

WhatsApp at Tertiary Education Institutions in Nigeria: The Dichotomy of Academic Disruption or Academic Performance Enhancer?

by

Eucharia Chinwe Igbafe, Ph.D.

igbafeucharia@gmail.com

Postdoctoral fellow, Department of Psychology,
University of South Africa (UNISA)

&

Chinekpebi Ngozi Anyanwu, Ph.D.

chinadeca@yahoo.com

Lecturer, Department of Language, Arts and Media Education,
University of Kwazulu-Natal, South Africa.

Abstract

The purpose of this study is to investigate how WhatsApp disrupt or enhance students' academic performance. This study relied on a qualitative approach to investigate WhatsApp as both an academic disruptor and academic performance enhancer in tertiary education institutions. Participants were selected from two universities namely public and state universities. Snowball purposive sampling allowed for the selection of twenty students capable of providing deep insight into WhatsApp and education with informed consent. Data was collected through semi-structured interviews. Findings revealed that WhatsApp can cause academic disruption through addiction to non-educational communities, but also, it can enhance academic performance through building and improving students' community of learning. The study concluded that institutions, lecturers and literate friends and family members can enhance students' academic performance through WhatsApp functions by expanding the community of learning to enable them to acquire and share knowledge, therefore, the study calls for a wider use of WhatsApp to enhance academic performance and students via a focus on a community of learning.

Keywords: WhatsApp, academic disruptor, academic performance, Nigeria, tertiary education, institutions.

Introduction

Social networking sites are modern interactive communication channels through which people connect to one another, share ideas, experiences, pictures, messages and information of interest. Boyd and Ellison (2007, p.23) define social networking sites as: “Web based services that allow individuals to construct a public or semi-public profile within a bounded system”. Onomo (2012) acknowledged this ability of the media by remarking that social networking sites has become “a widespread tool for communication and exchange of ideas, helping individuals and organizations with just causes to reach a phenomenally vast audience that could hitherto not be reached by traditional media.” Thus, since inception, social networking sites like WhatsApp, Facebook, Twitter, 2go, My Space, Skype etc. have mesmerized millions of users, many of whom have been made to use these sites as parts of their daily activities. Currently, there is a plethora of social networks with various features meant to suit the different interests of their followers. Some are accessed via computer alone while others can be used with mobile phones.

Similarly, one study reported that over 27% of young adults used a social networking site every day in 2009 (Lenhart, Purcell, Smith, & Zickuhr, 2010). Moreover, the use of WhatsApp the focus of this study, has been noted to have both positive and negative effects on students regarding the development of identities and the self. WhatsApp has been identified as a new social platform that has the ability to affect students’ academic reading and writing practices because of the increase in new digital literacies found in digital media and its influence on literary practices.

New literature found in digital spaces allows for engagement in the interactive, multimodal genres and accordingly participation in dynamic, multidimensional communication. The new possibilities “reshape how we understand, teach, and test language and literacy in the classroom” (Loetherington and Jenson, 2011, p.228).

Given the growing and diverse use of WhatsApp, a social media with accessible, cheap and fast functions across ages, it has become important to explore how it can positively enhance the academic performance of students in tertiary education institutions. The negative perception of the WhatsApp function seems to have limited many institutions, lecturers, and students from benefiting from its growing contribution to education. Hence, few institutions offer students with support services to build their capacity to use WhatsApp as a mode to improve academic achievement. The realistic evidence is required to understand students’ use of WhatsApp and its impact on academic performance.

WhatsApp network is not only used for social interaction, but also it is used as an instructional and educational material or as a platform (Roblyer et al., 2010). The mode of social influence is internalization (or group norm) representing an individual’s decision based on similarity of values – e.g. with certain communities or groups of interest. Users employ the social networking website mostly to keep in touch with friends and maintain relationships with geographically distant peers.

Despite the presence of several communication tools such as public messages, comments, posts, and private messages, ‘keeping in touch’ was found to be performed by ‘spying’ on peers and gathering information about them from their profiles.

A new study (Wheeler, 2011) has found that rapid growth of social networks impacts all levels of the population, but the impact on students is the most dramatic. Various studies on WhatsApp usage claim that youngsters and undergraduate students use the platform mostly to stay in touch with people they already know in an offline context, instead of initiating new connections (Lampe, Ellison & Steinfield, 2006; Pempek et al., 2009). Madge et al. (2009) argue that although students use WhatsApp to keep in touch with existing friends, they specifically join WhatsApp groups and Facebook's university sites to enhance their social integration. Kalpidou et al. (2011) reviewed WhatsApp in the context of social adjustment among students and found that students in their first year on campus have a high emotional connection to WhatsApp. These students spent more time on WhatsApp and Facebook and also reported having fewer friends, compared to students in second year or higher.

Brief Origin of WhatsApp

Recent technological advances in the world led to the development and launching of WhatsApp in 2009 by Brian Acton and Jan Koom (Barhoumi, 2015) to facilitate good connection, communication and interaction within educational (teaching and learning) and non-educational (family and friends) contexts. WhatsApp is a mobile messaging application permitting users to receive and send messages, make voice calls and upload videos with iPhones, BlackBerry, Android, Windows Phone and Nokia (Hindu, 2011; Barhoumi, 2015). With over 350 million monthly active users, the popularity, demands, and usability of WhatsApp have increased (Church & de Oliveira, 2013; Cohavi, 2013; Bouhnik & Deshen, 2014; WhatsApp, 2016 Inc.). WhatsApp’s ability to provide free and cheap connection and collaboration has continued to grow in application and benefits as key connection, communication, and interaction strategy (Fogg, 2010; Bouhnik & Deshen, 2014). Although few researchers focus on the detailed usage of WhatsApp as a mobile, educational tool that promotes learning through connection, communication and collaboration as well as cooperation (Lenhart, Madden, Macgill, & Smith, 2007; Barhoumi & Rossi, 2013).

Consequently, WhatsApp has continued to drive connection, communication, and interaction as well as knowledge acquisition and sharing (Doering, Lewis, Veletsianos, & Nichols-Besel, 2008; Nelson, Christopher & Mims, 2009; Sweeny, 2010; Cifuentes & Lents, 2011; Smit, 2012). In general, knowledge acquisition and sharing using WhatsApp starts with observing and meeting the following key elements:

- Purchasing an Android powered Smartphone, iPhones, BlackBerry, Windows Phone, and Nokia;
- Saving contacts for possible connection and communication with their informed consent;
- Purchasing of data bundles;
- Installing or downloading of free WhatsApp;
- Sending WhatsApp messages to contact or invite them to connect with you through WhatsApp; and
- Sending free text messages, making voice calls and uploading videos with individuals or groups in the contacts (Aal, Parmar, Patel, & Sen, 2014; Calvo, Arbiol & Iglesias, 2014; Singh, Prasanth, & Subramani, 2015).

From the literature, there is evidence that WhatsApp performs important functions through different types of services it provides to its users, among the functions which are texting messages, making voice calls and video uploads (Bere, 2013; Chipunza, 2013; Plana et al., 2013; WhatsApp, 2016 Inc.).

Rationale for Study

The rationale for this study is based on the observation of an increasing number of students using social media in tertiary institutions in Nigeria for both social and academic purposes and its impact on their academic performance. It is important to note that the students identified self-perceived needs for help based on their accurate assessment of the sources of academic disruption. The desire to help students to handle the perceived dangers of addiction to WhatsApp, their vulnerability to being distracted resulting in poor performance and the lack of skills to navigate WhatsApp challenges motivated this study. The aim is, therefore, to draw the attention of tertiary education institutions, lecturers, students, family as well as readers in order to raise awareness on students on experiences. Another reason is to add to the growing body of knowledge on WhatsApp as an educational tool and to advocate that institutions and lecturers tap into the functional benefits of WhatsApp as a strategy to enhance students' academic performance. Therefore, the yearning to build the students' ability to self-manage and use WhatsApp as a cheap educational tool with the support of institution and lecturers prompted this study. The departure point of this study is to identify the major impact of WhatsApp on students' academic performance to determine strategies to enable successful navigation to enhance performance.

Research Questions

The following research questions guided this study:

1. What are the major perception of students using WhatsApp in relation to academic performance at tertiary education institutions?
2. How does WhatsApp improve the academic performance of students at tertiary education institutions?
3. How can WhatsApp be transformed from being an academic disruptor to become a sustainable academic performance enhancer at tertiary education institutions?

The Use of WhatsApp Among Students

WhatsApp functions are not restricted to non-educational activities such as socialising with family and friends. Several studies such as Motiwala (2007), Cheung, Hew and Ng (2008) as well as Lauricella and Kay (2013) found that social media is, for the most part, a vital means of communication among modern day tertiary education students. In South Africa, Shambare and Mvula (2011) recorded the unbelievable use of social media for various academic purposes. Johnson (2007), Kennedy, Krause, Judd, Churchward and Gray (2008) as well as Smith, Salaway, and Caruso (2009) reported that the use of text messaging among students and instructors is on the increase. Preston and Colleagues (2010) reported that about seventy percent of students are benefiting from the application of social media to education compared to physical classroom lectures or online programs (Katz, 2002; Beldarrain, 2006; Inan, Flores & Grant, 2010).

According to Barhoumi (2015), WhatsApp is convenient for the formation of viable social groups where members could remain at various geographical locations and share unlimited ideas through texting messages, making voice calls and uploading documents as well as images. The cost of social media for social groups are relatively lower compared to the transportation costs required for members to connect on their university campuses for discussion (Rogers, 2000; Bober & Paz Dennen, 2001; Bodzin & Park, 2002; Browne, 2003; Rich & Hibbert, 2004). Several authors reported that individuals of social groups learn through discussion forums via mobile devices (Bober & Paz Dennen, 2001; Browne, 2003; Cheung *et al.*, 2008; Zengin, Arikán & Dogan, 2011) such as WhatsApp. Other authors such as Gillingham and Topper (1999) and Chan (2005) further confirm that social media functions provide students with opportunities to interact, construct and share knowledge irrespective of geographical location (Chan, 2005).

In an extensive study carried out by Barhoumi (2015, p.236), WhatsApp was found effective in enhancing students' learning through discussions and collaboration at school or home in a blended mobile lecture, which facilitates the creation of a class publication from course modules for students to edit collaboratively.

Students insert text and messages to share information and knowledge related to the course taught face to face as well as enable students to integrate videos, podcasts, messages, texts, images and audio files to enhance learning. It is obvious that WhatsApp involves prerequisites before it should be recognised as educational tools.

Academic Functions of WhatsApp

WhatsApp offers educational and non-educational functions for its users. These functions include the following:

1. Text messages

They are concerned with permitting clients to send text messages to individuals or groups who are on their contact lists through the use of the internet (Helderman, 2003; Lenhart, Madden, Macgill, & Smith, 2007; Rambe & Bere, 2013; Aal, Parmar, Patel, & Sen, 2014). In this regard, WhatsApp has continued to develop personal and group texting abilities through consistent receiving and texting as a reply to messages. The texting message is an essential academic skill that facilitates the student's mastery of the act of typing and sharing knowledge. Maintaining texting competences and proficiency in texting messages require consistent interaction with individuals or groups as contacts.

2. WhatsApp voice calling

This is concerned with making calls to individuals or groups when the individual is incapable of texting a message or feels that the message is better conveyed orally. Users of WhatsApp voice calling make calls for educational and non-educational purposes. WhatsApp voice calls involve knowledge of what to say and how to say it to ensure that the intended message is appropriately communicated to the individual or group which the information is targeted at. The clarity of the audio call is important to connection, communication, and interaction.

3. WhatsApp Video calling/uploading

This is concerned with the uploading of videos, images, documents and audio media messages used for both educational and non-educational messages (Olson, 2013; Albergotti, MacMillan & Rusli, 2014; Amry, 2014; WhatsApp Voice Calling, 2015). Uploading audio and visual videos to individuals or groups is a function of WhatsApp which is important for daily communication and educational purposes.

The literature reveals that texting messages, making voice calls and uploading videos, documents as well as images promote and advance connection and communication within a specific context (situated cognition theory) (Myers & Wilson, 2000) to build the capacity to acquire and share knowledge through active interaction with a community of learning or social group (distributed cognition) (Bell & Winn, 2000). The activities of users of WhatsApp are connected to their ability to connect, communicate cooperatively and collaboratively share knowledge in a specific context (Brown & Cole, 2000) or diverse context.

Theoretical Framework for the Study

The theoretical framework for this study is derived from the three theories which are (situated cognition, distributed cognition, and socially shared cognition theories). The first is situated cognition which holds that people acquire knowledge from the activities they perform in a specific context and culture in which the activities occur (Rovai, 2002; Brown, Collins, & Duguid, 1989; Aydede & Robbins, 2009). With regard to this study, users of WhatsApp learn and share knowledge as they actively engage in texting messages, making voices calls and uploading videos, documents, and images. The knowledge manifests as they make decisions and solve problems respecting the culture of the interactional process. For instance, refusal to reply text messages is often regarded as disrespect by the sender.

The second theory is distributed cognition, which stipulated that individuals learn as they interact with their social and physical environment (Bell & Winn, 2000). This implies that knowledge is shared once an individual connects in the social world of WhatsApp both in texting, making voice calls and uploading videos or documents as well as images.

The third theory is socially shared cognition, which stipulates that knowledge is group oriented and individuals within a group learn and share knowledge through cooperation and collaboratively constructing meaning from the subject of discussion (Klimoski & Mohammed, 1994; Brown & Cole, 2000).

On the other hand, Gagne's nine events of instruction were used as data interpretation strategy. Gagne (1992) proposed nine steps as part of the strategy on outcomes or behaviours involving instruction as gaining attention, focusing on outcome objectives, stimulating remembrance of previous learning, presenting the content, providing guidance for learning, eliciting practical implementation of learnt content, providing feedback, assessing information and enhancing mastery as well as translation into new knowledge. Gagne's nine steps focused on making teaching and learning preparation and content worthwhile. It is flexible, content and context appropriate at the formulation of the educational program and implementation of the course content. It is interactive, collaborative and promotes socially constructed and shared knowledge with authentic guidance and mentoring of the teacher or facilitator.

The rationale for the use of Gagne's nine steps of learning is to determine how well the interaction of the tenets of the theories should make WhatsApp suitable as an academic enhancer. Furthermore, the idea was to determine how well WhatsApp could be transformed from academic disruptor to sustainable academic performance enhancer in tertiary education institutions in relation to teaching and learning strategies. The theories, the tenets, and practical implications are illustrated in Figure 1.1

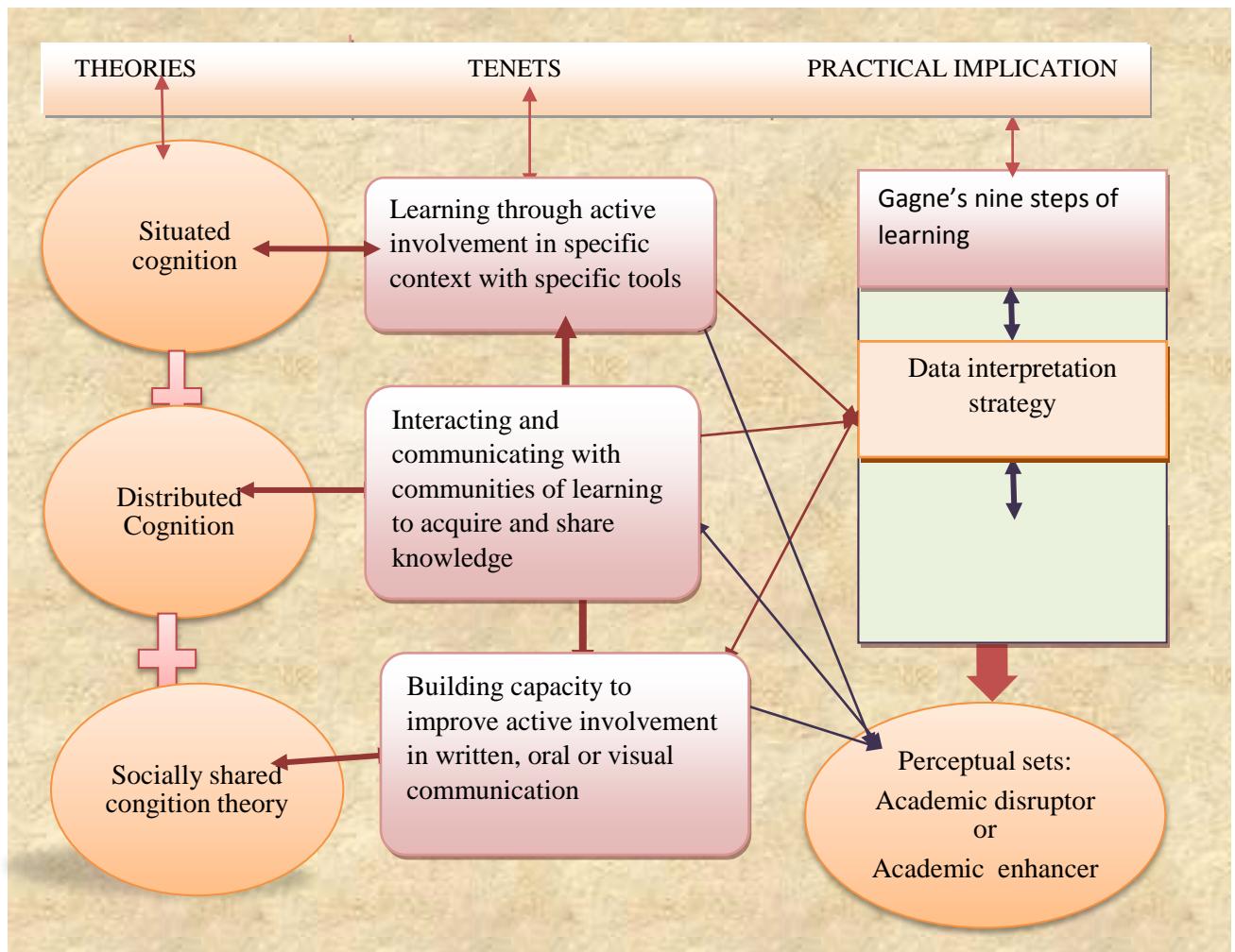


Figure 1.1: The conceptual framework for the study

Figure 1.1 illustrates the three basic theories that guided this study starting with situated cognition, distributed cognition, and socially shared cognition. Each of the theories interacts and contributes to the success of the other as indicated by the connecting arrows. The second text box contains the tenets of each of the theories, and pointing arrows indicate their connection with each other. The tenets of situated cognition indicate that learning takes place in a specific context and culture in which the students actively interact with their technological tools. In distributed cognition, the principles indicate that learning takes place as students actively connect, communicate and interact to acquire and share knowledge within their context and culture. In socially shared cognition, the tenets indicate that as students actively interact and communicate, they cooperatively and collaboratively build their capacity to acquire and share knowledge in written (texting messages), oral (making voice calls) and visual form (video, documents, and images).

In the text box for practical implication, the connecting arrow to WhatsApp as educational tools indicates that each student's connection as an individual or social group is capable of transforming WhatsApp as an educational tool.

However, this transformation depends on the type of group the students belong to; hence if the students' connection and interaction are within the community of learning, active involvement with WhatsApp enhances acquisition and sharing of knowledge. It, therefore, implies that if the students' reason to connect, communicate and interact with WhatsApp is for socialisation purposes, WhatsApp will not be an educational tool but a communication tool. The connection and interactional community of the students are the determinant of the type of learning that will occur and its impact on students' academic performance.

On the other hand, the perceptual sets result from the students' interaction and communication within the tenets of the three theories which deepen with the type of interactional community they belong to. The group of interaction further influences the way they experience WhatsApp. Students who belong to a community of learning are likely to perceive WhatsApp as an educational tool while students who actively connect, interact and communicate for socialisation reasons may likely perceive WhatsApp as a communication tool. The perceptual sets of students who connect to a community of learning, students who connect to the social community and students who interact with both communities determine the results they produce, in that each of the communities of interaction exerts an influence on the way they self-manage to acquire and share knowledge or navigate challenges. The requirement for self-management depends on the skills of the students to navigate the communities. The capacity to navigate interactional communities to achieve academic success is another determinant of success since the time devoted must strike a balance between a community of learning and social community. The timing error may alter benefits accruing from interactional communities. Given these assumptions, this study attempted to unravel the puzzles through the research methodology with advantages of digging deeper into lived experiences.

Research Design

This study is positioned within an interpretive paradigm. Henning et al. (2009, p.21) said "interpretive research paradigm is fundamentally concerned with meaning and it seeks to understand social members' definition and understanding of situations". This paradigm has been used because the data has provided an insight into the role of WhatsApp in students' relation to student performances in Nigerian universities.

This study used a qualitative approach. A qualitative approach design was used because it has a holistic focus and allows flexibility and attainment of understanding of the participant deeper than could be achieved through a more rigid approach (Merriam. 2002). This approach was chosen because it is descriptive, explanatory and contextual in nature. In conducting this study, I also employed the case study which according to Yin (2002, p.23) "is an empirical inquiry that investigates a contemporary phenomenon within its real life context when the boundaries between phenomenon and context are not clearly evident and in which multiple resources of evidence are used". The case study was ideal for this study because it wanted to capture the reality of the participants' lived experiences and thought, about a particular situation (Cohen, Manion & Morrison, 2000, p. 182).

Methodology

This is a phenomenological study; data was collected with the use of semi-structured individual interviews. Semi-structured individual interviews were conducted with 20 purposively selected students from South-South geopolitical zone of Nigeria. The semi-structured individual interview guide was developed to provide a clear set of information for interviewers to ensure that reliable qualitative data was obtained. Interviews helped to identify some students who could be used as WhatsApp implementation entrepreneurs to build community consensus for increasing student's use of WhatsApp as learning tool. To ensure high-quality semi-structured individual interviews, the following strategies was put in place:

- Interviews was taped recorded with the informed consent of the students participating in the study.
- Time frame for interviews was between one to two hours.
- Mode of interview was face-to-face.

Sampling Technique, Size and Data Collection Tools

Sampling is a selection of research participants (Henning et al., 2005). This study used purposive sampling because a sample was chosen with a specific rationale in mind. Purposive sampling was used to select the response of the participants. Nieuwenhuis (2007) state that purposive sampling means that participants are selected because of defining characteristics that makes them the holders of the data in the study. Nieuwenhuis (2007) further shows that purposive sampling is not only used to select participants, but to select settings, incidents, events and activities to be included for data collection. Data collection tools were interviews and open-ended questionnaires; the purpose was to get views from different sources to avoid biased data. The study had a total of 20 participants. The questionnaires were given to all 20 participants by hand.

Since this study is exploratory and qualitative, snowball convenience sample method was used to select students from a federal university in South-South geo-political zone in Nigeria. The first set of students who volunteered to participate were asked to recruit other students who are willing to participate and a sample of twenty (20) students signed informed consent letter. The sampled twenty (20) was selected using the following criteria:

- Must be an enrolled student in the Federal University and have been using WhatsApp for at least 2 years or more;
- Must be a third year students as the influence of WhatsApp on views and experiences of these groups may be different meaningfully (Ritter & Terndrup, 2002);
- Must be using WhatsApp for different reason to ensure representation across the WhatsApp population.

Based on suitability to selection criteria, the participants selected were provided with an overview letter explaining the study; students who accepted to participate in the study voluntary gave their informed consent by signing the consent form. A total of 20 interviews were conducted from June 2017 to July 2017.

Instruments

Since this is a qualitative phenomenological study, exploratory in nature, semi-structured interview procedure was used for data collection. The interview schedule started by asking the key informants to narrate or define their experience with the use of WhatsApp. Questions were also developed for probes to increase opportunity to obtain extensive answer on experience.

1. What led to the use of WhatsApp?
 - Probing questions:

How often/repeatedly do you visit WhatsApp to use its services? How will you describe the visits is it for academic use or socialisation? Do you have a special time of the day for visit to the site? Please explain further?

2. How do you perceive the use of WhatsApp?
 - Probing questions:

Describe the use of WhatsApp in detail: what are the benefits to you. What made them to get involve and what impact did their involvement made in your use of WhatsApp? In what way?

3. How do you evaluate the use of WhatsApp using your experience?
 - Probing Question:

Describe your institutions and lecturers' use of WhatsApp in detail. What pleased to you? What worried you, if anything? Who else was involved, for example, other students, family and friends? What do you think must be considered for effective use of WhatsApp as teaching and learning tools?

The instruments were validated through testing the questions in similar contexts with similar populations. The credibility was determined through consistency in narratives obtained from the test participants. The instruments were then considered reliable to elicit in-depth information from students in tertiary education in Nigeria. The collected data were transcribed, analysed and interpreted and results presented and discussed according to research questions.

Procedure

English language was the medium used in all the interviews. The university setting provided the natural environment for the interviews. The students felt very comfortable and safe. The interviews lasted one to two hours (1-2hours) to ensure that students' academic activities were not interrupted.

Data Analysis

According to Mouton (2002) data analysis encompasses the breaking up of complex data into themes, patterns and relationships. Data was analyzed by using a content analysis method. The analysis started with open coding, with the reading of all the interviews, after which the data was divided into smaller meaningful units, considering the research questions, while examining the data. During this method, verbal data generated through open ended questionnaires and the audio-taped interviews were transcribed. The transcripts were re-read, to clarify that nothing was left out. In this process, responses were checked and categorized into meaningful themes. Themes were formulated by bringing together bits of ideas and patterns that could be meaningless when viewed in isolation (Fereday & Muir-Cochrane, 2006).

The audio taped interviews were transcribed verbatim to ensure that it is used in the analysis of the data. Transcribed data was analysed using Creswell (2007) phenomenological data analysis steps of identifying of statements relating to the topic and interview questions, merging all statements that share the same meaning, seek different meaning in the statements of the participants and the resulting meaning was used to develop the final themes and the participant's experiences, and perspectives were reported. The findings were reported using existing literature and extracts from participants' narratives. The data analysis for the study was completed by February 15, 2015. The data triangulated and member checking was also used to validate the narratives of the participants and increased quality of the results of the study.

Results

In order to answer the research questions, the results of this study are presented in the next session according to research questions, starting with research question one:

Research Question 1: What are the major perception of students using WhatsApp in relation to academic performance at tertiary education institutions?

The participants were asked how they perceive WhatsApp in relation to academic performance. Most of the participants gave a varied narrative during the semi-structured individual interviews regarding their perception of WhatsApp and academic performance.

Most of the participants attributed disruption such as stealing attention, diminishing concentration and promoting addiction to WhatsApp. A large number of the participants freely mentioned intense disconnection after connecting to WhatsApp as a means of communication. They also attributed striving to connect after disconnection as major sources of concern depending on the message received with WhatsApp.

WhatsApp is like a magnet, it steals your attention, the moment the alerts come. You want to see what the message is about. If you ignore it, you keep thinking of it and when you steal a glance to know the sender, you end up reading it. After reading the message, you have to reply. This activity disconnects one's concentrate. For example, it takes time for me to reconnect to my previous activity. If the message is bad news, the disconnection lingers longer (Peter, University A).

I know it is affecting my academic performance but what can I do? I have to talk to my family and friends. When you get glued, it is hard to stop. I found that after the chat or calls I struggle to concentrate. Sometimes I have to stay idle for some thirty minutes to put myself together; it is as bad as that (Jane, University B).

When asked how they tried to deal with the perceived disruption, some of the participants mentioned that trying to disconnect from WhatsApp use and addiction created a deep, emotional void and feelings of emptiness, which affected academic performance more. The disconnection caused them to experience feelings of desolation and loneliness. It further increased the fear that abandoning WhatsApp could cut them off from their support groups.

When I'm reading or in class, I put all my alerts on silent, but even with that, the messages keep popping up. Once, I made up my mind to stay away from WhatsApp and focus on my academic work, the decision did not last because I felt like I lost something. I had this deep emotional void and feelings of loneliness. I reconnected to WhatsApp to end this feeling of emptiness. Eventually, when the semester results came out I had low grades because of social media. It is made worst because I go to facebook to find my childhood friends, we connect on WhatsApp to chat and make cheap calls. The circle keeps expanding as more friends and group are built. I belong to diverse groups now. You see the problem as I connect with friends on Facebook and I connect with closer ones on WhatsApp. It is exhausting and time-consuming (John, University B).

Despite all my efforts to control my addiction to WhatsApp, I failed. Constantly, I go back to check my messages, respond to them and make calls. It is the time I'm using. Sometimes I realise I have spent hours on the chats without knowing (Merriam, University A).

Additional conversation with the participants disclosed that they are aware of their addiction to WhatsApp. Most of the participants mentioned that they would be pleased to use WhatsApp without getting addicted to the extent that it would affect their academic performance. Most participants pointed out that people and users of WhatsApp failed to recognise the growing nature of the addiction and consequences.

Some pointed out the need to address the growing addiction student users of WhatsApp experience. When asked about the growing consistent use of WhatsApp amongst students, there were participants that identified the reason as its engaging nature and the pleasure derived from the services; significant among them were Andrew and Donna:

It is cheaper, accessible and faster in sending messages, chatting and making calls. It is convenient; I assume that is why users are addicted (Andrew, University A).

All I need is to hear my SMS alert; I reach out for my mobile phone. It is a basic reflex. I am really scared of the impact on my studies; honestly, it's not good. My friends and I call it “the new dreaded addiction” (Donna, University B).

Research question 2: How does WhatsApp improve the academic performance of students at tertiary education institutions?

The result of the semi-structured individual interviews on ways WhatsApp can be used to improve the academic performance of students was generally high. All the participants knew everything about possible strategies in which WhatsApp can enhance academic performance. Most of the participants mentioned the need to develop skills to curb addiction and building of positive concentration towards academic activities. According to participants from the sampled universities:

I think when educational messages dominate messages from friends and family, it will enable most students to refocus and address their priorities. Most of us are used to WhatsApp as means of socialization and so find it difficult to manage. For example, when I learned I can upload audio and video academic documents, it changed the way I view WhatsApp and it helped me to improve my academic performance. So now while I am doing my chores I can play the audio or video and listen to academic downloads. I also have the opportunity to play the download multiple times to understand the main point or clarify an issue, (Andre, University A).

We can use WhatsApp for academics when our institutions and lecturers create the opportunity. You know, sending academic messages, supplying course information and providing feedback can be very helpful (Nini, University B).

In additional conversation, the participants were asked how they feel about WhatsApp when they experience challenges in staying socially connected and meeting academic needs to improve performance. Generally, most of the participants believed students who have WhatsApp problems must create a new community of learning without neglecting the social community to feel less isolated. According to some of the participants:

If I stop using WhatsApp, I feel lonely. It was when my friend at another university uploaded an audio book and some lectures' videos she made for me through WhatsApp I realised that I had an educational tool. It's easier to use. I can read with maximum concentration and still reply to my messages as they pop up (Mike, University A).

When I stopped using WhatsApp because of poor academic achievement, I could only manage for one week. One day my course mate told me to reconnect to WhatsApp so that she could help me. Now, she teaches me through text, recorded lectures as well as calls (Mary, University B).

Research question 3: How can WhatsApp be transformed as a sustainable educational tool in tertiary education institutions?

In order to establish how WhatsApp can be transformed into a sustainable educational tool in tertiary education institutions, the participants were asked to contribute their ideas and suggestion. Many participants during the semi-structured individual interviews replied that institutions should recognise the importance of WhatsApp as an educational tool and motivate academic staffs to use it for lecture uploads. The participants gave a reason for their suggestion as to help slow learners who are very numerous in all the faculties and departments of the institutions. Some of the participants advanced a number of suggestions for their favored options. These included a tape recording of lectures, uploading of educational audio, videos, and books as well as journals for students to build their community of learning. They were also aware of the increased statistics of WhatsApp users amongst the students. According to the participants in this study:

Institutions should use WhatsApp to transmit information both academic and non-academic. WhatsApp is cheaper, a priceless gadget for teaching and learning. Lecturers can record lectures and upload material for slow learners on WhatsApp groups to listen to repetitively (Andrew, University A).

Many students need to use WhatsApp to improve their academic performance. I tape record lectures, download educational videos, and books as well as journals to read or forward to friends' and vice versa (Laura, University B).

Institutions should know that 95 percent of her students are connected to WhatsApp and are active users. They should tap students' addiction and help them improve their academic performance (Matthew, University B).

Data Interpretation

For the purpose of this study, the data generated from the participants was analysed according to research questions. Gagne's nine steps of instruction were used to guide data interpretation, of which included the components of the nine steps of instruction, the features sought in this study and the indicators from the narratives of the participants. The use of Gagne's nine steps of instruction is to establish the quality criteria for the use of WhatsApp as an educational tool. In this study, it helped to identify the extent it WhatsApp functions will align with instructional goals, content/context, and its ability to help students internalize learning.

Table 1.1 Gagne's nine steps of instruction

Gagne's nine steps components	Features of nine steps sought	Indicators from narratives
Gaining attention	Views consistent with attention	<i>It steals your attention (Peter, UA).</i> <i>When you get glued, it is hard to stop (Jane, UB).</i>
Focusing on outcome objectives	Capacity to guide objective	<i>You want to see what the message is about (PUA).</i>
Stimulating remembrance of previous learning	Inspire and broaden remembrance	<i>All I need is to hear my SMS alert (Donna, UB).</i>
Presenting the content	Inclusive learning preferences	<i>I have to talk to my family and friends (Jane, UB).</i> <i>Connect with closer ones on WhatsApp (John, UB).</i>
Providing guidance for learning	Capable of providing mentoring and guidance	<i>She teaches me through text, recorded lectures, and calls (Mary, UB).</i> <i>I tape record lectures... (Laura, UB).</i>
Eliciting practical implementation of learned content	Activity oriented	<i>If I stop using WhatsApp, I feel lonely (Mike, UA).</i> <i>Institutions should know that 95% of her students are connected and are active users (Matthew, UB).</i>
Providing feedback	Quickness in knowing performance outcome	<i>Respond to them and make calls (Merriam, UA).</i> <i>Providing feedback can be very helpful (Nini, UB).</i>
Assessing information	Strategic in evaluating outcomes and making the information available	<i>It is cheaper, accessible and faster (Andrew, UA).</i>
Enhancing mastery translation into new knowledge.	Enhances mastery of connection and sharing of knowledge	<i>Constantly, I go back to check my messages (Merriam, UA).</i> <i>Improves academic performance (Laura, UB).</i>

The data presented above revealed the participants' intention to use WhatsApp as an academic enhancer. It was viable to incorporate Gagne's nine events of learning to assist with feasible steps to apply WhatsApp as an educational tool. Interpreting the narratives of the participants, revealed the need to use WhatsApp, but also unveiled that WhatsApp became an unstoppable magnet, stealing attention and occupying the users. Gagne's nine steps of learning are most practical to strengthen and improve the positive use of WhatsApp as an educational tool. Given that students' prior objectives are to connect with the social and learning communities, upload/download audio, and visual videos to enhance learning, it provides opportunities for revisiting the learning experience. Voice calls, SMS, and chats serve as major means of guidance and feedback on achievements as well as areas of change. The Gagne's nine steps of instruction revealed that WhatsApp has the facility to promote consistency in connection and reconnect to revisit course content to increase mastery, retention, and transferability of knowledge. Arguably, using Gagne's nine steps of learning can reduce WhatsApp disruption, hence, this should solve the problems of experiencing an emotional void (loneliness from disconnection), rearranging objectives and focus (prioritise time among community of learning and socialisation), reducing emotive and cognitive frustration (introduction of interactive and activity oriented content) and offering the guidance for emotional care and support (building encouragement and motivation amongst students). The most important, according to participants' narratives is that they can access both communities of learning and socialise without losing out on academic performance.

Findings and Discussion

The findings of this study showed that most students at tertiary education institutions consistently connect and communicate with WhatsApp for educational and non-educational purposes in a diverse environment. The findings put forward that students perceive WhatsApp as a tool for connection, communication, interaction, and collaboration as well as cooperation in making decisions to share information or solve problems as an individual or with a group. This finding aligns with those of many other researchers (Brown, Collins, & Duguid, 1989; Klimoski & Mohammed, 1994; Bell & Winn, 2000; Brown & Cole, 2000; Rovai, 2002; Aydede & Robbins, 2009) who maintain that individuals or groups interact within a given environment to collaborate, construct and share information with the intention to achieve certain goals.

In this regard, this study identified three types of communities of interaction resulting from the participants' narratives as a community of learning, a community of socialisation and community of socialisation and learning. Few of the participants fall into the category of a community of learning. Many of the participants fall into the category of the community of socialisation. Few participants seem to fall within the third categories of users, as they use WhatsApp for educational and socialisation processes. This finding suggests the reason why students actively engage in texting messages, making voice calls and uploading videos, images, and documents in the specific cultural context.

This could also suggest the reason for some students to focus on specific active communities of interaction and to ignore inactive communities. The active communities identified in this study seem to be more part of social communication and interaction as compared to educational activities (see participants narratives in research questions one, two and three). This could further be ascribed to a low perception of some students of WhatsApp as an important educational tool.

On the other hand, the participants in this study on their own identified that the use of WhatsApp for socialisation was addictive and impacted academic performance (see 8.1 in the table above). The participants that belonged to a community of learning taught each other through texting messages, taping lectures, uploading educational videos, documents, and images (see 8.1; 8.2). The participants also revealed that their poor academic performance motivated their literate family members to produce audio and video lectures on specific course modules and uploaded it through WhatsApp for them (see 8.1; 8.2; 8.3) furthering the creation of a community of socialisation and learning. The efforts of students in the community of learning and students in a community of socialisation and learning suggest students' desire to access WhatsApp as an educational tool to improve their academic performance.

Students' personal efforts to build their community of learning to reduce WhatsApp addiction and improve academic performance attest to their willingness. The little exposure to the community of learning could be blamed for students' addiction and perception of WhatsApp as academic disruptor. The findings further showed that tertiary education institutions and lecturers need to build students' capability to use WhatsApp as an educational tool. Increased capacity could curb students' addiction to non-educational connection and communication, it will not only help students balance time devoted to educational and non-educational interaction, and it will change their perception of WhatsApp as academic disruptor to academic performance enhancer. Some participants that belonged to the community of socialisation seemed to identify WhatsApp as an academic disruptor, because of emotional pressure, lack of navigation skills and low self-management.

These findings showed that building students' community of learning might perhaps strengthen their ability to use WhatsApp as academic performance enhancer despite the challenges experienced within specific cultural context. Changes in perceptual sets could drive change in a culture of connection, communication, and interaction, thereby increase knowledge acquisition, distribution in socially and educational contexts. By equipping students with skills to navigate diverse communities they are connected to, it will improve the positive contribution of WhatsApp to academic performance.

Conclusion and Implication to Practice

This study investigated innovating WhatsApp from academic disruptor to academic performance enhancer in tertiary education. The qualitative data generated, analysed and interpreted in this study revealed that WhatsApp is widely used by students. Connecting, communicating and interacting through WhatsApp for informal purposes impacts negatively on students' academic performance, furthering negative perception of WhatsApp as academic disruptor.

Most of the participants reported that efforts to disconnect from WhatsApp created an emotional void and caused feelings of frustration and loneliness. Few of the participants connected to diverse communities to divert addiction to educational benefits. These students need information and understanding on strategies to build a community of learning to balance their consistent connection to a community of socialisation to improve academic performance. Increased communities of learning should rebuild a student culture of interaction, knowledge acquisition and share. In this regard, the implication to practice is that institutions, lecturers, literate families and friends need to build students' community of learning through WhatsApp functions of texting messages, making voice or video calls and uploading educational videos, documents, and audios. To achieve this calls for a more collaborative and dialogic conversation to establish norms and guiding principles of group WhatsApp to ensure intrusion to individual private time is controlled. This idea demands further investigation into the relevance of group WhatsApp, the challenges, and emotional resilient needs to advance the optimal achievement of set goals.

References

- Aal, L. B., Parmar, J. N., Patel, V. R., & Sen, D. J. (2014). WhatsApp, Skype, Wickr, Viber, Twitter, and Blog are ready to Asymptote Globally from All Corners during Communications in Latest Fast Life. *Research Journal of Science and Technology*, 6(2), 101.
- Albergotti, R., MacMillan, D., & Rusli, E. M. (2014). Facebook's \$19 Billion Deal Sets High Bar. *The Wall Street Journal*. pp. A 1, A6.
- Alsaleem, B. I. A. (2013). The effect of "WhatsApp" electronic dialogue journaling on improving writing vocabulary word choice and voice of EFL undergraduate Saudi Students. *Arab World English Journal*, 4(3), 213-225.
- Amry, A. B. (2014). The impact of WhatsApp mobile social learning on the achievement and attitudes of female students compared with face to face learning in the classroom. *European Scientific Journal*, 10(22), pp116-136.

Asante-Somuah, B., Dankyi, L. A. & Dankyi, J.K. (2014). An investigation into the study habits of distance learners: implications for guidance and counseling services. *Mediterranean Journal of Social Sciences*, 5(6), 273-282.

Aydede, M., & Robbins, P. (Eds.) (2009). The Cambridge Handbook of situated cognition. New York, NY: Cambridge University Press.

Barhoumi, C. & Rossi, P.G. (2013). The effectiveness of the instruction oriented hypertext systems compared to direct instruction in an e-learning environment. *Contemporary Educational Technology*, 4(4), 281-308.

Barhoumi, C. (2015). The effectiveness of WhatsApp mobile learning activities guided by activity theory on students' knowledge management. *Contemporary Educational Technology*, 6(3), 221-238.

Beldarrain, Y. (2006). Distance education trends: Integrating new technologies to foster student interaction and collaboration, *Distance Education*, 27(2), 139-153.

Bere, A. (2013). Using mobile instant messaging to leverage learner participation and transform pedagogy at a South African University of Technology. *British Journal of Educational Technology*, 44(4), 544-561.

Bertelsen, O.W. & S. Bodker. (2003). Activity theory. In J. M. Carroll (Ed.), *HCI models, theories, and frameworks: Toward a multidisciplinary science* (pp.291-324). San Francisco, CA: Morgan Kaufmann.

Bouhnik, D., & Deshen, M. (2014). WhatsApp goes to school: Mobile instant messaging between teachers and students. *Journal of Information Technology Education: Research*, 13, 217-231.

Brown, J.S., Collins, A., & Duguid, P. (1989). Situated Cognition and the Culture of learning, *Educational researcher*, 18(1), 32-42.

Calvo, R., Arbiol, A., & Iglesias, A. (2014). Are all chats suitable for learning purposes? A study of the required characteristics. *Procedia Computer Science*, 27, 251-260.

Castillo, S. (2014). The psychological effect of bad news: And what you can do to stay positive. Retrieved from [http://www.medicaldaily.com/psychological -effect-bad-news](http://www.medicaldaily.com/psychological-effect-bad-news) on 18/03/2016.

Chan, L. (2005). WebCT revolutionized e-learning. *UBC Reports*, 51(7). Retrieved on 10 July 2015 from <http://news.ubc.ca/ubcreports/2005/05jul07/webct.html>

Cheung, W. S., Hew, K. F., & Ng, S. L. (2008). Toward an understanding of why students contribute in asynchronous online discussions. *Journal of Educational Computing Research*, 38(1), 29-50.

Chipunza, P. R. C. (2013). Using mobile devices to leverage student access to collaboratively-generated resources: A case of WhatsApp instant messaging at a South African University. International Conference on Advanced Information and Communication Technology for Education (ICAICTE 2013).

Church, K., & de Oliveira, R. (2013). What's up with WhatsApp? Comparing mobile instant messaging behaviors with traditional SMS. Proceedings of the 15th International Conference on Human-computer Interaction with Mobile Devices and Services (pp. 352-361). ACM.

Cifuentes, O. E., & Lents, N. H. (2011). Increasing student-teacher interactions at an urban commuter campus through instant messaging and online office hours. *Electronic Journal of Science Education*, 14(1).

Cohavi, A. (2013). How did WhatsApp became the strongest social network? Calcalist. Retrieved from <http://www.calcalist.co.il/local/articles/0,7340,L-3593840,00.html>.

Crescente, M. L., & Lee, D. (2011). Critical issues of m-learning: design models, adoption processes, and future trends. *Journal of the Chinese Institute of Industrial Engineers*, 28 (2): 111-123.

Crompton, H. (2013). A historical overview of mobile learning: Towards learner-centered education. In Z.L. Berge & L.Y. Muilenburg (Eds.), *Handbook of mobile learning*, (pp. 3-14). Florence, K.Y: Routledge.

Doering, A., Lewis, C., Veletsianos, G., & Nichols-Besel, K. (2008). Preservice teachers' perceptions of instant messaging in two educational contexts. *Journal of Computing in Teacher Education*, 25(1), 5-12.

Echeverría, A., Nussbaum, M., Calderón, J., Bravo, C., & Infante, C. 2011. Face-to-face collaborative learning supported by mobile phones. *Interactive Learning Environments*, 19 (4), 351-363.

Engeström, Y. (1987). Learning by expanding: An activity-theoretical approach to developmental research. Helsinki, Finland: Orienta-Konsultit Oy.

Fogg, P. (2010). 'The 24-7 professor-what to do when home is just another word for the office', Chronicle of Higher Education, vol. 54 (21), B12.

Gagne, R.M, Briggs, L.J., & Wager, W.W. (1992). *Principles of instructional design* (4th ed.). Forth Worth, TX: Harcourt Brace Jovanovich College publishers.

Gillingham, M.G. & Topper, A. (1999). Technology in teacher preparation: Preparing teachers for the future. *Journal of Technology & Teacher Education*, 7(4), 303-321.

Gregoire, C. (2015). What constant exposure to negative news is doing to our mental health. Retrieved from http://www.huffingtonpost.com/2015/02/19/violent-media-anxiety_n_6671732.html on 18/03/2016

Helderman, R. (2003). Click by Click, Teens Polish Writing; Instant Messaging Teaches More Than TTYL and ROFL'. The Washington Post, p. B.01.

Hewitt, J. (2004). An exploration of community in a knowledge forum classroom: an activity system analysis. In S. A. Barab, R. Kling, & J. H. Gray (Eds.), *Designing for virtual communities in the service of learning* (pp. 210–238). Cambridge: Cambridge University Press.

Hindu, H. (2011). WhatsApp comes to the rescue. FEATURES/EDUCATION PLUS. 'Education plus Journal, vol.3, pp.23-26. Retrieved from: www.thehindu.com/todays-paper/tp-features/tp. In April, 22, 2013 education plus /article2747959.ece? Css=print 1/1.

Inan, F.A., Flores, R., & Grant, M.M. (2010). Perspectives on the design and evaluation of adaptive web based learning environments. *Contemporary Educational Technology*, 1(2): 148-159.

Jimoyiannis, A., Tsiotakis, P., Roussinos, D., & Siorenta, A. (2013). Preparing teachers to integrate mobile in school practice: Toward a framework for Pedagogy 2.0. *Australasian Journal of Educational Technology*, 29(2): 248-26.

Johnson, G. M. (2007). College student internet use: convenience and amusement. *Canadian Journal of Learning and Technology*, 33(1), 176-185.

Katz, Y. J. (2000). The comparative suitability of three ICT distance learning methodologies for college level instruction. *Educational Media International*, 37(1), 25-30.

Katz, Y. J. (2002). Attitudes affecting college students' preferences for distance learning. *Journal of Computer Assisted Learning*, 18, 2-9.

Kennedy, G. E., Krause, K.-L., Judd, T. S., Churchward, A., & Gary, K. (2008). First year students' experiences with technology: Are they really digital natives? *Australasian journal of educational technology* Vol 24, no 1 (2008)

Klimoski, R. & Mohammed, S. (1994). Team mental Model: Construct or metaphor? *Journal of Management*, 20, 403-437.

Laningham, S. (2006). Developer Works interviews: Tim Berners-Lee. Retrieved on 30 November 2014 from www.ibm.com/developerworks/podcast/dwi/cm-int082206txt.html.

Lauricella, S. & Kay, R. (2013). Exploring the use of text and instant messaging in higher education classrooms. *Research in Learning Technology*, 21. Retrieved from <http://dx.doi.org/10.3402/rlt.v21i0.19061> on 18/03/2016

Lenhart, A., Madden, M., Macgill, A. R., & Smith, A. (2007). Teens and social media. Pew internet and American life project. *Retrieved December 27, 2007.*

Lenhart, A., Madden, M., Macgill, A. R., & Smith, A. (2007). Teens and social media. Washington, DC: Pew Internet & American Life Project.

Litchfield, A., E.L. Dyson, Lawrence, E., & Zmijewska (2007). Directions for m-learning research to enhance active learning. Paper presented at ASCILITE. Singapore.

Lu, J. & Churchill, D. (2014). Using social networking environments to support collaborative learning in a Chinese university class: Interaction pattern and influencing factors. *Australasian Journal of Educational Technology*, 30(4), 472-486.

Nardi, B. (Ed.). (1996). Context and consciousness: Activity theory and human computer interaction. Cambridge, MA: MIT Press.

Nelson, J., Christopher, A., & Mims, C. (2009). TPACK and Mobile: Transformation of teaching and learning. *TechTrends: Linking Research & Practice to Improve Learning*, 53(5):80-87.

Nelson, J., Christopher, A., & Mims, C. (2009). TPACK and Mobile: Transformation of teaching and learning. *TechTrends: Linking Research & Practice to Improve Learning*, 53(5), 80-87.

Olson, P. (2013). Teenagers say goodbye to Facebook and hello to messenger apps. *The Guardian*, 10.

Plana, M. G. C., Escofet, M. I. G., Figueras, I. T., Gimeno, A., Appel, C., & Hopkins, J. (2013). Improving learners' reading skills through instant short messages: A sample study using WhatsApp. 4th World-CALL Conference, Glasgow, 10-13 July 2013.

Preston, G., Phillips, R., Gosper, M., McNeill, M., Woo, K., & Green, D. (2010). Web-based lecture technologies: Highlighting the changing nature of teaching and learning. *Australasian Journal of Educational Technology*, 26(6), 717-728.

Rambe, P., & Bere, A. (2013). Using mobile instant messaging to leverage learner participation and transform pedagogy at a South African University of Technology. *British Journal of Educational Technology*, 44(4), 544-561. doi: 10.1111/bjet.12057

Richard, H., & Haya, A. (2009). Examining student decision to adopt web 2.0 technologies: theory and empirical tests. *Journal of Computing in Higher Education*, 21(3):183-198.

Rossi, P.G. (2009). Ambiente di apprendimento con elementi di artificial intelligence. *JELKS. Journal of E-Learning and Knowledge Society*, 5(1):65-75.

Rovai, A. P. (2002). Development of an instrument to measure classroom community. *Internet and Higher Education*, 5, 197-211.

Shambare, R. & Mvula, A. (2011). South African students' perceptions of Facebook: Some implications for instructors. *African Journal of Business Management*, 5(26):10567-10564.

Singh, S., Prasanth, A., & Subramani, A. K. (2015). User satisfaction towards WhatsApp, Avadi, Chennai. *EXCEL International Journal of Multidisciplinary Management Studies*, 5(6), 1-8.

Smit, I. (2012). WhatsApp with BlackBerry; Can Messengers (BBM) be MXit? In Proceedings of the 14th Annual Conference on World Wide Web Applications. The Cape Peninsula University of Technology, Cape Town, South Africa.

Smith, S. D., Salaway, G., & Borrenson Caruso, J. (2009). The ECAR study of undergraduate students and information technology, EDUCAUSE Center for Applied Research, Available at <http://www.educause.edu/library/resources/ecar-study-undergraduate-students-and-information-technology-2009>

Sweeny, S. M. (2010). Writing for the instant messaging and text messaging generation: Using new literacies to support writing instruction. *Journal of Adolescent & Adult Literacy*, 54(2), 121-130.

Tillema, H. & Orland-Barak, L. (2006). Constructing knowledge in professional conversations: The role of beliefs on knowledge and knowing. *Learning and Instruction*, 16, 592-608.

Trentin G. & Repetto M. (Eds). (2013). *Using Network and Mobile Technology to Bridge Formal and Informal Learning*. Woodhead/Chandos Publishing Limited, Cambridge, UK, ISBN: 978-1-84334-699-9.

Tzuk, A. (2013). WhatsApp has 350 million active users a month. [in Hebrew] Calcalist. Retrieved October 23, 2013, from <http://www.calcalist.co.il/internet/articles/0,7340,L-3615097,00.html>

WhatsApp, (2016). Simple Personal, Real Time Messaging. Downloaded from whatsapp.com 30/04/2016

Wikipedia, the free encyclopedia, (2013). Available from:
<http://www.Wikipedia.org/wiki/WhatsApp>[Last updated on 21/03/2013].

Williams, A., Birch, E., & Hancock, P. (2012). The impact of online lecture recordings on student performance. *Australasian Journal of Educational Technology*, 28(2):199-213.

Yu, A. Y., Tian, S. W., Vogel, D., & Kwok, R. C. W. (2010). Can learning be virtually boosted? An investigation of online social networking impacts. *Computers & Education*, 55(4):1494-1503.