Online	Diagnostic / Peer
	Consider implications	Internet	Formative / Group
	Identify advantages & limitations	Transparency	Summative / Teacher
	Explain	CAPS Document	
	Access information	Data projector	**TOOLS**
	Exercises	Bio viewers	Rating Scales
	Works co-operatively	Fresh specimens	Observation Sheets
	Select	Fixed specimen	Checklists
	Reaches/draw conclusion	Talk by someone	Rubrics
	Interpret data		Memoranda
			Other

HOMEWORK
Activity sheet 3.1

LTSM REFERENCES
Powerpoint presentation on the Cell cycle.

EXPANDED OPPORTUNITIES
Cell division in prokaryotes

SPECIAL NEEDS

ENRICHMENT

PROGRAMME OF ASSESSMENT

Practicals		Research Project	Control Tests		June Exam	End Year Exam	
1	2	1	1	2	1	1	1

√ - Tick in appropriate blocks

REFLECTION: _____

In Figure 1, the lesson plan template consists of two pages (used by Participant C). The second page of this lesson plan included various technological tools from which a participant was expected to choose. A tick was used to select what was appropriate for a lesson. However, the participant did not select any tool for the lesson. Despite the use of social networking tools, no learner support material was selected. For Gorghiu et al. (2018), the use of social networking tools may enhance learners' collaboration involved in various teaching and learning activities.

RECOMMENDATIONS

The findings reveal that teachers should take cognisance of the fact that the 21st-century learners' reliance on technology is undeniable (Sack & Graves, 2012). Teachers do not have a choice and are expected to assist learners in adopting new forms of delivering content (Dany, 2017). In light of this, I recommend that teachers be provided with continuous internet connection which would enable them to interact and share information using social networking tools. Thus, their pedagogical skills would be improved as they would interact and guide learners on platforms' functionalities, providing them with online sources and information to attain the learning outcomes.

In the findings, the site managers showed support by encouraging teachers to attend ICT workshops. With this revelation, I recommend ongoing training on the use of social networking tools for teachers. Training should include the three components of Vygotsky's ZPD. Acquiring knowledge of the three components will help teachers to model the MKO as content experts and scaffolding that lead to the attainment of task outcomes. The lack of ICT policies impacted negatively on the use of social networking tools as teachers had no guides to which they could refer.

CONCLUSION

The purpose of this study was to explore secondary-school teachers' experiences of using social networking tools as an innovative mode to enhance teaching. Examples of social networking tools have been identified and an illustration of their uses in teaching and learning has been made. The discussion has shown how teachers can use social networking tools as an innovative mode of delivering lessons. Vygotsky's social constructivist theoretical framework enabled clarification of a teacher's role in a teaching and learning space in terms of MKO, social interaction and scaffolding.

The findings revealed limited use of social networking tools in enhancing teaching. Nonetheless, the participants demonstrated a keenness to use technology to enhance teaching. But the use of social networking tools as an innovative mode to enhance teaching was compromised. The fact that schools struggled with data (internet connectivity) attested to the limitation of teachers' usage of social networking tools. The findings also revealed that internet inaccessibility was a barrier to the adoption of social networking tools. Furthermore, the document analysis revealed that there was no ICT policy that can guide teachers on how to use technology to enhance teaching available. The discussions of the use of technology in staff meetings showed an interest in engaging technology by the staff members; however, ICT potentiality needs to be exploited.

The findings have also shown flaws in the inclusion of social networking tools in lesson plans. The inclusion of social networking tools plays an essential role, as lesson plans indicate how a teacher could make content delivery more interesting and fruitful. Regardless of how challenging integrating social media tools in teaching and learning might be, teachers will never embrace them unless they know how to use them, as this study emphasises.

Within the South African context, teachers are encouraged to use digital resources in innovative ways to enhance teaching. Teachers who choose not to adopt social networking tools in teaching would lag

behind and not be on par with the developments brought by the 4th Industrial Revolution's technologies. The learners' use of social networking tools mirrors that of personal purpose. It is the duty of a teacher to assist them in changing the focus. The findings of this study necessitate research on how social media can develop teachers' pedagogical practices.

REFERENCES

Abe, P. & Jordan, N.A. (2014) Integrating Social Media into the Classroom Curriculum, https://blogs.ubc.ca/georginamartin/files/2014/10/Integrating-Social-Media-Into-the-Classroom-Curriculum.pdf (Accessed 28 August 2020).

Alabdulkareem, S.A. (2018) Social media in education: the absent attendee. *Problems of Education in the 21st Century* 76(5) pp.583-586, http://oaji.net/articles/2017/457-1540319805.pdf (Accessed 18 August 2020).

Babbie, E. & Mouton, J. (2012) *The practice of social research*. Cape Town: Oxford University Press Southern Africa. pps.71-126 & 269-311.

Bell, F. (2009) Connectivism: a network theory for teaching and learning in a connected world. 1-7, http://usir.salford.ac.uk/id/eprint/2569/1/ConnectivismEdDev.pdf (Accessed 23 April 2019).

Bertram, C. & Christiansen, I. (2020) *Understanding research: An introduction to reading research*. Pretoria: Van Schaik Publishers. pp.131-152.

Bouhnik, D. & Deshen, M. (2014) WhatsApp goes to school: Mobile instant messaging between teachers and students. *Journal of Information Technology Education: Research* 13 pp.217-231, http://oaji.net/articles/2017/457-1540319805.pdf (Accessed 23 April 2019).

Burns, A. (2017) Why teachers should be on social media, https://www.commonsense.org/education/articles/why-teachers-should-be-on-social-m (Accessed 23 April 2019).

Creswell, J.W. (2007) *Qualitative enquiry and research design: choosing among five approaches*. Thousand Oaks, CA: SAGE. Second Edition. pps.1-75 & 118-248.

Dany, R. (2017) Three major Educational Benefits of social media, http://www.musicthinktank.com/blog/3-major-educational-benefits-of-social-med (Accessed 23 April 2019).

Department of Education [DoE], South Africa. (2004) White Paper 7 on e-Education. Cape Town: Government Printers, pp.11-17.

Edudemic Staff. (2015) *How to Use Social Media as a learning Tool*, http://www.edudemic.com/how-to-use-social-media-as-a-learning-tool-in-the (Accessed 6 September 2017).

Foroughi, A. (2015) The theory of Connectivism: Can it explain and guide learning in the digital age? South Indiana. *Journal of Higher Education Theory and Practice* 15(5) pp.11-26, http://m.www.na-businesspress.com/JHETP/ForoughiA_Web15_5_.pdf (Accessed 14 May 2020).

Fuglei, M. (2014) *Social Media in Education: benefits, drawbacks and things to avoid*, https://education.cu-portland.edu/blog/leaders-link/educational-social-media- (Accessed 23 April 2019).

Gray, C. (2017) Podcasting in Education: what are the benefits, https://www.thepodcasthost.com/niche-case-study/podcasting-in-education/ (Accessed 4 September 2019).

Gorghiu, G., Iordache, D.D., Pribeanu, C. & Lamanauskas, V. (2018) Educational potential of online social networks: gender and cross-country analysis. *Problems of Education in the 21st century* 76(5) pp.620-632.

Gunter, G.A. & Gunter, R.E. (2015) *Teachers discovering computers: Integrating Technology in a changing world*. 8th Edition. United States: Cengage Learning.

Hardman, J. (2018) *Teaching with Information and Communication Technology* (ICT). Oxford University Press Southern Africa (Pty) Limited, pp.14-15.

Isaacs, S. (2007). *Survey of ICT and education in Africa: South Africa Country Report 46364. World Fact Book1*, https://openknowledge.worldbank.org/bitstream/handle/10986/10659/463640BRI0Box31ca010ICTed0Survey111.txt (Accessed 14 May 2020).

Knight, J. & Rochon, R. (2012) Starting online: Exploring the use of a social networking site to facilitate transition into higher education. *The Electronic Journal of e-Learning* 20(3) pp.257-262, https://files.eric.ed.gov/fulltext/EJ985427.pdf (Accessed 8 September 2019).

Koehler, M.J., Mishra, P. & Yahya, K. (2007) Tracing the development of teacher knowledge in a design seminar: integrating content, pedagogy and technology. *Computers & Education* 49 pp.740-762.

Li, M., Chen, G., Zhang, Z. & Fu, Y. (2012) A social collaboration platform for enterprise social networking. *Proceedings of the 2012 IEEE 16th International Conference on Computer Supported Cooperative Work in Design (CSCWD), Wuhan, 2012*, pp.671-677, doi: 10.1109/CSCWD.2012.6221890.

Liu, Y. (2010) Social Media Tools as a Learning Resource. *Journal of Educational Technology Development and Exchange (JETDE)* 3(1) Article 8, doi: 10.18785/jetde.0301.08 (Accessed 28 August 2020).

McLeod, S. (2019) The Zone of Proximal Development and Scaffolding, https://www.simplypsychology.org/Zone-of-Proximal-Development.html. (Accessed 27 August 2020).

McMillan, J.H. & Schumacher, S. (2010) *Research in education: evidence-based inquiry*. 7th Edition Upper Saddle River, NJ: Pearson Education Inc., pps.20–37 & 121–355.

Oxford University Press. (2011) Connectivism: a theory of learning for a digital age, http://oupeltglobalblog.com/2011/03/30/connectivism-a-theory-oflearning-fora-digital-age (Accessed 8 September 2019).

Pichette, P. (2011) Connectivism: teaching and learning, http://etec.ctlt.ubc.ca/510wiki/Connectivism:_Teaching_and_Learning (Accessed 8 September 2017).

Ractham, P. & Firpo, D. (2011). Using Social Networking Technology to enhance learning in higher education: A case study using Facebook. 44 Hawaii *International conference on system sciences*. Kauai, HI, USA, https://www.researchgate.net/publication/224221102 (Accessed 28 August 2020).

Sacks, M.A. & Graves, N. (2012) How many 'Friends' Do you need? Teaching students how to network using social media. *Business Communication Quarterly* SAGE 75(1) pp.68-88.

Seaman, J. (2013) *Social media for teaching and learning*. Hester Tinti-Kane. Pearson Learning Solutions and Higher Education, https://onlinelearningsurvey.com/reports/social-media-for-teaching-and-learning-2013-report.pdf (Accessed 28 August 2020).

Shelly, G.B., Cashman, T.J., Gunter, R.E. & Gunter, G.A. (2012) *Teachers Discovering Computers: Integrating Technology in a connected world*. Seventh Edition. Boston: CENGAGE learning.

Veletsianos, G. & Navarrete, C. (2012) Online social networks as forming learning environments: learner experiences and activities. *The International Review of Research in Open and Distance Learning* 13(1) pp.144-166, https://files.eric.ed.gov/fulltext/EJ979658.pdf (Accessed 28 August 2020).

Zaidieh, A.J.Y. (2012) The use of social networking in Education: Challenges and opportunities. *World of Computer Science and Information Technology Journal* 2(1) pp.18-21.