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INTEGRATING SOCIAL MEDIA PLATFORMS INTO HIGHER EDUCATION PEDAGOGY IN GHANA

BY

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DECLARATION

I, PATRICIA APPIAH-BOATENG, hereby declare that, this research "Integrating Social Media Platforms into Higher Education Pedagogy in Ghana", is the result of my own research and it has neither been presented in part nor in whole for another degree, except for references to other people's work, which have been duly acknowledged.

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DEDICATION

This thesis is dedicated to my lovely husband, Dr. Eric Daniel Ananga (a strong pillar) and our beautiful adorable daughters, Danielle and Erica. I am incredibly grateful for their endurance, love, support and inspiration while I pursued this research.

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LIST OF ACRONYMS

ANOVA	Analysis of Variance
BBA	Bachelor of Business Administration
BEd	Bachelor of Education
BSc	Bachelor of Science
CK	Content Knowledge
CMS	Content Management System
CVE	Cumulative Variance Explained
EBSCO	Elton B Stephens Company
EFA	Exploratory Factor Analysis
ERIC	Education Research and Information Centre
GES	Ghana Education Service
Gmail	Google Email
GTUC	Ghana Technology University College
HE	Higher Education
ICTs	Information and communications technologies
ITU	International Telecommunication Union
KMO	Kaiser-Meyer-Olkin (sampling adequacy test)
KNUST	Kwame Nkrumah University of Science and Technology
MANOVA	Multivariate Analysis of Variance
MOOC	Massive Open Online Course
MOODLE	Modular Object-Oriented Dynamic Learning Environment
NCTE	National Council of Tertiary Education
PC	Personal Computer

PCK	Pedagogical Content Knowledge
PDF	Portable Document Format
PK	Pedagogical knowledge
RPK	Relevant Previous Knowledge
RSS	Rich Site Summary
SD	Standard Deviation
SM	Social Media
SNS	Social Networking Site
SNTs	Social Network Technologies
SPSS	Statistical Package for the Social Sciences
STEM	Science, Technology, Engineering and Mathematics
TCK	Technological Content Knowledge
TK	Technological Knowledge
TLMs	Teaching and Learning Materials
TLMs	Teaching and Learning Materials
TPACK	Technology, Pedagogy and Content Knowledge (formerly TPCK)
TPCK	Technological Pedagogical Content Knowledge
TPK	Technological pedagogical Knowledge
UEW	University of Education, Winneba
UK	United Kingdom
USA	United States America
WWW	World Wide Web

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ABSTRACT

Social media is an invaluable technological tool that facilitates the delivery of instruction in the 21st century higher education landscape. It caters for learners' individual differences, enriches learning environments, encourages knowledge construction and permits learners to individualise their own learning making them independent learners. This thesis investigated the integration of Social Media (SM) platforms into higher education pedagogy in Ghana. It drew on two main theories: Diffusion of Innovation Theory and the Technological Pedagogical Content Knowledge, to understand how technology is integrated into pedagogical activities in Ghanaian higher education.

The study employed a concurrent mixed methods approach using both quantitative and qualitative data. The quantitative aspect used survey and the sample size was three hundred and eighty students and two hundred and fifty instructors from the University of Education, Winneba (UEW) and Ghana Technology University College (GTUC). Inferential and descriptive statistics – such as means, standard deviation (SD), t-tests, Chi-square, inter-correlation matrix, ANOVA, hierarchical multiple regression, and MANOVA – were used to analyse the data. For the qualitative data, a total of eighty students and twelve instructors from both institutions were purposively selected. Semi-structured one-on-one interviews and focus group discussions were conducted for the instructors and students, respectively. Observation of various social media platforms that were used by instructors for teaching were also carried out. Qualitative data were analysed manually using content analysis.

This study revealed that students and instructors used SM for teaching and learning. It was found that students used social media mostly to communicate academic issues with their colleagues and instructors, search for information that were related to their academic work and undertake group discussions that were related to their studies. Instructors also used SM platforms to teach various courses and send announcements. The findings revealed that

gender of both students and instructors, age of both students and instructors, programme taught by instructors, years of teaching by instructors, years of using digital media (smart phone) by both students and instructors, had no significant influence on their usage of SM. However, the type of students' programme of study and instructors' professional rank had an influence on their usage of SM for teaching and learning. Other factors included, functionality of the SM platforms, ease of communication and access to information and opportunities and challenges that existed as students and instructors used SM for teaching and learning.

The study also showed how students and instructors integrated SM into group discussions when assignments were given, how they performed assessment activities, conducted research and embarked on further reading for various teaching and learning purposes. It also showed how instructors interacted with students and attended to individual student needs. The findings revealed that for students and instructors, SM provided opportunities for them. For instance, SM helped them to satisfy their quest for new knowledge, search for relevant information from varied sources for their studies, both formally and informally, offered them in-depth understanding of content, bridged the geographical distance. Some of the challenges that were found in the use of SM for pedagogy included, SM focused more on social interaction than academic work, reduced personal contact, caused distraction; discouraged creativity and created false alarm.

The study revealed that students and instructors integrated various Social Media platforms into higher education pedagogy in Ghana with opportunities and challenges. For the integration to be effective therefore, it is necessary to organise capacity building workshops for students and instructors in the appropriate use of Social Media for teaching and learning in higher education. There is the need for institutional involvement in the integration of Social Media. There should also be the provision of robust Internet connectivity, provision of

computer laboratories as well as the development of policies that would guide the integration of SM into higher education pedagogy in Ghana.

Since there is no clear-cut formalisation of Social Media use in higher education in Ghana, which is due to lack of policies, there is the need for future studies on:

- Policy implications of Social Media integration into Ghanaian higher education pedagogy.
- Perspectives of higher education management in Ghana on the integration of Social Media in Ghana. This will ensure a clearer picture of how effective integration is to be implemented so that they can endorse it.
- Usage of Social Media in pre-tertiary institutions, where the students are more tech savvy than tertiary institution students. This is because the impact will last longer.

CHAPTER ONE

INTRODUCTION

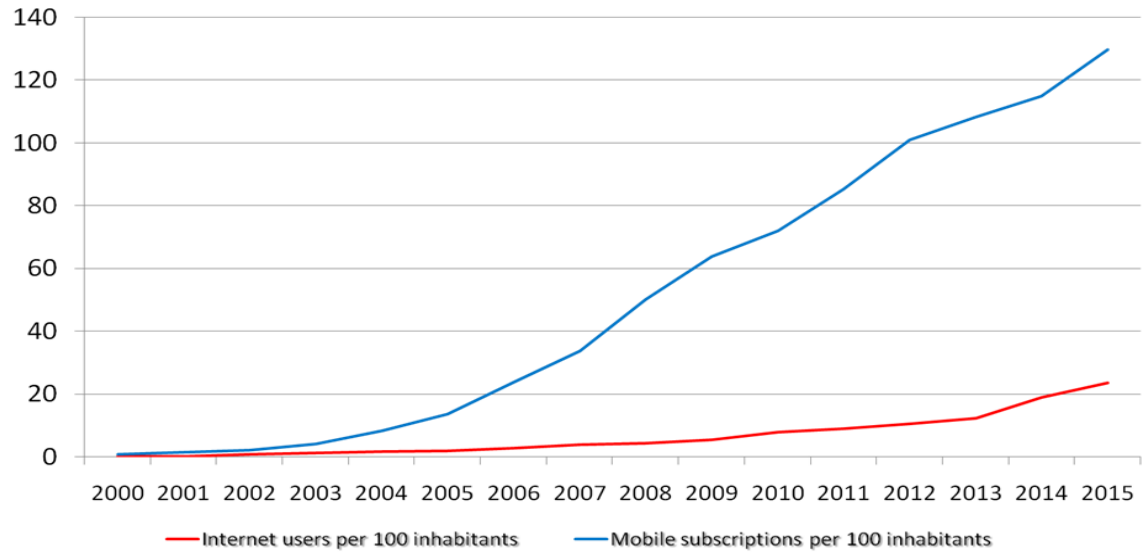
1.1 Background to the study

Globally, Information and Communications Technologies (ICTs) are regarded as essential tools for modernisation and as a means of improving efficiency in the economic, social, educational and agricultural sectors (Basri, Alandejani and Almadani, 2018). In terms of the education sector, ICTs have become critical to the learning process of students in Higher Education (HE), both inside and outside the classroom. Indeed, ICTs play a key role in teaching and learning (Sang, Valcke, Braak and Tondeur, 2010), their advantages including catering for learners' individual differences, enriching learning environments, encouraging flexible knowledge construction, and helping learners to grasp complex phenomena from different points of view (Sang, et al., 2010).

It has been reported that there is a global surge in the demand for HE, rising from 150.5 million tertiary students in 2007 to 165 million in 2012, and it is expected that the demand for HE will reach 263 million by 2025 (OECD, 2012). This is an indication that the HE landscape is changing fast. With increasing demand on the one hand, and growing ICT usage among the young on the other, instructors will have to focus on how current developments in technology can provide fresh ideas for the HE sector. In this regard, it is important to acknowledge that advances in technology, competitive HE environments, and the increasing demand for HE present institutions with the opportunity to adapt to new and emerging technologies. Modern technology can thus be a great tool for encouraging and engaging students, not only in the pursuit of knowledge but also in contributing to knowledge production, as it offers numerous tools that can be employed in and outside the classroom for the improvement of quality instruction (Bingimlas, 2009; Hamidi et al., 2011).

The main benefits of ICT use in education are outlined in an eLearning Africa (2015) report, which reveals that the rate of commonly used ICTs is 19% for laptops, 14% for smartphones, 13% for personal computers, 13% for projectors, 10% for tablets, 10% for televisions, 9% for basic mobile phones, 6% for radios, 4% for MP3 players, 1% for games consoles, and 1% for other ICT devices. Considering the above revelation, it is important to recognise that mobile devices, especially smartphones and tablets, might well supersede personal computers and laptops soon. For example, in Ghana between 2000 and 2015 mobile device subscription increased sharply compared to internet usage and many people seem to be increasingly more comfortable with mobile devices of all kinds for the purposes of communication and education (ITU, 2016). Figure 1.1 below shows a World Telecommunication/ICT Indicators database (cited by ITU, 2016) graph which reveals Ghana's rate of Internet usage per 100 inhabitants compared with mobile phone subscriptions per 100 inhabitants for the years 2000–2015.

Figure 1.1: Ghana ICT Statistic 2000-2015



Source: International Telecommunication Union (ITU) Statistics (2015).

The data point to nearly 80 Internet users per 100 persons with an average of 24%. This according to the graph above, reveals a real growth in the use of mobile devices of 130%. It would be interesting to explore how this growth in ICT and mobile device usage could help in Ghanaian education delivery with particular focus, on HE institutions as they tend to house sufficient technological applications to make e-learning easily accessible. The growth in ICT applications include the use of Internet browsers, calculators, sound recorders, photo galleries, social media (SM) tools and platforms such as Facebook, Twitter, WhatsApp, Instagram, YouTube, Skype and Imo referred to collectively as Web 2.0 technologies. Applications on mobile devices, enable users to access information and communicate with people anywhere at any time (Kaplan and Haenlein, 2010). Due to the benefits of these Web 2.0 (Social Media) applications generally, it is necessary to explore their full integration into the instructional delivery of Ghanaian HE institutions.

The learners are at the centre of all education programmes, and so instead of trying to "transform" them, it is important to acknowledge that they possess the ability to direct their own world through the natural course of learning (McCombs and Whistler, 1997). In view of that, it is critical that learners' characteristics are well understood, and all instructional processes planned in line with the needs of the current generation immersed in the use of modern technological tools and resources. Schroer (2008) notes that learners' attitude to technology can be categorised into three groups. First, is 'Generation Z', or 'digital natives', who were born between 1995 and 2012; second 'Generation Y', who were born between 1977 and 1994; and, finally, 'Generation X', or the 'lost generation', who were born between 1966 and 1976. Current and prospective HE learners belong to Generation Z and are considered products of the 21st century capable of staying focused on technology (Bailey, Vasey, Diamond and Breedlove, 2016). Generation Z learners demonstrate such characteristics as an extensive understanding of technology, ability to

multi-task, social exposure through the use of technology, interactivity, impatience, and irrepressibility (Geck, 2007; Hoffman, 2003; Posnick-Goodwin, 2010; Lay Arellano, 2013; Aparici, 2010; Bennett, Maton and Kervin, 2008). This generation is rapidly populating classrooms which have access to any possible information with ease. The challenge for educators now is how to make technological aids available, guide learners to promote ownership of their learning, increase motivation, and strive for better results. It is thus vital that education programmes are designed and delivered in a manner that is suited to the context and needs of this generation. In order to achieve this goal, a key area on which to focus is the alignment of instructional delivery with pedagogy that allows the integration of new technologies.

The present study adopts Siraj-Blatchford, Sylvia, Muttock, Gilden and Bell (2002) definition of pedagogy as a set of instructional techniques and strategies that allow learning to take place. This implies interaction between the teacher/practitioner and learner, and an environment conducive to learning. In the context of the present study, the term is further used generically in an HE context to represent the art and science of teaching. Additionally, the terms 'teaching and learning', 'instructional delivery' and 'pedagogy' are used interchangeably.

Teaching in an HE institution requires instructors to possess a body of knowledge in pedagogy, which means the specialised cognitive knowledge to enable the creation of an effective teaching and learning environment for all learners (Guerriero, 2017). Gordon (2014) argues that a flexible approach to pedagogy with the effective use of educational technology points to the need for institutional systems, staff and students to be easily adaptable. There is, thus, a critical need to plan HE programmes and activities which prepare instructors in the effective integration of ICT pedagogy into the HE learning

process so that they may explore the remarkable growth in new technologies such as SM in their teaching.

Social Media (SM) has been defined by Howard and Parks (2012, p.362) as: "(a) the information infrastructure and tools used to produce and distribute content; (b) the content that takes the digital form of personal messages, news, ideas, and cultural products; and (c) the people, organisations, and industries that produce and consume digital content." This definition of SM, which has been adopted by the present study, emphasises three key elements: (a) the situation that provides the content, (b) the content that emerges in the form of messages, and (c) the people who consume the content (Howard and Parks, 2012). Dzvapatsva, Mitrović and Dietroch (2014) further assert that SM comprises social networking sites (SNSs) such as Facebook, Twitter, Myspace and LinkedIn; media sharing sites such as YouTube, Flickr and Tumbler; wikis and blogs; syndication of content through Rich Site Summary (RSS) feeds; and republishing tools.

It is worth noting that many present and prospective students already use SM applications for information sharing and learning. Nevertheless, online learning initiatives such as distance education, synchronous online learning, asynchronous online learning, and the recently developed Massive Open Online Courses (MOOCs) have not so far been fully taken advantage of in HE delivery (Bae, Prasad, Alsadoon and Bajaj et al, 2016). It is argued that implementing such programmes remains problematic due to the capability of the technology and the level of support necessary for both teachers and students (Bae, et al., 2016). Thus, issues such as well-designed pedagogy, appropriate technology, and the meeting of students' needs must be resolved if better quality online learning for the HE environment is to be implemented. And, if the forthcoming explosion in this area is to be

successfully navigated in the Ghanaian higher education context, a good understanding of its current status as well as the future direction is necessary.

Social Media (SM) embedded in Web 2.0-based applications, represents a set of ICT tools that have been explored and used in various ways in education. Studies reveal that the use of SM for educational purposes has benefited instructors, learners and education institutions tremendously (e.g. Friedman and Friedman, 2013; Lin, Homman and Borengasser, 2013; Gagnon and Hughes, 2002; Dubrovsky, 2011; Tang and Whinston, 2012). For example, SM applications provide an easy, fast and efficient way to access a great deal of information and situated knowledge that provide learners with the opportunity to expand their competencies as they collaborate with other learners, practitioners and stakeholders (Ala-Mutka, 2010). Moreover, a key area of importance that holds promise for the more comprehensive integration of SM into instructional delivery is the fact that most students and instructors in Ghanaian HE institutions already use these tools and applications in their daily lives. However, few of them are fully exploring these technologies in teaching and learning (Clark, Logan, Luckin, Mee and Oliver, 2009). It may appear that most HE instructors are reluctant to integrate SM into the instructional process due to the possible disruption it causes to student learning as well as the limited instructional support (Frazier, 2013).

As instructors are expected to be the drivers and stimulators of learning, I argue that their efforts to integrate SM into HE instruction are vital if learners are to be encouraged to use them for instructional purposes. However, drawing on my personal experience of working in an HE environment, I have observed that there is some degree of inertia on the part of instructors in integrating SM into instruction. Therefore, two questions I seek to answer are' how interested are instructors in engaging students as producers of content and not

just consumers? And how ready are instructors to learn and keep abreast of new technologies such as SM?

Members of the current generation of digital learners (Generation Z) as described above by Schroer (2008), tend to have ready access to technology such as laptops and smart phones of some sort. However, it is interesting to note that while the students have the capacity to use these devices to access SM platforms and create resources such as videos, blogs and e-books that might make learning more meaningful, it is my observation that most instructors often ask them to turn their devices off in the classroom and concentrate on the handouts and worksheets of traditional pedagogy. Moreover, these worksheets are usually discarded as soon as they have been marked and most learners are reluctant to keep them. On the contrary, it is to be expected that these learners would by nature want to create their own digital resources to share with friends and colleagues if they were given the chance to do so by their instructors.

Indeed, the 21st century learner invariably desires a hands-on experience whereby he or she may apply technology in a practical manner. This is due to the fact that "today's students are no longer the people our educational system was designed to teach" (Prensky, 2001, p.8). Rather, they are more conversant and comfortable with the use of technology than with traditional learning methods (Katai, 2015). It is, therefore, through this means that HE can truly engage them (Xiang and Liu, 2016). Despite some instructors' abhorrence of digital device use in the classroom, there is a need to understand how to convince them that these devices are critical in supporting knowledge creation rather than a mere distraction. Moreover, this technology can help meet the requirements of those who have different learning needs so that they may reach their full potential and contribute to classroom discussions.

Considering the potential of SM to improve teaching and learning in HE and the assumption that learners will want to create digital resources they can share with friends, colleagues and lecturers if given the chance, one overarching question remains: what technologies have been and can be integrated into the instructional process in Ghanaian higher education? To answer this, three strands of contemporary educational debate that are pertinent to the present study are considered: (1) Mainly due to out-of-school experiences with technology, HE students are changing their learning behaviours and are no longer content with an education system that fails to directly address the reality of their lives. (2) The pedagogy of 'telling and testing' that is mainly used in Ghanaian classrooms is becoming less and less viable for the current generation of students. (3) If the digital technology which is rapidly becoming more attractive to the education sector is used effectively and efficiently and efforts are being made to meet the challenges, then it has the potential to make HE students' learning engaging, achieve tangible results, and applicable for use in their future careers (Prensky, 2010; Shaw, 2014).

1.2 Problem statement

Many students in HE institutions worldwide use SM applications for information sharing and learning (Prensky, 2010; Shaw, 2014). Indeed, well-designed pedagogy, appropriate technology, and a willingness to serve student needs have all been documented as necessary prerequisites to an understanding of how to design better quality online learning for the HE sector (Prensky, 2010; Shaw, 2014).

Web 2.0-based applications have been explored by researchers such as Dubrovsky (2011), Friedman and Friedman (2013), Gagnon and Hughes (2002), Lin, Homman and Borengasser (2013); Tang and Whinston (2012), and have been used globally in different educational contexts. Ala-Mutka (2010), for example, argues that SM applications provide

an easy, fast and efficient way of accessing a great deal of information and situated knowledge that provide learners with the opportunity to expand their competencies as they collaborate with fellow students and other stakeholders.

As the above evidence suggest, extensive research has been undertaken on the use of SM to promote HE learning in the international context. However, it appears that the same cannot be said for Ghana where only a few studies (for example, Adu-Manu, Arthur and Yeboah, 2013; Apeannti and Essel, 2003; Ocansey, Ametepe and Oduro, 2016; Otu, 2015) have been conducted in the field, and even these have tended to focus only on the role and impact of SM per se, and neglected how Web 2.0 platforms have been integrated into instructional delivery.

Furthermore, the dearth of literature on the integration of Social Media (SM) into the Ghanaian HE context does not help in an understanding of the current opportunities and challenges that exist in the use of SM in teaching and learning, the needs of HE students and instructors in terms of how SM might be used as a medium/tool of instruction, the factors that influence the use of SM by students and instructors, or how SM could be successfully integrated into current instruction programmes. Thus, in order to extend the frontiers of existing knowledge and contribute to the literature on the role of SM in the promotion of teaching and learning in HE. The present study was conducted as an effort to investigate into the levels of SM integration into the Ghanaian education HE context. The study therefore sought to address the question, how are social media platforms integrated into higher education pedagogy in Ghana?

1.3 Purpose of the study

Although there is evidence from the literature from other contexts that point to the huge benefits ICTs and SM in particular have brought to the education sector (e.g. Maccini,

Gagnon and Hughes, 2002; Bernoff, 2008; Amory, 2010; Dubrovsky, 2011; Tang and Whinston, 2012; Nielsen, 2012; Friedman and Friedman, 2013; Lin, Homman and Borengasser, 2013), there are no studies in the Ghanaian context on the integration of SM platforms into HE pedagogy. The present study's pursuance of such questions as what students and instructors use SM for, with reference to their awareness of SM and the different types that exist; the factors that influence students and instructors' use of SM for teaching and learning, how SM is integrated into the pedagogy of HE; and the opportunities and challenges of adopting SM in teaching and learning, constitute an attempt to appreciate the full extent of SM integration into teaching and learning in HE in Ghana. Thus, the purpose of this study is to explore SM integration into the pedagogy of HE institutions in Ghana from the point of view of both students and instructors.

1.4 Research objectives

The objectives of this study were to:

1. Explore the use of SM for teaching and learning among students and instructors
2. Determine the factors that influence students and instructors use of SM for teaching and learning
3. Explore the integration of SM into HE pedagogy
4. Identify the opportunities and challenges that exist in the use of SM by students and instructors

1.5 Significance of the study

The explosion of new technologies especially Social Media in the 21st century has been evident in all spheres of life. This has made it necessary to explore its integration into teaching and learning in Ghanaian HE institutions from the point of view of instructors

and students. It is hoped that the gap in literature on the lack of clear understanding of social media integration into HE pedagogy in Ghana is filled and that the findings of this study will inform policy on designing appropriate pedagogical integration of social media into HE instructional delivery. Furthermore, this study may lead to increased awareness and the adoption of programmes that will be aimed at building the capacities of instructors and students on appropriate use of social media for instructional delivery.

1.6 Organization of the study

This study is divided into six chapters. Chapter one focuses on the introduction of the study. This includes background of the study, statement of the problem, research questions, purpose of the study, significance of the study and objectives. Chapter two focuses on literature review of studies on SM for teaching and learning. This chapter also focuses on the theoretical and conceptual framework for the study. Chapter three provides details of the study areas and methodology which includes the study design. In chapter four, the results of the study are presented. These include what students and instructors use social media for; the factors that influence the use of social media by students and instructors, the integration of social media platforms into HE pedagogy and finally, the opportunities and challenges that exist in the use of social media by students and instructors. Chapter five discusses the results of the study. Chapter six finally provides summary of findings, conclusion and recommendations.

1.7 Summary

The chapter introduced the background to the thesis by elucidating the role of ICTs and particularly Social Media (SM) in the context of teaching and learning in higher education. It emphasized the need for instructors to adopt instructional strategies that would support

the current 21st century learners who are adept with new technologies and to improve on their instructional delivery. The chapter equally stressed on the fact that many researchers have reported on the use of SM for teaching and learning in other contexts. However, just a few studies have been conducted in Ghana and even those have only focused on the role and impact of social media generally but neglected how they have been integrated into Higher Education instructional delivery. This has left a dearth of literature of SM's integration into the Ghanaian HE context, which the study sought to fill. The bigger question for this thesis was: How is social media integrated into HE pedagogy in Ghana? In answering this question, four objectives were identified: 1) to explore what students and instructors use SM for; 2) to determine the factors that influence students and instructors use of SM for teaching and learning; 3) to explore the integration of SM into HE pedagogy; and 4) to identify the opportunities and challenges that exist in the use of SM by students and instructors. It is anticipated that the gap in literature concerning the phenomenon would be filled and the findings would inform policy on designing appropriate pedagogical integration of social media into HE instructional delivery.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is in three sections. The first reviews the literature relevant to the study under four main themes:

- Social Media (SM) tools used by instructors and students for teaching and learning
- factors that influence instructors and students use of SM in teaching and learning;
- social media's integration into Higher Education pedagogy; and
- opportunities and challenges that exist in the use of SM by instructors and students.

The second section focuses on the two theories guiding this study, namely: a) Diffusion of Innovations Theory (Rogers, 1962; Rogers, 2003), and b) Technology, Pedagogy and Content Knowledge (TPACK) Framework (Harris, Mishra and Koehler, 2009). The third and last section draws on the various themes from the literature and their associated theories to produce a conceptual framework for the study.

Adopting a systematic approach to the literature review, I searched various databases, including that of the Education Research and Information Centre (ERIC), and the Elton B Stephens Company (EBSCO), the website Academia.edu, Research Gate, Science Direct, Google Scholar, and Google general website. In retrieving academic articles for review, key search terms such as 'social media and higher education instruction'; 'social media and higher education pedagogy'; 'social media factors and higher education'; and 'social media opportunities and higher education' were used. The initial search found 90 relevant results, which were later narrowed down to 42 based on study objectives and sources from the previous three decades (1985–2017). These were finally chronologically ordered in a tabular format (see Appendix 7).

2.2 Social Media (SM) tools used by Instructors and Students

This section considers the concept of SM in terms of definition, type and, particularly, how it is used by instructors and students, respectively.

2.1.1 The Concept of Social Media (SM)

The use of multimedia in teaching has been found to play a key role in achieving instructional goals. Research suggest that individuals learn new, abstract and innovative concepts more easily when they are presented both verbally and visually (Salomon, 1979). It is important to note that even though many commentators have attempted to define the term Social Media (SM), most studies (e.g. Effing, van Hillegersberg and Huibers, 2011; Kaplan and Haenlein, 2010; Xiang and Gretzel, 2010) indicate that there remains no definite, formal and generally accepted definition, particularly as it relates to the various academic disciplines. Some existing definitions are simple (e.g. Russo, et al., 2008; Kaplan and Haenlein, 2010; Lewis, 2010; Hratinski and Aghaee, 2012), while others appear to be more complex (e.g. Howard and Parks, 2012). SM has been simply defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user generated content" (Kaplan and Haenlein, 2010, p.61).

From a more complex perspective, Howard and Parks (2012) define SM as: "(a) the tools and information infrastructure that are employed to produce and dispense content which (b) digitally appears as personal messages, news, ideas, and cultural products as well as (c) the people, organisations who produce and use the digital content. Howard and Parks' (2012) definition of SM emphasises three key elements: (a) the system that provides the content, (b) the content that is produced in the form of messages, and (c) the people who ingest the content. Dzvapatsva, Mitrović and Dietroch (2014) also identify SM generally

as comprising SNSs, such as Facebook, Twitter, Myspace and LinkedIn; media sharing sites such as YouTube, Flickr and Tumbler; wikis and blogs; syndication of content through rich site summary (RSS) feeds; and republishing tools.

The clear implication of these definitions is that SM embedded in Web 2.0 consists of tools or applications that can be used to generate content, which, in turn, can be accessed by other users. It is pertinent to acknowledge that Web 2.0, a term originally coined in 2004 by O'Reilly (2005) and his colleagues, refers to evolving technologies that are distinguished from what was previously known as World Wide Web (WWW) tools (O'Reilly, 2005). Web 2.0, which is highly interactive in nature and on which many applications related to SM have been built, is the most significant development in the area of new media to date. These applications allow users greater technological control over the creation, co-creation and publication of content. This means that users are able to produce instead of merely reading as was in the case of Web 1.0 technologies, and connect, network and establish profiles of themselves in ways that were not possible previously (Dabbagh and Reo, 2011). Thus, the advent of Web 2.0 has not only facilitated a paradigm shift in how people relate to web content and connect with each other, but has also influenced the ways in which people learn, particularly in the HE environment.

According to Kumar, et al. (2009) and Koren (2010), Web 2.0 provides a basis for hitherto passive audiences to become active contributors an attribute which has made Web 2.0 applications immensely popular. One of the most important reasons for the success of SM is the simplicity of the platform on which it was created. This enables users to adopt Web 2.0 applications quickly, thus readily enabling the creation and sharing of experiences, ideas, opinions and content such as videos, photos and music (Lai and Turban, 2008). Depending on the desired experience, there is a wide choice of SM platforms such as wikis,

podcasts, SNSs, blogs, microblogs, and content sharing sites (Constantinides, Romero and Boria 2009; Collin, Richardson and Third, 2011). Notwithstanding the features that make SM use simple, it is equally important to indicate that some of the platforms are quite complex to use and that could create challenges in their usage.

2.1.2 Types of Social Media (SM) Technologies

Social Media (SM) technologies come in various forms that allow individuals different affordances, which, according to some commentators in the field (e.g. Hartson, 2003; Greeno, 1994; Gibson, 1977), are interactive features that enable users to access a system or object. Each one the SM tools has different features that influence its suitability for all learning purposes (Calvo, Arbiol and Iglesias, 2014). Thus, SM technologies are imbued with a myriad of affordances that facilitate interaction and have been variously classified by Kitsantas and Dabbagh (2010); Dabbagh and Reo (2011); Sayan (2016) as:

- Experience- and resource-sharing tools that enable online and social interaction such as bookmarking and blogging, and the use of Wikis and microblogging sites such as Delicious, WordPress, PBworks and Twitter.
- Media-sharing tools that allow social tagging such as YouTube and Flickr.
- Social networking applications that promote socio-semantic networking like Facebook and LinkedIn; and
- Communications and web-conferencing tools such as e-mail, Skype and WhatsApp

In addition to such categorisation, in 2013, the Web technological tools were also ranked for educational purposes in the seventh Annual Learning Tools Survey, which was conducted by more than 500 learning professionals from around the globe (Hart, 2013). The highly ranked tools were Twitter, Google Docs, Google Drive, YouTube, Google

Search, PowerPoint and Evernote, most of which promote user-generated content, collaboration and sharing of information (Zgheib, 2014).

2.1.3 Social Networking and Media-Content Sharing Tools

Quan-Haase and Young (2010) found that users usually embrace several forms of SM for communication. Connecting people who have common interests is the principal role of the Social Networking Sites (SNS). Such resources have been found to be exceedingly popular among college students, 90% of whom use sites such as Twitter, LinkedIn, Google+, Instagram and Tumblr (Smith and Caruso, 2010). These tools help students create a network of friends, enable them to share all kinds of resources and mutual interests, collaborate in common endeavours, and promote links between knowledge acquisition, the community and learning (Kitsantas and Dabbagh, 2010). Facebook – an SNS developed by Mark Zuckerberg in 2004 – is massively patronised by students due to its facility for the adding of friends, sending messages and updating personal profiles. It has been argued that Facebook users are usually motivated by the social gratification it offers. Students have been found to use Facebook primarily to contact high school friends, who are in most cases geographically distant, as well as to learn more about new friends made at college.

Media-sharing tools provide a means of social tagging as well as the core function of sharing videos and photographs via platforms such as YouTube, Pinterest and Flickr. For example, YouTube enables the creation, uploading and sharing of videos that can be accessed by the public or specific users according to a filter. In this regard, it is interesting to note that age has been linked to the uploading of videos on YouTube. For example, Sherrer and Shea (2011) indicate that users who upload to YouTube are on average about 26 years of age, adding that about 80% of videos are by amateurs, 15% by professionals, and 5% produced commercially.

It is necessary to recognise that SM tools may be accessed on ICT devices such as laptops, desktop computers, tablets and smartphones but it appears that SM platforms are accessed most easily and conveniently on mobile computing devices, which have increasingly become a crucial part of the HE landscape, with their concomitant advantages and disadvantages (Kim, Mims and Holmes, 2006; Looi, et al., 2010). Nevertheless, these devices are synonymous with the concept of mobile learning, which "combines individualised learning with anytime and anywhere learning" (Motiwalla, 2007, p. 2) and, as students learn on these devices, they are able to locate, manipulate and evaluate already existing knowledge through the use of SM platforms as they create user-generated content (Brown, 2005; Agichtein, Castillo, Donato and Mishne, 2008).

The education sector has also produced and continues to produce its share of technological innovation in the sense that there has been a gradual surge in the use of wireless, mobile, portable and handheld devices across all fields of education in both developed and developing countries (Ally, 2009). This helps to support learning and transform how people learn and interpret learning (Säljö, 2010). Consequently, educators and learners are now connected to the world through computers and mobile phones, which also serve as tools for the creation of external memories and as information sources. For example, the PowerPoint presentation, which is not an SM tool per se but can be integrated into SM (Zgheib, 2014), as indicated earlier, is represents important evidence of the technological development in the HE sector with the emergence and growth of the Internet, and also contributes to innovation in education through the networking capacity associated with it. Moreover, a number of studies indicate that there has been a change in the application of mobile SM technology from informal use by instructors and students to formal acceptance (e.g. Aviles and Eastman, 2012; Waldeck and Dougherty, 2012; Wang, Tchernev and

Solloway, 2012; Barnes and Jacobsen, 2012; Tess, 2013; Voorn and Kommers, 2013), which signifies a paradigm shift in education.

According to Säljö (2010), the increasing number of SNS has resulted in an explosion of social interaction in virtual communities. Their basic characteristic of interactivity notwithstanding, each of these platforms has unique features that distinguish it from the others. This means that SM users do not necessarily want to choose one platform over another, but, rather, combine their use of them. Nevertheless, all SM platforms have some functional features in common, such as the facilitation of communication, collaboration, creativity, convergence and the bringing together of a community (Friedman and Friedman, 2013), which help promote free and participatory interaction, a vital aspect of teaching and learning (Selwyn, 2011). SM technology has thus introduced substantial and pervasive changes to communication between organisations, communities and individuals, and those in the HE sector, need to tap into this innovation.

2.1.4 Use of SM by Instructors and Students

The emergence of SM and the rate at which it is has grown makes it inconceivable that most of the world's youth, particularly those who are literate, does not use it at least part of the time. In the HE sector, different forms of SM have been used for various purposes by both instructors and students. It has been observed by a number of researchers (e.g. Davis, et al., 2014; Seaman and Tinti-Kane, 2013; Veletsianos, 2012; Moran, Seaman and Tinti-Kane, 2011) that a large majority of educators use SM in their personal lives and independent academic activities. For example, in a report on SM for teaching and learning, Seaman and Tinti-Kane (2013) found that instructors used SM for personal and professional purposes as well as teaching, citing platforms such as LinkedIn and Facebook and Podcasts of various types. Blogs and Wikis were also found to be frequently accessed

applications for teaching. Similarly, in a case study on the use of SM to enhance HE learning through collaboration, Moran, Seaman and Tinti-Kane (2012) found that over 45% of instructors made professional use of SM at least once a month, with LinkedIn being the most commonly used platform.

The term 'Podcast' is a portmanteau word from the Apple Inc. product 'iPod' and 'broadcast', and simply means audio blogging. A Podcast can be an audio file alone or a combination of audio and video, which can be downloaded and listened to on a mobile device such as an iPod, MP3 player, iPad or smartphone. It is important to note that the process of user-generated podcasting together with its format and distribution has been simplified by mobile technology (Buffington, 2010). In an education context, this technology enables instructors and students the freedom to create and share content that will meet most instructional goals of a given course (Ng'ambi and Lombe, 2012).

According to the literature (e.g. Kitsantas and Dabbagh, 2010; Lazda-Cazers, 2010; Rudestam and Schoenholtz-Read, 2010), Wikis are websites that permit users to create and modify content and structure collaboratively in a user-friendly environment without any requisite expertise in Internet design. After the creation of a wiki site, the creator can invite any other users to access it. One page of a Wiki is known as a Wiki page and the total number of pages on the website, including any hyperlinks to other sites, constitutes the Wiki (Donne and Lin, 2013). Users can add media, text and links; create files or folders and add pages; and track updates by date or author via a 'history' page (Lazda-Cazers, 2010). As an instructional tool, the wikis is highly suited to the creation of content, editing and sharing of resources, and linking, communicating, commenting on, and posting of reflective messages (Zgheib, 2014).

In their academic and leisure pursuits, students also find that they need to search for various contents either to address a problem or satisfy their curiosity. In so doing, they make full use of the SM platforms at their disposal to both seek and share information, making them not only passive consumers but also co-creators of information. Thus, the informal aspects of HE students' learning experience are being addressed by SM (Dabbagh and Kitsantas, 2011). However, the students require formal support, guidance and pedagogical intervention on the part of instructors for the maximisation of these tools (Dabbagh and Kitsantas, 2011).

In this regard, instructors and students have been found to use various types of SM tools for academic purposes. For example, Blogs can be a valuable instructional tool. This was confirmed by Melanie's (2010) study, which employed an action research design to sample 34 undergraduate trainee teachers in the use of blogs. Data sources included reflective field notes, focus groups and observer notes, and the findings revealed that blogs were effective and improved the communicative learning experience. Similarly, a phenomenological study by Buono (2011) explored the lived experiences of trainee counsellors when blogging during coursework with the use of criterion sampling. Themes that emerged included perceiving online safety, feeling supported, developing connections, discovering numerous perspectives, finding commonalities, expressing oneself, and reflection.

Additionally, Aspey (2010) found that greater than 52% of college professors used such tools as blogs, videos, podcasts and wikis in their teaching. The study further reveals that over 80% of these professors believed that SM added value to teaching practices. This confirms Säljö's (2010) contention that ICTs advancements have transformed our ways of doing things, with many significant advances in digital technology during the past few decades, particularly in the area of SM. Numerous other academic works (e.g. Bennett,

Bishop, Dalgarno, Waycott and Kennedy, 2012; Huang and Huang, 2011; Sim and Hew, 2010) on HE instruction have generated a lot of interest among researchers, particularly when it comes to the benefits for instructional delivery.

From the discussion so far, it is clear that SM already plays a significant role in the work of many students and instructors. Four key roles of SM in the teaching and learning process are identified by Redecker, et al. (2009) and Ala-Mutka (2010) as 1) Making accessible a great variety of *content* for both learning and professional development; 2) contributing to the *creation* of digital content from which learners and teachers can benefit; 3) *connecting* learners to one another, their instructors, and other experts with the aim of gaining greater access to the knowledge base in a given field of study; and 4) Making it easier for learners and instructors to *collaborate* on a given assignment or topic of interest through the gathering of expertise and pooling of resources, hence increasing the likelihood of positive results for those committed to a common goal (italics added). Thus, instructors and students use SM for real communication, enabling the latter to collaborate and benefit immensely from the learning process.

2.2 Factors that Influence the Use of SM by Instructors and Students

Several factors including age, gender, motivation, academic programme and professional ranking, have been found to account for the use of SM in teaching and learning. For example, many studies have shown that age has a significant influence on the way SM tools are used for personal and professional purposes, the general trend being that older the instructors with over 20 years of teaching experience, compared to their younger colleagues, are less likely to use SM tools for their courses (e.g. Parry, 2010; Blankenship, 2011; Ruleman, 2012; Moran, Seaman and Tinti-Kane, 2012; Roebuck, Siha and Bell, 2013; Mutekwe, 2015; Velsamy and Karthikeyan, 2016).

However, interestingly, other commentators hold opposing views. Indeed, some studies have found that educators of all ages use SM equally, Blankenship (2011), for example, revealing that older instructors with 20 years or more of teaching experience use SM just as much as their younger colleagues. Similarly, Ruleman (2012) even found that older male and female instructors used SM more extensively than their middle-aged counterparts.

Another key factor influencing SM usage in education that has caught the attention of researchers is gender (Siha and Bell, 2013; Roebuck, Siha and Bell, 2013; Huang, Hood and Yoo, 2013; Agbatogun, 2013; Ruleman, 2012; Neely, 2011; Goudreau, 2010. For example, in a study that examined faculty usage of SM and mobile devices, Roebuck, Siha and Bell (2013) sought to understand the perceptions of professors who used SM for instruction, the type of mobile devices used in accessing SM, what motivated use of SM, and the enthusiasm and/or reservations faculty showed with regard to SM usage. Adopting a two-way multivariate analysis of variance (MANOVA) to investigate possible gender differences, it emerged that while 67.2% of SM users in the sample were female only 32.8% were male. This suggests that more females use SM than their male counterparts, a conclusion corroborated by Goudreau's (2010) finding that 57% of Facebook users are female, which means that they are more likely to use ICT tools than their male counterparts (Ruleman, 2012). Nevertheless, other researchers have achieved different results, with evidence of no substantial correlation between academic rank, gender and SM usage (Kim, Kwon and Cho, 2011; Agbatogun, 2013).

Other criteria that have been identified as influencing the SM usage habits of educators are personal intrinsic motivation, field of study (Parry, 2010), academic rank (Agbatogun, 2013), attitude (Mutekwe, 2015), personal and peer resistance (Sigalit, Sivia and Michal,

2016), and other factors such as psychological characteristics, information quality, social influence, and system usefulness.

The above criteria have also been noted as leading indicators of student preference in terms of whether or not they choose to use SM platforms for academic purposes (Mura, Yaacob, Endut, and Langov, 2016). For example, a study by Lubua, Semlambo and Pretorius (2017) looked at factors affecting the use of social media in the learning process. They adopted a quantitative approach with descriptive statistics and a One-Way ANOVA to determine whether students' social media use was significantly related to the demographic variables. The study revealed that student' demographic characteristics has no relationship to the use of social media for learning. However, it was revealed that 63% of the students had a positive perception towards the importance of social media in the learning process. This according to them is due to the social media platforms' ability to link learners and their instructors in the learning process beyond the traditional classroom. (Bora and Ahmed 2013; Chawinga and Zozie, 2016). The study also indicated that learners' comfortability with the use of social media in terms of their ability to install, access, navigate and be able to read the content of the platform enhances their use.

Regarding what motivates professors to adopt SM in their instruction, the three most common responses found by Parry (2010) were personal initiative: 67%; enthusiasm for ICT development: 58%; and the wishes of students 48%. Parry (2010) argues that it is surprising that student demand only comes third considering that learners should be at the centre of any instructional process. The author assumes that this was a comparatively less popular motivational criterion because the students under study were already fully conversant with the use of SM and consequently thought their professors might want to keep up with them and would thus be motivated to employ SM tools, whereas the

professors had already chosen to use SM for personal intrinsic reasons and so were motivated to adopt it in their instruction.

Additionally, field of study cannot be overlooked as a factor that influences instructor choice in the use of SM for teaching (Parry, 2010). In this regard, the humanities and social sciences have been found to represent greater SM usage among faculty members than that cited by their colleagues in the fields of mathematics, business studies, or the natural sciences. Finally, Mutekwe (2015) also identifies the attitude of HE educators to ICT use in the classroom as one of the strongest predictors of whether or not an HE institution will make a policy decision to officially integrate the application of SM into its curriculum.

2.3 Integration of SM into Pedagogy

Pedagogy can be described simply as a set of activities that induce change in the learner. On the other hand, some more elaborate definitions have emerged to articulate the concept notionally. For example, Watkins and Mortimore (1999) conceptualise pedagogy as involving all that an instructor does to effect learning in students. In this regard, the teacher is placed in the position of a 'director' of learning.

Dabbagh and Kitsantas (2011) suggest that in order to optimise learning to the full the learner should engage in both formal and informal learning activities. Thus, SM can be employed to provide students with an opportunity to access additional and personalised learning materials from the Internet, thereby meeting these criteria. The pedagogy employed in HE institutions must therefore ensure that curricula and subject content encompass such learning materials. Clearly, then, instructors' content knowledge is critical in the use of ICT in pedagogy as is, more comprehensively, the needs of learners, learning objectives, educational theories, instructional methods, interaction, assessment, and

strategy development (Engelbrecht, 2003; Doering, Veletsianos, Scharber and Miller, 2009). It is important to recognise that pedagogy encapsulates all the essential phases that instructors go through to ensure that learning (and teaching) aims are met at every stage of instruction. Grossman and Richert (1988) and Engelbrecht (2003) take this concept further by emphasising that teachers must implement performance indicators to ensure that learning has taken place.

Bernstein (1990) proposes two models of pedagogy, namely, those of performance and competence, which together focus on teachers' organisational discourse, management, and response to learners. This proposition contrasts with that of Bourne (2006), who accentuates the *performance* model of pedagogy, with its explicit and well-classified subject areas in which procedures and skills are taught. According to the latter conceptualisation, neither instructors nor learners have control in so far as the selection, sequencing and pacing of the curriculum are concerned. On the other hand, Bernstein's (1990) *competence* model employs more diffuse subject areas which are integrated in the form of projects and themes.

The different ways in which instructors integrate SM into pedagogy for HE delivery have been investigated by numerous scholars (e.g. Gambo and Apuke, 2017; Riehemann and Jucks, 2017; Veletsianos, Kimmons and Pasquini, 2017; Vigurs, 2016; Karthikeyan, 2016; Greenberg, 2013; Luttrell, 2012; Potter and Banaji, 2012; Ahmadi, 2011; Ayers, 2011; Blankenship, 2011; Dabbagh and Kitsantas, 2011). For example, Dabbagh and Kitsantas (2011) found that SM serves as a tool with the potential to integrate formal and informal learning, which is a promising pedagogical approach that supports student self-regulated learning in HE. According to Dabbagh and Kitsantas (2011, p1), "There is strong evidence that SM can facilitate the creation of personal learning environments (PLEs) that help

learners to aggregate and share the results of learning achievements, participate in collective knowledge generation, and manage their own meaning-making."

Additionally, employing a multiple case study method to understand how college administrators regard the academic application of blog authors, and to develop a model that enhances the integration of Web 2.0 technologies, Swanson (2010) confirms the adaptability of college administrators to advances in Web 2.0 applications. In particular, the study examines how applications like Facebook and Twitter can be incorporated into HE instruction.

Blogging has also been found to yield positive results for HE instructors. For example, in a qualitative study conducted in the United States of America (USA) on trainee teachers' use of blogging as virtual teacher talk, Melanie (2010) found blogs to be effective because they enhance the communicative learning experience. However, he cautions educators against ignoring the appropriate use of Web 2.0 platforms for educational purposes. Additionally, Riehemann and Jucks (2017) conducted a study in Germany on the extent to which HE teaching and learning can be digitised. Their qualitative study found that instructors and students tend to have opposing views. Thus, it emerged that while instructors were more likely to believe that digital media could enhance didactic design, students tended to consider that digital media was relevant in terms of tutorial support, communication, learning success and co-operation. Riehemann and Jucks (2017) opined that while instructors were more interested in course design, students were more likely to be interested in how to conduct their studies. This implies that HE instructors should take heed of the needs of students as they design their courses.

Furthermore, in their study on self-curatorship as a means of understanding identity in SM in the United Kingdom (UK), Potter and Banaji (2012) found that different types of blogs

can be combined to enhance meaning, although just how this is fully realised remains unclear. In terms of academic assessment, Potter and Banaji (2012) conclude that the idea that producing a blog might be less challenging than writing a traditional essay is a misapprehension because most students have experience of and are more comfortable with a traditional academic setup rather than the 'reflection-made-public' model that is required by the blog format.

Taking Facebook as an element of a Community College Environmental Biology course, Greenberg (2013) studied the impact of SM as an instructional component of content knowledge, and attitude to and public engagement with global climate change. Thus, student attitudes to climate change, content knowledge, and public engagement intentions were measured by comparing group analyses (treatment and comparison groups). The treatment group was based on the interest of the instructor to incorporate Facebook into the course. With the comparison group the instructor used existing course resources, approaches and processes. This study found that the Facebook (treatment) group was more concerned about and more socially active about climate change than the comparison group, even though there was no significant difference between the two instructional formats in terms of content knowledge. In effect, Facebook broke down barriers for shy students, provided supplementary reading suggested by peers, and enhanced class discussion time.

Additionally, Ahmadi (2011) assesses technology-based learning on a college-level anthropology course. Focusing on the principal instructor and three teaching assistants, it emerged that the instructor relied on Facebook and a Wiki Course Management System to deliver instruction to the students. The students adopted and used the technology in a positive manner as the course progressed, even though their initial reaction to SM use was lukewarm.

Indeed, it has been found that HE instructors use SM tools in myriad ways to facilitate communication in class. For example, a history professor at the University of Texas, Dallas enhances student participation in her class of 90 using Twitter during lectures (Roth and McCully, 2010). In the field of journalism, Miami University uses tweets and blogs in the classroom to access information on current trends and experiences (Claire, 2010). And Dabbagh and Kitsantas (2011) illustrate how SM offers the potential to integrate formal and informal learning, a promising pedagogical approach that supports self-regulated learning, particularly in higher education. Thus, "there is strong evidence that SM can facilitate the creation of Personal Learning Environments (PLEs) that help learners aggregate and share the results of learning achievements, participate in collective knowledge generation and manage their own meaning making" (p.1). The next section discusses the opportunities and challenges of SM in teaching and learning.

2.4 Opportunities and Challenges to the use of SM in Teaching and Learning in HE

Globally, SM is considered to have both positive and negative effects on teaching and learning in HE institutions. First, I address the opportunities, followed by the challenges.

2.4.1 Opportunities to the use of SM in teaching and learning

There are many positive effects associated with the use of SM in HE delivery. Generally, ICTs provide both instructors and students with countless opportunities to easily adapt teaching and learning to individual needs (Mikre, 2011). These include the facilitation of active engagement; collaboration; independence; bridging of geographical distance through mobile learning; satisfying students' thirst for new knowledge; providing instructional content; creating formal and informal learning opportunities; and strategising of instructional delivery (Mikre, 2011). Studies indicate that SM in the classroom not only

stimulates active engagement, collaboration and learning (Minocha, 2009; Renfro, 2011; Ghosh, Chawla and Mallot, 2012; Leafman, 2015; Mutekwe, 2015), but also promotes instructor–student interaction and administrative communication (Collis and Moonen, 2008; Hemmi, et al., 2009; Mazman and Usluel, 2010; Junco, et al., 2011; Hrastinski and Aghaee, 2012). For example, in a study in Malaysia which explored the use of SM tools for teaching and learning purposes, Rahman, Othman and Al-Rahmi (2016) found that the use of SM positively and significantly correlates with active learning and further affects teaching and learning positively.

Instructors are also able to use SM to update students on topics under study, class assignments and other relevant information; facilitate classroom activities; generate conversations; and provide feedback. Thus, students and instructors engage with course content, which, in turn enables active participation in the construction of a learning landscape that is rooted in social interaction, knowledge exchange and optimum cognitive development (Veletsianos, Kimmons and Pasquini, 2017; Douglas, 2011), which has a particularly positive impact on teachers' performance and leads to high levels of student independence (Khan, Ahmed and Amin, 2017). This observation confirms Minocha's (2009) finding that SM sensitises students to new points of view and resources they might never have encountered independently. Thus, SM technologies are able to enhance student learning and independence in terms of encouraging autonomy, intentionality, community and reflection (Chen, Lambert and Guidry, 2010; Dunlap and Lowenthal, 2011).

The current generation of students – the so-called Generation Z – yearn for novelty in everything, especially when it comes to instruction delivery. As they link with various SM applications, they learn new things which they draw on in the learning process. In this regard, Shaw (2014) contends that the dawn of SM technology has provided a likely

solution to students' voracious thirst for new knowledge, and the task of new technologies such as SM is to acknowledge the learner as a pursuer of knowledge rather than knowledge chasing the learner.

As an example of the potency of SM in the provision of valuable data, the Content Management System (CMS) WordPress 3.3 was believed to have attracted over twelve million downloads in the first year after it was introduced on 12th December 2011 (Shaw, 2014; Bowers, 2012). According to Bowers (2012), the CMS enjoys an average of 105,263 downloads per day. As a global SM tool that has been translated and localised into at least 73 different languages, WordPress has users all over the world (Bowers, 2012; Ryan, 2014). These figures are indicative of a phenomenal growth rate and impact on digital literacy, while at the same time the educator's responsibility to ensure that the student is guided as they learn using the tools, is maintained (Casey and Evans, 2011). It is, therefore, not surprising that many HE instructors have exploited the current interest of students in SM technology to facilitate the delivery of their instructional content (Friedman and Friedman, 2013).

It has been argued from a learning technology perspective that in the current era the role of education is to improve the overall efficiency of mankind and its social capital, and civic participation will not yield adequate results if approached without identifying and deepening social networks. This is because the current generation of learners are digital natives and hence fanatical about technology (Prensky, 2001; Verran, 2008; Rosen, 2010). The result is that it is barely possible to conduct scientific or mathematical procedures in the classroom without using electronic apparatus. The above argument suggests that it behoves educators to design instructional content with particular attention to the needs of our current generation of students. Possessing such characteristics as technological

literacy, the ability to multi-task, and social exposure to technology, today's students are therefore able to process sounds and pictures, adapt to just-in-time systems, and gain instant gratification, prompt feedback and rewards. Such an approach to learning certainly makes classroom instruction exciting and fun for digital natives (Vigdor and Ladd, 2010), and has several implications for education policy in terms of the integration of social media into teaching and learning.

Additionally, SM is considered to have the potential to break down barriers of geographical distance between learners and instructors, especially when it comes to distance learning. Clearly, as the name suggests, distance learners are separated from their instructors by time and space, sometimes making learners feel isolated. SM can alleviate the 'lonely' experience associated with study on a distance-learning academic programme (Ghosh, Chawla and Mallot, 2012). This is because SM technologies allow distance learners to network amongst themselves and their instructors which make them feel more engaged with the learning process. The form of interaction that occurs through SM platforms promotes collaborative learning and at the same time allows learners and instructors the flexibility and freedom to maintain their own schedules and spaces. Accordingly, with the appeal of interaction and engagement in and outside the classroom, the traditional sense of independence in distance learning can then be enjoyed.

Constructivist educational technologists (e.g. Nielsen, 2012; Amory, 2010; Bernoff, 2008) also emphasise the opportunities that educators can develop from SM usage in the classroom. This is due to the fact that Internet users and students in particular are spending more time on SM sites than any other type of site. It is, therefore, important that instructors exploit this practice. In corroboration of this point, information on Internet usage in the USA reveals that the total amount of time academics spent on accessing SM sites through

mobile devices and PCs increased by 37% to 121 billion minutes in July 2012 compared with 88 billion minutes in July 2011 (Tang and Whinston, 2012). Clearly, this phenomenon cannot be overlooked by educators who are constantly searching for alternative strategies to meet the needs of their students. Social Media is a prevalent institutional concern for both traditional and non-traditional college goers due to its use across demographic sectors (Duggan, Ellison, Lampe, Lenhart and Madden, 2015). In order to optimize learning and make it most effective, Dabbagh and Kitsantas (2011) suggest that the learner should be engaged in both formal and informal learning activities. SM thus gives students the opportunity to access additional and personalised learning materials from the Internet, thereby facilitating both formal and informal learning. Formally, technology offers several opportunities including ensuring that lectures, notes, announcements and feedback on assignments are easily and readily available to students and instructors alike (Mutekwe, Machingambi, Maphosa, Ndofirepi and Wadesango, 2013).

2.4.2 Challenges to the Use of SM in Teaching and Learning

The positive impact of SM identified by some commentators notwithstanding, many others maintain a certain caution towards the use of such tools in teaching and learning (e.g. Friesen and Lowe, 2011; Gingerich and Lineweaver, 2014; Mao, 2014). Some of the challenges identified include lack of national policy, disruption to student learning, privacy issues, difficulty in integration into existing courses, and the shift of focus from academic study to social interaction. Indeed, some studies (Kennedy, Judd, Churchwood, Gray and Krause, 2008; Oliver and Goerke, 2007) indicate that the role of technology in the life of the student, both outside and in school, is a unique experience whereby there is a need to be wary of generalisations in terms of the benefits of technology for education, particularly the use of SM.

The lack of a national policy on SM is one of the major stumbling blocks regarding the use of ICT in education (Alsuraihi, Almaqati, Abughanim and Jastaniah, 2016; Mutekwe, 2015; Bradley, 2011; Säljö, 2010). For example, a study on SM use in education among medical students in Saudi Arabia reveals that students had the impression that the reason why their tutors did not use SM effectively was due to the absence of organisational policies (Alsuraihi, et al., 2016). However, this could be easily addressed, and any inappropriate online behaviour deterred if certain proactive educational guidelines are adhered to (Bradley, 2011).

Another challenge that has been reported as hindering SM use in HE is its alleged disruption to student learning (Sigalit, Sivia and Michal, 2016). In this regard, Frazier's (2013) study on nurses' training investigated 46 fulltime community college instructors who responded to a 21-item questionnaire on the use of mobile technology. It reveals that about 67% of the faculty used at least one or more mobile learning tools. Key among the findings was the fact that instructors felt that SM use could be disruptive to student learning and that institutional support for its use on the course could be extremely limited. Additionally, there was a negative view of the use of Social Networking Sites for educational purposes.

Cohen's (2011) study examined the relevance of Facebook to the needs of HE students. Two hundred and eighty-three college students were asked to rate the educational importance of Facebook combined with instructor-student interaction and the distribution of supplementary information. Correlational analysis, descriptive statistics, and analysis of variance (ANOVA) tests were conducted and, interestingly, the findings revealed that the trainee nurses did not regard Facebook as a useful academic tool, expressed a negative attitude towards the integration of the SNS for instructional delivery, and did not yearn to

have contact with their instructors through Facebook. This conclusion is corroborated by Bishop's (2010) finding that not all students benefit from the use of blogs, for example, as a means of submitting work, cautioning that instructors should not disregard the challenge of ensuring the suitable use of Web 2.0 platforms in academic institutions.

The issue of privacy has also generated much concern on the part of researchers (e.g. Van de Bank, 2015; Moran, et al., 2012; Dabbagh and Kitsantas, 2011; Hilton, 2009). Privacy and integrity in respect of student submissions are considered to be major concerns associated with the widespread adoption of SM in teaching (Moran, et al., 2012). A worrying trend in HE appears to be around the empowerment SM brings to students whereby they have almost total control over their own learning. This is due to the fact that there seems to be little or no credible judgment of knowledge, work, publications or thoughts posted in the public domain, making it difficult to measure how authentic any piece of information is (Hilton, 2009). In this regard, Neely (2011) recommends further study on the legal implications of educational adaptations of SM, while LeNoue (2012) advocates privacy controls in the academic use of SNS, whose application in educational delivery he otherwise considers to be vital.

Some researchers have also found that there can be difficulty in finding an appropriate way to integrate SM into teaching and learning (e.g. Mutekwe, 2015; Frazier, 2013; Hew, 2011; Colby and Colby, 2008). For example, in a study at the University of Denver in the US, Colby and Colby (2008) found that there was difficulty in integrating computer games into an essay writing class as traditional perceptions around work and recreation meant that both teachers and students expected classroom and gaming spaces to be clearly differentiated. This finding appears to support the argument that the adoption of SM in HE contradicts traditional and conservative modes of teaching and learning, bringing a

substantial challenge to any education system that seeks to embrace this technological trend.

Tuma's (2012) study examines the impact of Facebook access in creating a sense of community in tourism and recreation classes. Using ANOVA analysis, Tuma (2012) found that there were no significant differences regarding the social cohesiveness of students. The findings of this study question the utility of Facebook in promoting a sense of community in the classroom. In a similar vein, Mutekwe's (2015) study on HE and SM technology found that older professors and some senior lecturers cautioned against the use of SM in the classroom on the basis that it was difficult for educators to monitor the responsible use of teaching and learning tools, and the fact that it was necessary for the technology to adhere to the code of professional standards. In Mutekwe's (2015) view, unfettered SM use in the classroom has the potential to unsettle students and teachers because it presents a myriad of new communication pathways, some of which may end up making HE ungovernable. Furthermore, it has been reported that SM focuses more on social interaction rather than academic aims (Mutekwe, 2015). In confirmation of this view, Hew (2011) reviews related literature on the use of Facebook and attitudes and outcomes, and notes that students appear more likely to use Facebook for interacting socially than for anything that has to do with teaching or learning.

Other challenges noted in the literature include reduction of personal contact, the introduction of potential conflict around different sources of SM-derived content, and lack of competence in handling digital media on the parts of both university academics and students (Riehemann and Juck, 2017). It has been acknowledged that there is a need to strictly control, filter and measure communication in education, but SM removes that control from teachers, administrators and other stakeholders (Riehemann and Juck, 2017).

In addition to challenges that affect the use of SM tools in teaching and learning, there is also the issue of access to suitable technological devices. For example, a study by Adu-Manu, Arthur and Yeboah (2013) on teaching in Ghanaian universities and the challenges and opportunities in the implementation of social network technologies (SNTs) reveals that some students did not even own a smartphone, although they all carried a mobile phone of some sort. According to Arthur, Adu-Manu and Yeboah (2013), such a situation detracts from the routine use of technology in the classroom.

From the discussion so far, it is clear that although commentators strongly argue that the benefits of SM point "…to accommodating the neo-millennial tech-friendly learning style" (Piotrowski, 2015, p.2), educators must be aware that there is a need to guarantee and develop skills such as IT literacy as well as critical thinking among the current generation of students (Everson, Gundlach and Miller, 2013), for whom the predominant use of SM is social networking rather than academic study (Olson, 2011).

In their study on SM in education, Dahlstrom, et al. (2015) report that students are divided when asked about their own IT connectivity in respect of their instructors, peers and coursework. The findings of the study reveal that only 50% agreed that the use of technology was advantageous in this regard. On the other hand, Dahlstrom, et al. (2015) indicate that there was some willingness amongst faculty members to bring the use of technology into the classroom, but they were reluctant to allow students the free use of their devices. For example, while students reported that 59% of instructors used technology for instructional purposes, 53% used classroom technology to help students learn in class, but only 35% of instructors were reported to have advocated the use of students' own devices for classroom learning. Even though the report indicates a decline

in instructor 'non-tech policy', 63% of students indicated that an instructor had prohibited the use of smartphones in the classroom.

Other studies reveal that even though the adoption of Facebook as an educational tool is regarded as extremely widespread among university students, with its one-to-many and many-to-many collaborations, many students regard the SNS as more of a personal and social networking tool (e.g. Ivala and Gachago, 2012; Madge, Hooley, Wellens and Meek, 2009; Mok, 2012; Ophus and Abbitt, 2009) and would rather keep its use separate from their academic study. It has also been reported that although students use Facebook for their studies, its usage has mostly been informal and unregulated without adequate supervision and guidance from teaching and the administrative staff (Lampe, et al., 2011; Gray, Annabell and Kennedy, 2010; Madge, et al., 2009; Selwyn, 2009). From the challenges and opportunities discussed above, the opportunities inherent in the use of SM platforms for teaching and learning are overwhelming; therefore, their integration into HE delivery needs to be explored. More importantly, the current generation of students (digital natives) are more comfortable with the use of ICTs than other traditional methods of teaching and learning (Katai, 2015). It is therefore necessary to consider their integration into the Ghanaian HE system so that the many opportunities for the general improvement of teaching and learning may be realised. The next section considers the theories that underpin the present study.

2.5 Theoretical Framework

It has been argued that the reasoning that leads individuals and societies to adopt and use technology is influenced by a range of issues. Understanding how technology usage first occurs has been of interest to many researchers (e.g. Davis, Deil-Amen, Rios-Aguilar and Gonzalez Canche, 2014; Seaman and Tinti-Kane, 2013; Veletsianos, 2012; Moran,

Seaman and Tinti-Kane, 2011; Harris, Mishra and Koehler, 2009; Rogers, 2003), who have subsequently developed theories and concepts regarding the 'why and the how' of ICTs usage in general. Two such theories – Diffusion of Innovations Theory (Rogers, 2003), and the Technological, Pedagogical Content Knowledge (Harris, Mishra and Koehler, 2009) Framework were considered relevant to this study, which consequently drew on them to explore the interrelationships between instruction, pedagogy and SM. The following two sections discuss these two theories in some depth, beginning with Diffusion of Innovations Theory.

2.5.1 Diffusion of Innovations Theory

The Diffusion of Innovations Theory (Rogers, 2003) posits that new ideas and technology are spread in society. The theory views change as being the evolution or reinvention of products and behaviours so they (products) become better fit for the needs of individual groups rather than forcing or persuading individuals to change. According to Rogers (2003, p.11), diffusion can be defined as "the process by which an innovation is communicated through certain channels over time among the members of a social system". Rogers (2003) identifies five attributes of innovation that help to explain how people adopt new ideas: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. These can be employed to answer the questions as to why and how students and faculty, for example, use SM. The theory argues that based on its propensity to adopt a specific innovation, any given population can be divided into five different categories: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards. A closer consideration of the categories may determine the various factors of a particular rate of adoption. Individuals may be identified as 'laggards' or 'innovators' depending on such factors, and their success or otherwise can be accounted for by

particular aspects of the diffusion process. Various studies have employed this theory as it provides a benchmark for easy understanding of the diffusion process.

Rogers (2003, p.229) goes on to describe the first attribute of innovation, the concept of relative advantage, as "the degree to which an innovation is perceived as being better than the idea it supersedes". For example, instructors adopt technology because of its applicability when they encounter new demands (Casmar, 2001). Equally, other studies (e.g. Parisot, 1995; Spotts, 1999; McKenzie, 2001; Kent and Moore, 2014) have found that instructors who perceive technology as useful for their teaching will use it. This implies that the relative usefulness of any technology determines the likelihood of its integration into instructional delivery.

The second attribute of compatibility deals with "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers 2003, p.240). According to McKenzie (2001), an individual's IT usage is negatively affected by a lack of compatibility with technology, but if he or she is compatible with technology, usage will be affected positively. Consequently, in terms of the individual's needs and the current value system that supports the innovation, it is highly probable that the innovation can be integrated into that individual's life provided it is compatible with the individual's lifestyle and cognitive features (Pennings, 2012).

The third attribute, termed 'complexity' by Rogers (2003), is "the degree to which an innovation is perceived as relatively difficult to understand and use" (p.15). Thus, how easy or complex the use of any technology is will determine how successful its adoption will be. For example, Martin (2003) indicates that if user-friendliness is applied to technology, it is more likely to be successfully adopted in the delivery of instructional materials. Given that there are different levels of complexity in respect of technological

innovation, Parisot (1995) found that there is a possibility of instructors being confronted with the challenge of altering their instructional methodology as they attempt to integrate technological innovation into their pedagogy.

Rogers (2003, p.16) considers "the degree to which an innovation may be experimented with" to be the fourth attribute of trialability. According to Rogers (2003), the more an innovation is tested, the quicker it will be adopted, and the adoption of the innovation is faster when it is reinvented (Rogers, 2003; Sahin, 2006).

The fifth attribute of observability is defined by Rogers (2003, p16) as "the degree to which the results of an innovation are visible to others". Thus, if individuals can empirically see and appreciate the results of an innovation, they are more likely to use it. Parisot (1997) also posits that a critical motivational factor in the adoption and diffusion of technology is 'role modelling', or the observation of the results of an innovation by the innovator's peers. Rogers' (2003) theory is re-echoed by Pennings' (2012) study, which found that technology is quickly diffused throughout society if its relevance is clear.

Rogers (2003) goes on to posit that innovations which adequately demonstrate the above five attributes will be adopted faster than others. This means that these attributes are critical to any examination of the application of technology such as Social Media as the case is in the present study. Indeed, the findings of previous research link these five attributes to the probability of integration of new technologies into education curricula (e.g. Pennings, 2012; Parisot, 2007; Bennett and Bennett, 2003; Surendra 2001).

Rogers (2003) identified further, four variables affecting innovation adoption: (1) type of innovation-decision; (2) nature of communication channels through which the innovation is diffused; (3) nature of the social system through which the innovation is diffused; and (4) the extent to which change agents' are employed to diffuse the innovation. The

attributes identified by Rogers (2003) are regarded as being related to the extensive use of technology (Di Benedeto, 2010) and appreciation of the concept behind their formulation will contribute immensely to the effective use of any technological innovation (Rogers, 2007).

One of the other diffusion variables indicated above which is critical to the present study is the innovation decision process, which Rogers (2003, p.168) explains as "an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation". Uncertainty as used by Rogers (2003) is related to the degree to which alternatives are regarded in accordance with the existence of an event and the relative probability of alternatives. This makes time a relevant variable such that the amount of time needed to pass through this process is termed the 'innovation-decision process' (Rogers, 2003).

There are five stages in the decision-innovation process: (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation (Rogers, 2003). Knowledge about a technological innovation causes doubt in the minds of potential adopters about the possible consequences. Rogers (2003) posits that a potential adopter will ask any number of questions, which may include: What is the innovation? How does it work? Why does it work? What are the innovation's consequences? What will its advantages and disadvantages be in my situation? Rogers (2003, p.14) further contends that, "If an innovation is defined as an idea that is perceived as new, the boundary question ought to be answered by the potential adopters who do the perceiving." Knowledge relates to the situation in which individuals are aware of an innovation and have some conception of how it might be used (Rogers, 2003). In this regard, Sprague, Kopfman and Dorsey (1999) indicate that the major barrier in the use of technology by teachers is related to instructors'

lack of awareness of why or how to integrate technology into their teaching. This implies that if there is lack of knowledge about an innovation, there is a reduced likelihood of it being adopted.

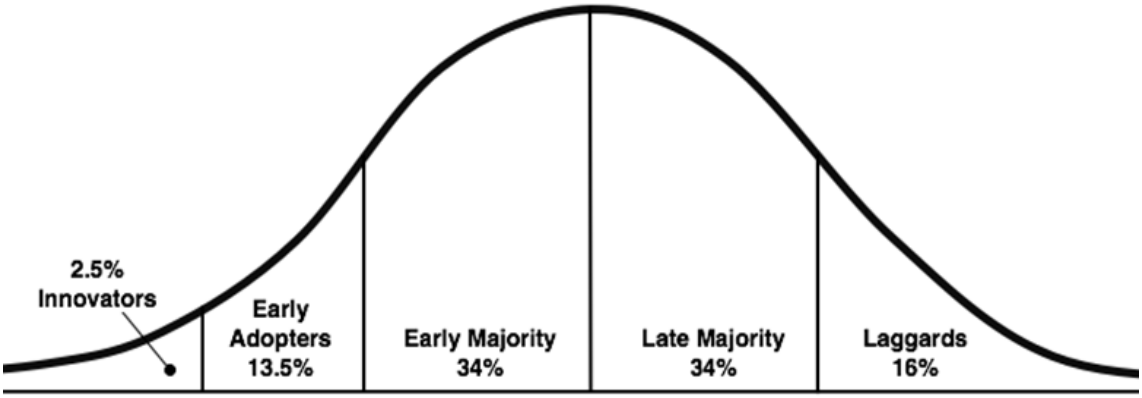
Persuasion relates to an individual's attitude – favourable or unfavourable – towards the innovation. Sherry (1999) contends that even though information concerning an innovation can usually be sought from experts or the relevant literature, teachers often consult the colleagues and friends they would usually confide in and, with their subjective views, are in a better position to convince them about innovations.

The third stage of decision making represents the choice an individual makes as to whether to adopt or reject the innovation as it relates to his or her usual activities (Rogers, 2003). Through implementation or regular use of an innovation, the individual acquires additional knowledge (McGuire, 1989) and is thus able to reinvent the innovation at this stage (Rogers, 2003). The final stage, which Rogers (2003) terms 'confirmation', is reached when the individual examines the outcomes of the innovation-decision process. In so doing, he or she recognises the opportunities of the innovation, integrates it regularly into his or her usual activities, and recommends it to others (McGuire, 1989).

It is equally important to emphasise the fact that the rejection of an innovation can occur due to the individual's dissatisfaction with it or its replacement of a preferred option (Rogers, 2003). In this regard, Rogers (2003) asserts that organisations frequently make innovations on behalf of employees, etc. or, for that matter, students, over which the individuals concerned have little or no control. Even when adopted, Rogers (2003) indicates that individuals in a social system adopt innovation at different rates (some early and others late) and because of this people can be grouped into five adopter categories: (1)

innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards. This is illustrated in figure 2.1:

Figure 2.1: Rogers' (2003) Five Adopter Categories



Source: Rogers (2003)

According to Rogers (2003), 'innovators' are risk takers who always lead the way in the adoption of an innovation irrespective of the extent of uncertainty about it. As pioneers, they are willing to embrace challenges when the implementation of an innovation is initially unsuccessful. In such cases, 'early adopters' tend to quickly adopt the innovation and help in its introduction to others. Those comprising the 'early majority' are persuaded to embrace the innovation by the innovators and early adopters, although they might have to think it through for a while before embracing the innovation completely. Individuals who make up the 'late majority' consider the innovation critically and wait until they are sure that adoption will be in their best interest. This means that they do not adopt the innovation themselves until they realise that most people have done so. Finally, scepticism and resistance are associated with 'laggards', who resist adoption of an innovation until they are convinced that it would be unwise not to do so (Rogers, 2003).

However relevant Rogers' (2003) Diffusion of Innovations Theory might be in appreciating how innovations are adopted in society, certain limitations to the theory are identified by Rogers (2003) himself as well as other commentators in innovation research. These constraints comprise:

- a pro-innovation bias, which is linked to the notion that an innovation must be adopted and diffused by every member of society
- the idea that the innovation must be diffused quickly
- that the innovation should neither be disallowed nor re-invented
- the propensity to hold individuals responsible for their problems instead of the social system of which they are a part
- expecting individuals to remember exactly when they adopted an innovation, which, according to Rogers (2003) can lead to errors; and finally,
- the issue of disparity, that is, as a result of the spread of innovations or new ideas, socioeconomic gaps among members of a social system are frequently extended.

Other commentators have criticised Rogers' (2003) Diffusion of Innovations Theory. For example, Lyytinen and Damsgaard (2001) raise concerns about many of Rogers' (2003) assumptions, such as acknowledging the complexity of systems and the importance of how different they can be from one another; assessment of the ability of various technologies to recognise the features of adopters' behaviour; that diffusion does not necessarily occur in a multifaceted chronological way; and the power of the theory to predict outcomes. In terms of objectivity, Waterman (2004) challenges the theory's assumption that all innovations mean a positive change for everyone without considering the fact that people can fully comprehend an innovation and yet decide not to adopt it.

To address the objections raised, Rogers (2003) proposes the need for a clear understanding of a given innovation as well as the reasons for its adoption, and further suggests that biases can be addressed through assessment of the social system in contrast with its individual as well as the comparison of groups of similar socio-economic status. Kwak, Lee, Park and Moon (2010) argue that it is critical that the continuous popularity of SM leads to a developing awareness among both users and non-users. Usage of SM is thus associated with users' requirements, standards and the distinctive social system as well as previous practises. Consequently, users tend to desire to learn more about these new technologies and as such decide to learn more about them. Over time, individuals will encounter new technologies and finally decide whether to use them or not after considering the advantages and disadvantages. Features such as compatibility, complexity, trialability, observability and relative advantage identified by Rogers' (2003) play a key role in influencing individuals to use SM. The compatibility of instructors and students with SM platforms is enriched when they have previous experience of SM and Internet-based applications. The complexity of these platforms is therefore critical to the adoption of SM (Rogers, 2003).

By implication, SM will be adopted by instructors and students if it is simple and has a structure which is easy to manipulate. Regarding trialability, users of SM will want to trial it provided it is less complex and more open (Koçak, et al., 2013). The researcher in this case assumes that the 'free nature' (relative advantage) of SM (Chang, 2010; Waters, 2010) coupled with the visible results (observability) of its usage will encourage many instructors and students to adopt it for instructional purposes. Consequently, they become more confident in their ability to use new technologies as the platforms unite them.

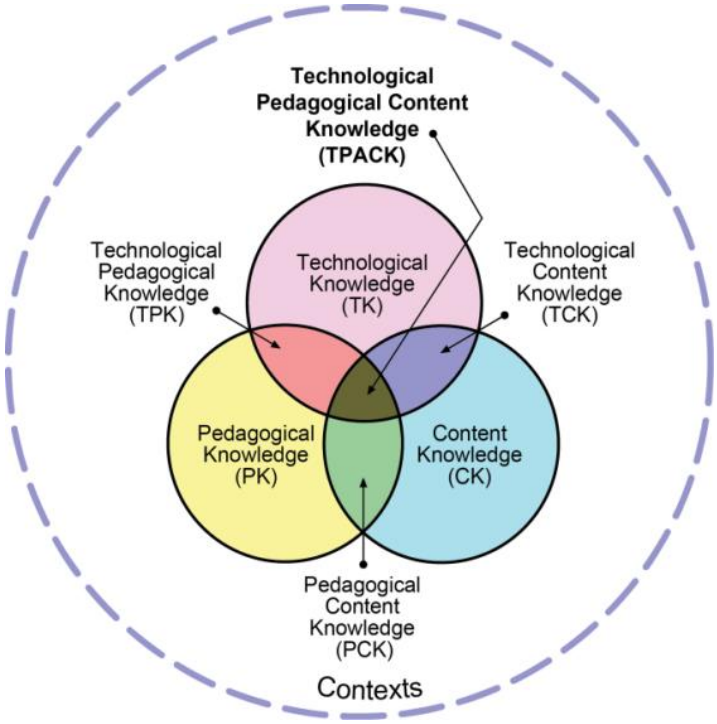
In conclusion, compatibility, complexity, trialability, observability and relative advantage are key considerations as to whether instructors and students can be persuaded to try SM platforms for teaching and learning, respectively. If they decide to use SM, they proceed to the implementation stage. If they persist with its use, there is continued adoption, but if they reject it in the long term, there is continued rejection. If they lack it, recognise a need, and so show behaviours or attitudes consistent with adoption due to its popularity and widespread use by other instructors and students, there will be late adoption. It is important to indicate that Rogers' Diffusion of Innovation Theory which looks at how innovation is taken up by populations, fits into the current study because Social Media is a new technology and so it will be interesting to see how students and instructors are using it for teaching and learning purposes in context. Instructors and students' use of SM is to large extent also linked to the Technological Pedagogical Content Knowledge (TPACK) Framework, which is discussed in the next section.

2.5.2 Technological, Pedagogical Content Knowledge Framework

The successful integration of technology is mostly entrenched in curriculum content, content related learning processes, and the appropriate use of educational technologies (Harris, Mishra and Koehler, 2009). The interplay of elements is ensured by instructors because they are the drivers, facilitators and guides of student learning. Therefore, to ensure that technology is integrated into instruction successfully, instructors plan and consider the requirements of the curriculum, students' learning needs, the efficacy of the technologies available, and the realities of classroom and school contexts. Thus, Harris, Mishra and Koehler (2009) identify technology, pedagogy and content knowledge as enablers whereby instructors may address the complexities of lesson planning with the use of SM, as shown in Figure 2.1.

These are: (1) Pedagogical Content Knowledge (PCK), which encompasses the way specific content-based materials are taught; (2) Technological Content Knowledge (TCK), which deals with the selection of appropriate technologies to support specific content-based instructions; (3) Technological pedagogical Knowledge (TPK), which focuses on the use of specific technologies for teaching; and (4) Technological Pedagogical Content Knowledge (TPACK), which hinges on teaching particular content-based material with the use of appropriate specific technologies that are suitable for the content, as well as matching student needs and preferences appropriately. TPACK is the foundation of effective teaching with technology. It requires the understanding of concepts through the use of technologies; pedagogical techniques that employ constructive use of technologies to teach content to aid student understanding of concepts; and students' previous knowledge of content and knowledge about the use of technologies in building existing knowledge to develop new epistemologies or strengthen old ones (Koehler and Mishra, 2009).

Figure 2.2: Technological Pedagogical Content Knowledge Framework



Source: Technological Pedagogical Content Knowledge (Koehler and Mishra, 2009, adapted from Koehler and Mishra, 2008).

It is important to note that each of these four types of teacher knowledge as illustrated in Figure 2.1 above are influenced by contextual factors such as culture, socio-economic status of the user, and the school organisational structure. It is argued that due to its complex and highly contextual nature as a construct, TPACK is rarely learned, taught or applied (Harris, Mishra and Koehler, 2009). Thus, owing to the multifaceted, nuanced and interdependent knowledge required of instructors in the successful integration of curriculum-based technology, its usage in schools has been minimal (Harris, Mishra and Koehler, 2009). However, as instructors plan lessons, their TPACK is endorsed. According to Yinger (1979) and John (2006), planning should be organised and communicate the goals of content and learning activities. Consequently, as instructors teach over time, they simplify planning and lesson activities through 'routinised' learning activities (Yinger, 1979, p.165).

To explore how SM is integrated into the pedagogy of HE institutions in Ghana, the present study draws on the TPACK model to understand how instructors integrate SM into their pedagogical activities. Effective SM integration by HE instructors requires the development of a sensitive, dynamic and transactional relationship between the key elements of TPCK/TPACK, CK, PK and TK. It is important to consider certain variables such as demographics, knowledge of SM, school-specific factors, culture, individual instructors, and other related factors. Thus, no individual combination of content and pedagogy will apply to all instructors, each perspective on teaching, or every course. Applying TPACK to SM integration in Ghanaian HE instructional delivery, therefore, means that it is critical to consider the factors that influence instructors and students in any given specific context.

2.6 Conceptual Framework

To explore the integration of SM platforms into HE instructional delivery by instructors and students, this study draws on the two theories discussed above: Diffusion of Innovations Theory (Rogers, 2003) and the TPACK Framework (Harris, Mishra and Koehler, 2009). These fused together influenced the development of my conceptual framework, which was developed together with the themes identified in the literature review and guided by the study objectives.

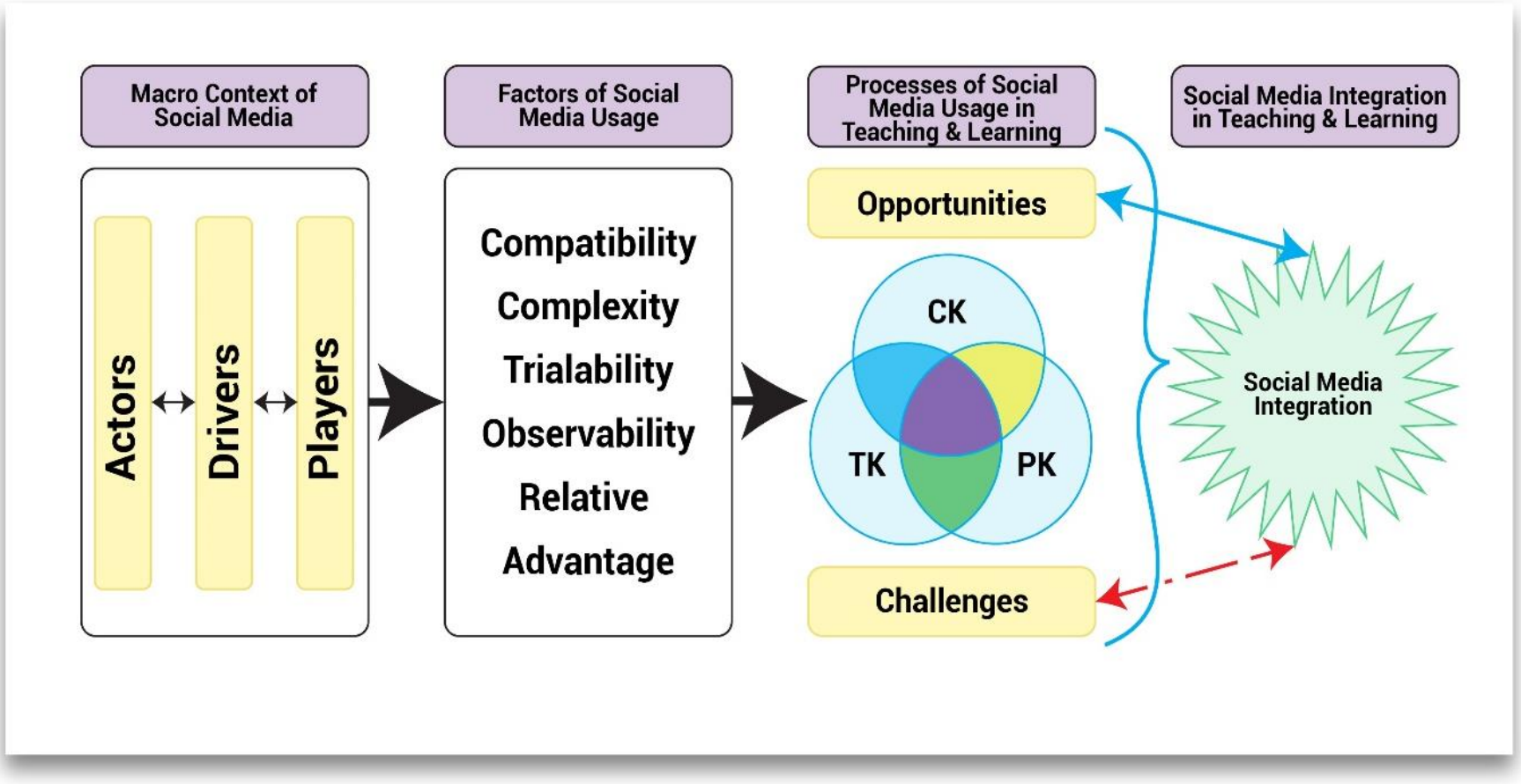
It is important to acknowledge that the decision to use SM for teaching or learning is made as a result of how instructors and students perceive features such as compatibility, complexity, trialability, observability and relative advantage in respect of SM platforms, as demonstrated in the literature review. These are related to issues such as knowledge of available platforms and how to use them. Additional variables such as age, gender, professional ranking, academic programme, attitude of educators, personal and group

resilience, psychological characteristics, information quality, social influence, system usefulness, capacity to use SM, and motivation are linked to whether SM platforms are perceived by instructors and students as beneficial and subsequently used for instructional purposes or not. To understand these issues in terms of instructors and students, some key questions should be asked:

- How knowledgeable are instructors and students about SM platforms?
- How convinced are instructors and students in terms of the user friendliness of platforms?
- How familiar are instructors and students with any given platform and the observable results of its use for various purposes?

The answers to these questions will determine whether instructors and students use and continue to use SM platforms as instructional/learning tools. In addition, instructors' ability to effectively appreciate the interplay of various elements of the curriculum, content-related learning processes, the learning environment, and the appropriate use of SM platforms will determine the integration or otherwise of the platforms into their instructional delivery. Correspondingly, students' ability to use these platforms and their perception of instructors' readiness to encourage the use of SM tools will increase their usage or otherwise. Finally, the extent to which instructors and students use SM, what drives them to use SM platforms, how SM is integrated into instructional delivery, and the opportunities and challenges that obtain in the use of SM platforms depend on where instructors and students fall (innovator, early adopter, adopter, late adopter or laggard) on Rogers' (2003) diffusion of innovations curve.

Figure 2.3: Conceptual Framework for the integration of SM into HE pedagogy in Ghana



Source: Adapted from Roger's (2003) and Harris, Mishra and Koehler (2009)

The framework in Figure 2.3 is being regarded for conceptualising Social Media integration into HE education pedagogy in Ghana. Figure 2.3 illustrates the conceptual model for the study as follows:

2.6.1 Macro Context of Social Media

The first box illustrates the macro context of social media usage. In this model, my overall hypothesis of the macro context is that there are actors, drivers and players whose activities and actions have a bearing on social media integration into the teaching and learning process in HE in Ghana. The actors represent government and management of HE institutions, who are responsible for the provision of policies, resources needed and creating the enabling environment. The drivers are the network providers who are responsible for the provision of internet bandwidth and to ensure that internet connectivity is smooth. The players represent the instructors and students who use SM platforms for teaching and learning. Macro context explains the interactions that occur between and among the actors, drivers and players of SM. This is shown by the horizontal arrow lines, implying that it is a function of each of these three elements to ensure the provision of the right resources, policy and environment for SM integration into HE pedagogy.

2.6.2 Factors of SM Usage

The interactions of the macro-context elements with an arrow, points to the box labelled Factors of Social Media Usage, the underlying reasons for which students and instructors would want to use social media for instruction. The factors include the Compatibility, Complexity, Trialability, Observability and Relative Advantage of SM. Accordingly, students' and instructors' willingness to integrate SM platforms is dependent on how compatible they are with the SM platforms, their readiness to trial the platforms, how

simple or complex the platforms are, the observable results they experience overtime as they use the platforms and relative advantage of using the SM platforms.

2.6.3 Processes of Social Media Use in Teaching and Learning

Interactions of the macro-context of social media which lead to the factors that influence social media usage by students and instructors, produce a process of the integration of SM for teaching and learning. As instructors plan and select the appropriate content/ curriculum, the right pedagogical strategies and the appropriate SM tools to deliver instruction to students, under the right environmental conditions and the availability of resources, it is anticipated that teaching and learning will be enhanced.

2.6.4 Social Media Integration in Teaching and Learning

Students and instructors will derive the full benefits (opportunities) of SM and this will lead to possible SM integration. On the contrary, if the planning of the instructional delivery does not consider the selection of the right curriculum, the appropriate pedagogical strategies and the appropriate choice of SM platforms as well as the right environmental conditions, the students and instructors would likely experience challenges. This will eventually affect their integration of SM negatively.

2.7 Summary

The chapter reviewed literature that was relevant to the study under four main themes: (1) Social Media tools that are used by students and instructors for teaching and learning. This touched on some definitions that researchers have tried to assign to the term "Social Media" (SM) as well as the types of SM which included, YouTube, Facebook, Podcasts, Wikis, Twitter, Google Drive. It emerged that instructors and students use Social Media for teaching and learning. (2) Factors that influence Social Media use by students and instructors. The factors identified in the chapter included age, gender, motivation, academic programme and professional rank. Other factors were psychological characteristics, information quality, social influence and system usefulness. (3) Social Media integration into pedagogy. This touched on how instructors incorporated Blogs, Facebook, Twitter into HE instruction. (4) Opportunities and challenges of Social Media use by students and instructors.

Some of the opportunities and challenges identified from the literature included, facilitation of active engagement, collaboration, independence, bridging of geographical distance, providing instructional content. The challenges on the other hand, were lack of national policy, disruption to student learning, privacy issues, and difficulty in integration into existing courses. The chapter further considered two main theories as the bedrock of the study. These were Rogers' (2003) Diffusion of Innovation Theory and Harris, Mishra and Koehler's (2009) Technological, Pedagogical Content Knowledge Framework. These theories were used in conceptualising how students and instructors use Social Media in HE. The next chapter discussed the methodology of the study

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focuses on the methodology of the study. It begins with an explanation of the philosophical underpinning of the study. It further describes the specific research design and sampling techniques used. The data collection procedure and tools are described, indicating how the research questions were addressed using instruments such as the survey, focus group discussions, interview and observation, and the rationale for using these instruments. Data analysis procedures, ethical issues, including validity and reliability, and, finally, the limitations of the study are discussed.

3.2 Philosophical Underpinning of the Study

This study was conducted in alignment with the pragmatist paradigm. Ontologically, the pragmatist's philosophical perception of reality in terms of research can be viewed from both universal and multiple perspectives. Epistemologically, the pragmatist paradigm also rejects the notion that the source of knowledge for research should be either objective (positivism) or subjective (interpretivism); rather, it must be functionally and practically applied to the human condition (Mason, 2002; Saunders, et al., 2009; Yin, 2009). In the present study, I adopted the latter paradigm because I believe that there are nuances in our perceptions of reality and, for that matter, it was necessary to be alternately objective and subjective in order to capture all of the various aspects of SM integration into HE pedagogy in Ghana.

Generally, the two main research traditions are acknowledged to be quantitative and qualitative inquiry, these being the lenses through which most researchers often prefer to understand the human condition (Bryman, 1992; Creswell, 2009; Saunders, et al., 2009).

For example, Saunders, et al. (2009) indicate that, in any context, there are universal and/or multiple realities. The selection of a paradigm for the present study was made accordingly as it is dependent on the research question(s) formulated for the study. The pragmatism paradigm is thus most suitable for addressing these questions.

Pragmatism, which bridges the two research traditions of quantitative and qualitative inquiry, is concerned with the issue of combining both approaches (Creswell and Plano Clark, 2011; Saunders, et al., 2009). The resultant mixed methods approach therefore allows for the collection of a rich and broad range of data through the examination of complex phenomena in social and natural contexts (Creswell, 2009; Morgan, 2007). Mixed methods research is the type of research that requires the researcher to combine components of qualitative and quantitative approaches for breadth and depth to understand and corroborate findings in a deeper manner. It allows for both objectivity and an interpretive analysis of various viewpoints of subjects (Saunders, et al., 2009). The inclusive goal of mixed methods where qualitative and quantitative research components is combined, is done to expand and intensify a study's conclusions and contribute to literature, thus, answering the entire research question(s). the adoption of mixed methods is to obtain a heightened and valid knowledge. One of the key purposes of mixing methods, methodologies is to help answer the research questions of the study and make improvements. A deeper and richer information is eventually obtained when a mixed method approached is adopted for any study. Thus, I sought to unravel the complex phenomenon of the integration of SM into HE pedagogy through mixed methods inquiry, which ensured the capture of both subjective and objective nuanced dimensions of participants' views of the entire research problem.

3.3 Study Context

The study context was University of Education (UEW) in Winneba and Ghana Technology University College (GTUC) in Accra. UEW was established in 1992 with a mandate to train teachers for Ghana's pre-tertiary institutions. Its ICT plan was introduced between 2003 and 2008 to improve the technology infrastructure. GTUC – formerly Ghana Technology University College – was established in 2005 with the key mission to promote relevant cutting-edge technology to Ghana and the world. Even though these two institutions accept both graduate and undergraduate students, the present study focused on the latter because more of them fell into the target group, namely, Generation Z or those who were digital natives. Both institutions have integrated technology into their teaching and learning delivery, thus, circumstances around ICT – particularly SM – usage in these two institutions were of significant interest to the study.

The basis for selecting these two institutions for this study was due to their unique characteristics in terms of institutionalisation of ICT programmes as well as their proximity to my own location as a researcher. UEW focuses largely on pre-tertiary teacher education whereby an attempt has been made to introduce ICT into its curricular. On the other hand, GTUC's programmes are designed using technology. Together, the two institutions represent a case of integration of technology into programmes and technology as a programme of study. It must be made clear that neither institution had an actual policy on SM usage in place at the time of the study. However, whereas GTUC had a protocol that guided the use of ICT tools in general and delivered instruction using such tools, UEW had a generic ICT policy that guides the use of its infrastructure. Thus, both institutions offered the opportunity to explore the phenomenon of SM integration into teaching and learning.

3.4 Study Design

This study employed the concurrent triangulation mixed-methods design (Creswell et al., 2003; Creswell & Plano Clark, 2011) to explore the research problem in its entirety (Ponce & Pagan-Maldonado, 2015). Concurrent mixed methods research design allows qualitative and quantitative data to be collected at the same time. Thus, a single study that contains qualitative and quantitative data collection, is conducted at the same time to validate the findings that are generated by each of the approaches (qualitative and quantitative), often done through the provision of evidence by each other. This approach was therefore, adopted to obtain different but complementary data on the same topic (Morse, 1991) in a case to obtain valid and well-substantiated conclusions about SM's integration into higher education pedagogy in Ghana. Thus, both qualitative and quantitative approaches were used to gather data on each of the four objectives of the study. Quantitative data collection was conducted through a survey (questionnaire) in order to ensure an objective dimension to the study, while the qualitative aspect was based on a grounded theory design which employed the in-depth interview, focus group discussion, and subject observation.

The study sites were the University of Education, Winneba (UEW) and Ghana Technology University College (GTUC) which were regarded jointly as a unified case, hence the inclusion of the case study in the design. It is worth mentioning here that the term 'case' in this study is used in its nested sense. Thus, UEW and GTUC were together regarded a typical case among HE institutions in Ghana. Equally, SM is treated as a typical case among technological tools used for teaching and learning. The quantitative and qualitative data were of equal value in terms of weight as each was treated in a one-phase concurrent timeframe. Thus, both data sets were collected simultaneously but separately and analysed separately. They were then compared and finally interpreted as indicated in figure 3.1

3.5 Population

The population for the study comprised all undergraduate students and instructors and the target population was undergraduate students and instructors from three faculties at each of the two institutions, i.e. six faculties in total. Table 3.1 shows the student and faculty populations of the two institutions.

Table 3.1: Instructor and student populations of UEW and GTUC

Institution	UEW	GTUC
Students	7,544	3,500
Instructors	454	210

3.6 Sampling

The sample for the study was drawn from the population of the two targeted universities with the use of multistage sampling. Firstly, expert purposive sampling was used to select three faculties from UEW, namely, Science Education, Educational Studies, and Business Education. These faculties had been using a combination of the Learning Management System Modular Object-Oriented Dynamic Learning Environment (MOODLE) and SM platforms for delivering instruction. Conversely, a homogenous sampling technique was used for GTUC because all three faculties used MOODLE and SM platforms for instructional delivery. This implies that the two institutions had the same or similar characteristics (Collins, Onwuegbuzie and Qun, 2006).

For the purposes of easy grouping and sorting, the various programmes at both institutions under study were categorised into two main groups: 1) STEM- (Science, Technology, Engineering and Mathematics) related, and 2) non-STEM (non-Science). Students were then stratified into levels (1–4) and instructors ranks (Assistant Lecturer, Lecturer, Senior Lecturer, Associate Professor and Professor). Systematic random sampling was then used to select students using a list of those of the various levels and faculties, while convenience sampling was used to make the final instructor selection.

3.6.1 Quantitative Sampling of Participants

Sampling of students

Previous studies indicate that a sample size of about 400 is ideal for a survey (Yousapronpaiboon and Johnson, 2013; Arasli, et al., 2008; Rohini and Mahadevappa, 2006; Krejcie and Morgan, 1970; Yamane, 1967 cited in Israel, 1992). Therefore, using a proportionate stratified sampling technique, a sample of 400 students was selected from a total of 7,544 and 1,950 from UEW and GTUC respectively, making a total student

population of 9,494. Yamane's (1967) formula for determining a proportional sample size of 400 was further used as follows:

$$n = \frac{N}{N\text{-}1\ (e)^2}$$

Where n = sample size, N= the population size and e = the level of precision.

Therefore, N = 9494 (accessible population for students from GTUC and UEW),

e = .05

$$n = \frac{9494}{9494 + 1(.05)^2}$$

$$\frac{9494}{9495\ (0.05^2)}$$

$$\frac{9494}{23.73 = 400}$$

Using the above formula, the sample of 400 was distributed proportionally among the student populations of the two institutions and their various levels (see Table 3.2). Accordingly, the population for each level (stratum) of each institution was multiplied by the sample size of 400. This was then divided by the total student population from each institution to determine a sample size for each level. For example, to obtain a proportionally distributed sample of students for a given level of the population of 2,015 from UEW, 2,015 was multiplied by 400 and divided by 9494 (total population of the UEW and GTUC student sample) to give a figure of 85. This means that the sample size of 85 was finally drawn proportionally from this level from UEW. The same principle was applied to the other levels for both institutions. Finally, the total samples of each level were added together to determine the sample size that was drawn from each institution (318 from UEW and 82 from GTUC). Thus, the total sample size of 400 was reached, as Table 3.2 shows.

Table 3.2: Proportional Sample Distribution of UEW and GTUC Students

STD LEVEL	UEW			GTUC			SAMPLE TOTAL
	Strata Pop.	Sampling fraction	Prop distribution sample of stds.	Strata Pop.	Sampling fraction	Prop distribution sample of stds	
100	2,015	$\frac{2,015 \times 400}{9494}$	85	544	$\frac{544 \times 400}{9494}$	23	109
200	2,200	$\frac{2,200 \times 400}{9494}$	93	473	$\frac{473 \times 400}{9494}$	20	113
300	2,021	$\frac{2,021 \times 400}{9494}$	85	435	$\frac{435 \times 400}{9494}$	18	103
400	1,308	$\frac{1,308 \times 400}{9494}$	55	498	$\frac{498 \times 400}{9494}$	21	75
Total	7,544		318	1,950		82	400

About the systematic selection of students from the various levels as indicated in Table 3.2, a selection interval of 24 was determined for all the levels. First, using the linear systematic sampling approach, a systematic sampling formula (N/n) was used to determine the interval of 24 as the k^{th} for both institutions. A random number of 3 was selected between 1 and 24 (k), which was added to the sampling interval of 24 (k) to make 27 to add the next member to the sample of the study. This procedure was repeated to add the remaining members of the sample until the preferred sample size for both UEW and GTUC students had been obtained.

Sampling of Instructors

Using the simple random sampling technique, 30% was selected from the total population of instructors from each of the two institutions. A sample size of 10% and 30% is considered as a good representation of the target population and therefore appropriate for

analysis when the population of the study is less than 10,000 (Mugenda and Mugenda, 2003; Mugenda and Mugenda, 2013). Thus, 136 instructors were selected from a population of 454 UEW instructors and 99 instructors from a population of 330 were selected from GTUC. The total number of instructors was, therefore, 235. Details of the distribution of the instructor sample are shown in Table 3.3:

Table 3.3: Population and Samples of UEW and GTUC Instructors

	UEW INSTRUCTORS		**GTUC INSTRUCTORS**		**TOTAL**	
	Population	**Sample 30%**	**Population**	**Sample 30%**	**Population**	**Sample 30%**
Instructors	454	136	330	99	784	235

3.6.2 Qualitative sampling

Theoretical sampling was used to select interview participants. This is a strategy that allows sampling based on emerging concepts with the aim of exploring their various aspects (Strauss and Corbin, 1998).

Qualitative sampling of students

Students from both institutions were selected for homogenous focus group discussions using a stratified purposeful sampling technique (Collins, Onwuegbuzie and Qun, 2006). This was to ensure that each group comprised students from different academic subject areas but were of the same level (one of the four levels). This helped ensure a free flowing, open and sincere discussion (Dawson, et al., 1993; Morgan, 1997). Because each group was of the same level, members had similar characteristics, which also helped facilitate the smooth generation of ideas without any intimidation or inhibition of thought. Thus, four groups, each comprising ten students from all four levels, 100–400, (two studying Early Childhood Education, two ICT, two Mathematics, two Science, and two Business

Education) were conveniently selected at UEW. The same procedure was carried out with GTUC. Thus, two students were selected from Software Engineering, two from Informatics, two from Computer Engineering, two from Information Technology, and two from Business Studies. These were the departments from the three faculties each of the two institutions. In all, 40 students were selected each from UEW and GTUC respectively, making a total of 80 students (four groups of ten students) for the focus group discussions. This can be illustrated in table 3.4 below:

Table 3.4: Qualitative sampling of students

STD LEVEL	UEW					GTUC					TOTAL
	ECE	ICT	Maths	Sci	BBA	Soft. Eng.	Infor matics	IT	Comp Eng.	BS	
100	2	2	2	2	2	2	2	2	2	2	20
200	2	2	2	2	2	2	2	2	2	2	20
300	2	2	2	2	2	2	2	2	2	2	20
400	2	2	2	2	2	2	2	2	2	2	20
TOTAL	8	8	8	8	8	8	8	8	8	8	80

Qualitative sampling of instructors

Sampling of instructors for both institutions was done based on the three main professional ranks: lecturer, senior lecturer, and professor. Due to the nature of their schedules as teaching staff, they were conveniently sampled (dependent on availability) from the three faculties of both institutions. Hence, convenience sampling was used to select the instructors. Thus, two participants were selected from each of the professional ranks from both institutions (six from UEW and six from GTUC), making 12 altogether. This was deemed an appropriate sample for understanding instructors' experience in the use of SM in HE pedagogy (Creswell, 2007). Such a guiding principle notwithstanding, the key

criterion for size of instructor sample was the saturation exhaustion of the interview data. Thus, the data reached saturation after the twelfth person had been interviewed (after the twelfth person, there was repetition of the information on the various themes from the respondents. This can be illustrated in table 3.5:

Table 3.5: Qualitative sampling of instructors

RANK	UEW	GTUC	TOTAL
Lecturer	2	2	4
Senior Lecturer	2	2	4
Professor	2	2	4
TOTAL	**6**	**6**	**12**

3.7 Instrumentation

Items for the instruments used in data collection were constructed for both qualitative and quantitative approaches. Due to the nature of the study, multiple methods were employed to collect primary data, namely, a survey questionnaire, in-depth interviews, focus group discussions, and observation. This multiple method approach was used as a means of accessing different data sources and facilitated the triangulation of data to validate the findings (Punch, 2002)

Survey questionnaire

A questionnaire was used to elicit objective information from 380 students and 250 instructors on the integration of SM into HE pedagogy. According to Johnson, B. and Christensen L. (2008, pg. 203), “researchers use questionnaire to obtain information about the thoughts, feelings, attitudes, beliefs, values, perceptions, personality, and behavioural

intentions of research participants". Thus, questionnaire was used to measure various kinds of characteristics from participants as well as the emerging issues from the objectives of this study with a bearing on the theoretical perspectives the study drew on.

In-depth interviews

Twelve instructors were engaged in a one-on-one in-depth interview on the various campuses of the two institutions to solicit rich information that hinged on the objectives of the study. These were conducted face-to-face with those instructors who could spare some time to do so and over the telephone with those who did not have time for a meeting. This led to an understanding of their experiences in terms of the integration of SM into teaching and learning. The provision of a congenial environment for the interview helped me to probe further in search of clarity of response and a more profound understanding of the issues under study (Rubin and Rubin, 2005).

Focus groups

Focus group discussions were organised for the 80 selected students from both institutions and across all four levels, who constituted the study. Each group was selected from a single level in the interest of homogeneity and, due to group dynamics, a high level of brainstorming ensued. This helped in seeking the collective opinions and experiences of students, resulting in the facilitation of accurate and reliable information.

3.7.1 Quantitative instrumentation

I designed a questionnaire based on themes which emerged from my reading of the literature and the theories used for the study, in consultation with supervisors and other faculty members in the field of instructional technology. Two different sets of questionnaires were designed for instructors and students, respectively. Both sets of

questions were divided into four sub-sections A, B, C and D, and were designed to gather data related to the integration of SM platforms into HE pedagogy.

In terms of the student questionnaire (Appendix 2), it constituted four sections. Section A collected data on demographic characteristics such as gender, age, institution, level of student and type of academic programme and consisted of eight items. The purpose of these items was to ascertain whether the demographic characteristics had any influence on participants' use of social media and the factors that influence social media use by participants based on Roger's diffusion of innovation theory.

Section B consisted of 10 main items with 19 sub-items and focused on the use of SM in learning. The items included: the type of internet connection device they use in browsing for academic work, how long they use the various types of internet connection, the five top social media platforms they visited every week and the top three social media platforms they used mostly for their actual studies. These were measured on a, 5-point Likert scale (Strongly Agree to Strongly Disagree)

Section C addressed the integration of SM into pedagogy and had five items which were made up of 5 point Likert scale measure that consisted of questions on pedagogical activities such as engaging in course group discussions, course work assignment, seeking further clarification of concepts, contacting colleagues for information.

Section D focused on the opportunities and challenges in using SM for learning and comprised 2 main items with 16 sub-items. The items consisted of 5-point Likert scale measure. Eight items sought participants to indicate how social media had helped them in their studies and eight items demanded participants to depict the challenges that social media pose to them so far as their studies were concerned.

Similarly, the instructors' questionnaire (Appendix 3, page 265) consisted of Section A, which focused on demographic information via eight items on 5-point Likert scale measure. The items included institution, gender, age, number of years of teaching, professional rank, current post and course(s) assigned. The purpose of these items was to ascertain whether the demographic characteristics of instructors had any influence on their use of social media especially with regards to the factors that influence social media used by participants were concerned based on Roger's diffusion of innovation theory.

Section B had 8 main items with 19 sub-items focusing on the use of SM for teaching. It consisted of items on the number of years they have been using digital media, the type of internet connection devices they used in browsing for their academic work and how long they used the various internet connection. It also consisted of a 19 item 5-point Likert scale measure on social media use for academic and professional work both for teaching students and for their professional development based on the TPACK model.

Section C concentrated on the integration of SM into pedagogy and had three main items with five sub-items. Items consisted items that focused on pedagogical activities that instructors used social media platforms for so far as instructional delivery is concerned. It also solicited information on the type of social media platforms participants used for teaching.

Section D focused on the opportunities and challenges in the use of SM for learning and comprised 3 main items with 16 sub-items. The items consisted of 5-point Likert scale measure. Eleven items sought participants to indicate how social media had helped them in their personal professional development and as instructors. Five items demanded participants to indicate the challenges that social media posed to them so far as their teaching and personal professional development were concerned. Both sets of

questionnaires employed a Likert scale with five options (Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, and Strongly Disagree = 1). Questionnaires were peer reviewed in order to assess content validity, and the assistance of supervisors was sought to review items both before and after the pilot study.

3.7.2 Qualitative instrumentation

Protocols for the unstructured interview, focus group discussion, and observation were developed for qualitative data collection. These protocols were also peer reviewed.

Focus group discussions

A focus group discussion guide consisting mainly of open-ended questions was designed for the students. This was also in two parts. Part one consisted of ten items focusing on demographic information; and part two comprised 4 main questions with 6 to 12 sub-questions and focused on awareness of the concept of SM, factors associated with the use of SM, how SM was integrated into learning, and opportunities and challenges in the use of SM for teaching and learning (Appendix 4). The guide allowed for follow-up questions to be asked as necessary to elicit clearer understanding of responses.

Interview schedule

A two-part interview schedule was designed to guide one-to-one interview sessions with instructors. Part one of the schedule dealt with instructors' demographic details; and part two focused on the concept of SM, factors associated with the usage of SM in teaching, the integration of SM into pedagogy, and opportunities and challenges in the use of SM for teaching and learning (Appendix 5.)

Observation guide

A guide was designed for observation of the various platforms that instructors integrated SM into their teaching plans and which ones they used in practice. Observation covered the SM platforms they used to teach their various subjects as well as the pedagogical approaches to the use of specific SM platforms. It is worth noting that SM was integrated into teaching and learning both during and outside instructional hours. In view of this, I observed screen shoots of the various platforms that were used to teach and sat in lecture halls and observed as instructors used SM platforms.

In order to ensure reliability of the interview and focus group discussion guides, the protocols were reviewed by experts, my supervisors and other instructors. Corrections and recommendations were incorporated into the final guides before they were used.

3.8 Training of research assistants

Training was organised for two research assistants who were teaching assistants at UEW. One had a STEM background (BSc degree in Mathematics) with ICT as a minor. The other had a non-STEM background (BSc degree in Early Childhood Education). They were both exposed to the nature of the study and its requirements, after which they were orientated on the various roles they would be required to play. This orientation included briefing on the rational for the study, its objectives, and the research questions. I also familiarised them with the various data collection instruments and made all necessary clarifications. They were then exposed to issues that pertained to the ethics of research and ensuring that all data collected would meet standards in so far as reliability and validity were concerned. Thus, the two assistants worked with me throughout the whole data collection period and at both institutions.

3.9 Ethical considerations

I obtained the necessary ethical clearance and permission from the University of Ghana Ethics Committee for the Humanities, Legon, Accra (See Appendix 1 page 256.). UEW and GTUC authorities were then respectively contacted in order to seek permission to conduct the study, and approval was granted. I then submitted a consent form to each research site requesting the participation of students and instructors (see Appendix 8).

Confidentiality, Anonymity and Privacy

All participants were assured of confidentiality and anonymity before the data collection process began. Thus, they were guaranteed that their names will not appear anywhere so far as this research was concerned and that any discussion with them would only be used for the purpose of this study alone. The purpose of the research was made known to participants and their consent was sought. Their convenience especially the time and site for the data collection was very paramount and the interviews took place in settings devoid of interruptions.

Deception

Together with my research assistants, I explained the relevance in participating in the study and informed participants that the information was purely for academic purpose and not for any economic or government intervention, to avoid any form of deception. The researcher and her assistants therefore showed their identification cards and introduction letters to participants to assure them of their credibility.

Consent

Participants were allowed to freely decide whether they wished to be part of the research or not. They were informed that they had the right to withdraw from the study at any point and had the right to decide to answer certain questions at any point of the data collection.

Ensuring Trustworthiness of the Qualitative Data

Ethical issues were paramount in the qualitative aspect of the study due to the interactive and subjective nature of the data collection process. The qualitative elements of the study were therefore conducted with the application of principles that would ensure the trustworthiness of the data. The latter is critical in ascertaining the value of qualitative research and the validity and reliability of research instruments (Lincoln and Guba, 1985; Trochim, 2007). Thus, to ensure the reliability of the field data, the qualitative component of this study adopted Lincoln and Guba's (1985) model of trustworthiness as follows: Confirmability is the principle of neutrality and it entails the degree to which research findings are fashioned by the research participants and the biases and interests of the researcher. In view of this, data gathered from participants in the present study were recorded and accurately presented to reflect exactly what participants had said. I therefore refrained from reflecting my own bias throughout the process to avoid influencing the narrative as well as analysis of the data.

The second principle guiding the study was 'transferability', which, according to Lincoln and Guba (1985) involves the degree to which the findings of a study can be applied to other contexts beyond the bounds of the current research. Thus, I sought to ensure that the findings of the present study were consistent and could be extrapolated to other contexts with similar characteristics. To this end, purposeful sampling, data coding and categorisation helped to maintain contextual and descriptive consistency, and I undertook

a dense description of field data on the views of students and instructors, and their respective opinions of SM integration into HE pedagogy.

The third principle this study adopted was ‘credibility’. This is simply explained as the truth value of the data. The confidence the researcher exhibits in the outcome of the findings of the study is determined by the principle of credibility. In this regard, experience in research enabled me to conduct the study in a competent manner. Together with the research assistants, I spent a considerable time in familiarising myself with the study setting to understand the dynamics of the various campuses in terms of students and instructors’ general use of SM. We also sought to develop a rapport with participants, which helped us to create a congenial environment for the exercise. We also ensured that debriefing and member checks were carried out after the interviews had been transcribed to ascertain that codes were consistent and to allow participants to check that transcripts were accurate.

The extent to which findings are consistent when subjects undergo repeated research participation and/or observation in the same or similar contexts is termed ‘dependability’. According to Lincoln and Guba (1985), the purpose of such extrapolation is to assess whether the interpretations and conclusions of any study are supported by the data gathered or not. To ensure adherence to the principle of dependability, participants and research assistants were asked for clarification on the outcomes of interviews and focus group discussions. This was done during the analysis stage. It is important to indicate that instructors whose screenshots were used for this study, gave their full consent with regards to their identities in the platforms used.

3.10 Pilot study

We conducted an initial pilot study to validate the study instruments. To this end, randomly sampled groups of instructors and students from Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi were selected. The choice of KNUST for the pilot study was informed by the fact that KNUST has similar characteristics as UEW and GTUC in terms of the use of technology for teaching and learning. In view of that ten instructors and sixty students were sampled. The items were peer-reviewed to ensure that the items were clear and unambiguous. The data was analysed to ensure full validity and reliability of the instruments before the main study was conducted. The return rate was 70% for the instructors and 89% for the students. The Cronbach Alpha was 0.712 to 0.925 @ 5% significant level. All participants were given questionnaires, which were then coded and processed using Statistical Package for Social Sciences (SPSS) software. The pilot study enabled us to get an idea of what to expect from the actual data collection in terms of similar characteristics of the pilot and the actual sample. The results from the pilot helped to reframe some of the items which were quite ambiguous and could not yield reliable response. For instance, *"Social media makes it for me for relevant information for my studies"* was reframed to "*Social media makes it easy for me to search for relevant information for my studies*".

3.11 Administration of instruments

Data collection instruments were administered for both quantitative and qualitative research methods at the same time but independently between February and April 2018. A rapport was established with participants before the instruments were administered in order to gain their confidence. The purpose of the exercise was then introduced. Four hundred questionnaires were distributed to students with permission from heads of

department and their respective instructors at both institutions (318 and 82 questionnaires were given to students at UEW and GTUC respectively). Two hundred and thirty-five instructors' questionnaires were also distributed in their various offices and lecture halls at both institutions (136 and 99 questionnaires were given to instructors at UEW and GTUC respectively). We then returned to collect the completed questionnaires. Out of the 318 and 82 questionnaires given to the students from UEW and GTUC respectively, 309 and 71 were returned and usable from UEW and GTUC, respectively. The response rates for the student questionnaires were therefore 97% for UEW and 86% for GTUC. With regards to the instructors, 125 and 68 questionnaires out of the 136 and 99 sent to UEW and GTUC respectively were returned and usable. The return rates were therefore 91% for UEW and 87% for GTUC.

Interview Schedule

One-to-one interviews for instructors were conducted in English both face-to-face and over the telephone. The face-to-face interview sessions were conducted for instructors who were readily available for such a session at the offices of the instructors from the two institutions. Those who were not available for a face-to-face discussion agreed to take part in a telephone interview. I booked appointment with them and agreed on the time for the interviews. Both the face-to-face and telephone interviews which were moderated by the researcher with the help of the research assistance lasted for approximately one hour.

Focus Group Schedule

The student focus group discussion sessions were also conducted in English. After categorising the students in groups, I booked appointment with them and scheduled a different time for all the four groups for each institution at the computer laboratories of the

two institutions. The focus group discussions lasted approximately one hour for each group. The interviews and focus group discussions were all audio-recorded and the transcripts labelled to ensure easy identification.

The collection and analysis of the various qualitative and quantitative questions were approached independently in their entirety. The data sets from the two approaches were merged for the purposes of comparing prior to further interpretation.

Observation Schedule

I observed how some instructors used social media platforms to teach from the two institutions, both in a face-to-face session during lecture hours at the lecture hall and online on the SM platforms. In both settings, the researcher took the position of a non-participant observer where the focus was on how the instructors used the platforms to teach and interacted with the students. Details of the observation schedule can be found in Table 3.6

Table 3.6: Observation of SM platforms used by instructors for teaching

Programme/ Instructors/ Institution	Date	Duration for Face-to-Face observation	Duration for Online observation
ICT1 (UEW)	June-July, 2018	3 hours	30 minutes
ICT 2 (UEW)	June-July, 2018	3 hours	30 minutes
ICT 3 (GTUC)	June-July, 2018	3 hours	30 minutes
ICT 4 (GTUC)	June-July, 2018	3 hours	30 minutes
BUSINESS (UEW)	June-July, 2018	3 hours	30 minutes

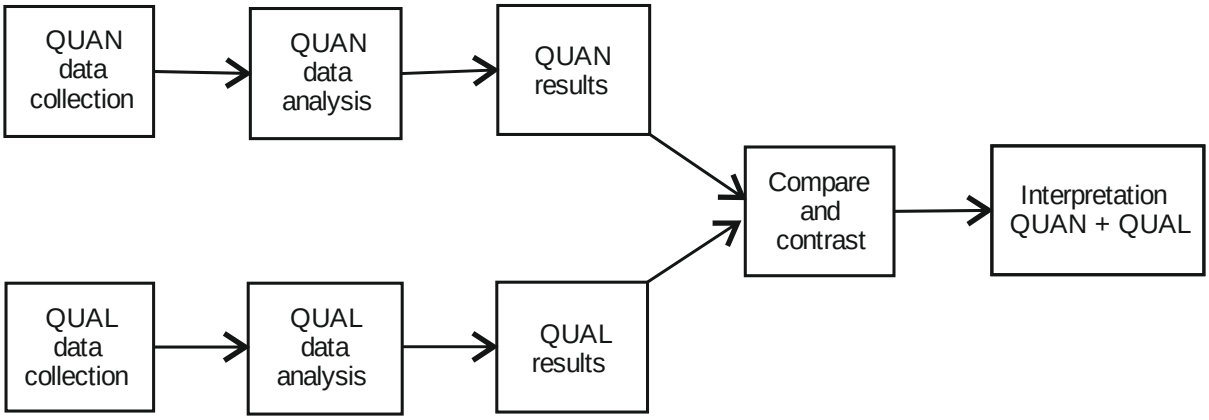
Table 3.6 shows that in all five instructors' courses were observed (two ICT from UEW and GTUC each, and one from UEW Business Education, for 3 credit hours each for the

observation of the face-to-face sessions and 30 minutes each for the online sessions. The date for the observation span between June and July 2018.

3.12 Method of Data Analysis

The qualitative data provided separate explanations as to the various themes developed in the unstructured interview and focus group discussion items, together with the observation schedule. It is important to note that due to the nature of the design (triangulated mixed-methods), the qualitative and quantitative components of the data were collected and analysed separately before the datasets were merged and finally integrated for synthesis and development of narrative descriptors.

Figure 3.1: Triangulation: Convergence Model



Source: Creswell, 2006.

3.12.1 Quantitative data analysis

A preliminary data analysis was done to screen and examine the data. After this, a test of normality using skewness and kurtosis (-2 to 2: George and Mallery, 2010) was conducted. Exploratory factor analysis was also conducted. The quantitative data were analysed separately in respect of the various themes developed by the survey items. Inferential and

descriptive statistics – such as frequency tables, means, standard deviation (SD), t-tests, inter-correlation matrix, ANOVA, hierarchical multiple regression, and MANOVA – were used to describe demographic characteristics (age, sex, student level, instructor's professional ranking, programme of study, area of specialisation, number of years as an instructor, etc.) of participants; use of SM by faculty and staff; factors that influence faculty and staff usage of SM; how faculty integrate SM into HE pedagogy; and opportunities and challenges in the use of SM in HE.

Preliminary quantitative data analysis

Data collected from the quantitative instruments were analysed with the aid of Statistical Package for the Social Sciences (SPSS), version 21. Data were initially analysed using descriptive statistics such as frequencies, means, SD and normality of data (skewness, kurtosis and outliers). Reliability and exploratory factor analysis (EFA) were then conducted to determine which of the items on each instrument were to be retained by performing a reliability test with Cronbach's alpha and exploratory component analysis with direct oblimin rotation. A minimum Cronbach's Alpha of 0.7 was used to select instruments based on reliability while a threshold of 0.4 was used to select items that loaded on a construct.

Data screening and examination

Data entries were carefully screened to rectify all incorrect entries. Normality was also checked before further statistical analyses were conducted. Details of the normality tests are shown in tables 3.7 and 3.8 below:

Table 3.7: Summary of Student Normality Test

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Use of SM	380	3.5896	.53613	-.317	.125	.091	.250
Pedagogical Activities	380	3.8568	.84792	-1.187	.125	1.557	.250
Opportunities	380	3.7244	.72637	-1.070	.125	1.671	.250
Challenges	380	2.9083	.79392	-.120	.125	-.130	.250
Valid N (listwise)	380						

Table 3.8: Summary of Instructor Normality Test

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Use of SM	258	3.8676	.47215	-1.011	.152	2.772	.302
Social media integrated	258	2.2814	1.12158	.220	.152	-1.004	.302
Opportunities	258	3.9179	.66945	-1.905	.152	4.948	.302
Challenges	258	2.9194	.86453	-.056	.152	-.941	.302
Valid N (listwise)	258						

Normality of data was tested using skewness and kurtosis. Researchers recommend that skewness and kurtosis should be between -2 and +2 (George and Mallery, 2010). The data analysed revealed that skewness and kurtosis for all study variables were within the -2 and +2 margins, indicating that the data were normally distributed.

Reliability and validity tests

In addition to data screening and examination, reliability and validity of instruments used were also tested using Cronbach's Alpha method. Summaries of the results are shown in the following tables:

Table 3.9: Summary of Variables Reliability Test

Variables	Number of items	Cronbach's alpha (students)	Cronbach's alpha (lecturers)
Use of SM for teaching and learning	19	.81	.84
SM integrated into pedagogy	5	.72	.86
Opportunities in the use of SM	11	.87	.87
Challenges in the use of SM	5	.65	.77

Table 3.9 indicates that except for challenges in the use of SM which returned Cronbach's Alpha=0.65, all other variables recorded Cronbach's Alpha >0.70, which indicates high levels of reliability for the instrument and scores.

Table 3.10: Summary of Exploratory Factor Analysis by Student Variables

Item	Factor 1	Factor 2	Factor 3	Factor 4	KMO	CVE
Use of SM for learning:					**.871**	**52.1%**
1. I use SM a lot	.61					
2. SM is relevant to my studies				.60		
3. SM helps me communicate efficiently with my lecturers	.58					
4. I use SM for group discussion related to my studies	.49					
5. I can learn without the use of SM			.43			
6. SM is highly relevant to my studies	.69					
7. SM should not be introduced as an essential part of my studies						
8. I use SM to communicate with my lecturers	.72					
9. I am interested in using SM as an educational tool	.60					
10. My peers and I will learn better if SM is integrated into instruction	.60					
11. It is helpful if SM is used by lecturers	.62					
12. I use SM to discuss academic work with my lecturers		.64				
13. I use email to communicate with my lecturers on matters relating to my studies	.72					
14. I am personally motivated to use SM in my studies	.65					
15. My peers encourage me to use SM in my studies	.63					
16. My lecturers oblige me to use SM for my studies		.50				

17. I use email to communicate with my classmates about academic issues			.73		
18. I use the Internet to search for information related to my studies	.795		.40		
19. I use YouTube for my studies	.493				
Pedagogical activities:				**.711**	**55.3%**
1. Engagement in coursework group discussions	.80				
2. Conducting a coursework assignment	.85				
3. Contacting my lecturer for further clarification of concepts	.53				
4. Communicating with peers for information	.76				
Opportunities in the use of SM:				**.906**	**56.8%**
1. I actively engage with SM in my studies	.71				
2. I collaborate through SM with my friends in my studies	.70				
3. I use SM independently in my studies	.63				
4. I collaborate through SM with my lecturers		.72			
5. SM bridges the geographical distance between me and my lecturers		.66			
6. SM helps me satisfy my desire for new knowledge	.80				
7. SM helps me find instructional content	.75				
8. SM helps me learn both formally and informally	.73				
9. SM allows me to receive administrative information	**.**65				
10. SM makes it easy for me to search for relevant information for my studies	.77				

11. SM allows me to combine face-to-face and online learning	.70		
Challenges in the use of SM:		**.710**	**41.8%**
1. SM interferes with my studies	.66		
2. SM allows me little privacy	.61		
3. Lack of policy on SM use prevents me from using it in my studies	.67		
4. SM focusses on social interaction more than academic work	.70		
5. SM reduces personal contact	.58		

Exploratory Factor Analysis EFA was conducted to extract the exact factors that contributed to students' responses to the items in Table 3.10. EFA was also conducted to make sure that items which had high correlations with their variables were retained for further analysis, while those with low correlations with their variables were discarded. EFA, the Kaiser-Meyer-Olkin (KMO) sampling adequacy test, Bartlett's test of Sphericity (p-value), and Cumulative Variance Explained (CVE) test were all run and a summary of the results is shown in Table 3.10 which indicates that the KMO for each variable met the threshold of 0.6 and the Bartlett's test of Sphericity was significant for all variables. Additionally, CVE for each variable, except for challenges in the use of SM, was greater than 50% or 0.5, suggesting that the data were sufficient and met the criteria for further analysis.

Table 3.11: Summary of Exploratory Analysis by Instructor Variables

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	KMO	CVE
Use of SM for academic and professional work						**.82**	**58.1%**
1. I use SM					.79		
2. SM is relevant to my teaching	.58						
3. SM helps me communicate effectively with my students	.46						
4. SM helps me communicate effectively with my fellow educators	.51						
5. I use SM for group discussions with my students		.56					
6. I can teach without the use of SM	.74						
7. SM is most relevant for my professional growth					.52		
8. I am a member of a group on an SM platform that discusses issues related to my professional development	.45						
9. SM should be introduced as an essential part of teaching	.			.68			
10. I am interested in using SM as an educational tool							
11. My colleagues and I would teach better if SM were integrated into our teaching				.54			
12. SM is the best way for students to learn		.73					
13. I use SM to discuss academic work with my students							
14. I am personally motivated to use SM in my teaching	.52						
15. My colleagues encourage me to use SM in my teaching		.70					
16. The institution motivates me to use SM in my teaching		.74					

17. I use SM to communicate with my fellow educators on academic issues			.68			
18. I have the capacity to use SM in my teaching				.59		
19. There are policy guidelines on the use of SM for teaching at my institution			.70			
Pedagogical activities:					**.839**	**64.6%**
1. Course group discussions	**.78**					
2. Explaining concepts after contact time	.84					
3. Post-class announcements	.78					
4. Individual student attention	.80					
5. Referring students for further reading	.83					
Opportunities in the use of SM:					**.841**	**65.9%**
1. I actively engage with SM in my teaching			.76			
2. I collaborate through SM with my peers about my teaching			.83			
3. I use SM independently in my teaching			.79			
4. I collaborate through SM with other educators	.69					
5. SM bridges the geographical distance between me and my students	.89					
6. SM has helped me to satisfy my desire for new knowledge	.50					
7. SM has helped me find instructional content	.84					
8. SM has helped me teach, both formally and informally	.75					
9. SM allows me to send and receive administrative communications		.49				

10. SM makes it easy for me to search for information relevant to my teaching		.90		
11. SM allows me to combine face-to-face and online teaching		.58		
Challenges in the use of SM:			**.711**	**73.2%**
1. SM interferes with my teaching	.75			
2. SM gives me little privacy	.91			
3. Lack of policy in my institution on the use of SM prevents me from using it in my teaching	.81			
4. SM focusses on social interaction more than academic work	.90			
5. SM reduces personal contact	.88			

The same tests as per the student variables were conducted with the instructor variables, and a summary of the results is presented in Table 3.11, which indicates the data were sufficient and met the criteria for further analysis.

3.12.2 Qualitative data analysis

The qualitative data, which were derived from focus group discussions, observations and interviews with faculty, explores the experiences of instructors and students in so far as their use of SM for teaching and learning respectively at the two institutions is concerned. Screen shots of the various SM platforms instructors used for teaching were examined in order to understand how they integrated SM platforms into pedagogy. Notes from the examination were analysed to identify similarities and differences (Creswell, 2003) in the integration of SM into pedagogy.

An assumption of the qualitative researcher is that the human instrument is capable of ongoing fine-tuning in order to generate the most fruitful display of data. In this regard, Morgan and Krueger (1998) assert that the analysis of qualitative methods must be systematic, sequential, verifiable and continuous. This requires time and is jeopardised by delay, is a process of comparison, is improved by feedback, and seeks to enlighten and should entertain alternative explanations.

In the present study, all data collected from the fieldwork were analysed manually. The analysis involved systematic steps and processes that focused on recording data, transcribing recorded interviews, familiarisation with data, selection of data sets from the data corpus, coding of ideas and thematising codes, building categories, and, finally, constructing a descriptive and explanatory analysis based on the various themes. Each category was then systematically labelled in accordance with relevance of data and the

theoretical framework from the literature review. The data were thus analysed by means of content analysis and according to the following procedures.

Data Capture

Data from the interviews and focus group discussions were captured using a mobile phone recorder. Audio recordings were later transferred to a computer and saved on a USB drive as backup against electronic failure. Notes were also taken during sessions to serve as further backup and provide a context for the interviews. Verbatim transcriptions of all the information gathered from student focus group discussions and instructors' one-to-one interviews were made as soon as possible afterwards.

Familiarisation

I took the time to read through transcriptions to acquaint myself with the data for the purposes of analysis and interpretation. Thus, the entire body of transcribed text was read through several times and notes were made of interesting and significant statements, recurring phrases, patterns, themes, relationships, key words and ideas that captured the essence of the research questions.

In order to assign codes or labels to specific sets of data, the transcribed text was arranged according to meaningful themes and categories (Henning, et al., 2004; Neuman, 2011). Sub-themes and sub-categories were also included to identify meaningful connections, relationships and trends. Basic coding was carried out as a first step in the analysis of the data. This was to act as preparation of the data for more advanced analysis at higher levels of abstraction (Punch, 2011). Related codes were then listed in categories according to the framework from the literature review and the study's empirical findings.

The codes were ultimately evaluated for relevance to the research aims. The related units of meaning from the notes and transcripts were systematically assigned to final categories. A brief introduction to each main component that included verbatim responses (quotes) as examples where appropriate and applicable was made to enhance and substantiate views of participants. Development of the themes that were developed from participants' views went through the phases of initialization, construction, rectification and finalization (Vaismoradi, Jones, Turunen and Snelgros, 2016). Reading and re-reading of participants' transcripts helped in understanding the data and helped to focus the analysis on relevant constructs. Organization of the codes from the transcripts were reflected upon and they were compared for similarities and differences in order to allocate each group of the codes generated to the research questions. I distanced myself a bit from the data for some time in order to become more sensitive to the data and to reduce possible incomplete data analysis. Finally, I developed a narration that described and connected the various themes that answers the research questions. The qualitative analysis process was concluded with the description of thematic relationships and patterns of relevance to the study. Thus, the thematic relationships and patterns identified during the qualitative data interpretation process contributed to the development of a holistic analysis of the research findings.

3.13 Summary

This chapter discussed the methodology of the study. It employed pragmatism as the philosophical underpinning with a concurrent mixed methods approach using both quantitative and qualitative data. The quantitative aspect used survey with 380 students and 250 instructors from the University of Education, Winneba and Ghana Technology University College. Using inferential and descriptive statistics, frequency tables, means, standard deviation (SD), t-tests, Chi-square, inter-correlation matrix, ANOVA,

hierarchical multiple regression and MANOVA were employed to analyse the data quantitatively. The qualitative data which comprised a total of 80 students and 12 instructors from both institutions were selected purposively. Semi-structured one-on-one interviews were conducted for the instructors, focus group discussion were conducted for the students and observation of the various social media platforms used by instructors for teaching were also observed. It finally pointed out that the qualitative data were analysed using content analysis. The next chapter presents the results of the study.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1 Introduction

The focus of this chapter is to present the demographic characteristics of the participants and the results of the study based on the objectives of the thesis of students and instructors from both UEW and GTUC as follows:

- Explore what students and instructors use SM for with regards to teaching and learning
- Determine the factors that influence students and instructors use of SM for teaching and learning
- Explore the integration of SM into HE pedagogy
- Identify the opportunities and challenges that exist in the use of SM by students and instructors

The data analysed in this chapter were collected from students through a survey and focus group discussions, while that from instructors were taken from survey, one-to-one (face-to-face or telephone) interview sessions and observations of screenshots showing the various SM platforms used professionally. First, the demographic information of participants (students and instructors) from both institutions (UEW and GTUC) and the Internet connection devices that students and instructors used to access academic information are presented. This includes age, gender, programme of study of students, programmes taught by instructors, years of usage of digital media, level of students and instructors' professional rank as follows in figures 4.1, 4.2 and 4.3:

Table 4.1: Students' socio-demographic characteristics

DEMOGRAPHIC CHARACTERISTICS		INSTITUTION					
		GTUC			UEW		
		No. N=71	%	GTUC TOTAL	No. N=309	%	UEW TOTAL
AGE	<26	41	57.75	71	204	66.0	309
	26-35	23	32.39		98	31.7	
	36-45	7	9.8		7	2.3	
	46-55						
	>56						
GENDER	MALE	58	81.69	71	236	76.38	309
	FEMALE	13	18.31		73	23.62	
PROGRAMME	STEM	69	97.18	71	172	55.66	309
	NON-STEM	2	2.82		137	44.34	
YEARS OF DIGITAL MEDIA USAGE	<5	9	9.86	71	79	25.6	309
	5-10	44	61.97		189	61.1	
	10-15	18	23.94		41	13.3	
	15-20						
	>20						
LEVEL	100	6	8.45	71	98	31.7	309
	200	34	47.89		137	44.3	
	300	17	23.94		25	8.1	
	400	14	19.72		49	15.9	

The respondents' (students) from GTUC age ranged from <26 to >56 years. More than two-third (57.75%) were <26 years, (32.39%) were 26-35 years and the least proportion (9.86%) were 36-45 years, whiles for respondents from UEW had more than two-third

(66.0%) being <26 years, (31.7%) being 26-35 years and the least proportion (2.3%) being 36-45 years. For gender, more than half (81.69%) and (76.38%) were males from GTUC and UEW respectively, whiles (18.31%) and (23.62%) were females from GTUC and UEW, respectively. The highest proportion studied STEM Programmes (97.18%) and (55.66%) from GTUC and UEW respectively, whiles (2.82%) and (44.34%) studied NON-STEM for GTUC and UEW, respectively.

In terms of SM usage, (61.97%) were from GTUC and (61.1%) from UEW had 5-10 years of experience, whiles (23.94%) and (13.3%) had 10-15 years of experience for GTUC and UEW, respectively. considering students with <5 years of experience, (9.86%) and (25.6%) were from UEW and GTUC, respectively. With regard to level, proportions were that Level 100 had (8.45%), Level 200 had (47.89%), Level 300 (23.94%), and Level 400 (19.72%) at GTUC; whiles Level 100 (31.7%), Level 200 (44.3%), Level 300 (8.1%) and Level 400 (15.9%) from UEW.

Table 4.2: Instructors' socio-demographic characteristics

DEMOGRAPHIC CHARACTERISTICS		INSTITUTION					
		GTUC			UEW		
		N=86	%	TOTAL	N=12	%	TOTAL
AGE	<26						
	26-35	32	37.2		44	35.2	
	36-45	38	44.2	86	51	40.8	125
	46-55	16	18.6		27	21.6	
	>56				3	2.4	
GENDER	MALE	57	66.3		91	72.8	
	FEMALE	29	33.7	86	34	27.2	125
PROGRAMME	STEM	71	82.6		102	81.6	
	NON-STEM	15	17.4	86	23	18.4	125
YEARS OF TEACHING	<5	21	24.42		27	21.6	
	5-10	42	48.84	86	63	50.4	125
	10-15	23	26.74		35	28	
YEARS OF USAGE OF SOCIAL MEDIA		4	4.7		6	4.8	
	<5	14	16.3		15	12.0	
	5-10	23	26.7		38	30.4	
	10-15	34	39.5	86	41	32.8	125
	15-20	11	12.8		20	16.0	
	>20				5	4.0	
PROFESSIONAL RANK	LECTURER	47	54.65		72	57.6	
	SNR.LECTURER	39	45.35	86	46	36.8	125
	PROFESSOR				7	5.6	

The respondents' (instructors) age ranged from <26 to >56 years. More than one-third (44.2%) were 36-45 years, 37.2% were 26-35 years and the least proportion (18.6%) were 46 years and above from GTUC, whiles more than one-fourth (40.8%) were 36-45 years, (21.6%) were 46-55 years, (35.2%) were 26-35 years and the least proportion (2.4%) were 56 years and above for UEW.

With regards to gender, more than half (66.3%) and (72.8%) were males from GTUC and UEW respectively, (33.7%) and (27.2%) were females from GTUC and UEW, respectively. The highest proportion studied STEM programmes (82.6%) and (81.6%) from GTUC and UEW, respectively, whiles (17.4%) and (18.4%) studied NON-STEM from GTUC and UEW, respectively.

Further, more than one-third (48.84%) from GTUC and (50.4%) from UEW had 5-10 years of teaching experience, (26.74%) and (28%) had 10-15 years of teaching experience for GTUC and UEW, respectively. About (24.42%) from GTUC and (21.6%) from UEW had <5 years of teaching experience. With regard to the years of usage, the proportions were 0, <5, 5-10, 15-20 and >20 categories (4.7%, 16.3 %, 26.7%, 39.5% and 12.8% respectively from GTUC) and (4.8%, 12.0%, 30.4% .32.8%, 16.0% and 4.0% respectively from UEW). Overall, greater percentage of respondents from GTUC were lecturers (54.65%) followed by senior lecturers (45.35%), with no professors. While UEW recorded lecturers as 57.6%, senior lecturers (36.8%) and professors (5.6%).

Table 4.3: Internet connection devices used for academic purposes (disaggregated by institution: unaided multiple response)

	Device	UEW (percentage)	GTUC (percentage)
	Mobile bundle	95.9	86.4
Instructors	Wi-Fi	88.2	69.3
	Modem	50.6	43.2
	Hotspot	34.7	12.5
	MiFi	30.0	47.7
Students	Mobile bundle	93.9	84.8
	Wi-Fi	55.7	55.6
	Mobile hotspot	28.9	42.4
	Modem	16.4	21.2
	MiFi	5.4	27.3

Note: For multiple response questions, each individual response is equal to 100%.

From Table 4.3, it was revealed that both students and instructors use mobile bundle and WiFi more than the other devices with MiFi hardly used or least used to browse for academic purposes.

4.2 Social media platforms students and instructors use in HE

This section presents quantitative and qualitative results on what students and instructors use SM for. First, it presents the quantitative results followed by the qualitative results.

4.2.1 Quantitative results

To determine the extent to which students and instructors used SM platforms, I first examined through a survey whether or not they owned one or more digital devices such as a mobile phone or personal computer (PC), together with Internet connection tools that would enable them to engage fruitfully with SM for educational purposes. The results of the survey are presented in tables 4.4, 4.5 and 4.6.

Table 4.4: Distribution of respondents who own a digital device (percentages in parenthesis)

Paticipants	Own digital a device	Do not own a digital device
Instructors	258 (100)[1]	0 (0)
Students	379 (99.7)	1 (0.3)

[1]percentages in parenthesis

The results in Table 4.4 show that nearly all students and all instructors who participated in the study owned some form of digital device for accessing the Internet

Table 4.5: Distribution of Internet connection devices used for academic purposes (percentages in parenthesis)

Device	Instructors	Students
Mobile **b**undles	239 (93)	347 (92)
Wi-**F**i	211 (82)	211 (56)
Modem	124 (48)	123 (33)
Mi**F**i	93 (36)	67 (18)
Mobile hotspot	70 (27)	42 (11)

Table 4.5 also indicates that the two most popular Internet access devices for both students and instructors were mobile bundles and Wi-Fi. Most respondents (over 90%) use mobile bundles. Wi-Fi was the next most popular device, used by over 80% of instructors compared with 56% of students. Interestingly, only one student indicated no access to any digital device.

Table 4.6: Five most popular SM platforms

Social media platform	Number of students	Percentage
WhatsApp	280	74
Facebook	118	31
Instagram	62	16
YouTube	60	16
Google	50	13

To ascertain whether research participants were aware of SM platforms and accessed them, 11 questionnaire items required respondents to indicate the five SM platforms they visited most often each week in order of frequency. The five most popular SM platforms as well as the proportion of students who stated that they actually used them are presented in Table 4.6.

SM platforms used by students and instructors

Students and instructors were asked to indicate the most popular SM platforms they used. The students' responses are presented first followed by the instructors.

Table 4.7: Most popular SM platforms amongst students (unaided multiple response)

SM platforms	UEW (percentage)	GTUC (percentage)	Total (percentage)
WhatsApp	96.4	98.0	96.8
YouTube	80.0	71.0	77.6
Instagram	53.2	58.0	54.5
Facebook	50.7	48.0	50.0
Google	40.7	44.0	41.6
Twitter	35.0	31.0	33.9
Imo	20.0	21.0	20.3
Snapchat	20.7	19.0	20.3
Telegram	16.8	21.0	17.9
Yahoo	11.1	11.0	11.1
Skype	9.3	7.0	8.7
Pinterest	5.4	11.0	6.8
LinkedIn	3.9	8.0	5.0
Viber	4.3	7.0	5.0
Tango	3.6	6.0	4.2
Gmail	3.6	2.0	3.2

Note: For multiple response questions, each individual response is equal to 100%.

Students were asked what SM platforms they used in their studies. The data provided an interesting insight into their use of SM for academic purposes. First, they were asked which five SM platforms they visited most often each week as in Table 4.7. The majority of students (97%) from both institutions indicated WhatsApp as the SM platform they visited most often each week. This was followed by YouTube (78%), Instagram (55%), Facebook (50%) and Google (42%).

Table 4.8: Most popular SM platforms used for academic purposes (unaided multiple response)

SM platforms	UEW (percentage)	GTUC (percentage)	Total (percentage)
WhatsApp	71.4	72.0	71.6
YouTube	50.7	44.0	48.9
Google	31.1	28.0	30.3
Facebook	27.5	36.0	29.7
Instagram	19.3	23.0	20.3
Twitter	12.1	19.0	13.9
Telegram	14.3	10.0	13.2
Snapchat	8.2	14.0	9.7
Imo	6.4	8.0	6.8
Yahoo	5.4	4.0	5.0
Skype	5.4	1.0	4.2
Gmail	5.0	1.0	3.9
LinkedIn	2.5	2.0	2.4
Tango	1.4	4.0	2.1
Pinterest	1.4	2.0	1.6
Viber	1.1	2.0	1.3

Note: For multiple response questions, each individual response is equal to 100%.

Next, students were asked to nominate the top three SM platforms they actually used for academic purposes. About 72% from both institutions indicated that they used WhatsApp for study purposes, while 49% and 31% pointed out that they used YouTube and Google respectively also for learning, as in Table 4.8.

Table 4.9: SM platforms used professionally by instructors (unaided multiple Response)

SM platforms	UEW (Percentage)	GTUC (percentage)	Total (percentage)
Google	74.1	68.2	72.1
Gmail	65.9	60.2	64.0
WhatsApp	65.9	58.0	63.2
Yahoo	61.2	60.2	60.9
YouTube	52.4	67.0	57.4
Facebook	45.3	67.0	52.7
Blog	45.9	61.4	51.2
Skype	42.4	33.0	39.1
LinkedIn	35.9	25.0	32.2
Wikis	30.0	29.5	29.8
Instagram	21.8	44.3	29.5
Hotmail	12.9	19.3	15.1
Word Press	11.2	20.5	14.3

Note: For multiple response questions, each individual response is equal to 100%.

On the other hand, results from the survey of instructors regarding their use of SM revealed an interesting trend. Google remained the most popular SM tool, with 72% of UEW instructors indicating they used it. This was followed by Gmail (64%) and WhatsApp (63%). As for their counterparts at GTUC, Google was also the most popular tool, with 68% indicating its use, followed by Facebook and YouTube (67%), as shown in Table 4.9.

Table 4.10: Summary of chi-square test showing correlation between students' gender and use of the most popular SM platforms

	Female	Male	X^2	p
Nil		3	13.89	.31
WhatsApp	63	217		
YouTube	1	10		
Google	5	10		
Instagram	1	5		
Facebook	13	37		
Snapchat		1		
Twitter		3		
Yahoo		1		
Telegram		4		
Gmail		2		
Opera mini	2			
Other		1		

Table 4.10 shows that there was no significant correlation between student gender and use of the most popular SM platforms; thus, $X^2=13.39$, $p>0.05$.

Table 4.11: Summary of chi-square test showing correlation between students' institution and use of the most popular SM platforms

	UEW	GTUC	X^2	p
Nil	3		8.79	.71
WhatsApp	234	46		
YouTube	10	1		
Google	14	1		
Instagram	5	1		
Facebook	45	5		
Snapchat	1			
Twitter	3			
Yahoo	1			
Telegram	2	2		
Gmail	2			
Opera mini	2			
Other	1			

In order to learn whether there were any differences in SM use among students in the two institutions and between the genders, a chi-square test was conducted (see tables 4.10 and

4.11). The analysis yielded no significant correlation between the genders or between UEW and GTUC in relation to usage. Table 4.11 shows that there was no significant correlation between institution and use of the most popular SM platforms; thus, $X^2=8.79$, $p>0.05$.

What students and instructors use SM platforms for

Students and instructors were asked to indicate what they used SM platforms for, so far as teaching and learning are concerned. Results of the students are presented followed by the instructors.

What students use SM platforms for

Using a Likert scale ranging from strongly agree (5), agree (4), neutral (3), disagree (2) and strongly disagree (1), the study sought to find out what the students used SM platforms for in so far as their academic studies were concerned. The vast majority of respondents (92%) showed a distinct inclination (strongly agree and agree) towards the use of email to discuss academic issues with their classmates (see Figure 4. 1). Moreover, 74% agreed (strongly agree and agree) that they used SM primarily to search for information related to their studies. Seventy-three percent of the students affirmed (strongly agree and agree) that they used SM for group discussions related to their studies while 73% confirmed using SM to communicate with their instructors.

Table 4.12: What students use social media tools for

Statement	SD %	D %	N %	A %	SA %	Mean	SD
My colleagues encourage me to use social media for my studies	15.00	21.90	25.30	25.30	12.40	2.98	1.254
Social media is good to be used by lecturers	11.60	20.80	27.40	25.50	14.70	3.11	1.228
I am personally motivated to use social media for my studies	9.80	17.20	26.10	31.90	15.00	3.25	1.291
My lecturers compel me to use social media for my studies	14.50	18.50	24.50	25.30	17.20	3.12	1.302
It makes me communicate efficiently with my lecturers	12.40	15.00	21.60	30.60	20.30	3.31	1.293
I can learn without the use of social media	14.20	15.80	22.10	25.30	22.60	3.25	1.349
I use email to communicate issues about my studies with my lecturers	2.40	6.60	20.50	42.90	27.60	3.87	.971
Social media is truly relevant for my studies	5.50	6.60	17.70	40.40	29.80	4.11	.962
My peers and I will learn better if social media is integrated into instruction	2.40	4.50	19.20	40.00	33.90	3.99	.993
I am interested in using social media as an educational tool	3.40	9.50	16.70	35.70	34.70	3.89	1.093
I use social media to communicate with my lecturers	2.90	3.70	19.80	35.90	37.70	3.31	1.293
I use social media for group discussion related to my studies	3.70	5.80	16.60	33.80	40.10	4.01	1.065
It is relevant to my studies	2.40	4.20	14.50	38.20	40.80		
I use social media a lot	1.80	2.90	13.20	34.20	47.90	4.23	.916
I use the internet to search for information relating to my studies	6.60	5.50	13.90	25.30	48.70	4.04	1.201
Use email to communicate academic issues with my classmates	1.80	1.60	4.20	18.70	73.60	4.61	.801

From the Table 4.12, majority (92 %; mean=4.61, SD=.801) of the students indicated that they used email to communicate academic issues with their classmates when they were asked what they used their SM platforms for. With the use of SM to search for information relating to their studies, 74% of the students (mean=4.04, SD=1.201) indicated so. Seventy-four percent (mean=4.01, SD=1.065) used SM for group discussion related to their studies and 73 % (mean=4.02, SD=.993) used SM to communicate with their

instructors. On the other hand, students least used SM as a means to encourage themselves for studies (38%, mean=2.98, SD=1.254).

What instructors use SM for

The results of what instructors use SM for are presented in tables 4.13 and 4.14.

Table 4.13: A summary of the descriptive statistics showing the use of social media among instructors

Instructors' use of SM for teaching	N	Mean	SD
I use SD	258	4.52	.765
It is relevant to my teaching	258	4.34	.803
It makes me communicate effectively with my students	258	4.12	.928
It makes me communicate effectively with my fellow lecturers	258	4.28	.823
I use SD for group discussions with my students	258	3.70	1.085
I can teach without the use of SD	258	3.88	.991
SD is truly relevant for my professional growth	258	3.64	1.129
I am a member of a group on SD platform that discusses issues on my professional development	258	4.02	.886
SD should be introduced as an essential part of my teaching	258	3.86	.890
I am interested in using SD as an educational tool	258	4.00	.837
My colleagues and I will teach better if SD is integrated into instruction	258	3.58	.927
SD is the best way for students to learn	258	3.48	.999
I use SD to discuss academic work with my students	258	3.83	.877
I am personally motivated to use SD for my teaching	258	3.83	.926
My colleagues encourage me to use SD for my teaching	258	3.48	1.003
The institution motivates me to use SD for teaching	258	3.35	1.082
I use SD to communicate with my fellow lecturers on academic issues	258	4.15	.790
I have the capacity to use SD for my teaching	258	4.02	.972
There are policy guidelines in the use of SD for teaching in my institution	258	3.42	1.067

In relation to the use of SM among instructors for teaching, Table ….reveals that mostly instructors use social media (mean=4.52, SD=.765); related to their teaching (mean=4.34, SD=.803); communicated effectively with their fellow instructors (mean=4.28, SD=.823) whereas the least in recorded on institution motivating instructors to use social media for their teaching (mean=3.35, SD=1.082).

Instructors indicated particular academic activities they used SM for as presented in Table 4.14.

Table 4.14: What instructors use SM for

Uses of SM by instructors	UEW (percentage)	GTUC (percentage)	Total (percentage)
Sending Assignments	58.2	60.2	58.9
Receiving Assignments	55.9	61.4	57.8
Teaching	48.2	39.8	45.3
Research	37.6	43.2	39.5
Tutorials	35.9	34.1	35.3
Discussion	24.1	19.3	22.5
Communication	11.2	11.4	11.2

Note: For multiple response questions, each individual response is equal to 100%.

From Table 4.13, more than half (58.9%) of the instructors at both institutions indicated that they used SM to send assignments to their students. This was followed by (57.8%) who used it to receive assignments from their students; (45.3%) for their teaching; (39.50%) for conducting research; (35.3%) for tutorials; (22.50%) for discussion; and (11.2%) for general communication, respectively. This implies that instructors use SM to receive assignments from students more. With the above usage of SM all instructors notwithstanding, it is important to note some differences the rate of usage among both institutions. For instance, GTUC recorded a higher rate on: sending assignments using SM (60.2%) as against their counterparts from UEW (58.2%); receiving assignments (GTUC, 61.4%; UEW, 55.90%); conduct of research (GTUC, 43.20%; UEW, 37.60%); and for

communication with slight high rate (GTUC, 11.40%; UEW, 11.20%). There was a little twist when it came to activities such teaching (UEW, 48.2%; GTUC, 39.8), tutorials (UEW, 35.9%; GTUC, 34.1%) and discussion (UEW, 24.1%; GTUC, 19.3%) with UEW having high rates in such academic activities.

4.2.2 Qualitative results

The next section discusses the qualitative data on students and instructors' views concerning the use of SM platforms.

Use of SM platforms by students and instructors

The following results hinge on the presentation of results on use of SM platforms by students followed by instructors.

Students' understanding of SM

Regarding students' understanding of SM platforms, participants were asked to define what social media is from their own point of view. Participants from the two institutions had differing views. This was evident from the definitions they gave and the SM platforms they knew of. The narratives of respondents regarding the meanings they assigned to SM showed that they regarded it as anything from 1) an information- or ideas-retrieving tool, 2) an interactive tool, 3) a connection tool, 4) a communications tool, and/or 5) a collaborative tool.

Information- or ideas-retrieving and sharing tool

Information-sharing formed the dominant theme in the narratives of respondents on their awareness of SM platforms. Most of them defined SM basically as an information-sharing tool. For instance:

> *Social media comprises of on-line technologies…used to help in sharing information.* ***[SP1]***
>
> *I think social media is a platform that helps us in sharing of ideas.* ***[SP2]***
>
> *Social media is a technology that helps in creating and sharing ideas, information.* ***[SP5]***
>
> *Social media is a platform whereby individuals can visit in order to get information.* ***[SP6]***
>
> *…sharing ideas and disseminating information and other stuff.* ***[SP10]***
>
> *Social media is an online platform used for encoding and decoding information.* ***[SP19]***

Interactive tool

Some students also viewed SM as a tool to be used on an interpersonal level rather than just a communications medium:

> *…also* ***interact*** *with others interpersonally.* ***[SP4]***
> *…a community where they can* ***interact*** *on issues that are of interest to them.* ***[SP7]***
> *…for on-line* ***interaction****, not just for communication but for on-line interaction.* ***[SP8]***
> *…an* ***interactive*** *platform which people turn to [in order to] publish messages through the use of the Internet.* ***[SP14]***

Connection tool

Other respondents defined SM as a tool for connecting people, specifically for networking and establishing links:

> *I think social media is a platform that connects people all over the world together.* ***[SP13]***
> *Social media is an interconnected mediated computer network that links people.* ***[SP15]***
> *To me, social media is an online platform for networking.* ***[SP9]***
> *…connect with people and create links.* ***[SP30]***

> *I think social media is about all the various platforms that help social networking.* ***[SP28]***

Communications tool

In another instance, SM was regarded as a communications tool. Respondents considered it to be a tool that could be used to communicate ideas electronically irrespective of the distance and to get in touch easily without physically moving from one place to another:

> *…an effective and widely used electronic tool used in communication.* ***[SP35]***
>
> *… helps individuals in different occasions [locations] despite the distance to communicate.* ***[SP25]***
> *Social media is the future of communication… We all can't do away with it.* ***[SP27]***
> *… people get in touch with each other to avoid movement from a place to another place.* ***[SP41]***

Collaborative and research tool

Other respondents had a different view of what SM was. For them, it was to be regarded as a collaborative tool as well as for research. This is clear from the following comment:

> *… SM also helps in collaborative activities and also for research.* ***[SP33]***
>
> *SM is actually a tool for research and collaboration.* ***[SP50]***
>
> *To me, SM is an electronic tool used for research.* ***[SP61]***

Instructors also articulated their views on SM platforms. All 12 instructor interviewees from both institutions had clear ideas about what SM was as well as the various platforms. The majority of respondents saw SM as a tool for sharing and receiving information and ideas, while some regarded it more as a communications tool, with others describing it as an interactive tool or a means of gaining access to or reaching people.

Information-sharing tool

SM as an information-sharing tool was the dominant theme among instructors. Seven of the 12 respondents indicated that SM was a tool for sharing and receiving information and ideas in the form of resources such as videos and text, for the purposes of entertainment, family interaction, socialising and education:

> *They are online platforms that are used to share resources like all forms of multimedia such as videos, audio and text.* ***[IP7]***

> *It is a platform used to receive and share information of all kinds, whether for entertainment, maybe family issues and social issues as well as for educational purposes.* ***[IP6]***

> *Social media is any media that we use for spreading or disseminating or receiving information…from the Internet, Facebook, WhatsApp, Instagram, Vibre, Skype, Twitter, and so on.* ***[IP11]***

Communications tool

Six of the 12 instructors interviewed regarded SM as a tool through which users could easily communicate amongst themselves.

> *They are the modern kind of communication avenues that are available online and we can say currently that it is what we use to communicate because it comes in handy and [is] available on cell phones and so on and so forth… It is actually a means of communication that has been brought about by modern technology.* ***[IP1]***

> *Social media in my opinion is the medium people normally use to communicate with each other.* ***[IP9]***

> *In my opinion...social media is an electronic communication or a way that we can communicate or connect with people all over the world using the Internet.* ***[IP8]***

Interactive tool

Some respondents defined SM as an interactive and collaborative tool that allowed them to connect socially, educationally and culturally by sharing content and ideas.

> *Social media in my opinion is the interactive media…for interactivity and collaborative means… You post something and people comment about it in an interactive manner…so it's an interactive tool.* ***[IP3]***

> *It is an interactive medium that allows us to connect socially, educationally, culturally and share content, ideas and other media content with each other.* ***[IP10]***

> *Basically, I consider social media as technology tools or platforms where people can interact either socially or professionally because there are some platforms where is [which are] more of [for] professionals' interaction. So basically, where interaction can occur either professionally or socially.* ***[IP4]***

Access to people

Another view of respondents in respect of their awareness of SM was as a means of gaining access to or reaching people who had similar interests, which might involve social, academic or professional interaction:

> *I think SM is a platform that allows us to have easy access to people of similar interests for purposes such as social, academic, professional [interaction]… Irrespective of the purpose, it just gives you the platform to access those people.* ***[IP2]***

Students understanding of various SM platforms and what they used them for

When student participants were asked about how the various SM platforms, they were aware of are utilised for teaching and learning. A breakdown of how they utilised the platforms showed that they are varied based on interest. The following are some respondents' narratives on what they used SM platforms for:

YouTube for tutorials, assignments and learning

Some respondents indicated that they used YouTube to download video tutorials:

> *I use it, YouTube, in downloading tutorials... Sometimes, when our lecturers come and they give us assignments, most often you need tutorials on that topic, so I just go there to download and watch.* ***[SP33]***

> *I used to go to YouTube and subscribe to different channels so that in case there is information on any topic that I don't understand, I will just watch the tutorials and then get the understanding on that topic.* ***[SP28]***

> *Just as my brother said, I also, YouTube is my channel that I go to watch because what is being lectured in the class is not all that understandable, so it is better for me to go and then...view it so that I can understand it better.* ***[SP20]***

> *...when we are given assignments and as an early childhood education student, we get a lot of instructional materials and videos from there, especially YouTube* ***[SP35]***

> *Mostly with the YouTube, I often download tutorials from that section to supplement the teaching and the lectures the teachers give us.* ***[SP31]***

WhatsApp, Facebook and Telegram for information sharing

They also indicated that they used such platforms as WhatsApp, Facebook and Telegram to share information:

> *...sharing information and then getting of updates from friends.* ***[SP15]***

> *Yes, like the WhatsApp we've been using to share ideas.* ***[SP25]***

> *...Facebook like this: I have friends who are studying in other tertiary institutions and stuff so normally, I share information with them ... If they have materials on something, I receive it from them.* ***[SP37]***

Non-Academic and educational use

Another issue that emerged was the use of SM for a combination of social, economic and academic purposes. For instance, some respondents indicated using these platforms to conduct business, and for socialising and entertainment:

> *I also use SM for three most important aspects. Number one is for business activities, and then number two is for academic purposes, and then number three is to ease stress through entertaining myself with it.* ***[SP32]***

> *…mostly for social interaction, and few times for educational research and business.* ***[SP28]***
> *…for taking [getting] information [from] across the world.* ***[SP3]***

Communicating class and assessment schedules

SM platforms such as WhatsApp were also used to communicate and schedule lecture and quiz times:

> *…for receiving messages on when to submit assignments and also when quizzes will commence.* ***[SP20]***
> *…communicate with our lecturers pertaining to the respective courses they teach.* ***[SP5]***

> *Sometimes, assignments are posted in a group, especially WhatsApp, so that maybe group members can use it to communicate through WhatsApp and get the information.* ***[SP12]***

WhatsApp for Group discussion

WhatsApp emerged as a platform that respondents used regularly for group discussions and sharing ideas, and to do assignments.

> *I use it most of the time in collaborative learning where most of my friends…we connect together and share ideas on whatever we want to learn on [about].* ***[SP39]***

> *Especially WhatsApp in group discussions, we discuss about ...assignments given to us from lectures.* ***[R15]***

> *I use WhatsApp for group assignments and discussions.* ***[SP33]***

> *And then WhatsApp for discussions. In terms of assignments given to a group, so you can have a group of [that uses a] WhatsApp page where assignments can be given to share our ideas and come out with a solution.* ***[SP45]***

Google for research and email

Respondents also mentioned that they used platforms such as Google Scholar for research and emailing classmates about matters concerning their assignments:

> *… for research work and toreceive emails from friends concerning assignments… The university also provides information through mails to us.* ***[SP18]***
>
> *I use Google Scholar for research purposes.* ***[SP10]***
>
> *I use Google to get [do] some research and then get answers to what I need.* ***[SP31]***

YouTube, Telegram and WhatsApp

Other important issues respondents alluded to, were the use of WhatsApp for clarification of concepts and feedback, Telegram for sharing large datasets, and YouTube for downloading videos in seeking further clarification of concepts:

> *I think for WhatsApp, in case we go to class...the lecturer teaches and we don't get it, I can just WhatsApp a friend and he gives me more feedback. Also, I can just pick a question and try solving [it]. After that, I can send it to one of the lecturers to assess it for me.* ***[SP9]***
>
> *…YouTube gives me more knowledge or insight about information that I have little or no knowledge about.* ***[SP10]***
>
> *Telegram, it gives room for more people in a group to share large amount of data... If I don't understand anything, I just type in the questions and the people over there help me. Some even give you books [reading lists]... They send books which I download and go through and then make me [that helps me] understand.* ***[SP29]***
>
> *…if I don't understand a question, I always contact my friend through Telegram for him to do the research and…for me to get that understanding.* ***[SP45]***
>
> *…especially YouTube because there are certain courses in chemistry, especially organic, you wouldn't understand in class all the time, so you use the YouTube to check out the videos to understand better.* ***[SP12]***

Instructors' awareness of various SM platforms and what they used them for

To deepen my scope of understanding on how the instructors used SM in teaching, the following narratives revealed the various the purposes they put the platforms to:

WhatsApp, Facebook and LinkedIn for sharing and retrieving information

The respondents affirmed that they used WhatsApp, Facebook and LinkedIn for sharing and retrieving information. For instance, some instructors said that:

> *I created an account on LinkedIn to showcase work that I have been doing as an academic and try to also connect with other academics if they have some materials. Then I download them from their domain. I also use WhatsApp to sometimes share materials with students... With Facebook, I do share materials if not directly...in my subject area.* ***[IP5]***
>
> *Sometimes, I use it [SM] with my students to share information.* ***[IP9]***
>
> *...I use WhatsApp to share information with my students.* ***[IP9]***
>
> *Well, for WhatsApp, I use it for sharing information, receiving information, for dissemination of information to my peers, friends and my colleagues, and the same goes for Facebook.* ***[IP11]***

Facebook and WhatsApp for collaborative learning among students

Some of the instructors indicated that they used Facebook and WhatsApp to enhance collaborative learning among their students:

> *For Facebook and WhatsApp, I actually use them for group activities like group discussion.* ***[SP1]***
>
> *I use WhatsApp for academic discussion of issues with students.* ***[SP2]***
>
> *...and even on Google, I remember once I had discussions with my students on Google and Yahoo groups where I uploaded materials.* ***[SP4]***

Google email (Gmail), WhatsApp, Facebook and Yahoo for communication

When it came to communication with students in terms of announcements and dissemination of information for various academic purposes, instructors stated they used Gmail, WhatsApp, Facebook and/or Yahoo as these statements confirm:

> *I use Google mail for communication… and WhatsApp as a multipurpose means for academic, social and others.* ***[IP1****]*

> *I use WhatsApp for communication, like contacting people both socially and professionally, with my students and colleagues.* ***[IP4]***

> *…I use WhatsApp for any announcements or any information with my students.* ***[IP5]***

> *OK, so for me I used WhatsApp for telecommunication.* ***[IP8]***

ResearchGate and LinkedIn for research

It also transpired from some of the instructors' narratives that they used ResearchGate and LinkedIn for their own studies:

> *For purposes of research, I use Research gate and LinkedIn.* ***[IP6]***

> ***IP6****: I use it for my teaching and also for my professional development that is for article writing for publication towards my promotion.*

YouTube for tutorials and clarification of concepts for students

Some of the respondents also indicated that they used YouTube to send videos of tutorials on various topics to students:

> *I use YouTube to send videos of my lessons to my students.* ***[IP9]***

> *Sometimes, if they are not getting it through the text, I bring the video and play it for them to grasp the concept.* ***[IP5]***

> *Yes, I use a lot of YouTube videos for teaching.* ***[IP4]***

Specific contexts in which SM platforms have been used by both students and instructors

Students and instructors were asked to indicate specific contexts in which they used SM. The following are the students' views followed by the instructors:

Students' views on the specific contexts in which they used SM platforms for learning

One key issue which generated interesting responses from students concerned the specific context in which they used any given SM platform. Respondents recounted how they used such platforms as YouTube, predominantly, but also Facebook, WhatsApp, LinkedIn SlideShare and Cora for various learning purposes. These included project work, group presentations, research, announcements and developing tutorials for the practical-based course when they were given assignment.

Use of YouTube for various projects

Some respondents from the Early Childhood Department at UEW used YouTube for the preparation of instructional materials for teaching certain concepts to children. Science students, for instance, also pointed out how they used YouTube for some science projects; while mathematics and ICT students indicated how they used YouTube for various assignments as well as helping classmates understand certain concepts better:

> *I remember during EduTech in Early Childhood Education, we were asked to prepare...instructional media for the children for presentation, so my group and I went to YouTube to get the best materials we could present to the class.* ***[SP5]***
>
> *They gave us a project on the topic INERTIA, so I had to go to the YouTube to download an abstract of INERTIA: Newton's law. Then I made [took] extractions [extracts] from there; the whole video. I fixed my own voice in it; then I presented it. It was an EduTech course.* ***[SP10]***
>
> *Just as an earlier speaker mentioned, YouTube helped me a lot in getting audiovisual aids to teach a particular topic. We were asked to do an assignment that is prepare an audiovisual aid to teach any concept at all so*

> *we just went to YouTube, watched similar videos on that and then created my version of it.* ***[R22]***
>
> *Oh, OK, like we are doing Java. Java is not a course or a program; you can't go to class and understand right away. It takes extra effort, so if you want to get much understanding, then I go on YouTube and try to get videos concerning it there.* ***[IP14]***
>
> *I downloaded tutorials from YouTube, that is, on Excel because my friend came from Special Education and asked me to teach him something about Excel and my knowledge about Excel was just small so I downloaded tutorials. Through the tutorials I downloaded, I got much knowledge and I taught him better. And now he has understood it.* ***[SP30]***
>
> *I use YouTube to get TLMs [teaching and learning materials] for my presentation.* ***[SP1]***
>
> *As my colleague earlier said, being more specific, I have used social media in my database research... Let me say this particular semester, our lecturer hasn't been consistent but fortunately for me, I go online, I search for YouTube videos not from one tutorial but from different, different channels and it helps. It builds my mind a lot.* ***[SP25]***

Similarly, some respondents identified other contexts in which they used platforms like Facebook, SlideShare, CORA, WhatsApp and Telegram for research, notification of quiz schedules, and further study.

> *I use Facebook to do research on how the six killer diseases work with children, and through Facebook, I get data on those diseases.* ***[SP12]***
>
> *I think I once went home and I was told that we will have a quiz at around twelve and the time was changed, but I had no airtime and all my phones were off with the exception of the WhatsApp phone, so I had my data switched on. I think three minutes after my data was switched, I learnt that the quiz will come on [be] at around 4.00, so I had to rush for the quiz and it helped me because I got my marks.* ***[SP9]***
>
> *We were given assignment on logical reasoning. I had no knowledge about it, so I just called that Charlie the Slideoo and he just sent it through WhatsApp and gave me.* ***[SP18]***
>
> *I use SlideShare to download slides concerning chromatography for further studies after lectures.* ***[SP29]***
>
> *We were given an assignment on learning about how to teach reading to children. And I went online and I saw some site that said we should provide our mails [email address] so that they connect us, so I provided my mail and consistently they sent information every week regarding the procedure on how you can lecture your child and teach reading one after the other.* ***[SP36]***

> *We were given a project on cloud computing and my group and I, we had no idea about it, so I just went to my Telegram group and I asked for help. Any books or anyone who has knowledge about cloud competing and it marvelled me. I got lots of books…so at the presentation, I just used the books that I got. All the ideas I got were from the books so helped me very much.* ***[SP14]***

Instructors' views on the specific contexts in which they used SM platforms for teaching

Likewise, instructors' views on the use of specific SM platforms for various educational purposes were most relevant to this study. Instructors were also asked to indicate specific contexts in which they used SM for instruction. They described how they used platforms such as YouTube, WhatsApp, Telegram and LinkedIn for activities such as group discussions, one-to-one interactions, referring students for further reading, and for uploading and receiving resources for research.

Responding to how they used YouTube for instruction, some instructors had created accounts on Google to gain access to a YouTube page to enable them to upload lessons and student projects. For example, an Art Education and a Communication Skills instructor from UEW and GTUC respectively indicated how they used YouTube:

YouTube for uploading students' projects and referring students for tutorials

> ***IP1****: I actually use YouTube to upload my students' projects online… what I do is that after supervising student project work, I select some and because I already have a Gmail account, I just upload to YouTube to be accessed by a lot of people.* ***[UEW]***

> ***IP9****: Well, anytime I finish teaching, I make it a point to upload my lesson, which is often in PowerPoint slides, onto YouTube for my students and others. What I do is I first of all created a Google account and so if I want to upload the slides, I sign in with my account and then upload the slides… Then I post the link in the WhatsApp Group platform that I asked the class rep to create and then ask the students to download.* ***[GTUC]***

Use of WhatsApp for group discussions and one-to-one interaction

Some instructors described contexts in which they used WhatsApp, especially when they wanted students to discuss certain issues they had been unable to exhaust in class, and for one-to-one interaction:

> *I often use WhatsApp for student group discussion especially when I…want to continue the discussion of a particular topic I couldn't exhaust in class.* ***[IP5]***
>
> *There are times I use WhatsApp to help individual students on [a] one-on-one basis for specific academic challenges like…understanding of issues.* ***[IP9]***

Telegram for uploading large files

Instructors illustrated how Telegram was used to upload large files for students. This they did when they had been unable to upload such files on other platforms due to size. For example, a Business Administration instructor from UEW said:

> *I remember on two occasions when I tried to upload some files on internship to [for] my students who had left campus for industrial attachment at various locations in the country… I tried using WhatsApp severally [several times] but it failed, so I shared my experience with a colleague and…after teasing me for a while, he told me to use Telegram. I was not using Telegram so I just downloaded it and installed, and then I migrated the students on the platform, then I sent the file and within seconds, it just went.* ***[IP6]***
>
> When I posed further on whether all students had Telegram, he replied that:
>
> ***IP6****: I actually posted on the WhatsApp group page informing all who didn't have [it] to install so they did. In fact, they did because they knew it was necessary to get that file.*

A blog for developing reading skills and reflection

A female instructor mentioned that she used a Blog to develop her students' reading skill when she taught them a course on 'Emerging Technologies'. This was when she realised

that her students did not like reading, so she uploaded articles onto the Blog and asked them to go and read it:

> *I used a blog to teach my students and I did so by uploading articles that are related to the course I am teaching so I ask them to go and read so that their reading habits are improved.* ***[IP5]***

The next section presents results based on the factors that influence students and instructors use of social media for teaching and learning.

4.3 Factors that influence SM usage by students and instructors

4.3.1 Quantitative results

This section first addresses demographic factors that influence students and instructors' educational use of SM, followed by the presentation of the results of the other factors, using factor analysis.

Influence of demographic factors (i.e. gender, age, level, discipline, etc.) on students' and instructors' SM usage

Students and instructors were asked to indicate their agreement with statements about their engagement in activities that involved SM usage by rating the activities on a scale of one to five (i.e. strongly disagree to strongly agree). The responses were aggregated and mean SM usage scores were computed and used as a proxy measure of their SM usage (i.e. extent to which they agreed to educational engagement in SM activities). The mean SM usage scores were used to further group students into those indicating high [*i.e. mean > 3.4*] or low [*i.e. mean ≤ 3.0*] agreement to educational engagement in SM activities.

Table 4.15: Distribution of respondents' rating of their SM usage by category of the demographic factor (percentages and standard deviation in parentheses)

		Number of students			Number of instructors		
		Low usage	**High usage**	**Mean (SD)[2]**	**Low usage**	**High usage**	**Mean (SD)[2]**
Gender	Female	26(31)	59(69)	3.7(0.48)	1(6)	15(94)	4.0(0.35)
	Male	104(35)	191(65)	3.66(0.5)	3(9)	29(91)	3.93(0.38)
Age	<25 / (<30)	74(34)	142(66)	3.66(0.51)	0(0)	0(100)	4.11(0.5)
	25–30 / (30–40)	51(37)	86(63)	3.63(0.48)	3(19)	13(81)	3.9(0.44)
	>30 / (>40)	5(19)	21(81)	3.89(0.46)	1(4)	27(96)	3.96(0.31)
Discipline	STEM	79(31)	173(69)	3.7(0.51)	2(7)	27(93)	4.0(0.37)
	Non-STEM	51(40)	77(60)	3.61(0.46)	2(10)	17(90)	3.88(0.36)
Years of Usage	<5	39(47)	44(53)	3.57(0.53)	1(50)	1(50)	4.03(0.66)
	5–10	72(30)	172(70)	3.7(0.48)	1(5)	20(95)	3.93(0.34)
	>10	19(36)	34(64)	3.65(0.52)	2(8)	23(92)	3.99(0.33)
Years of teaching	<5				1(20)	3(80)	3.72(1.01)
	5–15				3(10)	27(90)	3.97(0.31)
	>10				0(0)	13(100)	3.96(0.37)
Programme level	100	29(31)	65(69)	3.7(0.51)			
	200	39(35)	72(65)	3.69(0.53)			
	300	31(30)	72(70)	3.7(0.43)			
	400	31(43)	41(57)	3.54(0.51)			
	All Respondents	130(34)	249(66)	3.67(0.5)	4(8)	44(92)	3.95(0.37)

Table 4.15 shows a cross tabulation of participants' (students and instructors) SM usage categories (i.e. high or low) by demographic factor (i.e. gender, age, programme level, discipline, and years of usage) as well as descriptive statistics. The results from Table 4.15 indicate that on all demographic factors, the proportion of respondents with high SM usage is far greater than those with low SM usage. Overall, it was observed that 34% of students

had low SM usage and 66% had high SM usage. On the other hand nearly all (i.e. 92%) instructors had high SM usage for educational purposes, with only about 8% having low SM usage. With respect to gender as a factor for instance, it was observed that, in terms of the students, 31% of females and 35% of males had low educational SM usage. However, 69% of females and 65% of males had high educational SM usage. Similarly, in respect of gender, with regard to the instructors, it was observed that over 90% of females and males had high educational SM usage for their academic work.

Table 4.15 also indicates the mean and standard deviations for both students and instructors' ratings in respect of the extent to which they used SM for teaching and learning. In terms of categories of demographic factors, the mean and standard deviation of the categories are not quite different for either students or instructors. That is, the mean SM usage for both students and instructors in the categories of demographic factors were similar. For instance, with respect to gender, the mean and standard deviation of female students [*M=3.7; SD=0.48*] are remarkably close to those recorded for male students [*M=3.66; SD=0.35*]. Similarly, for instructors, the mean and standard deviation of females [*M=3.93; SD=0.38*] were also not quite different from those observed for male instructors [*M=3.66; SD=0.5*]. However, female instructors had higher SM usage than the male instructors and this was like that of the students. Considering age, younger persons had higher SM usage than the elderly. With discipline, Science related programmes (STEM) recorded higher usage than the Non-Science programmes. Concerning the number of years of usage for the students, the longer the number of years of using SM the greater the usage. On the contrary, the lesser years (less than 5 years) instructors had used SM the higher their usage than those who have used SM for more than ten years. Level of the students for the various programmes also indicated that the lower levels used SM more than the

higher levels. For all the respondents, there was higher usage of SM (3.67(0.5)). To ascertain whether or not the differences observed in terms of students and instructors' ratings of mean educational usage of SM were statistically significant, the data were subjected to further analysis using an independent samples t-test and a one-way ANOVA to test the following hypothesis as indicated in Table 4.16:

- There is no significant difference between or among categories of demographic factors (i.e. gender, age, programme level, discipline, and years of usage) in the ratings of students' SM usage.
- There is no significant difference between or among categories of demographic factors (i.e. gender, age, discipline, and years of usage) in the ratings of instructors' SM usage.

Table 4.16: Independent samples t-test for the difference between categories in gender and discipline in respondents' ratings of SM usage

			M	SD	t-value	Df.	Sig. (2-tailed)
Students	Gender	Female	3.70	0.48	0.775	378	0.439
		Male	3.66	0.50			
	Discipline	STEM Disciplines	3.70	0.51	1.958	378	0.051
		Non-STEM Disciplines	3.61	0.46			
Instructors	Gender	Female	3.70	0.48	0.625	46	0.535
		Male	3.66	0.50			
	Discipline	STEM Disciplines	3.70	0.51	1.134	46	0.262
		Non-STEM Disciplines	3.61	0.46			

Source: Field Data, 2018 *significant at *p<0.05*

The results of the independent samples t-test on the differences between the categories of dichotomous demographic factors (i.e. gender and discipline) in the ratings of students and instructor' SM usage are shown in Table 4.16. The results in Table 4.16 indicate that there was no significant difference in either students or instructors' ratings of SM usage in the categories of gender and discipline. This implies that gender and discipline (i.e. whether a STEM-related discipline or not) does not influence students or instructors' educational use of SM.

The results of the ANOVA on the differences between categories of non-dichotomous demographic factors (i.e. age, programme level, years of usage, and years of teaching in the case of instructors) in the ratings of SM usage are shown in Table 4.17.

Table 4.17: Independent samples t-test of the difference between categories in gender and discipline in respondents' ratings of SM usage (*Mean difference significant at the 0.05 level.)

Factor	Category	Group	Mean (SD)	Sum of squares	Df.	Mean square	F	Sig.
Students								
Age	<25	Between	3.66(0.51)	1.502	2	0.751	3.077	0.047*
	25–30	Within	3.63(0.48)	91.806	376	0.244		
	>30	Total	3.89(0.46)	93.308	378			
Programme level	100	Between	3.7(0.51)	1.507	3	0.502	2.055	0.106
	200	Within	3.69(0.53)	91.912	376	0.244		
	300	Total	3.7(0.43)	93.419	379			
Years of Usage	<5	Between	3.57(0.53)	1.159	2	0.579	2.368	0.095
	5–10	Within	3.7(0.48)	92.261	377	0.245		
	>10	Total	3.65(0.52)	93.419	379			
Instructors								
Age	<25	Between	4.11(0.5)	0.141	2	0.070	0.509	0.604
	25–30	Within	3.9(0.44)	6.214	45	0.138		
	>30	Total	3.96(0.31)	6.354	47			
Years of Usage	<5	Between	4.03(0.66)	0.121	2	.060	.436	.649
	5–10	Within	3.93(0.34)	6.234	45	.139		
	>10	Total	3.99(0.33)	6.354	47			
Years of teaching	<5	Between	3.72(1.01)	0.066	2	0.033	0.237	0.79
	5–10	Within	3.97(0.31)	6.288	45	0.140		
	>10	Total	3.96(0.37)	6.354	47			

Source: Field Data, 2018 *significant at *p<0.05*

The results in Table 4.17 indicate a significant difference in students' ratings for SM usage in age categories, and show how mean scores differ, as well as the category that has the highest mean. The results indicate a statistically significant difference between categories [$F\ (2,376) = 3.077, p < .05$].

Table 4.18: Tukey post-hoc test of cross differences between groups

Years of usage (I)	Years of usage (J)	Mean difference (I-J)	Std. error	Sig.	95% Confidence interval	
					Lower bound	Upper bound
<5	5–15 years	-0.2563	0.2754	0.6239	-0.9239	0.4112
	>15 years	-0.2420	0.2735	0.6526	-0.9049	0.4209
5–15 years	<5	0.2563	0.2754	0.6239	-0.4112	0.9239
	> 15 years	0.0143	0.1102	0.9907	-0.2527	0.2814
>15 years	<5	0.2420	0.2735	0.6526	-0.4209	0.9049
	5–15 years	-0.0143	0.1102	0.9907	-0.2814	0.2527

Additionally, a post-hoc multiple comparison Tukey test (see Table 4.18) reveals that the mean in terms of students aged 25 to 30 years [*M = 3.63, SD = 0.48*] is statistically significantly different at the 5% level of significance from the category of those above 30 years [*M = 3.89, SD = 0.46*]. However, there is no statistically significant difference between students younger than 25 years (M = 3.66, SD = 0.51) and those over 30 years [*M = 3.89, SD = 0.46*]. In conclusion, since the p-value is less than the significant level [*i.e. .047 < .05*], the null hypothesis is rejected and an alternative hypothesis may be predicated such that there is a statistically significant difference between the mean scores of the three age groups with regard to their educational SM usage.

Factors that influence the use of SM among students

In order to further address the research objective on the factors that influence SM usage among students, a hierarchical multiple regression was run. Prior to this, a Pearson r test was employed to establish possible relationships between variables and check for multicollinearity. Summaries of the results of the Pearson r test and the hierarchical multiple regression are shown in tables 4.19 and 4.20, respectively.

Table 4.19: Summary of intercorrelation matrix between student variables (*p<0.05, **p<0.01)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. SM usage	1.000								
2. Gender	-0.013	1.000							
3. Age	0.010	0.031	1.000						
4. Institution	-0.046	0.009	-0.124**	1.000					
5. Level	-0.074	-0.047	0.200**	0.285**	1.000				
6. Programme	0.152**	0.452**	-0.017	0.279**	0.024	1.000			
7. Pedagogical activities	0.215**	0.068	0.059	-0.107**	-0.067	0.024	1.000		
8. Opportunities	0.397**	-0.095*	0.109**	-0.104**	-0.073	-0.083*	0.458**	1.000	
9. Challenges	-0.148**	0.053	-0.032	-0.017	0.011	0.032	0.044	0.104**	1.000

Source: Field Data, 2018 *significant at *p<0.05, **p<0.01*

The intercorrelation matrix in Table 4.19 shows that programme, pedagogical activities, opportunities and challenges correlate significantly with students' SM usage [*r=.152, .215, .397, -.148; p<0.01 respectively*]. Furthermore, the strongest correlation is between pedagogical activities and opportunities [*r=.458, p<0.01*]. This means that students' pedagogical activities with SM enable them to derive opportunities as the use the platforms. The weakest correlation is between gender and institution [*r=.009, p>0.05*]. Table 4.19 also shows that none of the variables demonstrates a correlation with a coefficient greater than 0.70, which means that there is no multicollinearity of data. However, correlations between some variables and the pursuant lack of multicollinearity warrant further statistical analysis.

Predictors of the use of SM among students

In order to examine the precise predictors of student SM usage, a hierarchical multiple regression was then employed. A summary of the results is shown in Table 4.20.

Table 4.20: Summary of hierarchical multiple regression showing predictors of student SM usage

	Beta	T	P	R^2	F change
Step 1:				**.02**	**.96**
Gender	-.02	-.30	.76		
Age	.01	.13	.89		
Level	-.12	-1.90	.06		
Institution	-.02	-.39	.70		
Step 2:				**.21****	**45.63**
Gender	.04	.86	.39		
Age	-.05	-1.09	.28		
Level	-.10	-1.79	.07		
Institution	-.00	-.04	.97		
Opportunities	**.42**	**8.98**	**.00**		
Challenges	**-.20**	**-4.28**	**.00**		

Source: Field Data, 2018 *significant at *p<0.05, **p<0.01*

As shown in Table 4.20, demographic variables (gender, age, level and institution) contribute 2% of changes in students' SM usage [$R^2=0.02$, $p>0.05$]. This implies that every unit change in the demographic variables, leads to 2% changes in students' use of SM. When opportunities and challenges were introduced in the model, as indicated in step 2, the model collectively contributed 21% of changes in student SM usage [$R^2=0.21$, $p<0.01$], with opportunities and challenges significantly predicting student SM usage [$\beta=.42$, $p<0.01$] and [$\beta=-.20$, $p<0.01$] respectively. By implication, students use SM more when they realise the relevance, they derive from using them. On the contrary, their usage is affected (less usage) when they encounter challenges.

Further to the statistical analysis above, a MANOVA was also employed to test the influence of demographic variables on SM usage. The results are shown in Table 4.21 on the next page.

Table 4.21: Summary of MANOVA showing differences in Student SM usage by demographic variable

Source	Type III Sum of squares	Df.	Mean square	F	Sig.
Corrected Model	12.439[a]	31	.401	1.447	.062
Intercept	558.807	1	558.807	2015.229	.000
Gender	.453	1	.453	1.633	.202
Institution	.909	1	.909	3.277	.071
Level	.665	3	.222	.799	.495
Programme	2.787	2	1.393	5.025	.007
Error	96.498	348	.277		
Total	5005.246	380			
Corrected Total	108.937	379			

Notes [a.] R Squared = .114 (Adjusted R Squared = .035).

Source: Field Data, 2018 *significant at *p<0.05, **p<0.01*

Table 4.21 indicates that the demographic variables explain 11.4% of changes in student SM usage [R^2=*.114*]. Table 4.21 also reveals the demographic variables of programme of study as the only one that significantly influenced SM usage. Subsequently, in order to establish the precise differences in SM usage by programme of study, a multiple comparison analysis was conducted, which is shown in Table 4.22.

Table 4.22: Summary of multiple comparisons showing differences in SM usage by programme of study (*p<0.05)

	1	2	3
1. Bed	-		
2. BBA	-.05	-	
3. BSc	.17	.22*	-

Source: Field Data, 2018 *significant at *p<0.05, **p<0.01*

Notes: BEd = Bachelor of Education
BBA = Bachelor Business Administration
BSc = Bachelor of Science

Table 4.22 shows that there is a significant difference between BSc (STEM) and (BBA (non-STEM) students in relation to SM usage [*mean difference=.22, p<0.05*]. This means that students in BSc were more likely to use SM than Bed and BBA students. Conversely, the difference between those studying for a BEd and those studying for a BBA, as well as that between a BEd and a BSc, had no statistical significance.

Factors that influence the use of SM among instructors

In order to address the question of what influenced instructors to use SM in their teaching, a hierarchical multiple regression was used. Prior to the use of the hierarchical multiple regression, Pearson r test was employed to establish possible correlations between variables. The Pearson r test also checked for the existence of multicollinearity was checked. Summaries of the results of the Pearson r test and the hierarchical multiple regression are shown in tables 4.23 and 4.24 respectively.

Table 4.23: Summary of the intercorrelation matrix between instructor variables (*p<0.05, **p<0.01)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
SM Usage	1.000								
Institution	-0.220**	1.000							
Sex	-0.061	0.005	1.000						
Age	0.214**	-0.195**	0.019	1.000					
Years of teaching	0.112*	-0.104*	-0.067	0.629**	1.000				
Rank	0.101*	-0.059	0.005	0.697**	0.725**	1.000			
SM integrated	0.032	0.120*	-0.034	-0.038	-0.109*	-0.008	1.000		
Opportunities	0.339**	-0.132*	0.039	0.157**	0.021	0.060	0.069	1.000	
Challenges	-0.141**	0.109*	0.022	-0.070	0.161**	-0.022	-0.172**	-0.061	1.000

Source: Field Data, 2018 *significant at *p<0.05, **p<0.01*

Table 4.23 shows that except for the correlation between rank and years of teaching – which reveals a correlation coefficient greater than 0.70 – all other correlations are less than 0.70. This indicates that there is no multicollinearity between variables. Table 4.23 also shows that institution, age, years of teaching, professional rank, opportunities, and challenges correlate significantly with SM usage [*r=.220, .214, .112, .101, .339, -.141; p<0.05 respectively*]. Such correlation between most variables and the lack of multicollinearity warranted further statistical analysis of the data to determine what specifically influenced instructors' usage of SM as shown in Table 4.24.

Table 4. 24: Summary of hierarchical multiple regression showing predictors of SM usage by instructors

	Beta	**T**	**P**	**R^2**	**F change**
Step 1:				**.09****	**4.69**
Gender	-.07	-1.07	.28		
Age	.23	2.59	.01		
Years of teaching	-.01	-.13	.90		
Institution	-.18	-2.90	.00		
Rank	-.06	-.62	.54		
Step 2:				**.18****	**14.69**
Gender	-.07	-1.12	.25		
Age	.15	1.68	.09		
Years of teaching	.07	.78	.44		
Institution	-.14	-2.32	.02		
Rank	-.08	-.83	.41		
Opportunities	**.30**	**5.07**	**.00**		
Challenges	-.11	-1.82	.07		

Source: Field Data, 2018 *significant at *p<0.05, **p<0.01*

As shown in Table 4.24, demographic variables (gender, age, years of teaching, rank and institution) contribute 9% of changes in instructors' SM usage [R^2*=0.09, p<0.01*]. When opportunities and challenges are introduced into the model, as indicated in step 2, they collectively contribute 18% of changes in instructors' SM usage [R^2*=0.18, p<0.01*]. However, only the opportunities variable significantly predicts instructors' SM usage [β*=.30, p<0.01*]. Further to the statistical analysis, a MANOVA was also employed to test the influence of demographic variables on instructors' SM usage. The result of which is shown in Table 4.25.

Table 4.25: Summary of MANOVA showing differences in instructors' SM usage by demographic variables a. R Squared = .243 (Adjusted R Squared = .128)

Source	Type III Sum of squares	Df.	Mean square	F	Sig.
Corrected Model	13.945[a]	34	.410	2.110	.001
Intercept	900.573	1	900.573	4632.972	.000
Gender	.225	1	.225	1.159	.283
Institution	.043	1	.043	.219	.640
Teaching	.972	3	.324	1.668	.175
Rank	1.910	4	.478	2.457	.047
Error	43.348	223	.194		
Total	3916.551	258			
Corrected Total	57.292	257			

Source: Field Data, 2018

Table 4.25 indicates that demographic variables (gender, institution, years of teaching and rank) explain 24.3% of changes in instructors' SM usage [R^2=*.243*]. However, Table 4.25 also reveals that professional rank is the only demographic variable that significantly influenced SM usage, implying that instructors' usage of SM is strongly influenced by their professional rank. To establish precise differences in SM usage by programme of study, a multiple comparison analysis was conducted, which is shown in Table 4.26.

Table 4.26: Summary of multiple comparison analysis showing differences in instructors' SM usage by instructors' professional rank

Instructors' SM usage on their Professional Rank			
Professional Rank	1	2	3
1. Lecturer	-		
2. Senior lecturer	-.002	-	
3. Professor	.253	.254	-

Table 4.26 shows that there are no significant differences in the various professional ranks with regard to instructors' SM usage.

4.3.2 Qualitative Results on factors that influence students' and instructors' SM usage

This section addresses instructors and students' views on the factors that influenced their choice of SM platforms for teaching and learning. These factors are grouped under two main themes: (i) what inspired or motivated students and instructors to use SM; and (ii) the level of control they had as they used SM platforms. The next section addresses students' narratives on factors that influenced their use of SM.

Students' views on the factors that influence their use of social media

On what motivated them to use a particular SM platform in their studies, both GTUC and UEW gave a variety of responses and ascribed different reasons. Some were inspired by the functionality of a platform that allowed them to achieve what they wanted to at any given time. Others asserted that the driving force was ease of access to a platform. Yet others were inspired by their instructors to use certain platforms, as well as the interactivity of a platform.

Functionality of SM platforms

Functionality came up as one of the factors that influenced students' use of SM platforms in their studies. Students had various experiences: While some asserted that the establishment of facts was the driving force, others pointed to the search for more information, knowing what others were thinking about an issue, and confirmation of facts as factors that influenced them in their SM use for learning. For instance, some respondents indicated that:

> *What arouses [sic] me to use the social media platform is when I want to establish facts. There are certain things we know but it might not be true so I use it mostly to establish facts. Second one too, to know what others are thinking; it's nice to know what someone else is thinking about a particular issue.* ***[SP5]***
>
> *Due to the limited information that is being provided in our course materials, the lecturers come to class and they are like, "Go and read more". So in the quest of reading more, we go online. And also due to my hunger to search for extra information outside my scope of studies, I always go online to get new ideas to add...to what I have.* ***[SP13]***
>
> *...due to diversity of response towards a specific objective, let's say when we were having the website design this semester, the lecturer will come to class and give a response towards a design, let's say how to create the interface of a website; then we will consult a colleague and the colleague will also give a conflicting idea towards what the lecturer said. So to affirm...what they have brought across the board, we need to go online to*

> *communicate whether you can get enough evidence to support the claim that has been objected [to].* ***[SP25]***
>
> *What arouses my interest to use social media is when I want to get more understanding on a particular topic, I go to the social media platform and then I will search for information about it. Personally, sometimes I have been studying some of these programming languages and then to get knowledge on the C+ and the C+++ and other stuff.* ***[SP50]***

Easy access to information and less stressful

Another intriguing response from students on what motivated them to use SM platforms for learning was how easy it was to access anything they were searching for. They mentioned the authenticity of the information they obtained, as well as how fast they were able to access information they were looking for, and how stressful the overall procedure was. According to respondents, their ability to multitask and access platforms in the comfort of their hostels prompted the habitual use of SM. This is reflected in the responses of a level 400 Informatics student from GTUC and a level 300 Early Childhood student:

> *It's also about getting things easier and knowing or seeing the real thing about how it is done. Because when you see how the real thing is being used or being done, you get a visual idea about it and you are able to practice and give it out very well. It is also fast because you [are] going to get information quickly within a click on your phone.* ***[SP55]L400***
>
> *For me, what inspired me to use social media is...the fact that it reduces stress in searching for books at the library. When you go on social media you easily get materials that can help you do whatever you want to do rather than going to the library searching for books. And for the fact that it gives me the comfort, I have the comfort in my house just searching for information. I can be cooking, I can be doing any other thing [and] at the same time I am learning. And because it is also versatile, it gives you varieties and ranges of materials that you can choose from yourself.* ***[SP28]L300***

Interactivity of the social media platform

Interactivity of any given SM platform was a driving force; whose outcome determined the success or otherwise of an assignment as declared by these students:

> *...a condition where you are in a class and you all don't stay in the same hostel, so let's assume that they give you an assignment or...project work to do. First of all, you have to create a WhatsApp group so that you will be able to share ideas and interact together in the group and bring out a concrete idea… That makes me use social media.* ***[SP2]***
>
> *...because we wanted our group to be the best of all, we made a WhatsApp group so that we can interact and discuss about our project work and our assignments. And due to that, it really helped us to be the best of all… All these push me to use WhatsApp.* ***[SP5]***
>
> *How interactive it is…it makes me go there because if you have friends who are there you can interact with them on a topic and share ideas on what you want.* ***[SP43]***

Inspiration students get from instructors

Another revelatory factor was the issue of being inspired to use SM platforms by students' instructors. In this regard, respondents claimed that the pedagogical approaches of some instructors made the use of SM obligatory:

> *There is a lecturer in our department, always when she comes to class she is always asking questions instead of going rightly [straight away starting to] to teach because she is more of a student-centred person in her teaching style. And she always wants the class to be very interactive; she will ask you to go to social media and the library. So if you are there and it's like you are not contributing, it's like you don't know what is happening in the class at all. So that pushes most of us to go to the social media platforms and the library to research more.* ***[SP20]***
>
> *For instance, sometimes some lecturers recommend some social media platforms to go for more information. For example, during my studies in level 100 there was this lecturer who always told us to go to a certain platform called 'The Physics Classroom' to search for more information after lectures.* ***[SP30]***

Students' choice of specific SM platforms

Participants were asked to indicate what influenced their choice of a particular SM platform. Some mentioned the quest for multimedia since it appealed to all the senses. Thus, YouTube enabled them to learn faster and provided in-depth information, Google

Scholar provided credible and accurate information, and they could get updates from Twitter:

> *What actually influences me to choose a particular social media is that I am somebody who learns with pictures and videos and practicals, so I can't see myself sticking to a social media which literally [only] deals with words. So, before I choose social media, the reason I love YouTube or any other social media or Instagram is because of the pictures and the fact that it comes with videos. I think that is what inspires me to opt for a specific social media [platform].* ***[SP1]***

> *I am someone who learns better when I watch at the same time [as] listen[ing]. I don't just solely base [my studies] on the written format. When I sit down to read I become bored, probably I don't even understand. I like going to YouTube more [than]... listen[ing]...in tutorials... So, I like going to YouTube basically because I like watching the tutorials more of the time.* ***[SP29]***

> *We normally have a saying that "I see, I believe [understand]; I hear, I forget". So, mostly, that motivates me to go to YouTube to get more information on what has been taught and probably to get to realise that what is actually taught is what I am seeing there. Sometimes, it also aims at a [depends on the] time factor; it gives me some minimal time to get to know much more than what has already been explained; probably more than two hours' time of sitting, and so for me, for sure the reason and purpose of this one is that it gives me more visual ability.* ***[SP48]***

> *What inspires me to use specifically YouTube is the depth of information that I will get over there. Yeah. There are some platforms you will type in the subject that you are looking for, but they will just give you scanty information about whatever you are looking for. But for YouTube, especially when I wanted to learn how to use SPSS in coding data, yes, YouTube will give you various tutorials that will give you an in-depth knowledge of how to use SPSS. So to me, the depth of information that I will get over there will inspire me to use a particular social media platform.* ***[SP36]***

> *What inspires me or arouses my interest to choose a particular social media platform, I would say it's about accuracy or how credible the platform is. Assuming you want to embark on [a] project so you are researching on the various social media platforms that we have. Of course we have many of them, so you ask yourself how credible is the information that you are going to source from that platform...[or are you...going to be misled by any other information?... So, for my own personal interest, I think accuracy and then credibility has to do with something that arouses me the more. Especially, for instance, this platform Investopedia. I am a business student so when you subscribe to that platform it is only about education and it is a platform that has been widely accepted.... And then academic platforms like Google Scholar, you see these are credible platforms that when you are to*

> *subscribe to them, you can fetch positive information for your area of study.* ***[SP33]***

Level of control in SM platforms

On how much freedom they felt they had in the use of SM platforms, some were of the view that since platforms were free to use, they had full control over them. However contrary opinions were expressed that platforms imposed some restrictions that made access to relevant information difficult and sometimes impossible. Such restrictions included Internet connectivity issues, external restrictions that came from developers, and restrictions around the content that could be accessed.

The freeness of social media platforms

Participants were asked to indicate how much freedom they felt they had in using SM platforms for educational purposes. The following narratives point to the belief that since there were no regulations governing the use of SM platforms, respondents found the use of them free and fun. Others indicate that because respondents were addicted to the use of SM, they were bound to use it irrespective of any restrictions imposed:

> *It is free for me because there are no rules and regulations in governing so you can just go to any website, download any information you want to get, and then it is interesting and enjoyable, and then it's fun. You can do anything you want to do on the social media.* ***[SP33]***

> *I feel free using social media. [For] example, WhatsApp, you can go in at any time to reply [to] messages; send messages without restrictions if only you have bundle. But if you don't have, it's not free.* ***[SP12]***

> *Well, in fact, I am a social media addict so whenever I am there or whatever the case is, I am okay with it and I am free and I love using it.* ***[SP47]***

> *So far, I haven't encountered any serious issue with using social media, so I think I have full control.* ***[SP20]***

Restrictions in the use of SM platforms

It is notable that while some respondents indicated that they had full control over the use of SM platforms, others believed that even though there was a level of freedom, there were certain restrictions that did not allow them full control. According to the latter group, although some platforms might allow free access initially, they required payment for downloading educational materials. Others were of the view that although users had control internally, there were external controls from developers, which effectively removed freedom of use. These were expressed in the following statements:

> *Social media is very free anyway but there are certain things that you are not allowed to open. Sometimes, there are courseware and other things that they have...their pdfs [portable document formats] and their learning materials and stuff that you are free to use but at the [some] level of usage...they restrict. There is restriction, so you can say the free is there, but as in like how to, I mean, there is the restriction... about you printing and giving out to your colleague and stuff [like] that… So, it is free anyway but there is some restriction to some courseware and stuff.* ***[SP30]***

> *I think the control that we are talking about here will be in two aspects. I will categorise them as internal control and external control. Internally, I have control since the phone is mine: I have control over every content, everything that I would want to do using social media. But externally, too, I will say I don't always have control since I am not the developer of the platform. Fine, for example, if Mark Zuckerberg says that the whole of this week Facebook is not going to work, I have no control over that. I only have to comply. So, externally I don't always have control but internally since the phone is my own phone, I buy my own credit and I access everything I want to access, internally I have control. But for externally or reasons beyond my personal control I don't always have control over it.* ***[SP15]***

> *When we say [it's] free, it gives me the comfort that anywhere I am I can access it, but then I will have to buy my own data so it is not free. The network will not allow me sometimes to access the social media so it is not free. Then when you access, sometimes those popups and the ads will not allow you to search for what you are searching…. Some, too, when you want to get some information then you will have to register and be part of them. For example, Pinterest, some of them you have to register and be part…before they can give you feedback and some of the materials that you need. Then some of the PDFs, too, when you go you can't copy or download, it is restricted.* ***[R19]***

> *To me, the usage of social media is not free… I can remember in 2014, I post[ed] something on a particular social media [platform] and I was told that, that message is not allowed to be posted on that particular media. So that means that I cannot freely use that particular media to operate what my will wants.* ***[SP45]***

Instructors' views on factors that influence them to use SM for teaching

Instructors from the two institutions were also subjected to certain factors that influenced their choice of SM platforms for teaching. In view of this, they expressed their views on what essentially inspired them to use a given platform, with particular reference to any possible restrictions they experienced. Some of the key issues that emerged from respondents' (instructors) narratives included the functionality of a platform, its accessibility, ease of communication with other users, access to Internet connectivity, security and privacy, user friendliness, convenience, and personal drive.

Functionality of a platforms

Participants indicated that the ability of SM platforms to perform specific functions was essential in their readiness to use them. If SM platforms did not meet their needs by helping them to execute their roles then they would rather choose other platforms that did help them meet those needs. For instance, a female ICT instructor from UEW noted that:

> *One factor I can talk about is functionality of the platform. That is the platform's ability to perform the specific function I want it to perform for me at a particular point in time. If it's ok, then I will use it. There are some platforms that have limitations on what you can do and what you cannot do. One of them is Snapchat. That one … there are a lot of limitations, like you can't move media from that platform to your gallery and so on and so forth…so it makes it very restricted.* ***[IP5]***

Platform Accessibility

Access to SM platforms was another factor that respondents indicated as influential in their choice to use the platform. Thus, any SM platform that they would want to use should be

easily accessible to them and also help them to reach the people they wanted for various purposes:

> *One factor that will make me use social media platforms would be accessibility to the platforms, which is how easy we [can] lay hands on that platform. This is very important to me, and I think I mostly use WhatsApp, for example, due to how easy I am able to access both the platform and the people I want to reach: I do not need to navigate too much.* ***[IP6]***

Ease of communication with other users

Ease of communication with other users was another key factor that was identified by the majority (6 of 12) of instructor participants. According to them, some platforms enabled them to communicate with their contacts more easily, especially their students, and that prompted them to using these platforms. Prominent among such platforms were WhatsApp, Twitter and Facebook:

> *Communication is a key factor in my case… So, there are certain types of platforms where I have a lot more communication coming through that makes me check messages a lot more or use it more than other platforms, like WhatsApp. In that sense, then, I end up using those ones a bit more...to communicate.* ***[IP11]***

> *The platform's capability to help me reach people and communicate is very key… So, then, it makes it easier for me to contact people if I know you are on WhatsApp or something, and you can easily chat with me and send this thing to me by WhatsApp, or take a shot of a photograph of something I need and send it… So, those kinds of things…yes, I suppose what would probably drive me to use, will be how easy it is for me to interact or communicate with the other partner.* ***[IP3]***

> *Well, the main primary factor for me across all the platforms is ease of communication and it should be instant. So if a platform…does not give me that instant communication I need, then I am not going to be that interested. WhatsApp, for instance, is quite quick, and also Twitter and Facebook too.* ***[IP4]***

Ease of use

According to some participants, the choice of SM platforms for teaching was linked to ease of use, that is, how simple or complex it was to communicate with their students. According to an instructor at GTUC, students were prone to SM usage and were very comfortable using it, and that for him was a strong driving force for wanting to use SM for teaching. Another instructor at UEW emphasised that she chose platforms based on the extent to which they helped her share learning materials with her students:

> *My motivating drive to use social media is ease of use, especially how easy it helps me to reach my students... Students these days use social media more, so why not engage them in using things that they are comfortable using; drawing their minds away from misusing it and, rather, focusing on something beneficial like learning. Getting them to use things they are comfortable using already will make it easier… So, ease of use.* ***[IP9]GTUC***

> *I choose what will make my work easy. Sometimes, I don't have to meet them in class to be able to share certain information or certain assignments, or whatever. I then choose social media on the basis that it makes it easier sharing course materials and all that with my students. You just send it through the WhatsApp group and they get it. It makes it easy to disseminate information regarding whatever course is being taught.* ***[IP5]UEW***

Access to Internet connectivity

Participants also saw access to Internet connectivity as another factor that was crucial to whether or not they used SM. In their narratives, they indicated that connectivity to the Internet should be fast and reliable and without hitches:

> *Yes, Internet connectivity is very paramount. I use social media a lot on my phone. I use WhatsApp on my laptop or on my tablet, I use Telegram on my tablet and I normally transfer files from my phone to my tablet and to other devices all the time, so normally connectivity should be very reliable to do that.* ***[IP2]***

> *...let me say connectivity, it is towards connectivity, how easy it is for me to get Internet to be able to use social media is very relevant.* ***[IP8]***

> *You know this social media, hmmm, the drive is Internet, so if the Internet speed is fine, I am happy and I am motivated to use it compared to when there are hitches here and there, or the speed and Internet keeps going down.* ***[IP4]***

Convenience of the platforms

On the issue of convenience as a factor, they found it convenient to use and continue to want to use it in their teaching:

> *How convenient it is for me to use a said social media platform is important to me. I see that they provide and give me whatever I want in the social setting and professional setting as well. For example, social media's ability to provide convenience with features that I can use in my teaching, send course materials, do assignments, get content, it sort of helps in my professional teaching.* ***[IP10]***

> *I would say that I would choose a particular social media platform if it is convenient for me to use. If I see that the platform is suitable for me I will use it, if not I won't bother myself with it at all.* ***[IP6]***

Intrinsic drive

Intrinsic drive, as in motivation that sprang from the individual as a desire to use a hhhhh particular tool, was mentioned by some of instructors, especially those who were IT orientated and taught ICT-related courses. Such instructors had a flare for technology and were consequently attracted to use SM platforms. For instance, an IT instructor from GTUC said that:

> *I will say that I intrinsically like technology…and so I like to make use of technology, so if I see an app or any technology tool like social media that will make my life easier, I am easily for it.* ***[IP8]***

> ***I think I am personally motivated to use social media for my teaching …errm you see I like using it because***

Security and privacy

Security and privacy were equally important to participants in their usage of SM. It became apparent from their responses that their choice of a specific platform depended on how

secure and private they felt, and so they were very particular in choosing SM platforms, dependent on the kind of information they wanted to share. One respondent indicated in his narrative that he felt more secure using Snapchat, for instance, because as soon as he closed the application, the platform discarded all browsing history. Therefore, he was more likely to have certain conversations on Snapchat than others such as WhatsApp or Facebook:

> *Privacy is also one factor for using some of the platforms. For example, for some conversations or interactions, I prefer to use Snapchat because...when you open the app, you chat, you close it and it's gone. So, for some conversations and interactions, I will like to have it on Snapchat; for others, I don't mind having it on Facebook, or some on WhatsApp. So, I judge how I want and what I want to do... The exposure I want for that particular conversation I judge and I use that particular platform … So, yes, my choice of a platform will be informed by security and privacy features of the platforms.* ***[IP3]***

Speed

Another intriguing factor that respondents indicated as influencing them in their use of SM platforms in interacting with their students was speed and how quick students were able to access whatever information or resources was crucial to them:

> *Speed is very crucial to me; how...fast the students will access whatever I post there. So, for that matter, mobile-based platforms like WhatsApp, Telegram, probably if I am sending them a message and want them to see it quickly, then I will be driven to use those platforms for quick access.* ***[IP8]***

> *The rate at which information and resources I send to my students can be accessed and spread quickly within a twinkle of an eye is a key motivating factor.* ***[IP12]***

User friendliness

Participants touched on the issue of a platform's user friendliness as a key factor and it emerged that any tool they wanted to use needed to be straight forward to use. One instructor from the Department of Business Administration at UEW, for instance,

mentioned in his narrative that Twitter was 'unfriendly' as far as he was concerned and so he was not inclined to use it; rather, he was more drawn to WhatsApp because it was more user friendly while others supported her views:

> *There is this term called user friendliness and that is very important to me…because there is this particular one that is not too user friendly to me, like Twitter, so I don't really fancy going there… But WhatsApp is such that a lot of people are able to use it provided you can type and read. So, to[we] find out that there are a lot of people on that platform and it makes interacting with people much, much easier due to its friendliness.* ***[IP6]***

> *There are other things like features that certain social media platforms have that might not allow certain types of properties or certain types of files to be accessed. So, in that case, it might be that even if I would have preferred to use a platform like WhatsApp, for example, I might have to use email instead or upload it into some Google drive or something like that… So, again depending on the features that the particular platform has, it might make it a better choice.* ***[IP8]***

> *Features on a platform that enable me to perform a particular activity is a key factor to me. For example, if I want to just send information to my students or colleagues, I know WhatsApp can help me do that easily, so I choose that due to the features. If I need to send a multimedia file on a tutorial, of course, YouTube video. Like if it is something that I want to be seeing and explaining to my students, then probably is the video that explains something better… Yes, multimedia, I will probably go for YouTube, so the features of the platform is critical here.* ***[IP2]***

Control and restrictions of SM platforms

Some participants shared their views on possible controls that SM might have as they used them for instructional purposes. For instance, most instructors did not experience any restrictions in the use of the platforms. According to them, all they needed to do was to know how to navigate around the platforms, which they knew how to do, and there was always an instance where they could find a suitable platform to serve a particular purpose:

> *There is always a case that I will find one that is suitable for what I want to do at a particular time.* ***[IP5]***

> *I know my way around, the tools or whatever platform it is; I know what I'm supposed to do: if I want to post a message, if I want to upload a picture, send a document. So, ease of use is secured.* ***[IP2]***

However, it was found that some participants believed that they could not have total control over a platform because there were times when there were restrictions in sharing information and resources, especially in real time interaction:

> *I think it is 50/50…you do not have 100% control. For example, you may want to present a PowerPoint presentation online [in] real time on WhatsApp, but that doesn't give you the control to do that. It must be delayed, so whatever you upload, people will have to go and access [it] later on… and then you can later on relate it to what you want to do… So, you do not have full control in that regard, as in the time you want to do a presentation.* ***[IP4].***

The next section discusses the results of how SM is integrated into HE pedagogy.

4.4 How SM is integrated into HE pedagogy

This section presents quantitative and qualitative results on how SM is integrated into HE pedagogy by students and instructors. First, it presents the quantitative results followed by the qualitative results.

4.4.1 Quantitative Results

The following quantitative results indicate how SM was integrated into pedagogy by students and instructors. It first presented the students results followed by the instructors.

How students integrate SM into their learning

Table 4.27: How social media is being integrated into pedagogy by students

Integration of SM into pedagogy	SD %	D %	N %	A %	SA %	Mean	SD
To engage in course group discussions	9.50	5.30	10.30	41.10	33.90	3.85	1.219
To do a course work assignment	7.40	5.50	10.80	44.50	31.80	3.88	1.140
To contact my lecturer for further clarification of concepts	9.20	11.90	22.20	38.80	17.90	3.44	1.184
Contact or communicate with colleagues for information	5.80	1.60	6.30	33.50	52.80	4.26	1.055

In order to understand how students are integrating SM into their learning (pedagogy) in higher education intuitions, they were asked to rate some key statements. From Table 4.27, most of the students (86 %; mean=4.26, SD=1.055) used SM to contact or communicate with colleagues for information. This was followed by 76%; mean=3.88, SD=1.140, who used SM to do a course work assignment; 75%; mean=3.85, SD=1.219, using SM to engage in course group discussions; and 57%; mean=3.44, SD=1.184, using SM to contact their lecturers for further clarification of concepts.

Table 4.28: How social media is being integrated into pedagogy in higher institutions by students [Disaggregated by institution]

Institution	Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	SD
UEW	To engage in course group discussions	9.30	5.60	9.30	41.70	34.30	3.86	1.215
	To do a course work assignment	6.50	5.20	9.30	45.70	33.30	3.94	1.104
	To contact my lecturer for further clarification of concepts	8.70	11.50	22.30	39.30	18.30	3.47	1.170
	Contact or communicate with colleagues for information	5.30	1.50	5.30	33.10	54.80	4.31	1.023
GTUC	To engage in course group discussions	10.70	3.60	16.10	37.50	32.10	3.77	1.250
	To do a course work assignment	12.50	7.10	19.60	37.50	23.20	3.52	1.279
	To contact my lecturer for further clarification of concepts	12.50	14.30	21.40	35.70	16.10	3.29	1.261
	Contact or communicate with colleagues for information	8.90	1.80	12.50	35.70	41.10	3.98	1.198

Table 4.28 also reveals the difference between GTUC and UEW in the rate of how students integrate SM into their learning. For example, UEW recorded the highest rate (87.90%; mean=4.31, SD=1.023) whereas GTUC scored 76.80%; mean=3.98, SD=1.198, when it came to students contacting or communicating with their colleagues for information. This implies that students from UEW used SM to contact or communicate with their colleagues for information more than their counterparts from GTUC. The rest are: using SM to do a course work assignment (UEW, 81.00%; mean=3.94, SD=1.104; GTUC, 60.70%; mean=3.52, SD=1.279); engaging in course group discussions (UEW, 76.10%; mean=3,86, SD=1.215; GTUC, 69.60%; mean=3.77, SD=1.250); and contacting their instructors for further clarification of concepts (UEW, 57.70%; mean=3.47, SD=1.170; GTUC, 51.80%; mean=3.29, SD=1.261). This results from Table 4.28 denote that students from UEW integrated SM into their learning more than their counterparts from GTUC.

How instructors integrate social media into their Pedagogy

Table 4.29: Integration of SM into Pedagogy by instructors

Integration of SM into Pedagogy	once a week %	Twice a week %	Thrice a week %	Four times a week %	More than four weeks %	Never %
Course group Discussion	45.70	21.70	10.10	12.40	7.40	2.70
After Lecture Hours	41.90	25.20	14.30	10.90	4.30	3.50
Post Class Announcement	27.10	26.70	16.30	10.90	16.70	2.30
Individual Student Attention	38.80	20.20	12.40	15.50	8.50	4.70
Referring Student for Further Reading	31.80	19.40	15.10	17.10	14.70	1.90

According to the results from the table, the majority (46 %) of the instructors visited SM only once a week for course group discussion with their students. This was followed by 41% who visited SM platforms also only once a week after lecture hours; 38%, once a week for providing individual student attention; and 31%, once a week for referring students for further reading. Conversely, only 10.90% visited SM four times a week after instructional hours; just 7.40% visited SM more than four times a week for course group discussion; only 4.30 visited SM more than four times after instructional hours and just 1.90% never visited SM to refer their students for further reading. The results from Table 4.29 depict a low integration of SM into pedagogy by instructors, generally.

Table 4.30: How social media is being integrated into pedagogy in higher institution by instructors [Disaggregated by institution]

Institution	Integration of SM in pedagogy by instructors	Never (%)	Once a week (%)	Twice a week (%)	Thrice a week (%)	Four times a week (%)	More than four weeks (%)	Mean	SD
	Course group Discussion	3.50	46.50	24.70	9.40	9.40	6.50	1.94	1.29
	After Lecture Hours	2.90	45.30	30.00	12.90	5.30	3.50	1.83	1.10
	Post Class Announcement	1.80	28.20	26.50	19.40	7.60	16.50	2.52	1.44
	Individual Student Attention	4.10	41.20	22.40	9.40	14.70	8.20	2.14	1.41
UEW	Referring Student for Further Reading	1.80	31.80	22.40	15.90	16.50	11.80	2.49	1.43
	Course group Discussion	1.10	44.30	15.90	11.40	18.20	9.10	2.28	1.45
	After Lecture Hours	4.50	35.20	15.90	17.00	21.60	5.70	2.33	1.41
	Post Class Announcement	3.40	25.00	27.30	10.20	17.00	17.00	2.64	1.53
	Individual Student Attention	5.70	34.10	15.90	18.20	17.00	9.10	2.34	1.47
GTUC	Referring Student for Further Reading	2.30	31.80	13.60	13.60	18.20	20.50	2.75	1.61

Instructors from the two institutions were asked to indicate how often (number of times per week) they used SM for various pedagogical activities. From Table 4.30, although majority of instructors indicated that they used SM once a week for course group discussion, UEW instructors inclined towards the statement (46.50%) more than their counterparts from GTUC (44.30). This was followed by the use of SM twice a week after lecture hours where UEW again inclined more towards that (30.00%) than GTUC instructors (27.30%). In a twist, GTUC instructors referred their students for further reading using beyond four times a week more than (20.50%), instructors from UEW (11.80%). It must be noted that even though there were these differences among instructors from GTUC and UEW on the integration of SM for various pedagogical activities, the frequency of usage was quite low.

4.4.2 Qualitative Results on how students integrate SM into their learning

Students' views were sought on how SM is integrated into pedagogy. Two main themes emerged from this: (i) how students integrate SM into their learning; and (ii) students' views as to how instructors integrate SM into their teaching.

All the students claimed to integrate SM into their learning independent of their instructors. Most students incorporated SM as they conduct assessment activities. Other areas of incorporation were coursework; augmenting learning in addition to what instructors taught them in the classroom; conducting research and doing further reading for various purposes; undertaking group discussions with peers; and instances in which those who were B.Eds were engaged in teaching practice. These had been expanded and explained further.

Incorporation of SM of assessment activities

When participants (students) were asked how they integrated SM into their studies, a Level 300 female Science student from UEW described how she had adapted a YouTube video by editing out the soundtrack and using her own voiceover for a slideshow she presented as a project:

> *I downloaded a tutorial on inertia last semester and then I studied it very well...then I developed it...[by] extract[ing] the voice, the tutorial voice, I extracted it out then I created my own voice and then I made slides out of it. Then I presented it as my own project giving reference to [the] source that I retrieved it from.* ***[SP38]***

Others indicated that they used SM, specifically YouTube, for projects and assignments:

> *As a student, basically, I use it for my project work. Anytime, you know I am being given project work to do, I think that is where I go and get the information to do that kind of project to submit to my lecturer.* ***[SP30]***

> *And in my assignments too the Google search, I use those ones to search for information with regard to questions in my assignments and other things. So it has really helped me.* ***[SP10]***
> *E-mail is another thing that helps me in my academic aspect, which is doing of assignment and submitting online to the lecturer in question.* ***[SP27]***

Incorporation of SM into various courses

Some students mentioned how they incorporated SM into their courses by getting specific information through specific SM platforms. Such narratives point to courses such as Psychology, of Learning, Mathematics, Synthetic Methodology, Spectroscopy, Electrochemistry, Counting and Numbering, Physics, Chemistry, Materials Development, and the teaching of Phonics to children.

> *We have some psychological courses in our department. For example, psychology of learning mathematics and maths curriculum. So all these, I use PDF drive to get more information from that. Then, calculus…and vector analysis and vectors. I use MathsTutorDvd.com to get videos pertaining to that. Then website design and Java, I just key in the tag I want to talk about…and I will add it…so it assists me to know much about my course.* ***[SP5]***

> *I have been using this social media a lot... For example, YouTube; I have been using it to watch videos on some of my courses like synthetic methodology, spectroscopy, electrochemistry and a whole lot of courses. So that's what I have been using.* ***[SP20]***

> *I integrate social media, thus, YouTube for my counting and numbering course so that I can get more ideas about how to go by it on [in] the field.* ***[SP30]***

> *I mainly use YouTube to download videos or watch videos on courses like spectroscopy and knowing carbon 13 spectra and IR spectra* [i*nfrared spectroscopy]. And also physical chemistry when it comes to setting certain calculations, I use the YouTube for that.* ***[SP31]***

> *A course like materials development and teaching phonics, I normally visit YouTube to watch videos and pick ideas.* ***[SP24]***

> *I mainly use YouTube in getting information about courses on acts in early childhood. You have to get different types of children's acts and know the stages at which children grow. When you get here, you [are] going to get all these stuffs on YouTube.* ***[SP45]***

Augmenting learning outside instructors' class delivery

Some participants also related how they used various SM platforms to augment their instructors had taught in the classroom. Some of the issues mentioned in their narratives included using SM to add more information to what they had learned in class and to appreciate concepts further.

> *Courses like Stereochemistry, which deals with a lot of structures, sometimes if the lecturer comes in and teaches you and you don't understand you have to go and get some videos… then you watch it and you understand.* ***[SP19]***

> *I want to add something small about what my brother said. For instance, like, if you go to the Google Classroom, if Madam teaches something that you don't understand, you can ask her...to explain it further… You can get more knowledge about what she is teaching... If it is inside classroom and you don't understand, she will explain it there to your understanding. She is good. She will just patiently explain it to you at the Google Classroom.* ***[SP30]***

> *We are minoring in ICT and so now, this semester, say, we are doing programming and I think this programming, any time I try downloading*

> *these tutorials about how to code and stuff, I get good feedback and now I am able to code even without downloading any tutorials.* ***[SP20]***

> *Anytime we are taught something, and I don't grasp it in the classroom, when I come back, I try to search for it online for the information. And I also use in my project work, looking for literature reviews, references and others.* ***[SP1]***

Research and further reading

Participants indicated how they integrated SM into their private learning, for instance, in their research and for the literature review for the required long essay during their final year:

> *They ask you to go and read further on some topics, so you are supposed to research. Then it becomes necessary for me to use the social media to do that.* ***[SP16]***

> *And with the YouTube, too, it has helped me in doing my analysis… How to code my data and those things. It has really helped me.* ***[SP22]***

> *Research is one of my academic activities which I undergo. And currently I use Google Scholar as my main thing to actually research into what people have already done concerning something similar. So, that helps me in my research aspect. Thus, the literature review… I get references to people who have done something that I need in my research…and I have to get references because one person doesn't own knowledge.* ***[SP43]***

Group discussion

Participants noted that group discussion was one of the ways they integrated SM into their studies. Some mentioned that they had been put into groups in their departments and that required that they met physically for discussion. However, due to certain pressing personal schedules, some of them were often unable to meet. SM therefore became an option for such students, who could hold virtual meetings. Others also mentioned using WhatsApp groups to discuss questions among themselves:

> *... We have a group in our department which sometimes I don't attend...due to some personal issues or some problems, but whenever questions are being placed there on the platform for us to discuss, I also take part in it.* ***[SP9]***

> *We have a particular group of which we normally discuss questions relating to our course of study. So, we post questions there and we discuss with one another to get understanding of it.* ***[SP13]***

Students' views on how their instructors integrated SM into their pedagogy were important. Participants were requested to explain how the course instructors taught using SM, the programmes in which instructors used SM most often, how often instructors used SM generally, and why they thought instructors should integrate SM into their teaching.

How instructors integrate SM into their teaching

With regard to the views of participants on the topics and courses that their instructors taught using SM and those who actually used SM during contact hours, some students identified courses such as Emerging Technologies, Pedagogical Use of ICTs, and Multimedia and Lesson Planning. For instance, a level 300 Mathematics student and a level 200 ICT student from UEW, and two level 200 students from GTUC respectively indicated in their narratives that:

> *A lecturer used the social media during class. It was a lesson plan that he wanted us to have, so he just sent it to our class platform during teaching then we all discussed about it in class.* ***[SP33]Maths L300 UEW***

> *The course was Emerging Technologies and as for our lecturer, she will set your questions on Google docs. She will use Google docs to set questions, so after that you just have to log in with your email and go straight to the platform ... When you just go there you will be given announcement that the questions have been set so just click to enter the classroom. When you enter, the questions are there. After solving, it gives you your marks and your grade so even examinations can be done over there. So, after that then it just gives you the answer, and then your scores and your grade.* ***[SP25] ICT L200 UEW***

> *Especially the programming courses, those are the lecturers who use the social media platform WhatsApp for discussion with us.* ***[SP45] GTUC L200***

> *… As my other colleague said, with the programming courses like this, it's most of the time the WhatsApp. But we've had a course in level 100, the pedagogical use of ICT, and we used Facebook, or with multimedia too, we use WhatsApp.* ***[SP47] GTUC L200***

According to a female level 400 Early Childhood Education student, a female instructor in her department used WhatsApp to teach them remotely when she was unable to attend lectures physically, especially during internship supervision periods when most instructors were away. In her case, the instructor would ask the class representative to add her to the group platform for discussion and she would discuss the topic for that week with them on the WhatsApp group while the students were physically in class.

> *There is this lecturer, even in her absence she wants to make up for her lectures, so she teaches us with the WhatsApp… So, when it is her period and she is not around but on internship supervision...she makes us come to class then we add her to our class page. So, she gives us the teaching online and when she teaches we are following. Then she takes pictures of slides and she posts there and she explains on WhatsApp.* ***[SP22]***

Programmes for which instructors use SM most

Another interesting revelation from participants' narratives was the fact that some students felt that instructors who taught core courses integrated SM into their teaching more than those who taught elective courses. One general course was Communication Skills:

> *In actual fact, when it comes to our elective courses, it is very rare for lecturers to interact, especially using the social media. "Com. Skills", which is a core course and is kind of English Language, the lecturer actually communicates with us and corrects us in terms of the English, like some of these subject verb agreement things on the WhatsApp page.* ***[SP 12]***

How often instructors integrate SM into their teaching

Participants indicated the frequency of their instructors' usage of SM for teaching. Some stated that instructors used SM very often, others found integration sparingly, while yet others maintained that some instructors didn't use social media at all.

Students' views on instructors who often integrated SM into their teaching

Some participants indicated that their instructors integrated SM into their instruction often because of technological advancement, as the courses courses were ICT-related, and also because instructors sometimes did not have sufficient time to clarify issues in class:

> *Yeah, most of them use it because now we are advancing and most of our books and journals' new updates have been placed on the Internet.* ***[SP1]***
>
> *I will say some of them integrate it in their teaching. I am a mathematics student doing ICT as minor. The ICT lecturers try their best to integrate it in their teaching by getting information online and even during lecturers so that we can [have a] variety of examples of certain things.* ***[SP14****]*
>
> *Yes, our lecturers use social media and technological devises in teaching because often in mathematics we have integrated ICT with maths…the reason being that we have the content and knowledge. You should also have the technological knowledge… On a topic like trigonometry, we have something we call elevation and projection of angles and other stuffs, so to make it emphatic for us the lecturer often uses like a PowerPoint and YouTube so that we can use the animation and other stuff to make emphasis on the specific thing that he is hammering on [emphasising]* ***[SP10]***
>
> *Mostly, they...use the social media often because after teaching, they ask us to do; they give us a particular website to go and read more and get more clarification when the time is not on their side to teach more as they are supposed to teach. So they use it more often.* ***[SP20]***

Students' views on instructors who sparingly integrate SM media into their teaching

In instances in which participants asserted that instructors used SM sparingly, it was to give information via specific platforms like WhatsApp. Others used it when they wanted

to refer to students' existing knowledge of a topic. One respondent pointed out that an instructor preferred his students to come to his office for clarification of issues rather than using a SM platform since according to him he could explain better:

> *They only use it just when the need comes…because... at times when the question gets out of hand, he says "come to my office" for better explanation.* ***[SP13]***

> *Lecturers don't really use the social media when it comes to academic work. It is when we have ICT that we are sent to the lab; while the thing is going on, we are also practicing online at the lab. They only use some applications like the PowerPoint delivery to help especially the ones that don't have the course handouts.* ***[SP15]***

> *For only once that probably one of our lecturers was part of our WhatsApp platform. He was giving us information on probably what we need to learn for the exams. That was only one encounter, not quite often at all.* ***[SP32]***

> *I think that some of the lecturers use it and others do not use it, and even if they use it, I think that it is static. They make use of only the WhatsApp platform and not every other social media platform, so although they use it, but [it's] not all that as we expect it to be.* ***[SP5]***

> *It is not that much. We have about three lecturers, or maybe three or four, that use the social media platform to announce their assignments, their quizzes, and sometimes schedule classes, so it is not too much.* ***[SP9]***

> *Well, within my department, which is Science, they use it but not frequently… Where students have less RPK [were given...knowledge] on a topic, that's when they tell us to go in for more or extensive reading. And that is when they will create these kinds of slides and post them into our WhatsApp groups, and give us links to websites to read more.* ***[SP39]***

Students' views on instructors who did not integrate SM into their teaching

Those students who claimed that their instructors did not use SM for teaching at all thought that it was because not all students had smartphones and access to SM platforms. However, some participants argued that it was because some instructors did not have adequate ICT skills.

> *Most of the lecturers think not all the students have access to smartphones to get the information they will be giving out on social media… Also some, too, they have difficulties in finances so they cannot be buying credit for data.* ***[SP27]***

> *Most of them I don't know whether they are BBCs (Born Before Computers), so they are not abreast with the system and how to use the gadgets. Some of them even bring to class and students have to operate for them. So, to avoid the stress of embarrassing themselves they don't use it at all… If the teacher doesn't have the knowledge about it he can't use it.* ***[SP11]***

> *I think our lecturers have not been integrating social media mostly in their teaching. And I think sometimes too most of the lecturers are not computer inclined because computer was not in their age [computers were not used when they were at university] so using it to teach will be a bit difficult for them. So, they kind of restrict themselves to the old method.* ***[SP14]***

Other reasons participants gave for instructors using SM were lack of access to Internet connectivity, reliance on traditional methods of teaching through familiarity, lack of institutional policy on the use of SM for teaching, and the fact that it was easier to explain some things face to face:

> *Actually, my lecturers have not been using it. And...I think it's because of this unreliable Wi-Fi in this university community. I remember once, a lecturer wanted to search for something when we were in the lecture to help in the lecture that he was delivering. But the Wi-Fi network wasn't supporting him. So...I think it is because of the unreliable network on campus here that is why they don't use the social media in their teaching.* ***[SP15] Level 200 Business Student from UEW***

> *I would also say that my BBA lecturers are not using it at all. Well, from my own perspective, I think they see no need or reason why they should use it because their target are the students...they can get all of us in their*

> *lecture rooms. So...I think they don't see the reason why they should go to the extreme of adding or increasing cost because it comes with a cost of connectivity… Who is going to bear that cost? Is it the contribution from students or it will come from above? So, after looking at all these, I think it's not needed to [not necessary for] them; that is why they are not integrating it.* ***[SP11]***

> *I think what causes or prevents them from integrating it is that I see that they are used to the traditional method of teaching and currently, that is what is still going on. So assuming you were taught by an old professor in the year 2003, 2007 or something like that and currently we are in the year 2018, whatever your professor went through to come to class or lectures that is the same thing he wants us to go through. Because sometimes, some of the lecturers will tell you that what we went through in those days…it is like they are referring us to the method that they used in teaching them [by which they were taught]. And that is the same thing they are giving to us currently.* ***[SP35]***

> *… And then I think maybe in my view, the permission has not been given from above so some may feel so reluctant. If it had been an authority from above that social media should be integrated in the process of lecturing in class, assuming it has been stated that for example, 60% or 50% should be a lecture discussion, and then another 40% or 50% should be a social media interaction with students, I think when it happens that way, they may do that because there is no authority… So, some of them maybe don't see the need to use it.* ***[SP39]***

Students' views on why their instructors should integrate SM into their teaching

Some of the reasons students thought instructors should integrate SM into their teaching included the fact that they were currently in a global world and most people were using it. Also, when instructors used SM to teach, it complemented traditional methods of teaching, and SM helped reduce instructors' workload, making teaching interesting. Furtherance to these, they found changing trends and technological advances demanding its use.

> *Because the world is becoming a global world and the social media is connecting people through the Internet, so I think it is important for lecturers to integrate it very well. Moreover, this university is known for training teachers and then the kids we are going to teach are learning it indirectly, so I think when they integrate it very well in their lecturing, it will help us to go and then also help train the kids well using social media to learn.* ***[SP12]***

Yes, it should be integrated into teaching and learning because social media is part of us. Almost everybody loves to go and work with social media, so if it is integrated, it will make students interested in what is being taught and they can share their ideas even using groups without even having any face-to-face interaction. ***[SP20]***

Social media should be integrated in our studies in the classroom because it helps us have a better understanding of what is being taught. We are able to follow what the lecturer is teaching us because we are able to visualise it and then we hear what they are saying, and so we are able to follow them and it doesn't make us bored. You are able to follow up whatever they are teaching, and you are able to grab things easily. ***[SP35]***

I think it is good for them to integrate it into teaching and learning. It will reduce the workload of the teachers. For instance, we did a quiz online. After the quiz, the questions were marked automatically, and everybody got his score. So that one, the lecturer will not go home and sit at the house and go and mark any paper or do anything … It will help the lecturers to reduce their workload. ***[SP11]***

It makes teaching and learning more interesting. My department per se, some of our courses, the social media is being integrated in such a way that our quizzes are being done online straight forward…and you see your marks. Some lecturers in my department have been giving us some websites for us to go and download some videos. We watch before we go to class, then we go to class and maybe discuss… It helps in collaborating and it's interesting. ***[SP8]***

I think teachers should integrate social media into their teaching because you see the social media there is nothing like time; at this time, you can't send a message, or at that time you can't. Although you know the lecturer might be offline, at the point when you get confused, you can just type that question and send it to the lecturer and at any time when he is free and ready to come online, he can answer it. And apart from that, the teachers can also find particular sites that they know you can get information on what will be taught, that are relevant to what he wants you to know. ***[SP42]***

I think lecturers should integrate social media into teaching because in the case where the lecturer is not able to come to class, he or she can paste the slides or the notes on the page and guide us to learn. And also when the lecturer is out of town, he or she can engage us in electronic learning or conference so that we will be able to learn whatever he or she has for us. ***[SP28]***

I think to me it is very appropriate that our lecturers integrate social media in their teaching and learning…due to technological advancement and the way things are changing. ***[SP5]***

Qualitative Results of how instructors integrate SM into pedagogy

One of the key aims of the study was to understand how instructors integrated SM into pedagogy. The focus was on the regularity of integration and the various stages and periods at which they integrated these platforms into their teaching, that is, during and after contact hours for various purposes; the specific platforms they employed; and the aspects or components of courses that they applied SM platforms to. Some of the pedagogical activities instructors indicated included explanation and emphasis of concepts, understanding of students' existing knowledge of a concept or topic taught earlier, referring students for further reading, sending relevant materials and information on various content areas and topics to students, and, most importantly, to help students develop the habit of reading and staying focused on their studies.

How often instructors used social media platforms to teach

Participants were asked to indicate how regularly they integrated SM into their teaching. Some of them asserted that they integrated SM often in areas such as sending course materials and scheduling quizzes. However, others admitted that SM did not occupy a great part of their teaching because it was not formalised while some of the students did not have access to smartphones.

Regular integration of SM in teaching

It emerged that some instructors from both institutions, especially those who taught ICT-related courses, integrated SM regularly into their teaching. According to them, they were always online and, as such, interacted with their students all the time.

> *Well, if I am counting the interactions I have with my students on social media, especially WhatsApp, I will say almost all the time… I'm always, always online, ready to send something or communicate with my students*

> *because, you know, the instant nature of social media requires [means] that you always get notifications…so I am always online getting in touch with my students on various issues… Once I hear a notification, I check who it is coming from and decide to reply instantly or postpone, yeah, depending on the urgency…but I'm always online.* ***[IP2]***

> *For my teaching, ah generally, I say I meet my students once a week almost always, at least I will send the course materials once a week at least per course that I teach through social media. So, for example, I teach three groups; in one course, I will send the course materials three times obviously if that's the only thing I am sending to them, so if there are instances that I could send them certain messages, arrange quizzes, or send them certain links then is [I do].* ***[IP3]***

> *Very often, at any point, I try to introduce some aspect of social media into my teaching and learning process.* ***[IP7]***

Non-regular integration of SM

Conversely, other instructors indicated that they did not integrate SM into their teaching on a regular basis. According to them, this was due to the fact that there was no formal policy on the use of SM at their institution and also because some of their students did not have devices that supported the use of SM. For instance, a BBA instructor from UEW remarked:

> *For now, I cannot say it because it is not a structured formalised thing. I can't say it is occupying a greater part of my teaching methodology, but I can say about 25% of activities I do with students, I try to involve social media…because you see some of the students do not have android phones so I don't want to disadvantage anybody.* ***[IP6]***

When quizzed further about whether the students will not be disadvantaged, he stated that:

> *Not at all, that is why I said it is not structured… so students who have issues and want to contact me through social media, I respond to them…so it's not mandatory* ***[IP6]***.

Use of SM during contact hours

Some participants indicated integrating SM into their pedagogical activities during contact hours for the purpose of better understanding of concepts by students:

> *Yes, I use a lot of videos in teaching. A few times I might send them a link but most...often I download the video [and] either share the video or play it in class as part of my slide presentation or something for discussion, or probably upload them onto an LMS [learning management system] where they can go and download.* ***[IP3]***

> *The courses I teach are a bit abstract such that students will better understand when I make learning real to them so what I do is that I send multimedia to the classroom by projecting YouTube videos to the students... For example, when teaching about computers, I connect and go to YouTube in the class and show them pictures of a computer and videos of what people are talking about with computers…or when we are talking about programing concepts, I can show them real life programming concepts and show them the application of various concepts…and it can be interesting.* ***[IP5]***

Similarly, an IT instructor from GTUC explained how he used SM during contact time for various components of his course. He emphasized that the first time he met each class he asked the class representative to create a group and put everyone in the class including himself (the instructor) on the platform. He did this for various interactive activities such as questions and answers during contact time:

> *For the very first time in my class, I instruct my class rep to put everybody on the platform.... Personally, I am not so much interested, but usually, I get my first-hand information on WhatsApp… When we enter the classroom, I use socretive as a platform for my interactivity in classroom. For example, I put up a question on the platform on something the students know already, so like RPK… Maybe, I will just ask them a question on 'Why do you think that Linus Operating Systems is better...than Windows XP?' Then they will be writing plenty, then some will counter and stuff like that… Again, there may be times when I want students' views on certain issues which I need quiet [silent] answers. This is an attempt to encourage shy students who don't want to contribute in class... So I use that in my classroom, I group them... I instruct them to use the hyperlink or each group to post their views on particular projects, yes group work.* ***[IP8]***

Another ICT instructor from UEW emphasised that he never prohibited the use of mobile phones in class because he felt that student access to them helped him teach better. He also believed that flexibility was required nowadays since the current generation of students did not expect to ever be without their phones:

> *I don't ban mobile phone usage in my class…if you are not going to be making calls. But then [if] there is something to discuss or something to look for on the Internet, I encourage them to go online and check. And so there cases where I have seen students going through the slides of what I sent to them through WhatsApp, for example, on their phones while I am teaching, and I am perfectly happy with that. It helps me teach better.* ***[IP2]***
>
> On whether he was an IT expert he remarked that:
>
> *(Laughs) I think probably partly, yeah…but I also feel that in contemporary times it's important to be a little flexible because that is what the students like their lives to revolve around. So, if you want your content to be involved in their lives then I suppose it is a very good way to get in touch with them. What I want to say that their lives revolve around the mobile phones. So, personally, I think I wouldn't encourage students to read a newspaper in my lesson; I will rather encourage them to use their phones for academic purposes in class.... It is just an issue of drawing the line, that's all, making the rules; so I [allow] them to use phones in class***.** ***[IP2]***

Another instructor related an interesting experience he had had in using SM for teaching when there were power outages during class:

> *There are times when lights go off… I teach with PowerPoint mainly, so when lights go off what I do is that I tell them to use their phones and go to the WhatsApp page where I send the slides. So they follow the lecture in the classroom with the lecture slides on their phones… So, I also have my phone while teaching and I move from one slide to the other and then they follow the lecture while I am teaching.* ***[IP5]***

SM platforms used outside contact hours

The instructors indicated that they integrated SM into their teaching outside contact hours. This included referring students to certain sites and links to resources to read and discuss

on the various SM platforms to facilitate better understanding of concepts and smoother delivery in class:

> *After the classroom interaction, I also engage them… and I prefer making my own video so I send to them on issues we discussed in class. So, when I send to their group platforms which I ask them to add me, they download and watch, and then I will post a question… So, they will also do the interaction beyond the classroom and it helps a lot.* ***[IP7]***

Parts of courses in which instructors integrated SM into pedagogy

Some participants described how they taught certain principles using SM platforms, asking various questions on aspects of topics students had not grasped during previous classes. Others indicated some pedagogical activities in which they used SM, such as discussion of students' long essay project while they were on internship. This, for example, helped instructors identify those students who participated in group discussion and those who did not.

> *I taught visual literacy in education using a WhatsApp group, which really worked. I taught them principles of perception, especially how they can separate an image to display the principle… So, the students posted their work and it was very interactive. Somebody will, for example, post a picture and will ask on the platform which principles are seen in this image and that kind of thing and everybody will start responding. Then I will just follow the conversation and when I realise that some of the answers are wrong, I will just come in and correct them. For the level 200s, the visual literacy was very effective on WhatsApp. Yes, it was very interactive. Aside [from] that, communication; sometimes, the WhatsApp group; the students were more into asking questions about things they didn't understand concerning the course and I come in and I give them feedback.* ***[IP4]***

> *Currently, [I] am more into pedagogical component of graphic design, so I teach seminars on graphic design, so I try to get group presentations that they will do in class… And we discuss what is going on right from operation to delivery of the design using social media. Why I do that? I have realised along the line that when you give group work, some students don't participate, but in a group discussion on WhatsApp, for example, it is easy for you to know those who are contributing. You put a question and you get responses, so if there are six in a group [and] you realise that only four people are constantly responding, it is easy to know*

> *who is taking part in the discussion or who is not taking part... so I schedule a meeting time and then we start talking about the topic.* ***[IP1]***

Instructors also gave their views on how they supervised students' projects using SM when students were on internship in various parts of the country. Instructors used WhatsApp mostly to discuss various stages of the long essay with students:

> *I use social media so much with my long essay supervision work. As for that one, I will say I even do about 50% WhatsApp. Because you realise that's tudents starts with their project work and their Internship at that same time, For example , currently our level 400s' are in their first semester and they have started their project work, but then they are out there doing their Internship.* ***[IP6]***
>
> When asked how he supervises their project work using WhatsApp, he said that:
>
> *So what I do is I create a platform for all students under my supervision. And then I ask them to give me their topics. So they 'WhatsApp' their topics to me and then I approve those ones that I think are ok for them. Then once we settle on the topics on WhatsApp, then I move on to give them materials that will help them in writing their proposals. So, I have some templates that I send to them for the proposals and then the main work. So while doing the work, any encounter they put in on the platform. I am very strict on that that no one should contact me outside that page… If you have any challenge you put it on the page so that while I am addressing that particular aspect other people will also benefit. So that nobody else will come asking me questions on that same issue... And sometimes when they finish they send it to me through WhatsApp and after reviewing I put it back there, so that the other people will also have the benefit of looking at it.* ***[IP6]***
>
> I further asked whether that would not encourage copying and he said that:
>
> *(Laughs) That's exactly their concern and so sometimes they are not comfortable with it because they feel their colleagues will copy their work. But I keep on telling them that they are all writing different topics. And even when you come to me with a copied work from another person I will be able to detect so there is no need for them to be scared… We keep doing that back and forth so when they return the next semester I am able to continue with the face-to-face supervision.****[IP6]***

Specific SM platforms that instructors integrate into pedagogy

Some of SM platforms that participants integrated into pedagogy included blogs to encourage interactivity whereby students posted comments about their reflections on various themes in an interactive manner. WhatsApp was used for individual and group discussions of students' project work and other course-related issues, and YouTube was used to provide links to videos of tutorials on various topics connected to student projects.

Blogs for interactivity

Participants described how blogs on SM platforms were integrated into their pedagogy. For instance, a female ICT instructor from UEW described how she integrated a blog into her teaching by uploading articles for the blog on a weekly basis for her students read and comment on. To ensure that they did so she decided to base her quiz on the articles she had uploaded:

> *What I did, was I created a Google Blog for a course I was teaching called Emerging Technology ...and I decided that I would read a lot and then post the articles there for the students… So, every week I put there about three or four articles. So, I decided I would do that myself because if you leave and you say, go and read, it will become something else. They would complain of Internet connectivity problems and things like that…so I would get the articles, put them there for them so all they have to do is to go and read, and because blogs are interactive, they just put a comment about what they have read and all that… So, what I did was to make sure they were reading, I decided to base my quizzes on that. So I did two quizzes all from the blogs, to push them to read.* ***[IP5]***

WhatsApp for individual and group discussions on course-related issues

Participants also mentioned how they integrated WhatsApp into group discussions. These activities included discussion of various topics, dissemination of information, and assignments:

> *For discussions I use WhatsApp… For all my programming courses I have WhatsApp groups with the students so whenever I want to discuss anything on that course, I put the topic there and initiate the discussion and then the students follow. I also upload tutorial files in PDFs and videos, I put programming assignments...and other resources like books for them to read. With all these, I use WhatsApp.* ***[IP4]***

> *I use WhatsApp because students of today are hooked on WhatsApp and they even create WhatsApp groups for their classes so that information can easily be given. What I do is that sometimes, when there is a topic, something I have treated already or there is something in the news, I contact their course reps and tell them to put me on their WhatsApp group at a particular time, let's say, a window of one hour, and then I put the topic there and then we discuss. I equally do that using...Schoology but I prefer WhatsApp because they access...WhatsApp frequently, unlike the LMS, that one has to go through some login details before accessing information… With WhatsApp, personally, I don't even switch off my Internet so I like using that a lot.* ***[IP11]***

YouTube for links to videos for tutorials

Other participants explained how they used YouTube for various activities. These included referring students to videos that had a bearing on subsequent lessons that instructors wanted students to watch before the next class. Some instructors created YouTube accounts purposely to upload student projects which had public access. According to them, this boosted student morale:

> *Sometimes, I put the links of YouTube videos on the platform as well because in programming, there are some video tutorials that I want my students to watch... I get a lot of these online from YouTube, so I just point them to the particular videos I want them to watch prior to the lesson I will be teaching to elicit a certain level of knowledge before they come to class.* ***[IP3]***

> *I don't really use YouTube personally but as I speak right now, I have a YouTube account where I have decided to put some of the students' group work, especially the multimedia component. If you type my name, you will get a couple of videos that I have uploaded and they are all student projects, and some of them are very good which are receiving a lot of responses. It makes the students proud when they see their work online and they see the likes and comments… I also refer students to YouTube occasionally for tutorials that I have identified… Some very good tutorials are on YouTube.* ***[IP1]***

Observation of social media platforms

Observation was conducted on how instructors integrated social media platforms into their pedagogical activities. It took two forms. The first was the observation of how instructors integrated social media their teaching during the instructional period. The second was an observation of screenshots of the various SM platforms that instructors used for various pedagogical activities. The following are examples of screenshots of SM platforms (e.g. Google Classroom, WhatsApp, Padlet, and Socrative, instructors integrated into their teaching.

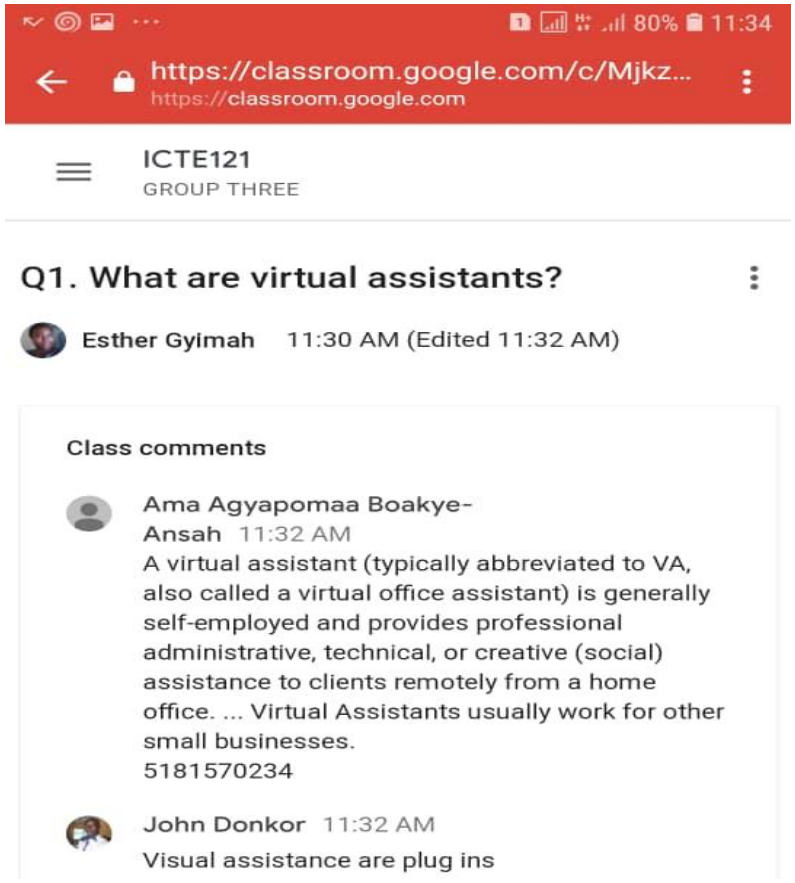
The use of SM platforms to teach various topics

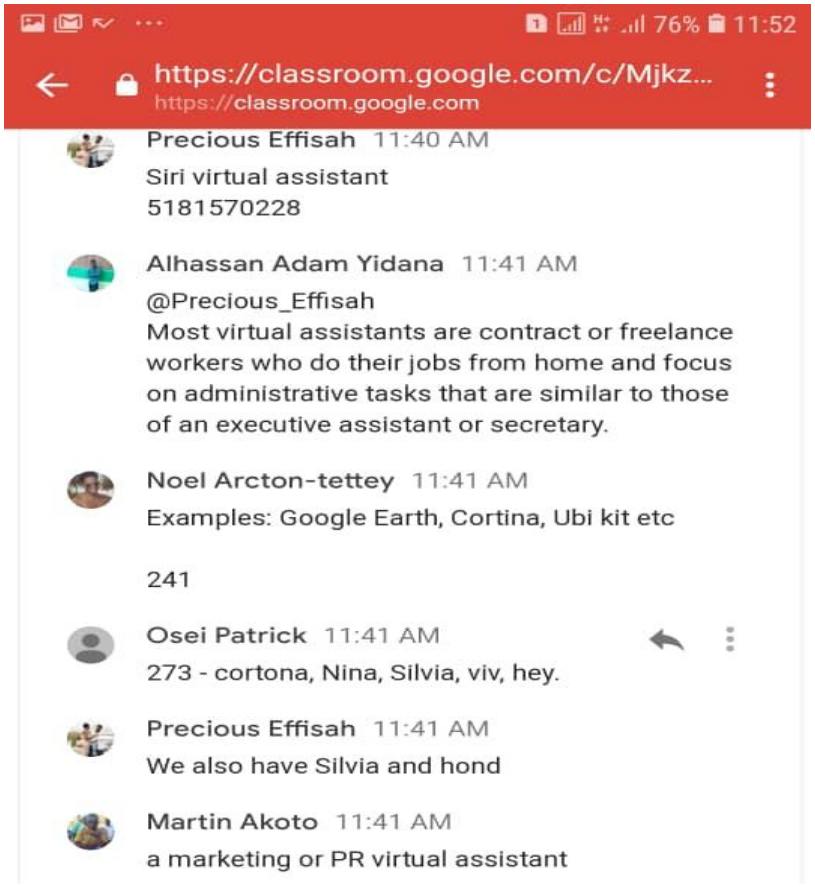
Observation was conducted on how SM platforms were integrated into various topics that were delivered to students. For example, a female instructor used Google Classroom to teach Emerging Technologies to her students.

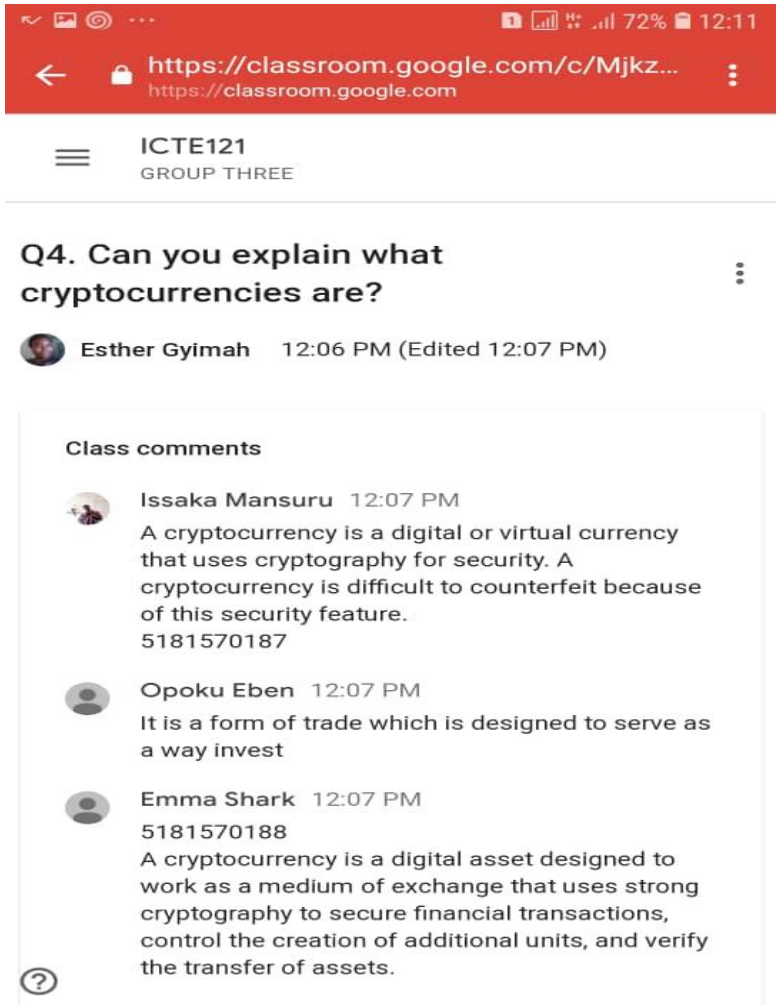
> A female ICT instructor from UEW who taught using the SM platform Google Classroom added me to one of her classes. She had divided her 367 level 100 students of into 4 groups which were taught on the same topic at different times. In this virtual classroom where the instructor taught using a question and answer approach to the topic: *Emerging Technologies*, I realised how interactive and focused the students were. As I followed as an observer participant, I saw that all the students were actively participating. One of the things that caught my attention and was most intriguing was how the instructor allowed for peer teaching. Thus, whenever a student asked a question, any fellow student who had an idea of the answer would automatically respond without waiting for the instructor to intervene. This was because the organisation of the class was very much student centred; the instructor only intervened occasionally to clarify any issue that needed her attention. I must note that I saw that all the students contributed and because the instructor had also planned, informed the class and given them time to prepare beforehand, she ensured that everyone participated. They were also aware that participation would be assessed and so everyone participated. As I observed, I saw comments from students such as, “Madam, I have really enjoyed the class”. And I learnt a lot myself too.

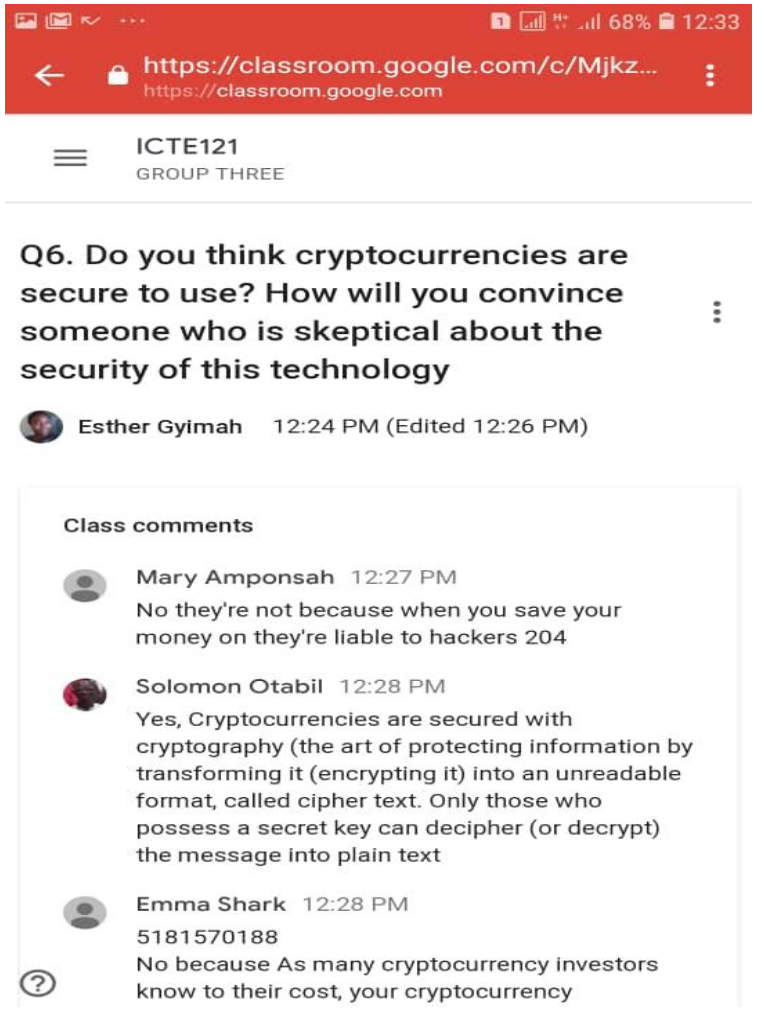
Students taking a Visual Literacy course were put into groups and given various tasks to complete. The following are some screenshots of the ensuing interactions uploaded onto Google Classroom.

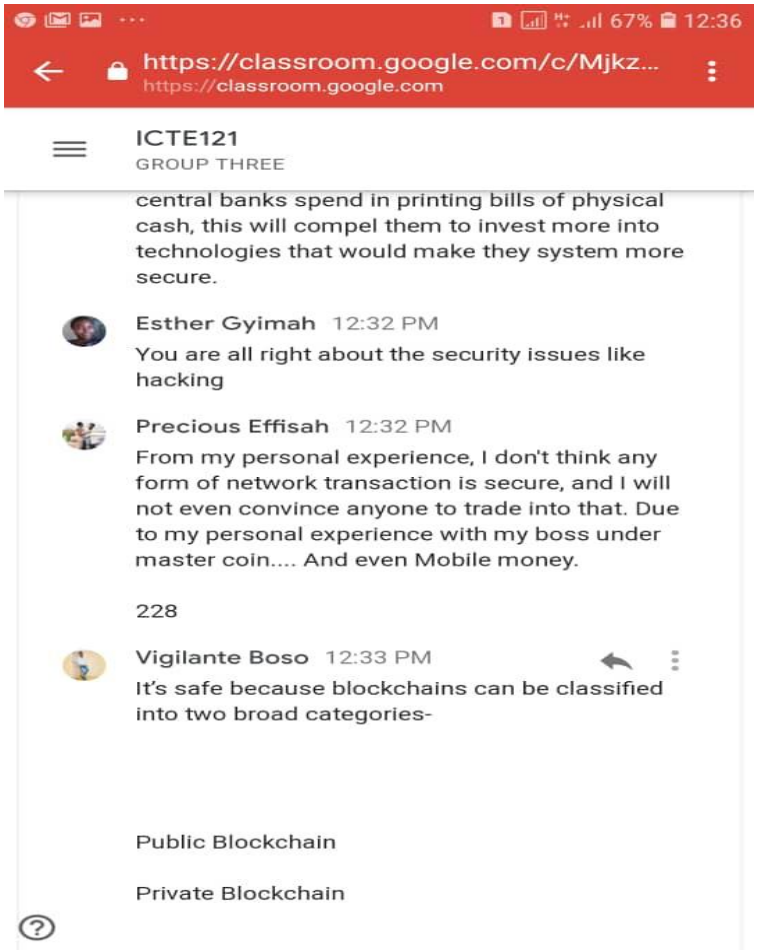
Students taking a Visual Literacy course were put into groups and given various tasks to complete. The following are some screenshots of the ensuing interactions uploaded onto Google Classroom.

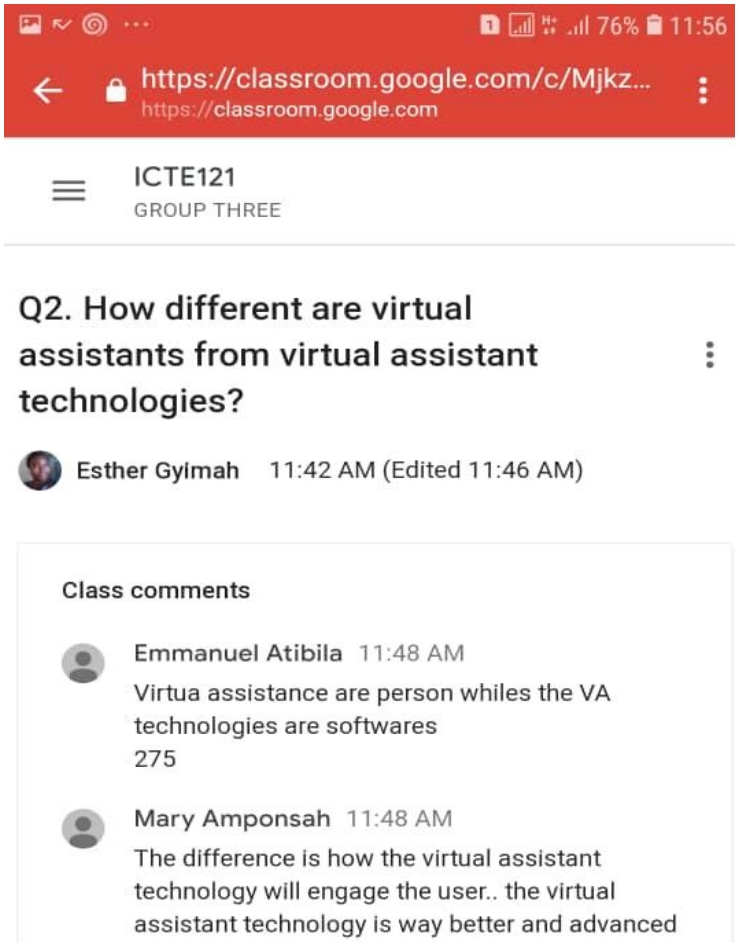






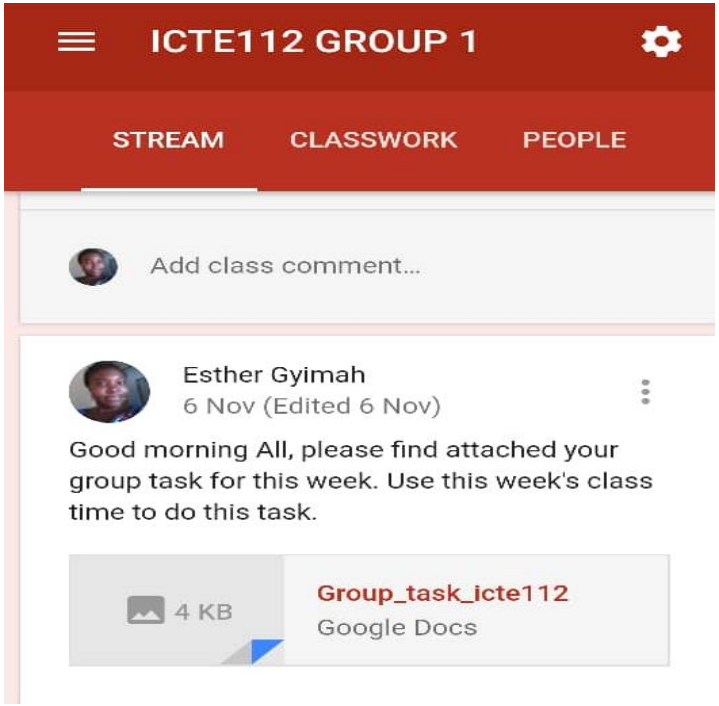


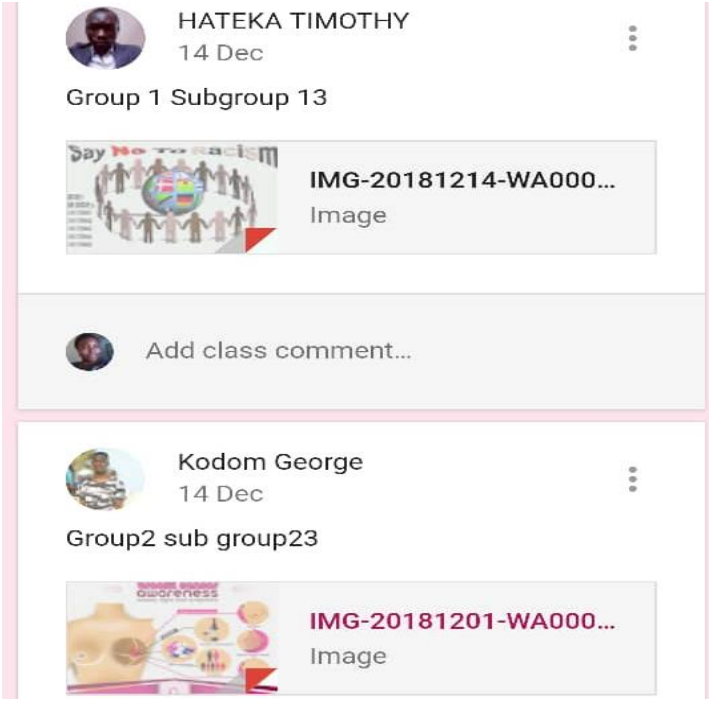




Use of Google Classroom for group projects

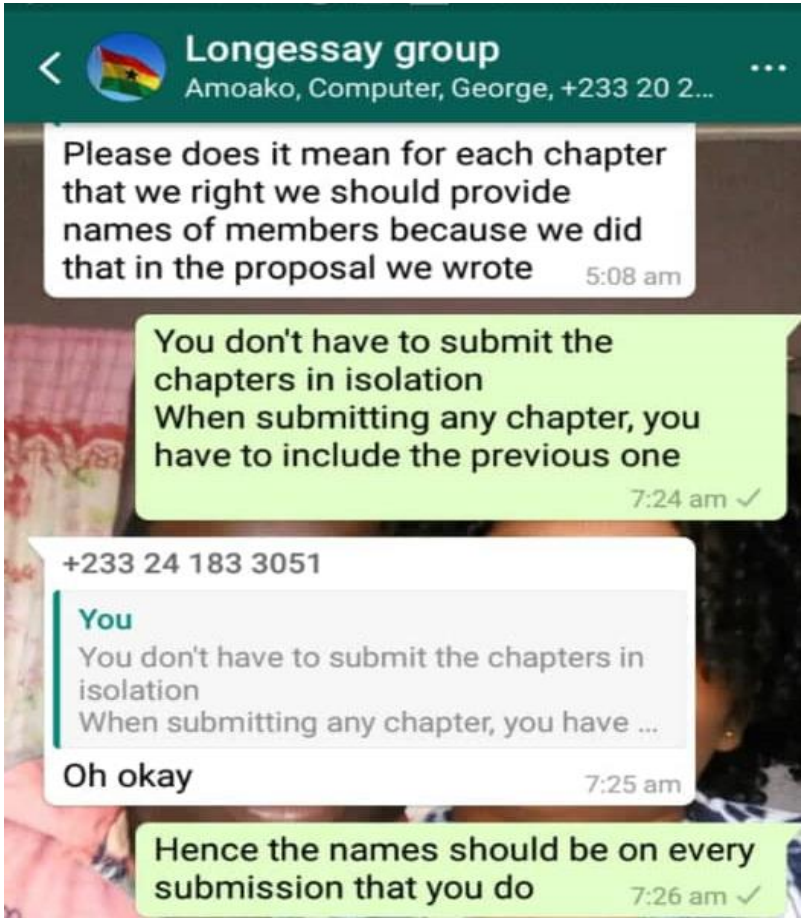
Students were put into groups and given projects on various aspects of the Visual Literacy Course under ICT. These are some of the screen shots of projects uploaded unto the Google classroom

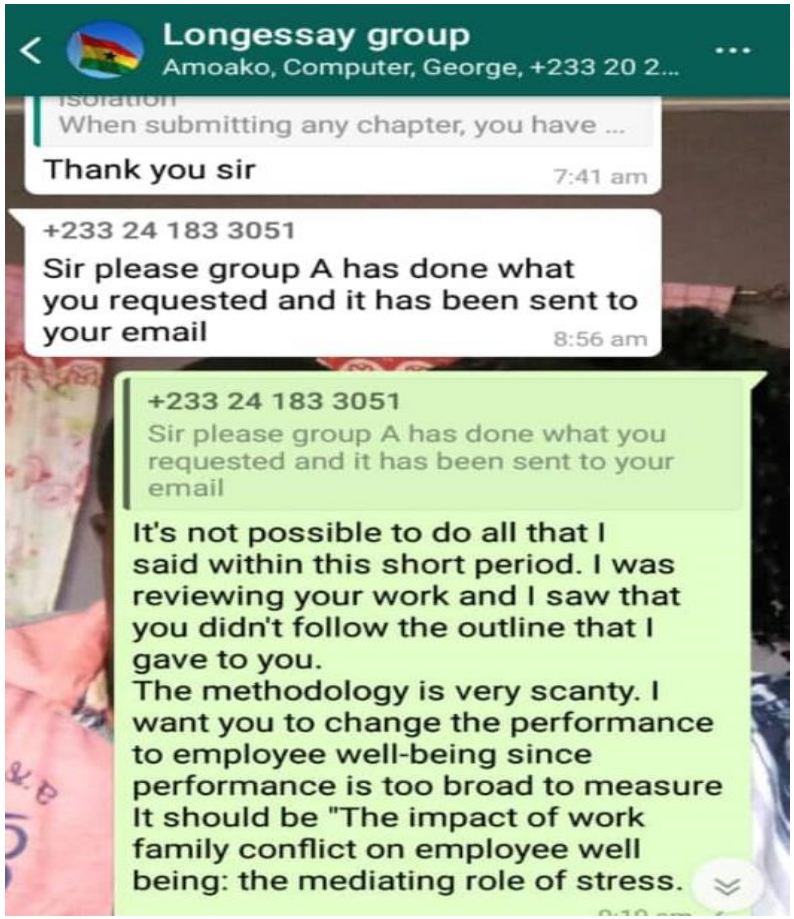


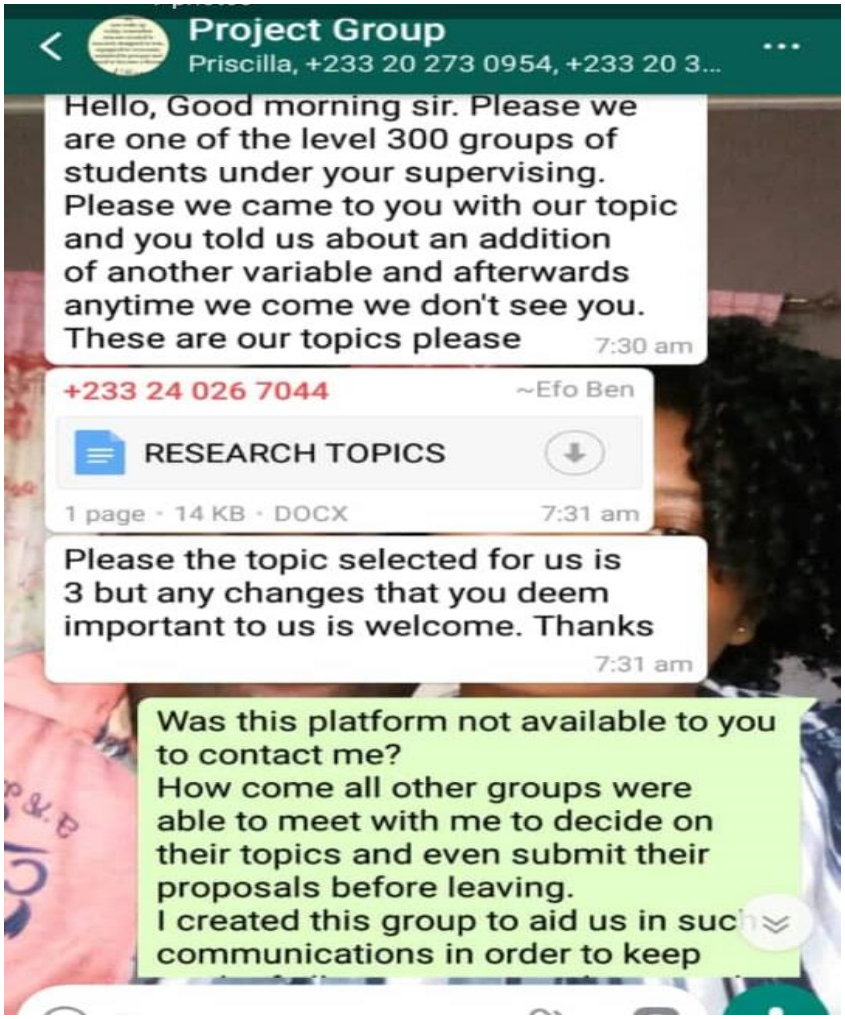


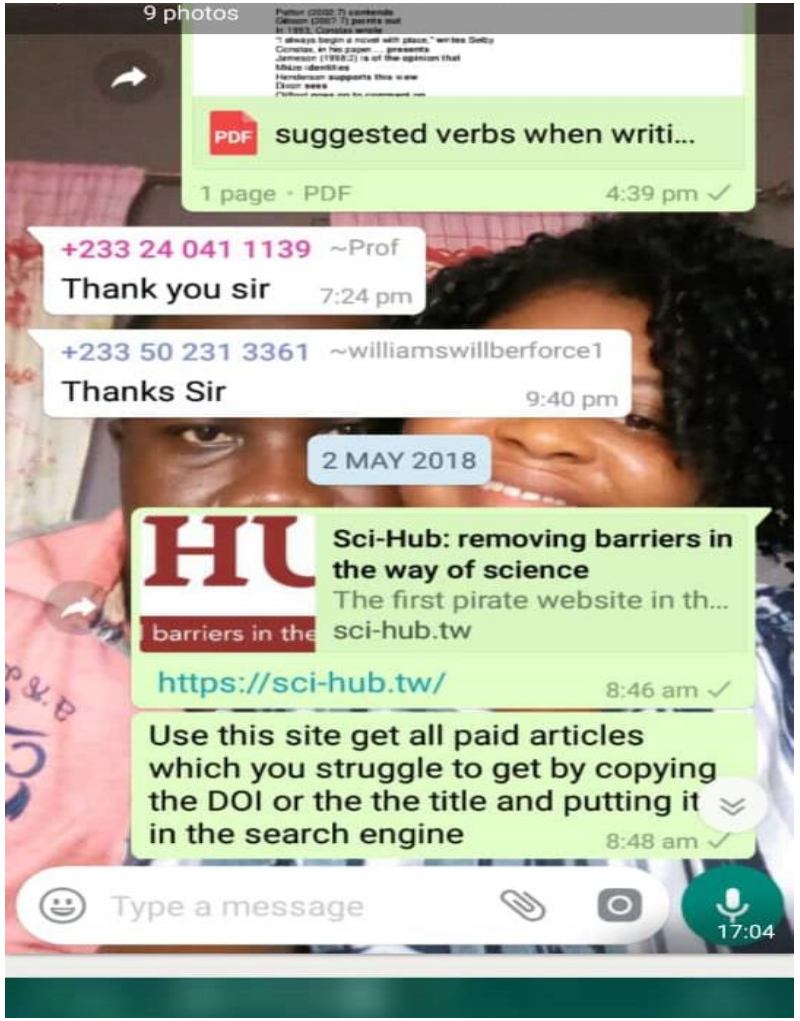
Discussion of long essay/ project work supervision using WhatsApp

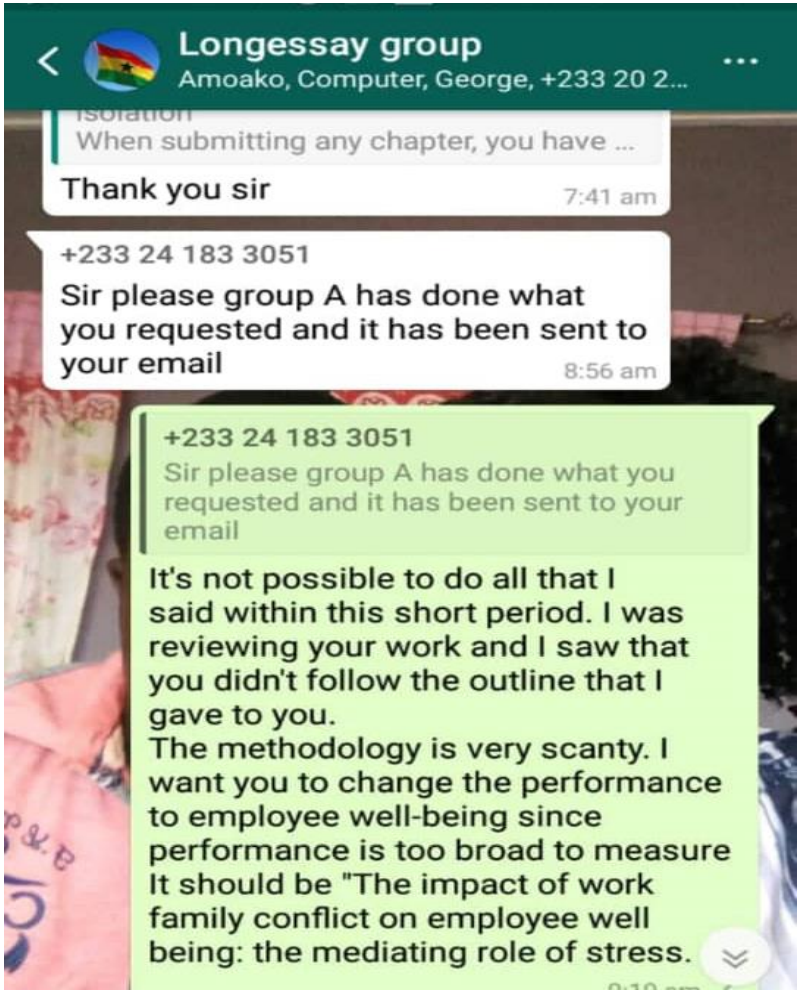
I also observed discussion on long essay between a UEW instructor and his students during the internship programme when students were off campus in various regions of the country.











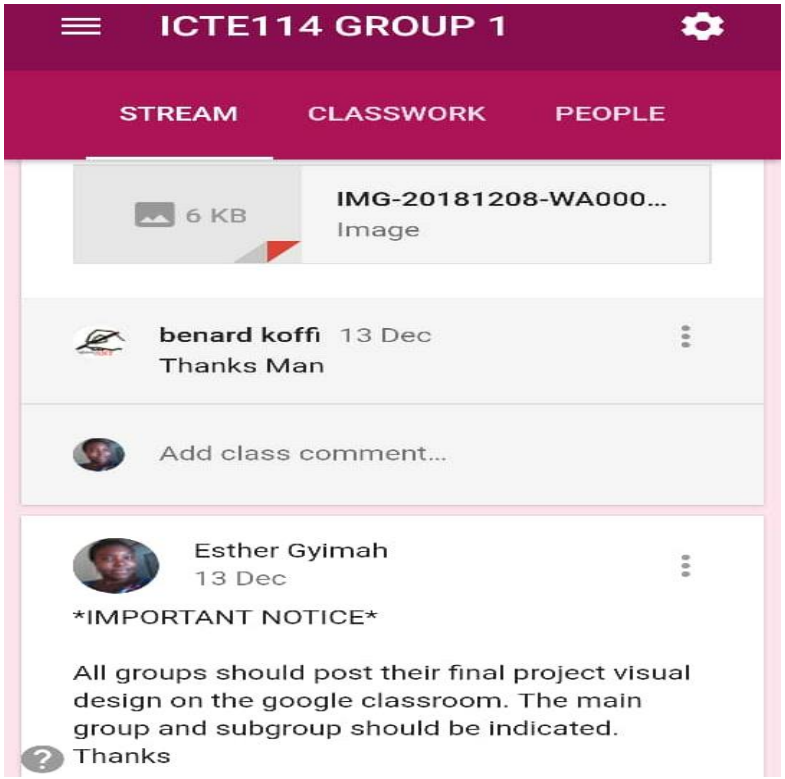
Provision of feedback using Google Classroom, WhatsApp, Padlet

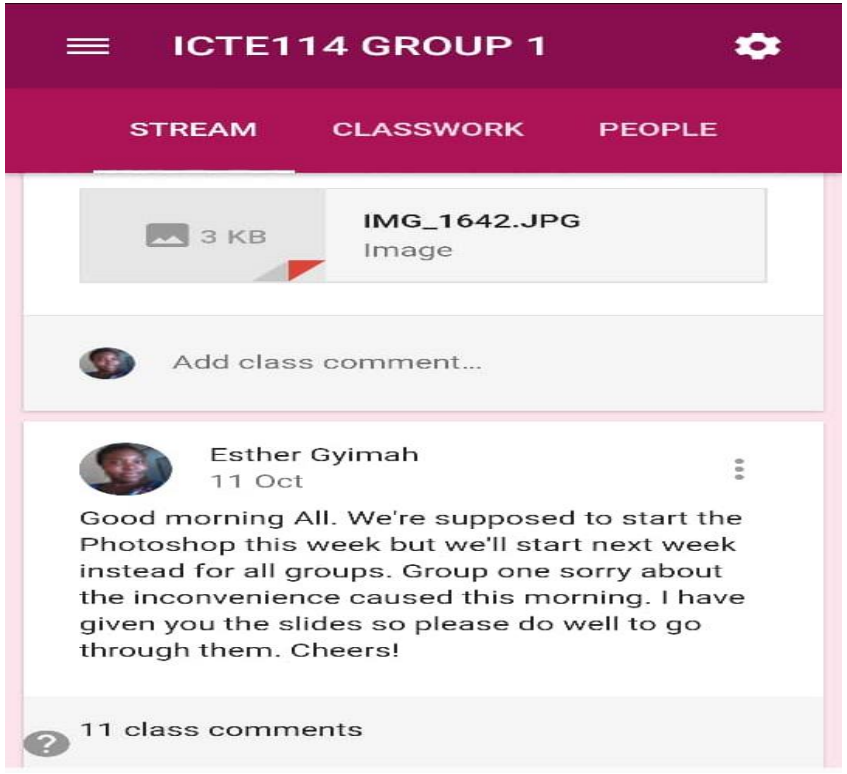
Some platforms instructors used were for the purposes of feedback. Among those I observed were Socrative Student, WhatsApp and Google Classroom. What was intriguing was the fact that students felt completely free to pour out their hearts. For example, Socrative Student, which has anonymity as a key feature, enabled GTUC students to give their frank impressions during feedback on the topic of Java Programming.

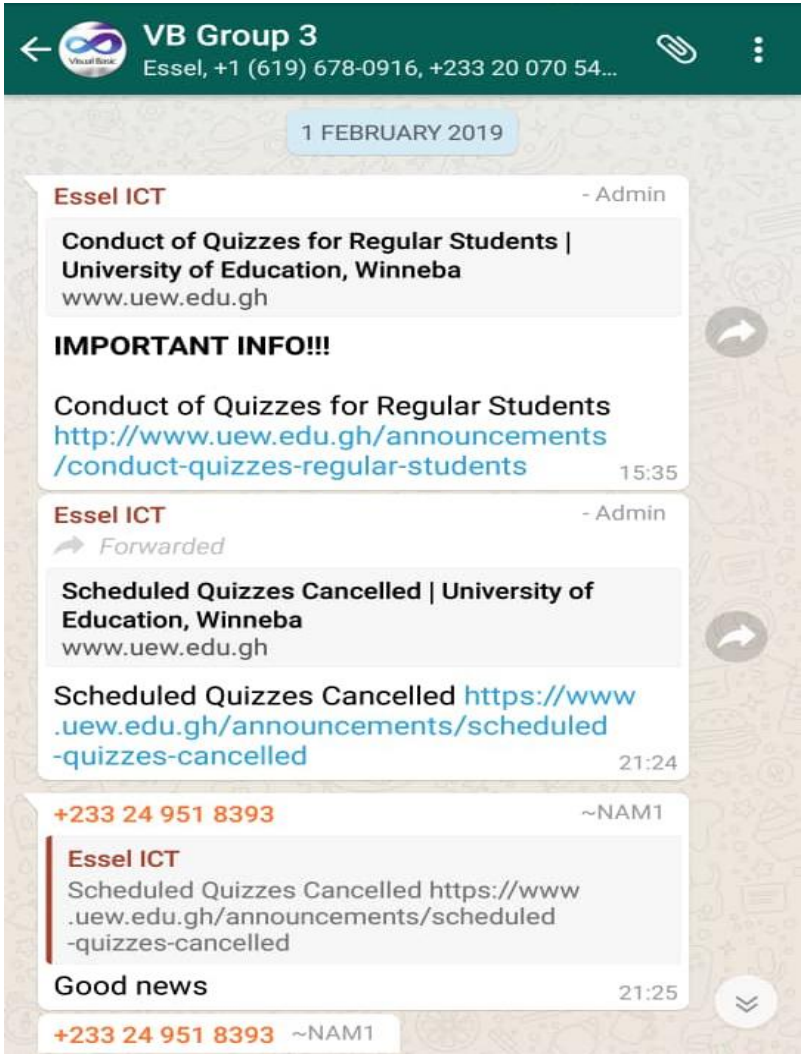
Concerning feedback on what students had learnt on a programming course, the screenshot from socrative platform was showed various views and impressions from students.

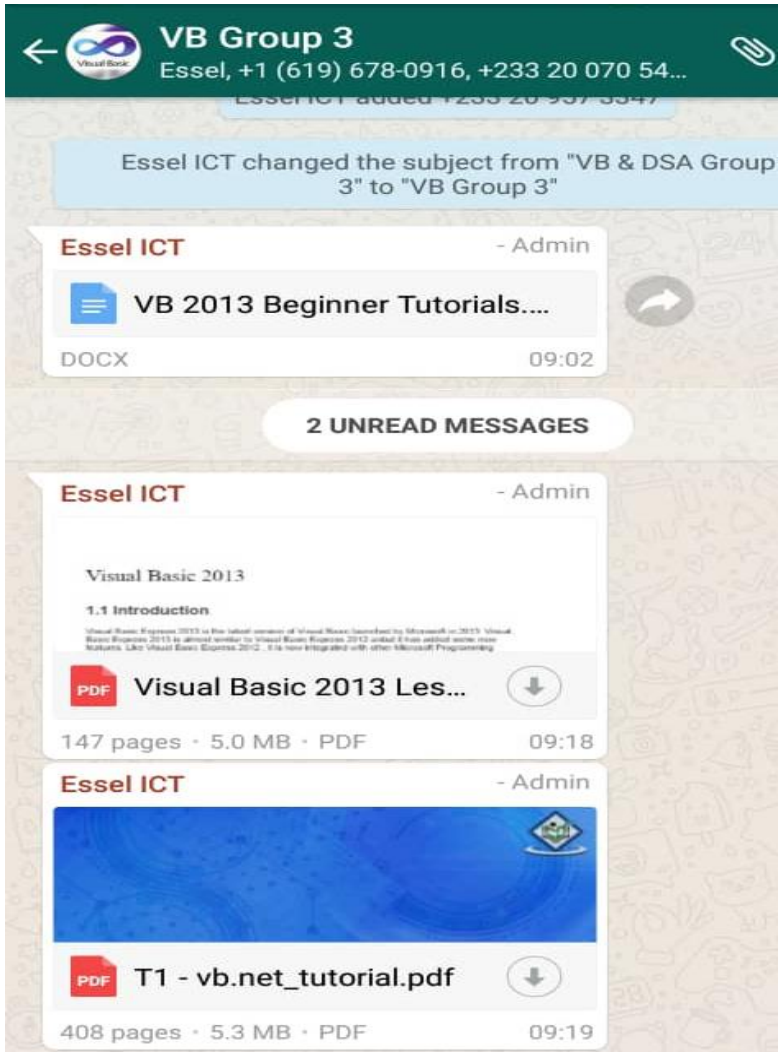
Use of WhatsApp and Google Classroom for announcements

I also observed that instructors made announcements concerning class schedules, assignments and other important information on platforms such as the Google Classroom and WhatsApp.









4.5 Opportunities and challenges that exist in the use of SM by students and instructors

This section presents unified results on the opportunities and challenges that exist in the use of SM by students and instructors. First, it presents the quantitative and qualitative results on the opportunities, followed by the quantitative and qualitative results of the challenges.

4.5.1 Opportunities of SM usage

Quantitative results of opportunities that exist in the use of SM by students

Table 4.31: A summary of the descriptive statistics showing opportunities that exist in integrating social media into learning by students.

Opportunities of SM for learning	SD %	D %	N %	A %	SA %	Mean	SD
Social media makes it easy for me to search for relevant information for my studies	5.00	4.70	10.00	35.30	45.00	4.11	1.087
Social media helps me to learn both formally and informally	4.00	4.70	12.70	43.30	35.40	4.01	1.014
Social media helps me to satisfy my desire for new knowledge	3.70	3.20	11.60	47.10	34.50	4.06	.958
Social media helps me to find instructional content	3.90	5.50	17.10	43.20	30.30	3.90	1.021
I actively engage with social media in my studies	6.90	7.70	16.10	41.20	28.20	3.76	1.146
Social media allows me to combine face-to-face and online learning	7.40	6.30	20.50	38.20	27.60	3.72	1.151
Social media allows me to receive administrative communication	5.50	7.40	20.00	41.10	26.10	3.75	1.092
I collaborate through social media with my friends about my studies	4.20	3.70	15.80	51.60	24.70	3.89	.960
I use social media independently in my studies	6.10	10.00	19.50	40.30	24.20	3.67	1.128
Social media bridges the geographical distance between me and my lecturers	12.90	18.70	20.00	30.00	18.40	3.22	1.301
I collaborate through social media with my lecturers in my studies	14.80	21.10	32.50	24.00	7.70	2.89	1.157

In relation to the opportunities that exist in using SM for learning by students, Table 4.31 shows that students perceived the highest opportunity so far as their usage of SM is concerned as how SM makes it easy for them to search for relevant information for their studies (80.30%; mean=4.11; SD=1.087). This was followed by SM satisfying their desire for new knowledge (81.60%; mean=4.06; SD=.958); and SM helping them to learn both formally and informally (78.70%; mean=4.01; SD=1.014). The least opportunity of SM usage by students was perceived to be related to collaborating through SM with instructors during studies (31.70%; mean=2.89, SD=1.157).

Table 4.32: Opportunities in students' use of SM for learning at UEW

Statement	SD %	D %	N %	A %	SA %	Mean	SD
I actively engage with SM in my studies.	7.10	6.80	14.20	41.20	30.70	3.81	1.154
I collaborate through SM with my friends with regard to my studies.	4.00	4.00	15.10	51.50	25.30	3.9	0.959
I use SM independently in my studies.	5.90	9.60	19.10	40.40	25.00	3.69	1.123
I collaborate through SM with my instructors in my studies.	14.90	20.70	31.90	24.80	7.70	2.9	1.163
SM bridges the geographical distance between me and my instructors.	13.00	18.50	20.40	29.90	18.20	3.22	1.299
SM helps me satisfy my desire for new knowledge.	3.40	2.50	9.30	47.50	37.30	4.13	0.925
SM helps me find instructional content.	3.40	5.90	15.70	42.60	32.40	3.95	1.011
SM helps me learn both formally and informally.	4.00	4.30	11.80	43.70	36.20	4.04	1.009
SM allows me to receive administrative communication.	5.60	7.10	18.80	40.40	28.10	3.78	1.1
SM makes it easy for me to search for relevant information for my studies.	5.60	3.70	9.00	34.30	47.50	4.15	1.093
SM allows me to combine face-to-face and online learning.	6.80	6.20	20.10	38.90	28.10	3.75	1.132

Students from UEW indicated the greater opportunities that exist in the use of SM for learning. From Table 4.32, students indicated that SM mostly made it easy for them to search for relevant information (81.80%; mean=4.15; SD=1.093).This was followed by SM helps them to satisfy their desire for new knowledge (84.80%; mean=4.13; SD=0.925); and SM helped them to learn both formally and informally (79.90%; mean=4.04; SD=1.009). The least opportunity according to the students from UEW was the fact that they collaborated through SM with my instructors in my studies (32.50%; mean=2.9; SD=1.63).

Table 4.33: Opportunities in students' use of SM for learning from GTUC

Statement	SD (%)	D (%)	Ne (%)	A (%)	SA (%)	Mean	SD
I actively engage with social media in my studies	6.9	7.7	16.1	41.2	28.2	3.46	1.061
I collaborate through social media with my friends about my studies	4.2	3.7	15.8	51.6	24.7	3.82	0.974
I use social media independently in my studies	6.1	10.01	19.5	40.3	24.2	3.52	1.160
I collaborate through social media with my lecturers in my studies	14.8	21.1	32.5	24.0	7.7	2.82	1.130
Social media bridges the geographical distance between me and my lecturers	12.9	18.7	20.0	30.0	18.4	3.25	1.325
Social media helps me to satisfy my desire for new knowledge	3.7	3.2	11.6	47.1	34.5	3.63	1.037
Social media helps me to find instructional content	3.9	5.5	17.1	43.2	30.3	3.64	1.052
Social media helps me to learn both formally and informally	4.0	4.7	12.7	43.3	35.4	3.88	1.046
Social media allows me to receive administrative communication	5.5	7.4	20.0	41.1	26.1	3.54	1.026
Social media makes it easy for me to search for relevant information for my studies	5.0	4.7	10.0	35.3	45.0	3.88	1.028
Social media allows me to combine face-to-face and online learning	7.4	6.3	20.5	38.2	27.6	3.55	1.249

Similarly, from table 4.33, SM provided greater opportunities to students for learning at GTUC. For instance, they indicated greatly that SM made it easy for them to search for relevant information for their studies (80.30%; mean=3.88; SD=1.028). This was followed by the fact that SM helped them to learn both formally and informally (78.70%; mean=3.88; SD=1.046) and that, SM helped them to find instructional content for their studies (76.30%; mean=3.82; SD=0.974). The least opportunity according to the students from GTUC are concerned has to do with the fact that they collaborated through SM with their instructors in their studies.

Table 4.34: Significant t-test of students' use of SM for learning at UEW and GTUC

Institution	Statement	N	Mean	SD	T	df.	Sig.
UEW	I actively engage with SM in my studies.	323	3.81	1.154			
GTUC		56	3.46	1.061	2.119	377	0.992
UEW	I collaborate through SM with my friends with regard to my studies.	324	3.9	0.959			
GTUC		56	3.82	0.974	0.574	378	0.75
UEW	I use SM independently in my studies.	324	3.69	1.123			
GTUC		56	3.52	1.16	1.063	378	0.55
UEW	I collaborate through SM with my instructors in my studies.	323	2.9	1.163			
GTUC		56	2.82	1.13	0.456	377	0.726
UEW	SM bridges the geographical distance between me and my instructors.	324	3.22	1.299			
GTUC		56	3.25	1.325	-0.164	378	0.78
UEW	SM helps me satisfy my desire for new knowledge.	324	4.13	0.925			
GTUC		56	3.63	1.037	3.7	378	0.063
UEW	SM helps me find instructional content.	324	3.95	1.011			
GTUC		56	3.64	1.052	2.07	378	0.374
UEW	SM helps me learn both formally and informally.	323	4.04	1.009			
GTUC		56	3.88	1.046	1.105	377	0.399
UEW	SM allows me to receive administrative communication.	324	3.78	1.1			
GTUC		56	3.54	1.026	1.574	378	0.799
UEW	SM makes it easy for me to search for relevant information for my studies.	324	4.15	1.093			
GTUC		56	3.88	1.028	1.721	378	0.796
UEW	SM allows me to combine face-to-face and online learning.	324	3.75	1.132	1.199	378	0.185
GTUC		56	3.55	1.249			

Source: Field Data, 2018 ***significant at p=0.05*

From Table 4.34, there were no significant differences between the UEW and GTUC with regards to use of SM for learning among students. However, the results indicate that students at UEW (mean=3.81, SD=3.46) actively engaged with SM in their studies than those from GTUC (mean=3.46, SD=1.046). On the issue of independent use of SM, UEW students indicated that they used SM independently for their studies (mean=3.69, SD=1.123) just as their counterparts from GTUC (mean=3.52, SD=1.16). Again, UEW (mean=2.9, SD=1.163) students collaborated through SM with their instructors concerning their studies more than GTUC (mean=2.82, SD=1.13). On the contrary, SM helped students from GTUC (mean=3.63, SD=1.037) to satisfy their desire for new knowledge more than UEW students (mean=4.13, SD=0.925)

Opportunities in integrating SM into teaching by instructors

Table 4.35: A summary of the descriptive statistics showing opportunities in the use of SM for teaching among lecturers

Opportunities in integrating SM into teaching by instructors	SD	D	N	A	SA	Mean	SD
I actively engage with SM in my teaching	1.90	5.00	17.80	43.30	29.80	3.96	.924
I collaborate with friends about my teaching through SM	3.10	4.30	29.80	32.90	29.80	3.82	1.009
I independently use SM for my Studies	2.70	7.80	15.90	47.70	26.00	3.86	.979
I collaborate with my students using SM	4.30	3.50	16.70	41.90	33.70	3.97	1.015
It bridges the distance between me and my students	2.70	7.40	9.30	37.60	43.00	4.11	1.027
It satisfies my desire for new knowledge	3.10	4.30	23.60	38.00	31.00	3.90	.994
It helps me find instructional content for my teaching	3.90	2.30	10.10	39.90	43.80	4.17	.977
It helps in formal and informal teaching	4.70	1.60	16.70	38.40	38.80	4.05	1.018
It helps in giving and receiving administrative communication	1.60	7.40	14.70	51.60	24.80	3.91	.908
It eases the search for relevant information for teaching	4.70	14.70	26.70	21.30	32.60	3.62	1.210
It helps combine face-to-face and online teaching	3.50	4.30	31.80	38.00	22.50	3.72	.975

From Table 4.35, instructors generally from both institutions (UEW and GTUC) indicated a higher propensity towards the opportunities that exist in the use of SM for teaching. For instance, they were highly inclined towards the fact that SM helped them to find instructional content for their teaching (83.70%; mean=4.17; SD=.977). This was followed by the fact that SM bridged the distance between them and their students (80.60%; mean=4.11; SD=1.027); and the fact that SM helped them in formal and informal teaching. According to the instructors, the least of the opportunities that SD offers them was the fact that it eased the search for relevant information for teaching (53.80%; mean=3.62; SD=1.210).

Table 4.36: Significant t-test of opportunities in instructors' use of SM for teaching at UEW

Statement	SD %	D %	N %	A %	SA %	Mean	SD
SM helps me actively engage in my teaching.	1.20	5.30	15.30	48.20	30.00	3.96	.924
I collaborate with friends with regard to my teaching.	1.80	3.50	31.20	30.60	32.90	3.82	1.009
I independently use it for my teaching	1.80	7.10	14.70	48.20	28.20	3.86	.979
I collaborate with other lecturers with regards to my teaching	4.10	1.80	14.10	42.40	37.60	3.97	1.015
SM bridges the distance between me and my Students	1.80	6.50	6.50	41.20	44.10	4.11	1.027
SM satisfies my desire for new Knowledge	1.80	3.50	24.70	37.10	32.90	3.90	.994
SM helps me find instructional content	2.90	1.80	9.40	40.00	45.90	4.17	.977
SM helps in formal and informal teaching	2.90	1.20	16.50	41.20	38.20	4.05	1.018
SM helps in giving and receiving administrative communication	1.20	7.10	14.10	49.40	28.20	3.91	.908
SM eases the search for relevant information for teaching	4.10	13.50	27.60	22.40	32.40	3.62	1.210
SM helps combine face-to-face and online teaching	2.90	4.10	29.40	41.20	22.40	3.72	.975

Source: Field Data, 2018 ***significant at p=0.05*

Each of the institutions was looked at separately regarding their perception of opportunities that existed in the use of SM for teaching. According to instructors from UEW, the results from Table 4.35 revealed that, the highest opportunity was perceived to be helping instructors to find instructional content (85.90%; mean=4.17, SD=.977), followed by bridging geographical distance between instructors and students (85.30%; mean 4.11, SD=1.027) and helped in formal informal teaching (79.40%; mean=4.05; SD=1.018). The least opportunity according to instructors from UEW was perceived to be the fact that SM eased the search for relevant information for teaching (mean=3.62, SD=1.21).

Opportunities in instructors' use of SM for teaching at GTUC							
Statement	**SD %**	**D %**	**N %**	**A %**	**SA %**	**Mean**	**SD**
SM helps me actively engage in my teaching.	3.40	4.50	22.70	39.80	29.50	3.88	1.004
I collaborate with friends with regard to my teaching	5.70	5.70	27.30	37.50	23.90	3.68	1.078
I independently use it for my teaching	4.50	9.10	18.20	46.60	21.60	3.72	1.050
I collaborate with other lecturers with regards to my teaching	4.50	6.80	21.60	40.90	26.10	3.77	1.058
SM bridges the distance between me and my Students	4.50	9.10	14.80	30.70	40.90	3.94	1.158
SM satisfies my desire for new Knowledge	5.70	5.70	21.60	39.80	27.30	3.77	1.090
SM helps me find instructional content	5.70	3.40	11.40	39.80	39.80	4.05	1.082
SM helps in formal and informal teaching	8.00	2.30	17.00	33.00	39.80	3.94	1.178
SM helps in giving and receiving administrative communication	2.30	8.00	15.90	55.70	18.20	3.80	0.912
SM eases the search for relevant information for teaching	5.70	17.00	25.00	19.30	33.00	3.57	1.267
SM helps combine face-to-face and online teaching	4.50	4.50	36.40	31.80	22.70	3.64	1.030

Table 4.37: Opportunities in instructors' use of SM for teaching at GTUC

Similar to instructors from UEW on the issue of the opportunities that exist in integrating SM into teaching in GTUC, their results equally showed from Table 4.36 that the three highest opportunities was perceived to be helping to find instructional content (79.60%; mean=4.05, SD=1.082); helps in formal and informal teaching (72.80%; mean=3.94, SD=1.178); and bridges the distance between students and instructors (mean=3.94, SD=1.158). Whereas the least three opportunities was perceived to be easing the search for relevant information for teaching (52.30%; mean=3.57, SD=1.267); collaborate with friends about my teaching (61.40%; mean=3.68, SD=1.078); and helps combine face-to-face and online teaching (54.50%; mean=3.64, SD=1.030).

Table 4.38: Significant t-test of instructors' use of SM for teaching at UEW and GTUC

Institution	Statement	N	Mean	SD	t	df.	Sig.
	I actively engage in						
UEW	my teaching	170	4.01	0.88	1.078	256	0.049
GTUC		88	3.88	1.004			
	I collaborate with						
UEW	colleagues in teaching.	170	3.89	0.967	1.607	256	0.329
GTUC		88	3.68	1.078			
	I use SM in my						
UEW	research.	170	3.94	0.934	1.76	256	0.059
GTUC		88	3.72	1.05			
	I collaborate with colleagues with regard						
UEW	to teaching.	170	4.08	0.979	2.297	256	0.138
GTUC		88	3.77	1.058			
	SM bridges the distance between instructor and						
UEW	students.	170	4.19	0.944	1.87	256	0.03
GTUC		88	3.94	1.158			
	SM satisfies desire for						
UEW	new knowledge.	170	3.96	0.938	1.428	256	0.107
GTUC		88	3.77	1.09			
	SM helps in finding						
UEW	instructional content.	170	4.24	0.914	1.53	256	0.465
GTUC		88	4.05	1.082			
	SM helps in formal						
UEW	and informal teaching.	170	4.11	0.923	1.218	256	0.03
GTUC		88	3.94	1.178			
	SM helps in giving and receiving administrative						
UEW	communication.	170	3.96	0.903	1.423	256	0.584
GTUC		88	3.8	0.912			
	SM eases the search for relevant information for						
UEW	teaching.	170	3.65	1.183	0.532	256	0.279
GTUC		88	3.57	1.267			
	SM helps combine face-to-face and online						
UEW	Teaching.	170	3.76	0.946	0.956	256	0.193
GTUC		88	3.64	1.03			

Source: Field Data, 2018 ***significant at p=0.05*

In order to explore potential differences in the opportunities of integrating SM into teaching among instructors, a t-test was conducted. Table 4.37 shows that significant differences were found between instructors in UEW and those at GTUC in terms of those who agreed that SM provided opportunities to actively engage in teaching. Significant differences were also observed between instructors at UEW and those at GTUC in terms of those who agreed SM provided opportunities to bridge the distance between them and their students. There were also significant differences between instructors at UEW and those at GTUC in terms of those who agreed that SM helped in formal and informal teaching. Thus, there were significant differences between the UEW and GTUC on the use of social in actively engaged in teaching ($t=1.078$, $p<0.05$), bridges the distance between me and my Students ($t=1.87$, $p<0.05$) and helps in formal and informal Teaching ($t=1.812$, $p<0.05$).

Qualitative results of opportunities in integrating SM into learning in HE

This section deals with the views of students and instructors regarding the opportunities that exist in the use of social media for teaching and learning. The next session presents students narratives on the opportunities that exist in the use of social media for learning. This will be followed by instructors' narratives

Students' views on the opportunities of using SM for learning

Student participants were asked to indicate the opportunities they thought there were in the use of SM for learning. Key among the issues they mentioned were that SM helped them in the dissemination of information, promotion of in-depth understanding of content, promotion of distance learning, fostering of effective learning through the use of the human senses, and promotion of effective communication.

Dissemination of information

Most student participants indicated that the main opportunity in the use of SM for learning lay in its ability to help students disseminate vital information easily and speedily among themselves and their instructors. More importantly and particularly, SM allowed quick access to information and content during independent research rather than having to endure the struggle of spending a lot of time in searching for information by going through many books in the library. The information SM helped to disseminate included, for example, schedules such as lecture and quiz times. Some examples of participants' narratives in this respect follow.

> *Social media has been helpful in dissemination of information. Sometimes the class, the course reps, they will have to spread...information about a lecture on social media like WhatsApp… I remember I missed a lecture because I was not having a bundle [the appropriate software]. They were contemplating on [thinking about] the time as to which we were going to meet. The lecturer travelled so I thought it was not going to come on but then they have discussed on the time that they were going to meet and I*

missed it because I was not having bundle to check on. So it has been helpful. ***[SP22]***

I think one opportunity that social media gives us is quick access to information instead of spending a lot of time to search through many books doing research at the library… If you need...information on any topic or you just use YouTube or any other social media, you can get quick response also get views of your colleagues through group discussions quickly. ***[SP38]***

The advantage is that it makes dissemination of information very easy and fast because, for instance, in the olden days or before the social media, if you want to meet for assignment as a group you have to meet in person. But now because of social media, you can be in the comfort of your room and be still doing your assignment. ***[SP16]***

Social media is very helpful. Like my brother just said, the lecturers sometimes they send information through WhatsApp for us and even sometimes they give information to the course reps to disseminate it to us. ***[SP13]***

Promotion of in-depth understanding of content

Participants indicated that the use of SM promoted in-depth understanding of content as it allowed for many different perspectives on any given subject. In this regard, a level 100 Mathematics student indicated that SM enabled him to understand issues clearly whenever he had a problem understanding difficult concepts, especially when preparing to do assignments:

Yes, social media has a lot of advantages. Sometimes, when I am studying and I don't understand something, I will go to this social media and read about it. And sometimes, when I am given an assignment and I want to find information about maybe the question that was given to me I go to these websites and ... search for more information about it. And sometimes, too, my lecturers have been using...WhatsApp to share information with us. Maybe if they want to schedule a class or they organise some quizzes, or they want to give us an assignment they have been using WhatsApp platform to do that. So, I think it is very, very important to us… It helps get better in-depth of understanding of various source or varieties of information to pick the one that you think best suits what you need. ***[SP18]***

Promotion distance learning

Another opportunity that participants mentioned derived from the use of SM was its ability to promote distance learning, and also to help students who lived some distance from the cities which had access to high quality education:

> *By the help of social media, it makes distance learning easy and also more interesting because some of our colleagues in the villages like Volta North, where I come from …find it difficult to at least get access to quality education but through the usage of social media they are able to access learning where they are… And [it] also reduces traveling risks… [An] example is some of the police officers, and even the teacher trainees, who go to school through the distance learning.* ***[SP28]***

Promotion of effective learning through the human senses

An equally interesting opportunity that respondents came up with was use of the human senses to promote effective learning through SM. As a level 400 GTUC student stated:

> *Yes, social media has advantages, and the main advantage I would like to stress here is that when it comes to pedagogy, it makes use of a lot of the senses, like hearing and seeing at the same time, as you sit in a relaxed way and watch something like a YouTube video which it is teaching you something… It is like when you are making use of a lot of senses, the understanding becomes more and more on the concept you are actually searching for.* ***[SP41]***

Fostering of effective communication

Another opportunity that SM offered students was its capacity to enhance effective communication by allowing confirmation of information when not instructors would be available to give lectures. A level 300 Mathematics student from UEW explained how one of her instructors often communicated with students via email and on their group WhatsApp platform:

> *I will start with the advantages. One, it enhances effective communication with our lecturers, whether they will come for lectures or not. When we were in level 100, we were having Probability and Statistics. That lecturer often communicated to us through email, and on our WhatsApp group platform where she usually sends her information for us now, whether she will come to class or she will not come; or if she has any*

> *information to give she will just send them there and communicate to us.* ***[SP40]***
>
> When asked how important that communication on coming to class or otherwise was to her since she knew she had to attend lectures at that time, she said that:
>
> *It was very important because it helped some of us to use that time to do other important things like other assignments instead of waiting and talking to my friends. [**SP40]***

Other opportunities that respondents mentioned were the ability of SM to help students expand their network beyond their immediate environment by meeting other people from different backgrounds and locations. They also indicated the opportunity to constantly help students to acquire new knowledge, the ability to learn outside the scope of their studies, and also the fact that it enabled their instructors to make a quick reference to a relevant point at any time and on any subject.

> *Take Google classroom for instance, you get to meet a lot of people… It is not limited to one location so you have so many people joining from different backgrounds, and you could learn a lot from those backgrounds too.* ***[SP37]***
>
> *Talking about the opportunities, it helps me acquire more knowledge. It keeps me updated because each and every time I get new things that will help me in learning. I don't get stuck in learning; it keeps me updated.* ***[SP45]***
>
> *I think a lot has been said; what I would add to it is that social media also help us to learn outside the scope of our study, what we have been taught in class, by exposing us to more stuff.* ***[SP25]***
>
> *Social media helps our lecturers in the aspect of teaching for quick reference during lecture time…by asking students to refer quickly to something he has uploaded on the platform that will be good for the topic in class.* ***[SP21]***

Instructors' perspectives on the opportunities in the use of SM for teaching and learning

Similarly, instructors' views were sought on the opportunities in the educational use of SM. Those they identified included enhancement of teaching and learning; promotion of

research; facilitation of access to education; extension of instructional time; encouragement of distance learning; promotion of lifelong learning, encouragement of increased enrolment; enhancement of collaborative learning; and promotion of professional development.

Enhancement of teaching and learning

One of the opportunities that respondents attributed to the use of SM was the fact that it enhanced effective teaching and learning. According to them, SM made teaching easier and, when used effectively, promoted student learning:

> *Social media enhances learning and makes learning interesting; students learn through play, through what they like doing best, so I believe that, in teaching, if we use it effectively, it will promote learning, and it will motivate students to learn more because they are doing everything through play. It makes my teaching a little bit easier in the sense that in handling all those students, it hasn't been easy but it gives me a platform where I can easily communicate with them and share whatever resources I have, and outside of class still interact with them and answer any question they have, even without the face-to-face interaction.* ***[IP1]***

> *Social media makes the classroom more dynamic, making teaching and learning more effective. In fact, it makes the classroom more interactive… Teaching and learning can be taken outside the corridors of the classroom and make it actively interactive for lecturers...and so the students can get access to your lecture in a more appealing manner.* ***[IP11]***

Promotion of research

Another opportunity that participants identified in the use of SM for teaching was the fact that it promoted research. One instructor explained how useful the platform WhatsApp was in collecting data from students:

> *These days, every [sic] information is online and data collection using social media is one of the coolest things we can think of. There is this paper I am trying to do and I told myself that in fact the kind of questions I wanted to ask, if I want to use interview like we are doing or use questionnaire, I wouldn't get anything. I didn't want to use Google Survey because they are*

all formal unless you are going to deal with mature people who are going to give you really what they feel. So, I decided to give it to students to put the items on their WhatsApp groups. It is very difficult to collate but if you know how to connect it to your PC, it's not really difficult. Just copy and paste the responses… So what I did was to give it to a student and I made the student to put them as if they are the ones asking the questions in their various WhatsApp groups for their class and all of that because my goal was to obtain objective responses. When they did that, their colleagues thought the questionnaire was coming from them and so they were able to give genuine and honest answers where somebody would want to insult, they do and you know exactly how they feel and when you read the kind of things they said about it, you know that this is exactly how they feel about it. ***[IP1]***

I*: What was the research actually about?*

Yeah, it is a research among the lecturers and I wanted to find out whether students read what lecturers publish and even know whether we publish, and the responses are so interesting and am still compiling them and anytime I sit and read, ha-ha, it's so interesting. Somebody will say "our department, who publishes?" And others will say "I heard so and so [name withheld] has published something and what is it about"? And another person will say, "Oh! That thing I read, there is nothing in it. I am telling you; this is the discussions that go on…so our students are not benefiting from our research... That is for those few people who read, and many people don't even know that we do something called research and publish. They don't know the journals and a whole lot... I am getting all these informally through WhatsApp, that is, those from the student for research, I think it's a very interesting avenue that can be explored for data collection. ***[IP1]***

Extension of instructional time

Another notable opportunity that participants cited was the ability of SM to extend instructional time beyond the limits of the timetable. This helped instructors to cover a full syllabus and still leave time to discuss issues with students who might have questions and be unable to meet instructors in person due to their tight schedules:

It gives an extension of time with the students. If you are in the traditional classroom, you meet the students for three hours a week, and then only a few students who really need to see you with problems can come to the office to have discussions; with majority, I will say 95% or more who have issues may not get the chance to come and see you because of busy schedules and things like that. But with social media, we are always available. Even if we don't respond immediately, within the day or the

> *next day we will be able to respond to issues. And the courses I teach are such that if you have a problem and you don't get internal or external help at all, you end up being confused, especially the coding stuff… It gives me access to the students even during vacation.* ***[IP4]***
>
> When asked whether he engaged them during vacation too, he said:
>
> *Yes, interacting with them, getting to know their current level on the course I'll be teaching them the next semester and all of those things. So I start pushing [recommending] a few videos so that before they come they might have some ideas… They have a mindset that programming is difficult, so before the semester, I try to psyche [sic] them, so social media helps me to do that.* ***[IP4]***

Encouragement of distance and lifelong learning

Distance learning and life-long learning are other opportunities that respondents linked to the use of SM. Thus, SM enabled instructors and students to bridge the gap of distance and also promote lifelong or continuous learning.

> *Currently, we are moving more into that kind of teaching and learning unlike the traditional talk and chalk where you have don't necessarily have to be in the classroom in real-time… So, it encourages learning at a distance. Time and space are, no more a factor because it's more...synchronous and real-time. You post something; immediately, whoever posts will see it and once they are online, they respond irrespective of the location. So, it bridges that gap… You don't have to be physically present to meet for a group discussion…because technology is not static… Also, it enhances what we call lifelong learning and the students will always learn; they learn from their colleagues, share ideas and so on.* ***[IP5]***

Encouragement of collaborative learning

It was also asserted that SM encourages collaborated learning. According to a respondent, learning should not be limited to the individual working in isolation but a shared activity. It should not revolve around the teacher alone, but learners should collaboratively share ideas among themselves as well as their instructors and add to the existing pool of knowledge.

> *In the context of teaching, it [SM] has made collaborative learning very easy. Learning is not only on one person, the book and exam. It's*

> *no more about the teacher alone; it is about the teacher and the learner, where feedback concerning what is being taught, sharing of ideas and the rest take place… The learner can also add some knowledge to the existing knowledge, so I see that it has really facilitated collaborative learning.* ***[IP12]***

Promotion of professional development

The promotion of professional development as an opportunity of SM usage also emerged from respondents' narratives. According to them, when used effectively, SM platforms such as Research Gate, LinkedIn and Academia.Edu enabled them to connect with colleagues and conduct research to enhance their professional growth. For instance, one respondent from GTUC mentioned that:

> *Social media promotes professional development in the area of research where we get resources from platforms like Research Gate, LinkedIn, Academia.Edu and the rest. In fact, if you are able to use it well in research, you can develop yourself as you work professionally by acquiring materials easily as you link up with friends, colleagues and other professionals in your area.* ***[IP10]***

4.5.2 Challenges of SM usage

With regards to the challenges in the use of SM for learning, the students were concerned about how SM reduced personal contact. In fact, 41% agreed that this was so. Moreover, 36% agreed that SM gave them little privacy and 33% indicated that SM interfered with their studies.

Table 4.39: Challenges in the use of social media for learning by students

Challenges of SM by students	SD	D	N	A	SA	Mean	SD
Gives me little privacy	10.30	25.30	28.80	29.80	5.80	2.96	1.09
It focuses on social interaction more than academic work	15.80	17.90	20.80	30.50	15.00	3.11	1.31
It interferes with my studies	15.80	26.30	25.00	23.20	9.70	2.85	1.22
It reduces personal contact	16.60	22.90	20.00	26.60	13.90	2.98	1.31
Lack of policies on its use prevent me from using it for my studies	20.00	29.70	22.90	20.80	6.60	2.64	1.20

When students were asked what challenges they encountered as they used SM for learning from Table 4.38, a greater percentage (45%; mean=3.11; SD=1.31) perceived SM as making them focus more on social interaction more than academic work. This was followed by the fact that SM reduced personal contact (40%; mean=2.98; SD=1.31); gave them little privacy (35%; mean=2.96; SD=1.09). The least was that SM's lack of policies on its use prevented them from them from using it for their studies (27%; mean=2.64; SD=1.20).

Table 4.40: Challenges in the use of SM for learning among students [Disaggregated by Institution]

Institution	Statement	SD %	D %	N %	A %	SA %	M	SD
UEW	It interferes with my studies	15.70	27.50	22.20	23.50	11.10	2.87	1.253
	Gives me little privacy	9.90	24.50	29.10	29.70	6.80	2.99	1.102
	Lack of policies on its use prevent me from using it for my studies	21.00	28.40	21.00	22.20	7.40	2.67	1.239
	It focusses on social interaction more than academic work	15.70	19.40	20.70	28.70	15.40	3.09	1.314
	It reduces personal contact	17.90	23.10	18.50	26.20	14.20	2.96	1.335
GTUC	It interferes with my studies	16.10	19.60	41.10	21.40	1.80	2.73	1.036
	Gives me little privacy	12.50	30.40	26.80	30.40	0.00	2.75	1.031
	Lack of policies on its use prevent me from using it for my studies	14.30	37.50	33.90	12.50	1.80	2.50	0.953
	It focusses on social interaction more than academic work	16.10	8.90	21.40	41.10	12.50	3.25	1.268
	It reduces personal contact	8.90	21.40	28.60	28.60	12.50	3.14	1.167

Concerning the issue of challenges that exist in integrating SM into learning from Table 4.39, the highest challenge was perceived by UEW students as SM focusing on social interaction more than academic work (44.10%; mean=3.09; SD=1.314). This was followed by SM as giving them little privacy (36.50%; mean=2.99; SD=1.102) and SM as reducing personal contact (40.40%; mean=2.99; SD=1.335). The least challenge of SM among students from UEW was that SM lacked policies on its use and so prevented them from using it for their studies (29.60%; mean=2.87; SD=1.253). Students from GTUC just like their counterparts from UEW, considered the highest challenge of SM to be focusing on social interaction more than academic work (53.60%; mean=3.25; SD=1.268), followed

by SM as reducing personal contact (41.10%; mean=3.14; SD=1.167) and SM as giving them little privacy (30.40%; mean=2.75; SD=1.031). The least challenge of SM perceived by GTUC similar to their counterparts from UEW was also that, SM lacked policies on its use and so prevented them from using it for their studies.

Table 4.41: Significant test of challenges in the use of SM among students in UEW and GTUC

Institution	Challenges of SM	Mean	SD	T	df	Sig.
UEW		2.87	1.253			
GTUC	It interferes with my studies	2.73	1.036	0.763	378	0.02
UEW		2.99	1.102			
GTUC	Gives me little privacy	2.75	1.031	1.523	378	0.882
UEW		2.67	1.239			
GTUC	Lack of policies on its use prevent me from using it for my studies	2.5	0.953	0.958	378	0.002
UEW	It focusses on social interaction more than	3.09	1.314			
GTUC	academic work	3.25	1.268	-0.865	378	0.54
UEW	It reduces personal contact	2.96	1.335			
GTUC		3.14	1.167	-0.98	378	0.056

Source: Field Data, 2018 ***significant at p=0.05*

In order to determine potential differences in the challenges of using SM to learn among students from UEW and GTUC, a t-test was conducted. Table 4.40 shows that there were significant differences between students from UEW and GTUC with regards to their perception of SM interfering with their studies and lack of policies preventing students from using SM for their studies. Thus, SM interfered with UEW students' studies (0.02) more than their counterparts in GTUC. On a similar vein, lack of policies on the use of SM prevented students from UEW from using SM for their studies (0.002) more than the students from GTUC. However, there were no significant differences between GTUC and UEW on SM as giving students little privacy (0.882) and as focusing more on social interaction than academic work (0.54).

Challenges to instructors' use of SM

Table 4.42: A summary of the descriptive statistics showing the challenges in the use of social media for teaching among instructors

Challenges of SM by instructors	SD %	D %	N %	A %	SA %	Mean	SD
Gives me little privacy	14.30	22.10	30.60	27.90	5.00	2.87	1.12
It focuses on social interaction than academic work	20.50	23.30	18.20	25.20	12.80	2.86	1.34
It interferes with my teaching	21.30	19.00	38.40	14.30	7.00	2.67	1.17
It lacks policies on it usage	8.50	24.00	34.50	28.30	4.70	2.97	1.03
It reduces personal contact	10.90	21.70	20.90	26.70	19.80	3.23	1.29

On the issue of challenges arising from the use of SM for teaching among instructors, Table 4.41 shows that instructors perceived reducing personal contact as a challenge to be the highest (46.50%; mean=3.23, SD=1.29), followed by that SM lacked policies on its usage (33.00%; mean=2.97; SD=1.03) and then SM as giving them little privacy (32.90%; mean=2.87; SD=1.12). The least challenge was perceived to be SM interfering with their teaching (21.30%; mean=2.67, SD=1.166).

Table 4.43: Challenges to the use of SM among instructors by percentage [disaggregated by Institution]

Institution	Challenges of SM	SD %	D %	N %	A %	SA %	M	SD
UEW	SM interferes with my teaching.	24.70	20.00	34.70	13.50	7.10	2.58	1.200
	SM gives me little privacy.	17.10	23.50	27.10	27.10	5.30	2.80	1.170
	The lack of policy on SM usage prevents me from using it in my teaching.	7.60	30.00	32.40	25.90	4.10	2.89	1.011
GTUC	SM focuses more on social interaction than academic work.	18.20	27.60	17.60	24.70	11.80	2.84	1.307
	SM reduces personal contact.	10.60	24.10	21.80	27.10	16.50	3.15	1.258
	SM interferes with my teaching.	14.80	17.00	45.50	15.90	6.80	2.83	1.085
	SM gives me little privacy.	9.10	19.30	37.50	29.50	4.50	3.01	1.023
	The lack of policy on SM usage prevents me from using it in my teaching.	10.20	12.50	38.60	33.00	5.70	3.11	1.044
	SM focuses more on social interaction than academic work.	25.00	14.80	19.30	26.10	14.80	2.91	1.419
	SM reduces personal contact.	11.40	17.00	19.30	26.10	26.10	3.39	1.343

From Table 4.42, it can be observed that even though the majority of instructors from both institutions recorded high inclination to perceiving SM as reducing personal contact, GTUC instructors felt that was a challenge more than their counterparts from UEW (GTUC=52.20%, mean=3.39, SD=1.343); UEW=43.60%, mean=3.15; SD=1.258). This was followed by their perception of the issue that lack of policy on SM usage prevented them from using it in their teaching (GTUC=38.70%, mean=3.11, SD=1.044; UEW=30.00%, mean=2.89, SD=1.011). On the contrary, the least challenge which was similar among both institutions although GTUC recorded the highest was the fact that SM

interfered with their teaching (GTUC=26.70%, mean=2.83, SD=1.085; UEW= 20.60%, mean=2.58, SD=1.200).

Table 4.44: Significant t-test of challenges to instructors' use of SM for teaching at UEW and GTUC

Institution	Statement	N	M	S D	T	Df	Sig.
	SM interferes with my						
UEW	Teaching.	170	2.58	1.2	-1.62	256	0.028
GTUC		88	2.83	1.085			
	SM gives me little				-		
UEW	privacy.	170	2.8	1.17	1.435	256	0.007
GTUC		88	3.01	1.023			
	The lack of policy on SM usage prevents me from using it in my				-		
UEW	teaching.	170	2.89	1.011	1.678	256	0.774
GTUC		88	3.11	1.044			
	SM focuses more on social interaction than				-		
UEW	academic work.	170	2.84	1.307	0.384	256	0.322
GTUC		88	2.91	1.419			
	SM reduces personal				-		
UEW	contact.	170	3.15	1.258	1.416	256	0.284
GTUC		88	3.39	1.343			

Source: Field Data, 2018 ***significant at p=0.05*

From table 4.43, significant differences were found between instructors from UEW and GTUC. Instructors from GTUC significantly indicated that SM interfered with their teaching and that SM provided them little privacy than instructors from UEW. Thus, the GTUC strongly regarded SM as providing little privacy (0.007) and interfering with their teaching (0.028)

Qualitative results of the challenges of SM by students and instructors

Students views on challenges to the use of SM for learning

Major challenges to the use of SM for learning participants touched on included the issues of distraction, discouragement of creativity, creation of false alarms, encouragement of student withdrawal; promotion of addiction, the high cost in securing desired bundles of software, and negative effects on health.

Distraction

Distraction was identified by most participants in the focus group as a major challenge to the use of SM as they sought to apply it to their studies. According to them, the social tendencies of SM enticed users to employ it for purposes such as entertainment rather than academic work. This was evident in the narratives of respondents.

> *The major challenge is distraction because people are mostly enticed by entertainment: they want to go to YouTube, Instagram, and be watching videos; then you'll not put much focus on your learning.* ***[SP1]***

> *To add to what our brother just said, I feel one challenge is that people don't use social media for the real [intended] purposes, so they send things that will rather distract people and take away the value of that social media. As he stated, if the page was created for an educational purpose, let's say a class group…people post other messages, even sometimes distractive videos that sometimes people wouldn't like to see. So, because of that, some like class members may not visit the page to get vital information that is posted there.* ***[SP38]***

> *Yeah, I think I agree with what my colleagues said… Sometimes, you go there to find information about a given topic and you find yourself at another place. One dawn I was searching information about a given topic; while I was at YouTube, I saw a video about Cristiano Ronaldo scoring a goal against Juventus, so I went there straight forward and I watched that video instead.* ***[SP50]***

Discouragement of creativity

Some respondents argued that SM stopped them from thinking creatively. Rather, it spoon-fed them in the quest for information as they were tempted to download ready-made articles instead of thinking creatively for themselves.

> *I will say that we humans, we are now depending solely on social media, especially we students. We no longer use our human intellect to think. Any question they give us, we know that social media is there to provide us with answers, so we no longer use our heads to think. We depend on social media for everything. Every [sic] information because we know that it is there.* ***[SP8]***

> *I think it can reduce creativity amongst students because we tend to…rely on stuff from social media rather than thinking for ourselves to build our own concepts.* ***[SP31]***

False alarm and Planks/mischief

Another challenge that students linked to the use of SM was the tendency of its users to create false alarms, such as when students falsely posted that an instructor was about to conduct a last-minute quiz, as one level 200 Early Childhood student from UEW explained.

> *One major disadvantage I realised is false alarm; that you will be there and a message is posted which is false but because you don't know that it is false, you believe it to be true. OK, let me give an instance. I was at my hostel one day and then someone just posted that there is a quiz going on and I rushed to the lecture hall, and then there was no quiz.* ***[SP35]***

Student withdrawal

Another challenge that students identified had to do with the propensity of SM to encourage students to skip lecturers and other contact time, especially when instructors had just decided to use SM in class:

> *I think it promotes truancy [sic]. I have a friend, part of the Physics Department, and because of this social media, he has not been coming for lectures. All that he does is when you go back to the hostel he will ask you, "What topic did you guys talk about?" Then he will just go download the*

> *PDF and the tutorial. When he comes to write quiz, he may even perform better than you and then he will come and then tease you too. So in a way it's promoting truancy.* ***[SP7]***

> *Assuming a lecturer wants to discuss with us only on social media, probably we may not be able to meet him...and as students you know our behaviour, some of us will feel reluctant and we will not even go to class when we have to do so.* ***[SP46]***

Addiction

Participants also indicated that another challenge of SM was its compulsivity. It was evident from their narratives that they believed users became addicted to social interaction and this therefore hindered their progress when they intended to explore educational resources on the platforms:

> *Let's say you access Facebook and you have a group [on which] you guys talk about information concerning educational stuff. What happens is that you realise that all of a sudden, you'll see someone messaging you. What happens is that you are going to leave that particular educational stuff and you go to the social interaction; and normally, when you go to the social interaction you realise that it is kind of addiction [addictive]. You get so much addicted that you might spend more time there and sometimes forget about the educational part that you wanted to go and get information about.* ***[SP14]***

> *It can be very addictive because sometimes you can go on social media thinking you are getting information relating to academic work but before you realise, it is geared towards something else. And you spend lots of hours scrolling through your phone and going through messages.* ***[SP39]***

> *Sometimes, it takes a lot of your time and not being able to really read your books. Always, you want to know what is going on, so you will always be on your phone.* ***[SP48]***

Financial burden

Participants also thought that SM could be a financial burden. They pointed to the drain of spending a lot of money on software to enable them to access educational resources, especially videos.

> *Before you can use the phone to access WhatsApp, YouTube and other platforms you need to buy airtime, which is a financial burden, so it happens that sometimes it consumes a lot; you waste a lot of income on it.* ***[SP36]***

> *It really takes money. If you are not even having [a] bundle [the required software], you have to force and get money for credit so that you can bundle [sic] and get on the social media for information.* ***[SP3]***

> *It is very expensive because to get [a] data bundle to go online and search towards a specific course, at times, it is not easy to get money to buy credit and download materials. Then, it is time-wasting. At times, you will go and have access to download a ten-megabyte tutorial. It can take you 30 minutes and at times, the boring part is that as you are downloading you can reach 99% and you go and restart again. So it's time-wasting sometimes and costly.* ***[SP12]***

Laziness

Some students also reported that SM encouraged laziness. Thus, as they constantly sent messages and looked for information online, they became lazy because they got used to the quick way of using shorthand in writing messages, for example. This was consequently often transferred to essay writing in the same manner, causing them to lose marks.

> *Laziness comes in when sometimes, you are given an assignment to do and you go online to copy and paste the work but you don't actually read what is in it and you submit it to the lecturer. It just occurred three days ago when we were given assignment on digestion. We did it...but unfortunately, when it came to the work...we copied and pasted we didn't get the right information.* ***[SP21]***

> *I am going to take WhatsApp for example, the shorthand that we write is making us even when you want to write now in your book you tend to forget the actual spelling because it's like we have been writing the shorthand and we are confused due to laziness and this can even make you lose marks.* ***[SP52]***

Way forward

All the above challenges that students identified in the educational use of SM, they (students from both institutions) maintained that SM should be integrated into teaching and learning due to the opportunities it offered. However, they had the following suggestions.

Education on the proper use of SM

Participants hinted that if the integration of SM were to be successful, their respective institutions needed to organise regular training sessions for students on the opportunities and challenges that were inherent in the use of SM generally. For instance, a level 300 student from GTUC made the following comments:

> *I would say that education should be done on a regular basis to teach students that in as much as social media is helping us for us to undertake our research and our academic work, it also has adverse effects on our lives. So, if we don't know as and when to use it, it will turn to affect us negatively and not positively… We should be disciplined as students because this social media takes majority of our time… If you are not disciplined with regard to your time and then how you go about your duties, it will lure you to other things that you won't even anticipate that you will do.* ***[SP46]***

Improvement of internet connectivity on campus

A few respondents emphasised the need to improve Internet connectivity on campus to facilitate the use of technology, especially SM:

> *If you don't have Internet connectivity, you can't browse and use social media, so I think the Internet connectivity of the school [sic] should be very high. In that case, the lecturers can give us some online stuff and learning using social media will be smooth and fun.* ***[SP20]***

> *I suggest that the school [sic] provide a lot of Wi-Fi so that at least we will be able to have access to the Internet instead of us using data. Especially if you don't have data on your phone, you have to buy using your mobile money and that sort of thing. So, I suggest that they should provide Wi-Fi so that we will be able to have access to the Internet.* ***[SP35]***

Rules and regulations for students and instructors

It is notable that the majority of respondents emphasised the need for regulations or at least guidelines to accompany the use of SM at the universities.

> *Lecturers and these school authorities have to bring in certain rules and certain kind of system to check the proper use of social media so that students do not abuse it.* ***[SP15]***

> *I think the school should make rules that will encourage lecturers to incorporate it into their teaching style. When that is done, they will be able to teach using social media, like the YouTube videos for the students to discuss...in the class… It will enhance learning the more than having individual students using the data to log on to maybe the YouTube to check out for themselves.* ***[SP30]***

The 21st century SM learner

Respondents reported that because SM had become an integral part of their lives in the current 21st century, instructors should incorporate it into their teaching and post educational materials online for students to help them learn more and better. This was expressed as follows:

> *Social media has become part of our lives in this 21st century and it's like sometimes when one wakes up, the person hasn't posted, but sometimes, when you wake up you on the data [go online]to check what has been posted on your WhatsApp or something. So, I believe if lecturers are to incorporate social media into their teaching...by providing maybe necessary PDFs and probably some short videos that will help the students to learn more. It will really help in the understanding of concepts; that's through social media.* ***[SP28]***

Views of instructors on challenges to the use of SM

With regard to instructors' views on challenges to the use of SM for educational purposes, six themes emerged: 1) addiction; 2) distraction; 3) a waste of time and energy; 4) encouragement of fraud; 5 lack of student access to devices that support SM usage; and 6) Internet connectivity problems.

Addiction

Instructor respondents indicated that SM could promote addiction among users, a problem that affected both instructors and students. Thus, the fear was that if students were allowed to use SM at the university, it would lead to addiction. As indicated in the following narrative, one instructor argued that addiction was so bad that a lot of people were subject to a kind of monophobia in which the sufferer could not bear without his or her mobile phone and being in contact with other people:

> *It is very, very addictive. A lecturer can be addicted to it and so are the students. I think that is what we want to avoid and that is why we want to integrate it into students learning. But I think the fear is that allowing them to use their mobile phones frequently will promote this addiction and that is why some...lecturers don't want to use it. So for me addiction is the first thing…there are some people if their smartphones get missing today it is like the whole world is coming to an end...and that is monophobia (laughs).* ***[IP6]***

Distraction

Another challenge that respondents mentioned was the distractive nature of SM. According to them, the number of people using SM on campus for things other than academic purposes was very high. For instance, a BBA instructor from UEW said:

> *Social media can be very distractive in the sense that some people, especially students, tend to abuse the platform and use it for other things...than actual academic work. There...is a lot of fast...media out there so if you are not directed or stay focused you can be diverted to do other irrelevant things …you can really be distracted.****[IP6]***

> *Social media causes distraction especially with the students. When they have been given assignment to do but this issue on the platform has caught their attention. If they are not careful, their whole attention will be on the issue leaving their assignment… hmmm* ***[IP11]***

Waste of time and energy

Some respondents also saw the use of SM as a waste of time and energy. According to them, some students wasted their time chatting the whole night on SM platforms instead

of studying and this affected their academic work. They emphasised that if it were decided that SM should be integrated into instruction, there was a need to regulate its use:

> *Some of the students don't even read because of social media. Some will sleep, others will chat the whole night and all of that and it affects them… If we want to integrate [social media] into teaching, then we have to look at things and also regulate them. And we have to use social media itself to educate them, to get them to know about the negatives.* ***[IP10]***

Fraud and misinformation

Some respondents were of the view that SM encouraged fraudulent behaviour in the sense that someone could pretend to be a friend and syphon information unbeknownst to the user. For example, one instructor mentioned that users could be misled into believing and using misinformation:

> *Sometimes, there is the risk of users being open to fraud and scam [intended] to deceive users through the use of social media. At certain times, too, the information you access may not be credible and, without verifying such information, it is likely to be misinformed and, as such, [one can] get a lot of wrong information. This is because just as you have good information, you also have bad information out there.* ***[IP5]***

> *Hmmm, there are times that people put up false information and because it is published online people seem to believe… this has been happening* ***[IP8]***

Lack of students' access to devices that support SM usage

One challenge that was raised by instructors had to do with the fact that some students did not have the right devices that supported SM applications. It was therefore quite difficult for instructors to use the platforms in class since not all students would benefit equally. For instance, one instructor from UEW mentioned that:

> *It is a problem to teach using social media platforms when some of your students do not have these supported devices; so it's a challenge.* ***[IP5]***
>
> ***I:*** *How many such students do you have in your class?*
>
> *I have not less than three in each of the levels I teach.* ***[IP5]***
>
> ***I:*** *So, how do you manage with the situation?*
>
> ***R****: Good question; I actually do not make such interactions mandatory and scorable.* ***[IP5]***

Internet Connectivity

Another issue that respondents talked about as being a challenge for the educational use of SM was unreliable Internet connectivity which could make it difficult to access the various SM platforms, as one instructor noted:

> *It is expensive for students to get bundle [software], especially depending on what you are accessing. Accessing videos consumes a lot of data and since there is the need to have access to the Internet and for that matter a fast Internet connection to access very heavy content, so if you don't have access to fast, reliable Internet connectivity, you will be frustrated.* ***[IP9]***
>
> *Without strong connectivity it would be very difficult to integrate SM into teaching and learning so management need to look at providing strong internet facilities on campus* ***[IP5]***

Way forward to challenges by instructors

Instructors also explained that even though SM had challenges to its use in teaching and learning, there was a need to ensure good practice, which, they believed, would enhance its appropriate usage. Some of the issues they touched on included education, institutional involvement, policies to guide SM usage, training for students and instructors, and improving the university's ICT infrastructure by investing in technology.

Provision of education for instructors

Participants indicated that there was a need to educate instructors on the usefulness of SM for educational purpose. This would help them appreciate its usefulness because the current generation of students loved to use SM and the lightning rate at which they learned to use new applications meant that instructors also needed to learn fast if they were to teach their students well. It was believed that learning to know the benefits as well as the challenges of SM would help instructors guide their students well and ensure that they could fully benefit from what the Internet offered:

> *We have to educate ourselves properly as lecturers; I think we should learn. Whether we like it or not, our children are learning very, very well and that is what brings the danger. If you know [what] they know, then you can direct them to use it appropriately. And here is the case, they know we don't know, and we are always condemning it. Like my eight-year-old boy will tell me, "You, papa, you don't know WhatsApp", like you don't know what is going on. So, they want to tell you they know more than you… We have to learn it and know the good and the bad so that we can be at the [in a] better position to direct them on how to use.* ***[IP1]***

> *I think we need to be trained and educated from time to time so that we can be abreast with current trends of technological advancement… so that we can appreciate the use of these tools and also guide our students to use them well… yes our students also need to be educated on the proper use of these tools too in order to maximize its proper use for learning* ***[IP9]***

Institutional involvement

Participants mentioned that there was a need for the institution to spearhead the whole agenda of integrating SM into teaching and learning in HE:

> *The main important thing is for the institution to jump on board the technology... As an institution, this is how we want to do it; this is how we want to change our classroom pedagogy.* ***[IP3]***

> *If the institution does not get involved it will be very difficult to really integrate fully. I think management of HE should be involved in the whole thing* ***[IP6]***

> *Management should initiate the move. If our leader says we should use it, we will all do so whether we like it or not* ***[IP10]***

Institutional policy to guide SM usage for teaching and learning

Another key issue that instructors spoke of was the need for a well-defined policy that would clearly show how SM should be integrated into teaching and learning:

> *We should have institutional policies that say that teachers or instructors should be able to incorporate so and so in their teaching and learning. Students should...have the skills to access these materials or this educational… If there is policy, it makes the work much easier.* ***[IP7]***
>
> ***I:*** *Are there no policies already?*
>
> ***R:*** *The policy available is on ICT infrastructure and not ICT usage for teaching and learning, let alone social media for teaching and learning. In fact, currently there are no policies on the use of social media.* ***[IP3]***
>
> *So, I think social media has come to stay and it must be recognised that it has come to stay, and for that reason, we must implement various measures and mechanisms to make the best out of it… Policies must be well developed.* ***[IP7]***

Training for students and instructors

Equally, instructors indicated that there was the need for training to be organised for both students and instructors so that they could learn ICT competency as they used SM platforms. For instance, one instructor from GTUC mentioned the need for training:

> *The next point I was coming to talk about is training, training across [the] board, training for both students and staff, especially the staff, because we have to begin the push before and then students will...follow. Remember that the teacher is the driver of learning.* ***[IP10]***
>
> *Hmm, you cannot give what you do not have when it comes to lecturers especially. If lecturers do not know how to use SM themselves then they cannot integrate into teaching so I think there should be occasional training for lecturers and even students too* ***[IP1]***

Improvement of internet infrastructure and investment in technology

Participants also touched on the issue of improving the Internet infrastructure to support the use of SM for teaching and learning. They regarded the Internet as the backbone of the ICT infrastructure as the following quotes indicate.

> *The Internet infrastructure to support [social media usage] is very important to consider… You know all of these social media we are talking about in terms of technology in teaching and learning, the main backbone is Internet connectivity.* ***[IP5]***
>
> *So, if your Internet infrastructure is not helping you, you can have your policies, you can do training, but then you will still fall short.* ***[IP3]***
>
> *Higher education institutions will have to invest in technology because you need to have good infrastructure to produce and disseminate. For me, what higher institutions in Ghana need to have is a supersonic Internet connectivity whereby there would not be an instance where a person will be downloading a video on YouTube and it will just be pending… The wireless hotspot must be able to render network to students so that wherever they are, they can just be posting things… Once there is supersonic Internet connectivity, we will all be fine.* ***[IP6]***

Availability of computer laboratories for all students to access

One key issue that participants mentioned was the need for a computer laboratory for students, especially those who did not have access to a device that supported the use of ICT tools, predominantly SM platforms. In view of this computer laboratories should be available to all students all the time to access the Internet for various academic purposes.

> *I have realised that our understanding of the use of computers is only limited to the use of computers for just teaching purposes. And because of that, even the computer labs that have been created are only for teaching. The students only go for lectures in those labs and that is all. But I believe that we should have a whole ICT lab for the purposes of research so that students who don't even come to school with laptops can also go to those places and do their research. Shouldn't those who don't have android phones or digital gadgets do any online research work? No, it's not helpful…if we have the ICT lab they can all go there and do their research whether they have their own personal laptops,*

sophisticated gadgets like the android, or iPhones or not. They should all benefit; it is their right. ***[IP5]***

I think we should equip our computer labs with adequate computers for our students so that those who cannot afford the smart phones can also enjoy using such tools in learning… there should also be maintenance of the computers from time to time. ***[IP7]***

4.6 Summary

The chapter presented results for the study from both quantitative and qualitative approaches based on the four research objectives from the point of view of students and instructors. The key findings are summarised in table 4.37 below.

Table 4.45: Summary of Quantitative and Qualitative Results

Objective 1: What students and instructors use SM for	**Quantitative**	**Qualitative**
	• Students and instructors were aware of the SM platforms • Majority of students indicated WhatsApp as the popular SM platform, followed by YouTube, Instagram, and Facebook. • On the contrary, majority of instructors indicated Google as the most popular, followed by Gmail and WhatsApp	• Students and instructors were aware of SM platforms • Majority of the students indicated WhatsApp as the most popular and used platform followed by YouTube, Facebook, Instagram and Telegram • On the part of the instructors, they similarly indicated WhatsApp as the most popular SM platform, followed by Facebook, YouTube, Twitter, Instgram and MOODLE
	• Majority of students of students used email to discuss academic issues with colleagues, used it to search for course related information and used it to communicate with their instructors • More than of instructors used SM to receive assignments from their students, used it in their teaching, used it for research, used it for conducting tutorials and used it for communication	• Majority indicated that they used SM for information sharing and retrieving, interactive tool, connection tool, communication, collaboration • Similarly, the instructed indicated that they used SM for information sharing, communication, interaction and access to people

		Further probe indicated that students used specific SM platforms such as: • YouTube for tutorials, assignment and learning • WhatsApp for communicating class and assessment schedules, group discussion, clarification of concepts and feedback • Google for email and research • Telegram for sharing big files and assignments Instructors used: • WhatsApp, Facebook, LinkedIn for sharing and retrieving of information • Facebook and WhatsApp for collaborative learning among students • Gmail, WhatsApp, Facebook and Yahoo for communication • ResearchGate and LinkedIn for research • YouTube for tutorials and clarification of concepts
		• Students recounted how they used such platforms as YouTube, predominantly, but also Facebook, WhatsApp, LinkedIn SlideShare and Cora for project work, group presentations, research, announcements and developing tutorials for the practical-based courses when they were given assignment to do. • Instructors described how they used platforms such as YouTube, WhatsApp, Telegram and LinkedIn for activities such as group discussions, one-to-one interactions, referring students for further reading, and for uploading and receiving resources for research.

Objective 2: Factors that SM usage by instructors and students	Findings revealed that: • the gender of students and instructors, the age of both students and instructors, the programme taught by instructors, years of teaching by instructors, and years of digital media usage by both students and instructors had no influence on their usage of SM. Equally, the gender of students and instructors did not have any influence on their usage of SM for learning or teaching. Students' programme of study and instructor's professional rank had influence on SM usage	• What inspired students were the functionality of a platform, ease of access to a platform, how they were inspired by their instructors to use certain platforms, level of control in SM platforms, freeness of SM platforms and the interactivity of a platform. Instructors were influenced to use SM because of its: • functionality, accessibility, ease of communication with other users, access to Internet connectivity, security and privacy, user friendliness, convenience, and personal drive
Objective 3: How SM is integrated into HE pedagogy	Findings revealed that: • majority of students said they used SM to contact or communicate with fellow students for information, engage in group discussions, to contact their instructors for further clarification of concepts • Instructors visited SM to interact and pay attention to individual students, referred students for further reading, for course group discussion, individual student attention and post class announcement.	• The Students revealed that they incorporated SM in assessment activities, various aspects of coursework, augmenting learning in addition to that which instructors taught them in the classroom, conducting research and doing further reading for various purposes, undertaking group discussions with peers and for teaching practice. • The instructors integrated SM in the explanation and emphasis of concepts, the understanding of students' existing knowledge of a concept or topic taught earlier, referring students for further reading, sending relevant materials and information on various content areas and topics to students, and, most importantly, to help students develop the habit of reading and staying focused on their studies. • Probing further, the results revealed that some instructors integrated SM regularly and others sparingly. Those who integrate it regularly said they did so because they were inclined to use SM and that 21st century students encourage them to do so. The other who did not use

	• Majority of instructors said they used SM once a week, whiles other said they did so twice a week, thrice a week, four times and a week.	it regularly said it was because some of the students did not have smart phones. • Observation of screenshots of the various SM platforms that instructors used for various pedagogical activities revealed how they integrated Google Classroom, WhatsApp, Padlet, and Socrative into their teaching
Objective 4: Opportunities and Challenges of SM use by Students and instructors for teaching and learning	Findings from the students revealed that SM: • helped them to satisfy their desire for new knowledge, made it easy for them to search for information relevant to their studies, helped them both formally and informally, assisted them to find instructional content, helped them to engage actively with their studies • Findings from the instructors revealed that SM: • gave them opportunity to find instructional content to teach, bridged distance between them and their students, helped in formal and informal teaching, enabled them to collaborate with other instructors, helped them to give and receive administrative information, helped them to actively engage in teaching with their students and eased the search for relevant information for teaching **Challenges**	Findings from the students revealed that SM: • SM helped them in the dissemination of information, promotion of in-depth understanding of content, promotion of distance learning, fostering of effective learning through the use of the human senses, help students expand their network beyond their immediate environment by meeting other people from different backgrounds and locations, learn outside the scope of their studies and promotion of effective communication. Findings from the students revealed that SM: • Helped them with enhancement of teaching and learning; promotion of research; facilitation of access to education; extension of instructional time; encouragement of distance learning; promotion of lifelong learning, encouragement of increased enrolment; enhancement of collaborative learning; and promotion of professional development. **Challenges**

	Findings from students revealed that: • SM reduced personal contact, gave them little privacy and interfered with their studies. Findings from instructors revealed that SM: • Reduced personal contact, encouraged students to focus on social interaction more than their academic work and that SM gave them little privacy.	Findings from students revealed that SM: • distraction, discouragement of creativity, creation of false alarms, encouragement of student withdrawal; promotion of addiction, the high cost in securing desired bundles of software, and negative effects on health Findings from instructors revealed that SM created: • Addiction, distraction, a waste of time and energy, encouragement of fraud, lack of student access to devices that support SM usage, Internet connectivity problems. After the discussion on the challenges, participants recommended that there should be: Students: • Education on proper use of SM • Improvement of internet infrastructure • Policy guidelines • Institutionalization of Social media Instructors: • Education, • Institutional involvement, • Policies to guide SM usage, • Training for students and instructors, • Improving the university's ICT infrastructure by investing in technology.

The next section discusses the results of the study from the point of view of the students and instructors from UEW and GTUC.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.1 Introduction

This chapter presented discussion of the results of the study. The thesis investigated into the integration of SM into HE pedagogy in Ghana. The objectives of this study were to:

1. Explore what students and instructors use SM for so far as teaching and learning is concerned.
2. Determine the factors that influence students and instructors use of SM for teaching and learning
3. Explore the integration of SM into HE pedagogy
4. Identify the opportunities and challenges that exist in the use of SM by students and instructors.

5.2 What students and instructors use SM for, so far as teaching and learning is concerned

This section focuses on four key findings under the themed question what do HE students and instructors use SM platforms for? These findings address:

- awareness of SM platforms,
- SM platforms that students and instructors use,
- what students and instructors use SM platforms for, and
- specific contexts in which instructors use SM.

Awareness of the concept of SM platforms

It emerged from the findings that both students and instructors from the two institutions were aware of SM platforms. This was evident from the descriptions they gave in their

responses. Dominant among the definitions they gave was that SM platforms are tools that are used to share information and content. Thus, SM platforms were regarded as information and content sharing tools. These included various academic resources such as course schedules, outlines, information on the conduct of quizzes, and instructions. This finding is corroborated by Howard and Parks (2012) definition of SM as:

> (a) the information infrastructure and tools used to produce and distribute content; (b) the content that takes the digital form of personal messages, news, ideas, and cultural products; and (c) the people, organisations, and industries that produce and consume digital content" (p.362).

With regard to SM platforms that respondents knew about, the findings reveal that students and instructors were aware of WhatsApp, YouTube, Facebook, Google, Skype, Twitter, the Blog, Telegram, Instagram, Viber, Tango, LinkedIn, Imo, Snapchat and Pinterest. This confirms awareness of Kitsantas and Dabbagh (2010) and Dabbagh and Reo's (2011) four types of SM platform, which are: 1) experience and resource sharing tools that enable online and social interaction like bookmarking and blogging, and Wiki and microblogging sites such as Delicious, WordPress, PBworks and Twitter; 2) Media sharing tools that ensure social tagging like YouTube and Flickr; 3) Social networking applications that promote socio-semantic networking like Facebook and LinkedIn and; 4) communications tools like e-mail and web-conferencing tools such as Skype. The findings show that a greater number of students and instructors were aware of and used WhatsApp (97%), followed by YouTube (78%) and Facebook (50%), in that order. This suggests that they were more conversant with some platforms than others. This could be as a result of the fact that WhatsApp is more convenient to communicate with and easy to use and also use less data than YouTube.

SM platforms that students and instructors generally use

The Findings show that both students and instructors used various SM platforms, although there were a few differences in terms of the platforms they respectively used. Thus, while the three most popular SM platforms students visited were WhatsApp, Facebook and Instagram, as far as instructors were concerned it was Google (72%) that was the most popular, followed by Gmail (64%) and WhatsApp (63%). These findings suggest that students might use SM largely for communication and sharing information with peers, and instructors use it more for research, and downloading and/or reading content related to their studies. Instructors' preference of platforms implies that they used SM mostly for instructional purposes and research, which were their priorities, even though communication with students about various academic issues, friends and family was also important.

What students and instructors use SM platforms for

It emerged from the findings that students and instructors used SM platforms for various purposes. Some of these included the use of email by students to communicate (73%) about academic issues with their colleagues and instructors, searching for information related to their academic studies, group discussions related to their studies, sending and receiving assignments, and downloading and sharing tutorials with classmates. It is interesting to note that instructors used SM platforms to teach (mean=4.34, SD=.803). For instance, the findings indicate that instructors embedded videos from YouTube into PowerPoint slides to teach various concepts to their students. It is also worth noting that PowerPoint as a technological tool in itself is not an SM platform. Rather, SM platforms such as YouTube and podcasts can be embedded in PowerPoint slides and used to deliver instruction, as revealed by instructors in the findings. This finding accords with Zgheib's

(2014) assertion that even technological tools that are not classified as SM platforms can be integrated with SM tools.

The findings also reveal the specific SM platforms that students and instructors used for academic purposes. As with their instructors, students also indicated that they used YouTube to download video tutorials related to their studies. With regard to sharing information, just as Howard and Parks (2012, p.362) describe SM as: "…the information infrastructure and tools used to produce and distribute content", instructors pointed out that they used WhatsApp, Facebook and Telegram to share information.

It is also apparent that SM was used for personal communication, entertainment, communicating class and assessment schedules with instructors, and for professional development, which confirms, Seaman and Tinti-Kane's (2013) findings. The present study additionally found that students used Google for research. They also used YouTube, Telegram and WhatsApp for clarifying concepts, sharing large datasets, and receiving feedback from their instructors. Such functions are necessary because instructors and students always want to keep in touch and ensure that teaching and learning is a seamless process, even after class. This practice helps them to clarify academic issues. These findings point to the fact that SM has many uses for students and instructors in terms of both academic and social issues.

Specific contexts in which SM is used by students and instructors

SM was used in various contexts by students and instructors respectively. The findings reveal that students used YouTube predominantly, followed by Facebook, WhatsApp and SlideShare for various purposes, such as project work, group presentations, research, giving and receiving notifications, and for developing tutorials. Findings with regard to the instructors were equally revealing and point to such contexts as group discussions, one-

to-one interactions with students, referring students to various WhatsApp platforms for further reading, and for uploading and receiving resources for research. They conducted these functions through the use of platforms such as YouTube, WhatsApp, Telegram and LinkedIn. Another revealing finding was the use of the blog to enhance and develop reading. This finding is corroborated by Melanie's (2010) study which considers blogs useful for instructional purposes through which positive results were achieved.

The findings also reveal what instructors used specific SM platforms for in so far as teaching and learning were concerned. These include the use of WhatsApp, Facebook and LinkedIn for sharing and retrieval of information. It was also revealed that Facebook and WhatsApp were used for collaborative learning among students. Google, WhatsApp, Facebook and Yahoo were used by instructors for communication. Similarly, to their students, instructors used YouTube for tutorials and clarification of concepts.

It can be observed that of all the SM platforms students and instructors were found to use for various educational purposes, WhatsApp, was the most widely employed, followed by YouTube, Facebook and Telegram. This could be because WhatsApp, which is a quite novel SM platform, was preferred by both students and instructors at both institutions due to its flexibility in terms of ease of access as well as ease of use. This confirms Rogers' (2003) finding that how easy or complex the use of any technology is will determine how successful its adoption will be. Thus, if the innovation, in this case WhatsApp, is user-friendly, there is a greater chance of its successful adoption in the delivery of instructional materials (Martin, 2003).

5.3 Factors that influence students and instructors use of SM for teaching and learning

This section discusses the findings on the factors that influenced SM usage by students and instructors under two themes: (1) demographic factors and (2) other factors.

Demographic factors that influence SM usage by students and instructors

The demographic factors applied in this study such as, gender (female [M=3.7; SD=0.48]; male [M=3.66; SD=0.35 for students; (female [M=3.93; SD=0.38; male [M=3.66; SD=0.5) for instructors; age, academic programme, professional ranking of instructors, level of students, and number of years of SM usage were tested to determine level of SM usage. However, the findings revealed that the gender of students and instructors, the age of both students and instructors, the programme taught by instructors, years of teaching by instructors, and years of digital media usage by both students and instructors had no influence on their usage of SM. Equally, the gender of students and instructors did not have any influence on their usage of SM for learning or teaching. These findings are corroborated by the studies of Kim, Kwon and Cho (2011) and Agbatogun (2013), both of which reveal no substantial correlation between gender and SM usage for educational purposes. This conclusion notwithstanding, the present study found that type of programme of study did have an influence on students' educational use of SM.

For instance, it emerged that there was a significant difference [*mean difference=.22, $p<0.05$*] between BSc (STEM) and BBA (non-STEM) students in relation to their use of SM. Conversely, the differences between BEd and BBA, as well as those between BEd and BSc students were not significant. These findings point to the fact that BSc students used SM to a greater extent than BBA students did, and corroborates the findings of Parry

(2010), who notes that the type of programme has a degree of influence on the use of SM in teaching and learning. This could be explained by the fact that most BSc students who participated in the present study were ICT majors who used various technological tools in their learning, and were thus more inclined to use SM than their counterparts engaged in other programmes of study.

The findings also revealed that an instructor's professional rank has an influence on SM usage *(P=0.047<0.05)*. This implies that instructors' professional rank influence them to use SM platforms for teaching. This is corroborated by Agbatogun (2013).

Other factors that influence SM usage by students and instructors

Other than demographic factors that influence SM use by students and instructors, the study's findings reveal other factors, such as relevance or functionality of a given SM platform, communication, easy access to information, interactivity of the platform, level of control users have in accessing platforms, the general indifference to technology of some instructors, and opportunities and challenges as SM is used for teaching and learning.

Students and instructors indicated that their readiness or otherwise to use SM platforms depended fundamentally on the ability of a platform to provide what they needed, that is, to perform the functions they desired. On the issue of functionality as a key factor in the use of SM, both students and instructors believed that platforms needed to perform certain functions, such as helping them to establish facts, learn more about what colleagues and students were thinking, and other things they wanted to use platforms for. This implies that the purpose of SM is to perform particular functions at particular times, and so the capacity of a given platform to help users perform those functions is critical in deciding whether or not to use it for various instructional purposes.

Another factor that emerged was a platform's ability to aid communication. Communication was very important to both students and instructors. In fact, they emphasised that since there was always the need to communicate issues such as instructional schedules and other important announcements among themselves, the feature of an SM platform that enabled the educational community communicate amongst its members was critical in influencing students and instructors to either use the platform or not.

A notable factor that students identified as militating against the use of SM was the general indifference or even negative attitude with regard to ICT amongst some instructors. For instance, some of them were not conversant with the use of common SM platforms. This is corroborated by Mutekwe's (2015) study, which identifies the attitude of educators towards SM in the classroom as one of the strongest predictors of whether or not HE institutions will integrate SM into their instruction. In this regard, it is important to emphasise that if instructors do not know how to use SM platforms, they cannot be expected to either use them in their teaching or encourage their students to use them to learn. Since instructors are the drivers of the learning experience, this implies that if they are not adept in the application of an innovation, in this case SM, its usage in the teaching and learning process is questionable.

Furthermore, information flow was found to be a factor which particularly had to do with sharing and receiving resources like educational files and documents. Thus, students and instructors' willingness to use any given SM platform hinged on its ability to ensure the free flow of all necessary information (Mura, Nuri and Naseeb, 2016). In this regard, it was revealed that students and instructors experienced freedom in accessing SM in the sense that they did not report many restrictions on its usage. Therefore, ease of use as well

as ease of access prompted the use of SM. However, some platforms were found to be more accessible and easily used than others. Thus, the choice of a particular platform was influenced by how easy or difficult it was to access and use. These findings accord with Mura, Nuri and Naseeb (2016), who found that psychological characteristics, information quality, social influence, and system usefulness were leading factors that could motivate students to use SM platforms for educational purposes.

Inspiration to use SM was another factor identified by this study. This had to do with what drove students and instructors to use SM platforms for learning and teaching as well as their own intrinsic drive to use them. The willingness or otherwise of students to use SM platforms was found to be the result of the kind of inspiration they got from their instructors to do so. They regarded their instructors as the drivers of learning and so if they were willing to use SM to teach and also willing to allow their students to use SM platforms to learn, they would be encouraged to do so.

Nevertheless, students were just as much addicted to the social and recreational use of SM, and this compelled them to use it in all aspects of their lives no matter what. This implies that even if their instructors did not encourage or allow them to use SM educationally for whatsoever reason, they would use it anyway because they were hardwired for its use. On the other hand, instructors indicated that apart from the fact they were intrinsically motivated (Parry, 2010) to use SM for their professional development as well as their teaching, the current generation of students or digital natives (Prensky, 2001) were very comfortable with the use of technological tools (Katai, 2015) like SM. Therefore, the instructors were sufficiently influenced to use SM to enhance their teaching and also to make learning interesting for their students.

Finally, it is worth noting that as students and instructors used SM, there became apparent opportunities as well as challenges which were revealed in the findings as critical factors or predictors of SM usage for instructional purposes. According to the findings, the opportunities that students and instructors (students= [$\beta=.42, p<0.01$]; instructors [$\beta=.30, p<0.01$]), saw as manifesting in their use of SM platforms prompted them to use and continue to use the platforms for various instructional activities. Pedagogical activities and opportunities concerning students emerged as the strongest correlation [r=.458, p<0.01], pointing to the fact that, students' pedagogical activities with SM enable them to derive opportunities as they use the various platforms. Thus, as they used SM and derived opportunities from its use, they were influenced positively to use the various platforms and were willing to continue to do so. Conversely, the challenges they confronted as they used these platforms threatened their continued use of SM as a learning tool.

5.4 How SM is integrated into HE pedagogy

The findings on how SM is integrated into HE pedagogy focus on three themes:

- how students integrate SM into their learning,
- students' views on how instructors integrate SM into their teaching, and
- how instructors integrate SM into their teaching.

How students integrate SM into their learning

The findings of the study reveal that students integrated SM platforms into their learning by engaging in various educational activities. One such activity took the form of group discussion. This was found to occur when they were given group assignments which required collaboration on various tasks. A typical SM platform utilised for this purpose was WhatsApp. The group leader who happened to be the class representative created the

group platform and added all the members to it in order to facilitate the free flow of ideas on the assigned task. This occurred both synchronously and asynchronously.

Another finding touches on the fact that students habitually contacted their instructors for further clarification (86 %; mean=4.26, SD=1.055) using SM platforms, especially WhatsApp. They did so at any time they were confused about concepts they either came across while engaged in their own private study or were taught in class. In either case, their instructors would explain difficult concepts to them through an SM platform.

Other notable findings on how students incorporated SM into their learning included the undertaking of assessment activities (76%; mean=3.88, SD=1.140), integration of SM into aspects of the various courses offered at the university, augmented learning outside that which was taught in the classroom, research and further reading, and trainee teaching practice.

For instance, the findings reveal how trainee teachers used SM platforms such as YouTube to download teaching videos to prepare their lessons plans during teaching practice. It emerged that they developed topics related to downloaded videos, used their own voices in voiceovers, and created videos to use as TLMs.

When students felt the time allocated to various courses was inadequate, they extended their learning outside of contact hours to learn on their own using SM. This included downloading materials from Google, for instance, sharing content among themselves. At certain times, they would contact each other for clarification of concepts and also demonstration of how certain practical concepts were supposed to be assimilated. They did all this to reinforce what their instructors had taught them and also to learn new content beyond the scope of the syllabus. In effect, students incorporated SM into their own learning independent of their instructors.

It is very important to reiterate that in integrating SM platforms into learning, certain types of platforms were used by students more than others. One of the most prominent platforms used for group discussion or contacting fellow students and instructors on educational issues was WhatsApp. This was due to the fact that WhatsApp was considered to be very fast and easy to access and use for various pedagogical activities. Students were most keen to use WhatsApp for learning in terms of communicating with peers and instructors due to the platform's flexibility in navigation and easy access to educational resources. Files were very easy to manipulate and so students incorporated the platform to a greater extent into their learning, especially when it had to do with communicating and sharing and receiving files.

Students' views on how instructors integrate SM into their teaching

One key aspect that emerged from the findings was students' views on how their instructors integrated SM into their pedagogical activities. In this regard, the findings reveal that instructors integrated SM into specific courses. These included the use of blogs in teaching Emerging Technology, YouTube in teaching Lesson Planning, and WhatsApp in discussing issues that related to students' courses, especially long essay writing. Furthermore, it was revealed that some instructors integrated SM platforms on a regular basis while others integrated them sparingly. Instructors who integrated SM into their teaching regularly were found to do so because they were familiar with the platforms and thus enjoyed using them.

Instructors who did not integrate SM into their pedagogy were found not to do so as a result of their inability to use the platforms. Another reason was because some students did not have the appropriate technological devices that supported the use of SM. This finding confirms Adu-Manu, Arthur and Yeboah's (2013) study conducted in a Ghanaian

context that found that some students did not even own smartphones although all of them carried mobile phones. According to Adu-Manu, Arthur and Yeboah (2013), this means that some instructors are deterred from using ICT because if they used SM platforms to teach, students who do not have the devices will not benefit from the instructional processes in which such platforms are used.

How instructors integrate social media into their teaching

The findings relating to how instructors integrate SM into their teaching reveal issues similar to that of the students. For instance, instructors were found to undertake pedagogical activities such as group discussions with students, interact with and attend to individual student's needs, and also refer students for further reading. Some specific pedagogical activities that the findings reveal include explaining and emphasising concepts. In this case, instructors scheduled specific times to meet students on SM platforms either in groups or individually to explain difficult concepts which could not be dealt with in class due to lack of time.

It was also revealed that at other times, instructors incorporated SM for the purposes of understanding students' existing knowledge of a concept or topic that they were yet to teach. On such occasions, the instructors would pose various questions to students on the various group platforms. The responses students gave enabled the instructors to ascertain their students' level on Bloom's Taxonomy of learning, for example. This enabled instructors to prepare adequately for the forthcoming instructional sessions.

Another way in which instructors utilised SM was in referring students for further reading. After a contact session, some instructors guided students in further reading by sending them links to websites where they could find information on various topics. These links

prompted them to download PDFs, videos and presentation slides. At other times, instructors sent relevant materials and information on various content areas to platforms for students to read before coming to class. This enabled easy facilitation of discussion of topics during the contact period. All these attempts were made by instructors to incorporate various SM platforms into their instructional delivery to help students learn better and stay focused on their studies.

The findings reveal that some instructors regularly integrated SM platforms into their pedagogical activities. This was because such instructors were always online, and so students could easily gain access to them. This was also how the current generation of students was accustomed to learning and so some instructors ensured that they used SM to promote learning. Furthermore, these instructors were of the view that this current generation of students, who were regarded as digital natives, were addicted to technology. By their nature, they would use ICT devices to access SM whether they were allowed or not. This confirms Piotrowski (2015), who regards SM as "accommodating the neo-millennial tech-friendly learning style". These students' "tech-friendly learning style" meant that it was very important for HE to tap into that space and reassign the use of SM platforms for instructional purposes rather than censoring platforms and preventing students from using them. Thus, it was necessary for instructors to design teaching and learning activities in such a way that students' focus would be redirected towards using SM for relevant instructional purposes instead of using it recreationally. The findings also reveal that instructors used SM platforms for both face-to-face and outside classroom interactions for the teaching of various concepts and topics.

In another twist, the findings reveal that other instructors integrated SM into their pedagogical activities sparingly. This was found to be due to the fact that they realised that

SM was not a formal tool for teaching and, more importantly, they felt that some students did not have the appropriate technological devices that supported the use of SM platforms (Adu-Manu, Arthur and Yeboah, 2013). This belief accorded with the views of students in terms of how they felt some instructors did not use SM to teach them.

5.5 Opportunities and challenges in the use of SM by students and instructors

The findings for this chapter are in two parts. The first part discusses the findings on students and instructors' views on opportunities in the use of SM. This is followed by an examination of challenges to the educational use of SM.

5.5.1 Opportunities in the use of SM by students and instructors

With regard to opportunities in the use of SM by students, the findings that emerged from the study reveal that SM helped them in several ways. First, SM was found to enable students to satisfy their desire for new knowledge, as corroborated by Shaw (2014), who notes that SM technology provides a likely solution to students' voracious thirst for new knowledge. Shaw (2014) goes on to observe that the current 21st century learner yearns for something new all the time, especially when it comes to learning. They are very curious to know more and keep abreast of current trends in all spheres of life. This makes them curious to seek information from various sources. The originators of SM therefore acknowledge the learner as chasing after knowledge rather than knowledge chasing after the learner. As such, SM is able to provide answers to learners easily with just the click of a button.

Another finding from the study is that SM helped students to search for relevant information (80.30%; mean=4.11; SD=1.087) from various sources as they learned both formally and informally. Thus, formally, students learned from structured contexts guided

by their instructors with laid down procedures as they searched for relevant information using SM. Informally, students learned as they searched for information from various SM sources. This confirms Dabbagh and Kitsantas' (2011) suggestion that the learner should be engaged in both formal and informal learning activities to ensure that learning is optimised and made more effective. SM in this regard provides students with the opportunity to engage with learning materials virtually, both formally and informally (78.70%; mean=4.01; SD=1.014). Further ways in which students engaged with SM were in finding and understanding instructional content effectively and receiving administrative communication; indeed, SM allowed them to learn anywhere without the barriers of geographical distance or time constraints.

With regard to the ability of SM to help students search for relevant information and disseminate it easily, it was revealed that SM helped them search for information quickly on their own and also disseminate it easily among themselves as well as to and from their instructors. Such information included lecture schedules and quiz times.

Another finding is that SM offered in-depth understanding of content as students were exposed to various academic resources on various platforms. This finding is corroborated by the studies of Veletsianos, Kimmons and Pasquini (2017) and Douglas (2011), which posit that SM usage enables students and instructors to engage with content, thus allowing them to be active participants in the construction of a learning landscape that is rooted in social interaction, knowledge exchange, and optimum cognitive development with their peers. It can thus be argued that SM provided various sources of information that students could access both inside and outside the classroom to broaden the scope of the content they were exposed to by their instructors.

Bridging geographical distance between and among students and their instructors (mean=3.94, SD=1.158) was also revealed from the findings as an opportunity of SM, as emphasised by Ghosh, Chawla, and Mallot (2012). According to the present study's participants, SM was capable of alleviating the 'lonely' experience associated with being in a distance-learning academic programme. This is due to the fact that SM technologies allow distance learners to create networks among themselves and others. Thus, students did not have to be present physically in a classroom as SM enabled them to learn wherever they were.

Finally, SM was found to enhance effective communication among students and their instructors. According to the findings, this helped to iron out various issues that needed attention instantly and accurately.

The findings from the instructors do not differ greatly from those of the students. It emerged that SM helped instructors find instructional content to teach their students. Thus, instructors were able to plan and execute their lessons using SM. This finding is confirmed by Friedman and Friedman (2013), who indicate that some HE instructors draw on the current popularity of SM technology to project instructional content and bridge the distance between instructors and students. This helped them to teach both formally and informally, collaborate with other instructors concerning their teaching, give and receive administrative communication, enhance teaching and learning, extend instructional time, and search for information relevant to their teaching.

In the case of the promotion of effective teaching and learning, it was revealed that SM made teaching easier and, when used appropriately, enhanced student learning. This confirms Rahman and Rahim's (2016) study, which found that the use of SM positively and significantly correlates with active learning and further affects teaching and learning

positively. This implies that there are great benefits to be derived from SM in teaching if it is used judiciously.

Similarly, to the students' observations, instructors also noted that SM encouraged distance and life-long. Thus, SM enabled instructors to bridge the gap between them and their students, and also promoted life-long learning.

Finally, co-operative learning was identified by instructors as an opportunity of SM usage in teaching. According to the findings, learning is not limited to one individual but a shared activity. This involves both instructor and students, who share ideas collaboratively among themselves. This process therefore helps them to add to existing knowledge.

5.5.2 Challenges to the use of SM by students and instructors

It is important to indicate that just as students and instructors revealed opportunities in the use of SM for teaching and learning, they also indicated some challenges they had encountered in using these platforms. According to the findings, some of these challenges were the fact that SM focused more on social interaction than academic work (45%; mean=3.11; SD=1.31); reduced personal contact (40%; mean=2.98; SD=1.31); interfered with studies; caused distraction; discouraged creativity; was misused to create false alarms; potentially encouraged students to skip lectures; was addictive; had cost implications in securing software for Internet connection; had a negative effect on health; afforded little privacy; could be a waste of time and energy; and was open to fraud and scams.

The issue which formed the crux of the findings had to do with the fact that SM usage could be very disruptive and distractive. This was because platforms were generally

enticing and caused students to be distracted easily in using them for entertainment purposes rather than academic work. This finding is corroborated by Sigalit, Sivia and Michal's (2016) study in Israel, *Factors associated with nursing students' resilience: Communication skills course; use of social media and satisfaction with clinical placement*", which examines 46 community college instructors. Key among the findings of study is that instructors felt SM usage could be disruptive to student learning and that institutional support could be very limited.

From the findings of the present study, it should be noted that both students and instructors indicated that SM focused more on social interaction than academic work. This finding agrees with Mutakwe (2015), which, in turn, is also corroborated by Hew's (2011) review of the literature on the use of Facebook, which notes that students appear more prone to use the platform for interacting socially than for anything that has to do with teaching or learning. This could be the result of the social orientation of such platforms, which is prone to persuade users away from any set purpose in so far as teaching and learning is concerned.

It was also revealed that SM reduced personal contact. This has to do with a reduction of physical interaction among students and between students and instructors, which participants believed to be crucial in the teaching and learning process. This agrees with Riehemann and Juck's (2017) study, which reveals that some disadvantages of SM have to do with the reduction of personal contact, introduction of potential conflicts of interest, and lack of competence with digital media by university academics and students. Riehemann & Juck (2017) found that social media removed control from the authorities, teachers and administrators, as well as other stakeholders in education. However, they conclude that there is a need to strictly filter and measure communication in education.

Another finding in terms of challenges to the educational use of SM is the issue of little or no privacy (32.90%; mean=2.87; SD=1.12). that SM offers. Thus, anything users posted or shared went public, including their profiles, and this was a worry to both instructors and students. The literature also reveals that the issue of privacy has generated a lot of concern amongst researchers (e.g. Van de Bank, 2015; Moran, et al., 2012; Dabbagh and Kitsantas, 2011; Hilton, 2009). In this regard, privacy and integrity of student submissions are critical concerns that are linked with the pervasive adoption of SM for teaching and learning (Moran, et al., 2012). This worrying trend appears to be encapsulated by the 'authority' that SM accords students in having almost total control over their own learning, which is perceived to challenge HE.

It is worth mentioning that there seems to be little or no credible judgment on the knowledge, work, and publication or thoughts that are posted in the public domain, as confirmed by Hilton (2009). It therefore makes it difficult to measure how authentic any piece posted is. In view of this, Neely (2011) cautions the study of the legal implications of educational adaptations of SM. This is equally critical in terms of privacy controls in the academic use of SNSs, as admonished by LeNoue (2012), who emphasises that it is of paramount importance to apply the controls and filters of SNSs to educational delivery.

Another challenge that was revealed in the findings of the present study was instructors and students' concern that some of the latter did not have devices that supported SM applications. According to participants, this therefore made it quite difficult for instructors to use SM platforms in class since not all students would benefit equally. This finding is corroborated by a study on the challenges and opportunities of SNT implementation in Ghanaian universities by Adu-Manu, Arthur and Yeboah (2013), who found that some students did not even own a smartphone although all of them carried mobile phones,

meaning that the use of technology could not be considered to augment traditional teaching.

The challenge of addiction linked to the use of SM was emphasised by both students and instructors. According to the findings, students became addicted to SM and this acted as a hindrance to academic progress when instructors sought to use platforms as educational resources. In effect, SM users could end up wasting their time and energy, and eventually neglect their academic work. It is also interesting to note from the findings that SM tended to arrest the creativity of students. Thus, because it had the capacity to spoon-feed students in their quest for information, they were often tempted to copy readymade papers instead of thinking creatively for answers.

Another challenge from the findings was the creation of false alarms when erroneous information on class schedules and other irrelevant materials was maliciously posted on platforms. According to the findings, this led to fear and anxiety. The financial burden linked to the use of data was evident in the findings. A reliable Internet connection, which was essential for engagement in SM, was sometimes lacking because the campus Wi-Fi was not reliable. This implies that users had to purchase their own Internet access, which was costly, especially when they needed to download YouTube videos that consumed a lot of data. Fraud was found to be a challenge in the educational use of SM. This was due to the fact that some unscrupulous people could pose as legitimate users and syphon off crucial information from others. Users could also be misled into believing and even using erroneous information as it was credible. Students could also be tempted to skip lectures in the sense that when they realised that instructors used SM extensively, they could stay at home and access tutorials and other content remotely.

Way forward

All the above challenges concerning the use of SM for teaching and learning notwithstanding, it appears that students and instructors encouraged its integration into HE pedagogy. In view of this, the findings of the study revealed the strategies that students and instructors came up with to maximise the use of SM. Some of these strategies included organising training sessions for students and instructors on the proper use of SM; the drawing up and implementation of institutional policies, rules and regulations to guide students and instructors in the educational use of SM; improvement of Internet infrastructure and investment in technology; and the availability of computer laboratories for all students to access.

It was emphasised in the findings that for the integration of SM to be successful, HE institutions needed to organise training sessions regularly for students and instructors on the opportunities and challenges that were inherent in the use of SM generally so that they would appreciate and use it. Training was equally important in the area of capacity building in using the tools. According to the findings, this would encourage instructors in particular to value SM usage.

The current generation of students enjoys using SM and the lightning speed at which they learn new applications means that instructors equally need to learn very fast so that they can direct students appropriately. Learning to know the opportunities and challenges will therefore help instructors to guide students so that the students, who are central to all educational goals, can fully benefit from SM usage.

The findings revealed that it is very important for HE institutions to design policies that will govern the use of social media for instruction. This would ensure that users acted appropriately to enable them to have full control and deal effectively with the challenges. It is then that they can realise the full benefit of SM usage.

A key finding of the study is to make computer laboratories available for all students to use. These laboratories should be accessible to students at any time, not only during instructional hours. This would ensure that students who cannot afford their own laptops or other sophisticated devices like smartphones can visit the laboratory for their research, access the various SM platforms, and fully benefit from SM usage. On the issue of improving Internet infrastructure to support the use of SM for teaching and learning, it was revealed that the Internet was the backbone of the ICT infrastructure and so the Internet connection needed to be sufficiently reliable to support the use of technological tools for teaching and learning.

Finally, SM tools might be available, policies designed to guide the use of SM platforms, training and education organised for students and instructors, and technological devices be made available to all students. However, if the backbone (Internet connectivity) is not reliable it will be difficult to ensure the integration of SM into teaching and learning.

5.6 Theoretical implication of findings

As an overarching model for the study, this research drew on Roger's (2003) Diffusion of Innovations Theory, which was augmented with the Technological Pedagogical Content Knowledge (TPACK) Framework (Harris, Mishra and Koehler, 2009). Diffusion of Innovations Theory has been used extensively by researchers in different fields (e.g. Parisot, 1995; McKenzie, 2001; Surendra, 200; Bennett and Bennett, 2003; Martin, 2003; Pennings, 2012; Sahin, 2006; De Benedeto, 2010). In seeking to determine students and

instructors' awareness of SM, this study drew on stage one of Rogers' (2003) five stages of the decision-innovation process, namely, the knowledge individuals have when they are aware of an innovation and have some idea of how it is used. Accordingly, instructors and students' lack of awareness of SM platforms could be a barrier to their usage of such platforms (Sprague, et al., 1999). Conversely understanding of such platforms demonstrates that they would use them.

The findings of the present study confirmed the factor 'knowledge' in the Diffusion of Innovations theory (Rogers, 2003). It was found that students and instructors gave various representations of what they regarded SM to be, as well as the types of SM they were aware of. The findings also corroborated the TPACK Framework (Harris, Mishra and Koehler, 2009), which emphasises the fact that teaching particular content requires an understanding of that content, the appropriate technology to make that content available, the pedagogical approach to be used, and an understanding of the needs of learners (Harris, Mishra and Koehler, 2009). Thus, the findings revealed that instructors were able to integrate SM into various pedagogical activities at specific times and they were able to facilitate instructional delivery.

With regard to the factors that influence SM use by students and instructors, this study further drew on Roger's (2003) five stages of the decision-innovation process that explain how people adopt new ideas. The findings confirmed these attributes, pointing to the functionality of a given SM platform, ease of use in terms of its user friendliness, ease of access by the user', and his or her motivation (both intrinsic and extrinsic) were all factors that influenced students and instructors' use of SM. For instance, respondents revealed that the ability of an SM platforms' flexibility to ensure easy access helped them to perform specific functions. However, platforms that were difficult to access, navigate round, and did not encourage easy communication amongst users discouraged usage. This finding has

a bearing on Rogers (2003) attribute of complexity and implies that if a platform is easy to use, users will use it and if it is not easy to use, users will not use it.

In connection with how SM is integrated into HE pedagogy, this study again drew on the TPACK Framework (Harris, Mishra and Koehler, 2009) in seeking to explain how instructors were able to manage and navigate PCK, that is, how specific content-based materials are taught; Technological Content Knowledge (TCK), namely, selection of appropriate technologies that support specific content-based instructions; TPK, that is, usage of specific technologies for teaching; and TPCK, namely, teaching particular content-based material with the use of appropriate specific technologies that are suitable for the content, as well as matching students' needs and preferences appropriately. It is necessary to reiterate that instructors are the drivers, facilitators and guides of teaching and learning. It is therefore critical to indicate that they play a key role in the success or failure of the adoption of any innovation such as SM for instructional purposes. In this regard, the findings revealed how SM was integrated into pedagogical activities like assessment, aspects of various courses, learning outside classroom, research, teaching practice, course group discussions, attending to individual student needs and referring students for further reading.

The findings of the present study corroborated the TPACK model in the sense that instructors showed how they used SM to deliver instruction at various stages of the teaching and learning process. These activities were carried out before, during and after the normal face-to-face classroom instructional hours to ascertain, for example, students' RPK, confirm concepts in class, and attend to individual student needs. By implication, instructors' knowledge of the curriculum, SM platforms, how to deliver instructions using these platforms, understanding of their learners' needs, and the selection of a particular SM platform appropriate for a specific purpose enabled instructors to appropriately

integrate SM into their instruction. For example, it was found that instructors' use of Blogging to encourage students to develop the habit of reading and writing was valuable to both instructors and students in realising instructional goals.

However, adding to new knowledge the present study moved beyond the TPACK Framework in its focus on instructors as central to engagement with such a complex body of knowledge and showed that students equally integrated SM into their own learning. This was done through group discussions when instructors had given them various assignments. According to the findings they created various SM platform groups and had discussions both synchronously and asynchronously among themselves. They used SM particularly to augment their own learning outside of what their instructors had taught them in class. This implies that since instructional delivery involved both teaching and learning, students could equally incorporate SM into their own learning independent of the instructors as part of the pedagogical integration of SM. This means that students also have a key role to play in the integration of SM into pedagogy.

In terms of opportunities and challenges in the use of SM by students and instructors, the study also drew on Rogers' (2003) five attributes of innovation and the TPACK Framework (Harris, Mishra and Koehler, 2009). It was found that in terms of the opportunities, SM helped students satisfy their quest for new knowledge and search for relevant information, offered in-depth understanding of content, bridged geographical distance, helped instructors find instructional content, helped instructors teach both formally and informally, and enhanced effective communication.

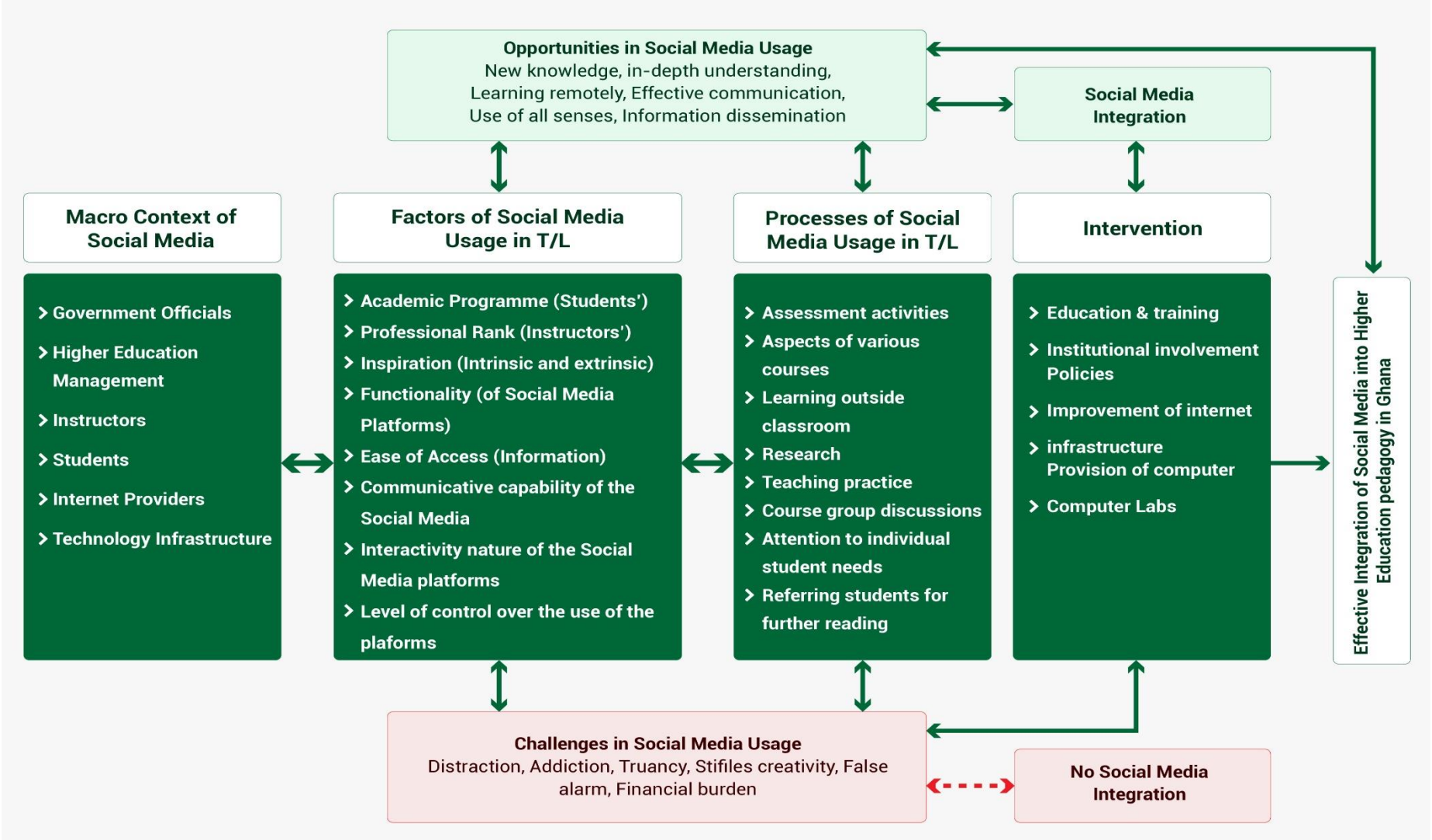
In comparing the findings with the Rogers' (2003) Diffusion of Innovation Theory, it could be argued that the more compatible students and instructors were with the platforms, the less complex the platforms were in terms of their use for teaching and learning. This was also apparent from their awareness of how the platforms were used, the positive results

they derived in trialling the platforms, and, most importantly, the observable results they experienced. Additionally, instructors' ability to plan content, select the most appropriate SM platforms for specific instruction or content, and their understanding of learners' needs, meant that they benefitted from using SM platforms in their teaching, as indicated in the findings.

Beyond what has been discussed above, the challenges of SM revealed that issues such as interference with studies, distraction, creation of false alarms, addiction, cost implications in securing software bundles for Internet connection, and the negative effects on health were also indicated in the findings. This implies that lack of planning and inappropriate use of SM could result in challenges for students and instructors' experiences which would discourage their use of SM, resulting in eventual non-integration of SM for teaching and learning. In dealing with the challenges to ensure effective integration of SM into teaching and learning, the findings indicated interventions like organising education and training, institutionalising SM, providing robust internet infrastructure, designing policies in the use of SM and providing computer labs.

The next section provides a framework from the study to integrate SM into HE pedagogy in Ghana.

Figure 5.1: Theoretical Framework of Integrating SM into HE pedagogy in Ghana



Source: Author's own construct

The macro context in Figure 5.1 refers to government, management of HE institutions, instructors, students, Internet service providers, technology infrastructure and enabling environment. The factors that influence SM usage for teaching and learning the findings are students' academic programmes, instructors' professional rank, students and instructors' intrinsic motivation, inspiration (intrinsic and extrinsic) to use SM, functionality of SM platforms, ease of access to information, communicative capability of platforms, the interactivity of platforms, and the level of control students and instructors had over the use of platforms, were found within the factors that influenced the integration of SM platforms into various pedagogical activities.

Moreover, it was found that there was interaction between and among the elements of the macro context and the various factors that influenced SM usage for teaching and learning. This interaction is represented in Figure 5.1 by the horizontal arrows that join the macro context and SM usage factors. The elements found to influence SM integration led to the creation of SM integration processes in teaching and learning, as shown by the horizontal arrow. These processes involved the pedagogical activities that were revealed from the study such as assessment activities, aspects of various courses, learning outside classroom, research, teaching practice, course group discussions, attending to individual student needs and referring students for further reading. The desired outcome of this process was the realisation of instructional goals.

Other components are the opportunities and challenges – the positive and negative factors – in teaching and learning, which are joined by interacting arrows to the factors of SM usage and the processes of SM. In terms of opportunities, it was revealed that SM enabled students to acquire new knowledge; gain in-depth understanding of content; learn remotely; communicate effectively with each other and instructors; use multiple senses;

and disseminate information effectively. On the other hand, the challenges found to hinder SM integration included student distraction from other important tasks as a result of constant use of SM platforms; addiction to SM; skipping lectures due to quick access to information through SM platforms; stifling of creativity due to the ability of SM to provide ready-made information with just a click of a button; creation of false alarms as a result of students posting false and inaccurate information and, the financial burden of purchasing software bundles for Internet connectivity.

It is important to indicate that as the macro-context interacted with the various factors and certain identified elements, they contributed to or influenced SM integration, which led to the interplay of the processes of SM usage, finally resulting in the integration of SM into HE pedagogy – or not as the case may be. Thus, the integration of SM in HE pedagogy was dependent on the derived opportunities. This is indicated by the interactive arrow linking the two boxes labelled 'Opportunities' and 'SM Integration'. However, another aspect that emerged regarding the integration of SM into HE pedagogy was the no integration of SM. This occurred when students and instructors experienced overwhelming challenges. This process is represented by the interactive red broken arrow linking the two boxes labelled 'Challenges' and 'No Integration of SM'. To be able to manage the challenges identified and ensure that is the effective integration of SM into HE pedagogy therefore, there is the need for the organisation of as education and training for students and instructors, institutional involvement, policies, improvement of Internet infrastructure and the provision of computer labs. This is illustrated in the fourth box labelled intervention.

This study contributes to knowledge in the areas of the integration of SM into the pedagogy of HE in the Ghanaian context, the development of a conceptual framework for studying

SM in teaching and learning in Ghana and the development of a theoretical framework of integrating SM platforms in HE pedagogy in Ghana.

5.7 Summary

The chapter discussed the findings and the theoretical implications of the findings. The findings show that both students and instructors used SM for sharing of information, communication, collaboration, research, downloading and sharing of content, searching for information, for group discussions, for sending and receiving assignments and for assessment activities. Factors that influenced their use of SM included students' academic programme, instructors' professional rank, motivation (intrinsic and extrinsic), flexibility of the SM platform, communicative capability and level of control users had in accessing the platforms. With regards to how students and instructors integrate SM platforms into HE pedagogy, it was indicated that they integrated SM into teaching and learning before, during and after face-to-face instructional sessions. They also indicated the popularly used SM platforms as WhatsApp and assigned a reason of its flexibility and easy access to users as the reason for its popular integration into pedagogical activities.

It is interesting to indicate that some instructors were not willing to use SM in their teaching because they said some of the students did not have access to smart phones and so using SM for their teaching could disadvantage such students. On the opportunities and challenges of SM platforms, the study revealed that SM helped students to satisfy their desire for new knowledge, helped students to learn both formally and informally, helped instructors to teach both formally and informally, understand instructional content effectively, bridges geographical distance, search and disseminate information quickly.

However, the challenges indicated that SM focused more on social interaction than academic work; reduced personal contact; interfered with studies; caused distraction; discouraged creativity; was misused to create false alarms; potentially encouraged students to skip lectures and was addictive. To improve on the challenges both students and instructors recommended that there was the need to be organising training sessions for them on the proper use of SM; the drawing up and implementation of institutional policies, rules and regulations to guide them in the educational use of SM; improvement of Internet infrastructure and investment in technology; and the availability of computer laboratories for all students to access.

The implication of the findings which have corroborated with the elements of the two key theories (Rogers 2003; Harris, Mishra and Koehler, 2009) point to the fact that for an effective integration of SM into HE pedagogy to be a reality, there should be the provision of an enabling environment, a robust internet, institutional involvement, policies and the right technology infrastructure. These will allow users to benefit fully from the opportunities and manage the challenges.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter is in three sections. Section one covers the summary of the study, section two deals with the conclusion of the study and section three hinges on the recommendation of the study.

6.2 Overview of the Study

The study sought to:

- Explore what students and instructors use SM for with regards to teaching and learning
- Determine the factors that influence students and instructors use of SM for teaching and learning
- Explore the integration of SM into HE pedagogy
- Identify the opportunities and challenges that exist in the use of SM by students and instructors

Social Media (SM) is an invaluable technological tool that facilitates education delivery in the 21st century Higher Education (HE) landscape. It caters for learners' individual differences, enriches learning environments, encourages knowledge construction, and permits students to individualise their own learning thus, making them independent learners. It is worth mentioning that SM provides both instructors and students with a number of opportunities that enable them to easily adapt teaching and learning to meet their individual needs. However, its use in Ghanaian HE has not been prioritised due to its informal nature. In spite of the fact that several studies (e.g. Bennett, Bishop, Dalgarno,

Waycott and Kennedy, 2012; Huang and Huang, 2011; Sim and Hew, 2010) have examined the use of SM for delivering instruction in HE, such research focused on other contexts. Thus, what is evidently missing in the literature is research on how SM is integrated into HE pedagogy by students and instructors in the Ghanaian educational landscape. Summary of the findings, theoretical implications of the findings, policy recommendation and recommendation for future research are presented in this chapter.

Theoretically, this study has contributed to the literature by providing a logical exposition of SM integration into HE pedagogy in Ghana from the perspectives of both students and instructors. The study also advances research on SM integration into Ghanaian HE instructional delivery. It does so by illustrating that in order for the integration of SM into HE pedagogy in Ghana to be fully understood, it is necessary to adopt an approach that captures the deeper dimensions and perspectives of both students and instructors.

A concurrent mixed methods design was thus adopted using both quantitative and qualitative approaches to answer the research questions in their entirety. Thus, a survey was conducted for both students and instructors, semi-structured, one-to-one interviews were implemented for instructors, focus group discussions were conducted for students, and various SM platforms that were used by instructors for teaching were also observed. The study draws on Rogers' (2003) Diffusion of Innovations Theory and Harris, Mishra and Koehler's (2009) Technological Pedagogical Content Knowledge (TPACK) Framework to explain various concepts in relation to SM integration into HE and the findings of the research.

To fill the gap in the literature, the study explored what students and instructors used SM for, determined the factors that influenced instructors and students' use of SM for teaching

and learning respectively, explored the integration of SM into HE pedagogy in Ghana and identified opportunities and challenges in the use of SM by students and instructors.

6.3 Summary of the Empirical Findings

6.3.1 What Students and Instructors Use SM for

This study revealed that students and instructors used SM for learning and teaching respectively. This was evident in their representations of SM as well as the types of SM platforms that they were aware of included WhatsApp, YouTube, Facebook, Google, Skype, Twitter, Blog, Telegram, Instagram, Socrative, Padlet and MOODLE. Students and instructors regarded SM as basically a tool that was used to share information and content, communicate, and discuss academic issues. On the part of the students it was revealed that they used SM to communicate academic issues with fellows and instructors, search for information related to their academic work, conduct group discussions related to their studies, send and receive assignments, and download and share tutorials with each other. For their part, instructors used SM platforms to teach various courses and also to post announcements and alerts.

6.3.2 Factors that Influence SM Usage by Students and Instructors

The findings identified two main groups of factors that influenced students and instructors in their use of SM: demographic factors and other factors. The findings revealed that the gender of both students and instructors; age of both students and instructors; programme taught by instructors; years of teaching by instructors; and years of using digital devices (e.g. smartphones, laptops and/or tablets) by both students and instructors had no positive correlation with their usage of SM. This finding is in accordance with the conclusions of previous studies (e.g. Kim, Kwon and Cho, 2011; Agbatogun, 2013). However, it emerged

that students' programme of study and instructors' professional ranking did influence their usage of SM for learning and teaching respectively. This finding is also corroborated by the conclusions of previous studies (e.g. Parry, 2010; Agbatogun, 2013).

The present study further revealed other salient factors such as relevance or functionality of SM platform; ease of access to information sought (Mura, et al., 2016); interactive nature of the platform; level of control in using social media platforms; general indifferent behaviour of some instructors (Mutekwe, 2015).

6.3.3 How SM is Integrated into HE Pedagogy

The findings revealed that students integrated SM into group discussions when they were given assignments that required collaboration. In this case, they mostly used the WhatsApp platform and initiated discussions on assigned tasks both synchronously and asynchronously. It was also found that students incorporated SM into their learning through performing assessment activities; integrating SM into aspects of various courses ; conducting research and embarking on further reading to augment what they had learned in the classroom; and using SM in teaching practice as trainee teachers.

The findings also showed how instructors integrated SM into their pedagogical activities. Some of these activities included course group discussions with students, interacting with students, attending to individual student needs, and referring students for further reading. For instance, it was revealed that instructors used SM to explain and emphasise concepts, mostly after contact hours. They scheduled specific times and met students on SM platforms, especially WhatsApp. This was done either in groups or individually to explain difficult concepts which could not be exhausted comprehensively due to lack of time during face-to-face classroom instructional period. Some of instructors integrated SM on

a regular basis because they were invariably online and could easily be accessed by students. Instructors also made themselves available on digital forums because the current generation of students, who are regarded as digital natives with a tech-friendly learning style, are easily accommodated by SM. This is consistent with literature review (see, for example, Piotrowski, 2015).

6.3.4 Opportunities and Challenges in the Use of SM

The findings revealed opportunities and challenges that arose as instructors and students used SM for teaching and learning. From the point of view of the students, SM helped them to satisfy their quest for new knowledge as they were exposed to new ideas almost all the time on SM. It helped them search for relevant information from various sources both formally and informally. SM also offered in-depth understanding of content because they were exposed to a lot of academic resources on the various platforms. It was further revealed that SM bridged the geographical distance between and among students and their instructors. Finally, it was found to enhance effective communication among students and their instructors, which enabled them to easily iron out issues and concerns that needed urgent attention.

From the point of view of instructors, it was revealed that they were able to access a large range of educational materials, which made planning and teaching their lessons less arduous. Other opportunities that emerged from the findings so far as instructors were concerned included facilitating the search for information relevant to their teaching, helping them to teach both formally and informally, facilitating collaboration with other instructors, expediting the dispatch and receipt of administrative communication, and promoting the extension of instructional time. These findings were corroborated by the literature (see, e.g. Veletsianos, Kimmons and Pasquini, 2017; Sigalit, Sivia and Michal,

2016; Shaw, 2014; Friedman and Friedman, 2013; Ghosh, Chawla and Mallot, 2012; Dabbagh and Kitsantas, 2011).

The findings also revealed some challenges that arose as students and instructors used SM for teaching and learning. These included the fact that SM focused more on social interaction than academic work and reduced physical contact. Because users could communicate easily with each other virtually without leaving the comfort of their homes or offices, they felt that physical, personal contact with classmates or colleagues was reduced. It also emerged that SM caused distraction; discouraged creativity; created false alarms; encouraged students to skip lectures; was addictive; was costly in terms of securing software bundles and obtaining data allowances for Internet connection; had a negative effect on health; afforded users little privacy; was thought to be a waste of time and energy; and encouraged fraudulent behaviour and the perpetration of scams. These findings were also confirmed by the literature (see, e.g. Mutakwe, 2015; Hew, 2011).

6.4 Conclusion

This study showed that SM plays a critical role in the delivery of higher education instruction in the 21st century since it caters for the needs of the learner. The thesis investigated into integrating social media platforms into higher education pedagogy.

The study concluded that students and instructors were aware of social media platforms, and, used such platforms as WhatsApp, YouTube, Facebook, Google, Instagram, Socrative, Padlet, and MOODLE. They used these platforms for group discussion, information sharing, and communication. This indicates that since students and instructors have indicated their knowledge of SM platforms and have also indicated that they use them, their (SM) role in the teaching and process should be underestimated. It is important

that studies should be conducted to focus on the experiences of instructors and students' SM use and how it improves on teaching and learning. Additionally, this study showed that the factors that influenced SM use by students and instructors for learning and teaching respectively, were determined as academic programme, inspiration (intrinsically and extrinsically), instructors' professional rank, knowledge of SM, number of years of teaching, motivation, and access to Internet connection. These findings showed that for students and instructors to decide to use SM platforms for learning and teaching there should be sufficient positive factors to convince them to do so. This implies that higher education will have to motivate instructors to deepen their usage of SM for teaching. There is the need to improve of infrastructural resources that will make both students and instructors want to use SM for teaching and learning.

Again, the study concluded that SM platforms were integrated into HE pedagogy with the use of such platforms as WhatsApp, Google Classroom, YouTube, Padlet and Socrative. Such integration occurred before, during and after contact hours, and the pedagogical activities they used SM platforms for, involved instances in which instructors wished to check students' Relevant Previous Knowledge (RPK), and when students wanted instructors to clarify difficult concepts that they had been unable to understand in class. This points to the fact that teaching and learning may be a continuous process, and instructors and students do not necessarily have to wait until they can meet face-to-face before teaching and learning can take place. It is important therefore, for the HE landscape to adopt strategies that will make the integration of SM into the pedagogy effective instructors' knowledge of the content, the knowledge of the right technology to use for specific content areas, in consonance with the needs of the learner is key. This will ensure that appropriate technologies such as SM will be used in the right approach and in a timely

manner. Students will then be encouraged to learn more, and instructors will also be encouraged to guide students to learn in a more convenient manner.

Further, the opportunities and challenges of SM were manifested as students and instructors used SM for learning and teaching. The opportunities included promotion of distance and lifelong learning, enhancement of effective communication, the learning of new knowledge, and provision of in-depth understanding. Conversely, the challenges involved encouragement of social interaction more than academic study/teaching, stifling of creativity, encouragement of students to skip lectures, distraction, addiction, and the absence of official policy on usage. From the findings of this study so far as the opportunities and challenges of using SM to teach and learn is concerned, there is the need to pay attention particularly on the challenges so as to minimise them for an effective integration of the platforms into the pedagogy of HE institutions in Ghana. It is anticipated that this research can contribute to appropriate SM integration into HE pedagogy in Ghana.

6.5 Recommendations

6.5.1 Policy recommendations

Based on the findings of the study this thesis makes the following policy recommendations in so far as the integration of SM into HE pedagogy in Ghana is concerned:

On the use of social media by students and instructors, the study recommends that:

- There is a need for a paradigm shift in instructors and students' adoption of SM in teaching and learning. Thus, there is the need to move away from the traditional talk and chalk lecture method of teaching to a more student centred approach with novelty. A new approach to teaching that takes care of the use of a new diversity of technology especially SM.

- Attempts by students and instructors to integrate SM into teaching and learning according to the findings of this study were implemented informally without any external imperative. There is therefore the need for the National Council for Tertiary Education (NCTE) and Ghana Education Service (GES) to implement a centralised policy directive that will formalise the integration of SM into the pedagogy of all HE institutions in Ghana.

On the issue of the factors that influence social media usage, the study recommends that factors such as motivation for instructors is very critical therefore:

- In advocating for the use of SM in teaching and learning, it is most necessary for HE authorities to come up with motivational packages that would be tied to the promotion of instructors. For instance, a number of credits could be assigned to the inspirational delivery of instruction using SM. This could be ascertained by checking the number of hours instructors teach and interact with students using SM. It is anticipated that such motivational packages would encourage instructors, especially those who are initially apathetic towards the use of SM, to be more open to this innovative tool.

For the integration of social media into pedagogy to be effective the study recommends that:

- There is also a need for HE institutions to organise regular training workshops to enhance knowledge of instructors and students on the relevance of Social Media and build capacity for the use of SM for teaching and learning.

Concerning the opportunities and challenges in using social media for effective teaching and learning, the thesis recommends that:

- One critical element that facilitates the desired functioning of SM technology is a reliable Internet connection, the foundation without which SM cannot thrive. There is therefore the need for institutions to invest in and improve on both their broadband and computer hardware infrastructure if SM integration into pedagogical activities is to be fully realised.

6.6 Recommendations for future studies

Based on the findings of this study, the following recommendations are made for future studies:

First, the study found that even the social media itself presented many potential opportunities for teaching and learning. However, there is no clear-cut formalisation of its use in HE in Ghana, because of lack of policies. Based on this finding, there is a need for future studies to explore the policy implications of SM integration into Ghanaian HE pedagogy. This will help the various stakeholders appreciate all the dimensions of SM usage in HE.

Second, the study examined how both students and instructors integrated SM into pedagogy. Many issues arose such as which SM platforms were used and what they were used for, what motivated instructors and students to use SM for teaching and learning, how they integrated SM into pedagogical activities, and the opportunities and challenges in doing so. It must be acknowledged that if SM is to be institutionalised in HE, management of the institutions will have to endorse it. It is in the light of this observation that I recommend future research on the perspectives of management of higher education institutions in Ghana, on the integration of SM in Ghana. Thus, a clearer picture will emerge of how effective integration is to be implemented.

Third, since students are central to all educational delivery, there should be future research on the impact of SM on student learning. This will help stakeholders to design and implement appropriate strategies for the most effective use of SM in teaching and learning. Finally, I recommend future study on usage of social media in pre-tertiary institutions where the students are more tech savvy than those in the tertiary institutions currently. It is very important to "catch them young" because this is the generation who will continuously be imparted by emerging technologies of the 4th Industrial Revolution, which is moving mechanization to new heights, clouding the physical, digital, and biological spheres with the use of technologies to perform activities that were hitherto performed by humans. This revolution is intended to continuously produce new information and generate new knowledge. Billions of people will be limitlessly connected by mobile devices, equipped with an extraordinary processing power, storage capacity, and access to knowledge.

REFERENCES

Abdul Rahman, N. S., Othman, M. S., & Al-Rahmi, W. (2016). Exploring the use of social media tools among students for teaching and learning purpose. *Journal of Theoretical and Applied Information Technology, 91* (1)49-60. ISSN 1992-8645

Agbatogun, A. (2013). Interactive digital technologies' use in Southwest Nigerian universities. *Educational Technology Research & Development.*

Agichtein, E., Castillo, C., Donato, D., Gionis, A., & Mishne, G. (2008). Finding high quality content in social media. Proceedings of the International Conference on Web Search and Web Data Mining, New York, (Retrieved January 6, 2012 from http://www.mathcs.emory.edu/~eugene/papers/wsdm2008quality.pdf).

Ahmadi, Z. (2011). Technology-enhanced project-based learning in a large undergraduate anthropology lecture course.

Ala-Mutka, K. (2010). Learning in Online Networks and Communities. *JRC Scientific and Technical Report*, http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=3059.

Ally, M. (2009). Mobile Learning: Transforming and Delivery of Education and Training. *Canada: AU Press.*

Alsuraihi, A. K., Almaqati, A. S., Abughanim, S. A., & Jastaniah N. A. (2017). Use of social media in education among medical students in Saudi Arabia. https://www.researchgate.net/publication/311215806.

Amory, A. (2010). Education technology and hidden ideological contradictions. *Educational Technology & Society, 13* (1), 69-79.

Aparici, R. (2010). Connected in cyberspace. Madrid: United.

Apeanti, W. O., & Danso, E. D. (2013). Students' Use of Social Media in Higher Education in Ghana. *Innovative Journal, 3*(1), 3-9.

Arasli, H., Ekiz, E.H. & Katircioglu, S.T. (2008), "Gearing service quality into public and private hospitals in small islands", *International Journal of Health Care Quality Assurance,* Vol. 21 No. 1, pp. 8-23.

Arumugasamy, V. & Karthikeyan, P. (2016). Social Media in the Professional Development of B-School Faculty. *International Journal of Innovative Research in Management Studies*,*1*, 62-71.

Arthur, J. K., Adu-Manu, K. S., & Yeboah, C. (2013). A conceptual framework for the Adoption of Social Network Technologies (SNTs) in Teaching – case of Ghana. *International Journal of Computer Science Issues, 10*(5), 1694-0784

Aspey, S. (2010). Sociable Professors. Retrieved from http://www.prweb.com/releases/2010/05/prweb3960844.htm

Aviles, M., & Eastman, J.K. (2012). Utilizing technology effectively to improve millennials' educational performance. *Journal of International Education in Business, 5*(2), 96-113.

Ayers, M. P. (2011). Toward authentic audiences: Blogging in a high school English classroom. Retrieved from http://ir.uiowa.edu/etd/2669.

Bae, E., Prasad, P. W. C., Alsadoon, A., & Bajaj, K. (2016). Framework to improve delivery methods in higher education through online learning. *IEEE 7th International Conference on Engineering Education*, ICEED 2015 (pp. 130-134).

Bailey, J. M., Vasey, P. L., Diamond, L. M., & Breedlove, S. M. (2016). Psychological Science in the Public Interest, 17(2), 37-44. doi:10.1177/1529100616637618

Barnes, N. G., & Jacobsen, S.L. (2012). Fish where the fish are: Higher-ed embraces new communications tools to recruit the wired generation. *Journal of Higher Education:Theory & Practice, 12*, 108-118.

Basri, W., Alandejani, J., & Almadani, F. (2018). ICT Adoption Impact on Students' Academic Performance: Evidence from Saudi Universities. *Education Research International*, 2018, 19. doi:10.1155/2018/1240197.

Bennett, J., & Bennett, L. (2003). A review of factors that influence the diffusion of innovation when structuring a faculty training program. *Internet and Higher Education, 6*, 53-63.

Bennett, S., Maton, K., & Kervin, L. (2008). The Digital Natives Debate: A Critical Review of the Evidence. *British Journal of Educational Technology*, 39, 775-786. DOI: http://dx.doi.org/10.1111/ -j.1467-8535.2007.00793.x

Bennett, S., Bishop, A., Dalgarno, B., Waycott, J., & Kennedy, G. (2012). Implementing Web 2.0 technologies in higher education: A collective case study. *Computers & Education, 59*(2), 524-534.

Bernoff, J. (2008). *Groundswell: Winning in a World Transformed by Social Technologies.* Harvard Business Press: Boston.

Bernstein, B. (1990). *The structuring of pedagogic discourse.* London. Routledge

Bingimlas, K. A. (2009). Barriers to the Successful Integration of ICT in Teaching and Learning Environments: A Review of the Literature. *Eurasia Journal of Mathematics, Science and Technology Education*, *5*(3), 235-245. doi:10.12973/ejmste/75275.

Blankenship, M. (2011). How social media can and should impact higher education. *Education Digest: Essential Readings Condensed for Quick Review*, *76*(7), 39–42

Bora, U., & Ahmed, M., (2013). 'E-Learning using cloud computing'. *International Journal of Science and Modern Engineering*, *1*(2), 9–13.

Bourne, L. (2006). Project relationships and the stakeholder circle TM. A presented at Project Management Institute Research Conference, Centre Mont-Montreal, Canada

Bowers, J. (2012). *Technology management in educational institutions*. New York: Santa Barbra.

Bradley, T. L. (2011). Perceptions of in-service teachers on their interactions and behaviors on Facebook: A phenomenological study.

Brown, T. (2005). Towards a model for m-learning in Africa. *International Journal on E-Learning*, *4*(3), 299–315

Bryman, A. (1992). 'Quantitative and Qualitative Research: Further Reflections on their Integration', in J. Brannen (ed.), *Mixing Methods: Qualitative and Quantitative Research.* Aldershot: Avebury.

Buffington, M. (2010). Podcasting possibilities for art education. *Art Education*, 63(1), 11-16

Buono, L. L. (2011).Thinking like twenty-first century learners: An exploration of Blog use in a skills-based counselor education course.

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.

Casey, G., & Evans, T. (2011). Designing for learning: Online social networks as a classroom environment. *The International Review of Research in Open and Distance Learning*, *12* (7).

Casmar, S. P. (2001). The adoption of computer technology by faculty in a college of education: an analysis of administrative planning issues (Doctoral dissertation, Washington State University, 2001*). ProQuest Digital Dissertations*. (UMI No. AAT 3025011).

Chang, H. C. (2010). A new perspective on twitter hashtag use: diffusion of innovation theory. *Proceedings of the American Society for Information Science and Technology*, *47*(1), 1-4.

Chawinga, W., & Zozie, P., (2016), 'Increasing access to higher education through open and distance learning: Empirical findings from Mzuzu University', *The*

International Review of Research in Open and Distributed Learning 17(4)5. https://doi.org/10.19173/irrodl.v17i4.2409

Chen, P. D., Lambert, A.D., & Guidry, K.R. (2010). Engaging online learners: The impact of Web-based learning technology on college student engagement. *Computers & Education, 54,* 1222-1232.

Claire, B. (2010). Developing-a-social-media-strategy-for-your-classroom. http://gettingsmart.com/2011/12/ /. Accessed on 12 November 2014.

Clark, W., Logan, K., Luckin, R., Mee, A., & Oliver, M. (2009). Beyond Web 2.0: Mapping the technology landscapes of young learners. *Journal of Computer Assisted Learning, 25*(1), 56–69. doi:10.1111/j.1365-2729.2008.00305.x

Cohen, A. (2011). Higher education students' perspectives of the relevance of the online social networking site Facebook to education.

Colby, R. S., & Colby, R. (2008). A Pedagogy of Play: Integrating Computer Games into the Writing Classroom. *Computers and Composition* 25, 300-312.

Collin, P., Richardson, I., & Third, A. (2011). The benefits of social networking services. *Cooperative Research Centre for Young People, Technology and Wellbeing*, Melbourne, VIC.

Collins, K. M. T., Onwuegbuzie, A. J., & Jiao, Q. G. (2006). Prevalence of mixed methods sampling designs in social science research and beyond. Paper presented at the meeting of the *American Educational Research Association*, San Francisco

Collis, B., & Moonen, J. (2008). Web 2.0 tools and processes in higher education: Quality perspectives. *Educational Media International*, *45*(2), 93-106.

Constantinides, E., Romero, C. L., & Boria, M. A. G. (2009). Social media: a new frontier for retailers. *European Retail Research* (pp. 1-28).

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches (2nd ed.).* Thousand Oaks, CA: Sage

Creswell, J. W. (2007). Qualitative Inquiry and Research Design (2nded.). Thousand Oaks: Sage.

Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative and Mixed Method Approaches (3rd ed.).* Los Angeles: SAGE Publications.

Creswell, J., & Plano Clark, V. L. (2011). Conducting and Designing Mixed Methods Research (2nd ed). Thousand Oaks, CA: Sage.

Dabbagh, N., & Reo, R. (2011). Back to the future: Tracing the roots and learning affordances of social software. In M.J.W. Lee and C. McLoughlin (eds.), Web 2.0-based e-Learning: *Applying Social Informatics for Tertiary Teaching. Hershey*, Pa.: IGI Global, 2011

Dabbagh, N., & Kitsantas, A. (2011). Personal Learning Environments, Social Media and Self-regulated Learning: A Natural Formula for Connecting Formal and Informal Learning. *Internet and Higher Education*, doi: 10.1016/j.iheduc.2011.06.002.

Dahlstrom, E., Brooks, C. D., Grajek, S., & Reeves, J. (2015). ECAR study of undergraduate students and information technology, 2015. *EDUCAUSE Center for Applied Research*, Retrieved from https://net.educause.edu/ir/library/pdf/ss14/ERS1406.pdf.

Davis, C. H. F. III, Deil-Amen, R., Rios-Aguilar, C., & Gonz´alez Canch´e, M. S. (2014). Social media, higher education, and community colleges: A research synthesis and implications for the study of two-year institutions. *Community College Journal of Research and Practice, 39*(5), 409–422.doi:10.1080/10668926.2013.828665.

DeSchryver, M., Mishra, P., Koehleer, M., & Francis, A. (2009). Moodle vs. Facebook: Does using Facebook for discussions in an online course enhance perceived social presence and student interaction? In I. Gibson et al. (Eds.), *Proceedings of Society Dron, J.* (2007a).

Di Benedetto, C. A. (2010). Diffusion of innovation. *Encyclopedia of Technology and Innovation Management*, 113.

Doering, A. H., Veletsianos, G., Scharber, C., & Miller, C. D. (2009). Using the technological, pedagogical, and content knowledge framework to design online learning environments and professional development. *Journal of Educational Computing Research*, 41(3), 319-346. https://doi.org/10.2190/EC.41.3.d

Donne, V., & Lin, F. (2013). Special education teacher induction: The wiki way. *The Clearing House*, 86(2) 43–47. doi: 10.1080/00098655.2012.735279

Dubrovsky, D. (2011).Human Nature, the anthropological crises and global future. *Journal of Social Sciences*, 13(1):201-208.

Duggan, M., Ellison, N. B., Lampe, C., Lenhart, A., & Madden, M. (2015, January 9). Demographics of key social networking platforms. Pew Research Center. Retrieved from http://www.pewinternet.org/2015/01/09/social-media-update-2014/.

Dunlap, J. C., & Lowenthal, P. R. (2011). Learning, Unlearning, and Relearning: Using Web 2.0 Technologies to Support the Development of Lifelong Learning Skills. In G. D. Magoulas (Ed.), E Infrastructures and Technologies for Lifelong Learning: Next Generation Environments (pp. 46-52). Hershey, PA: IGI Global

Dzvapatsva, G. P., Mitrovic, Z., & Dietrich, A. D. (2014). Use of social media platforms for improving academic performance at Further Education and Training Colleges. *South African Journal of Information Management*, 16(1).

Effing, R., van Hillegersberg, J., & Huibers, T. W. C. (2011). Social Media and Political Participation: Are Facebook, Twitter and YouTube Democratizing Our Political Systems? In Electronic Participation. Third IFIP WG 8.5 International Conference, e-Part 2011 pp. 25-35. Lecture Notes in Computer Science; Vol. 6847. London: Springer. https://doi.org/10.1007/978-3-642-23333-3_3

Engelbrecht, E. (2003). A look at e-learning models: investigating their value for developing an e-learning strategy.*Progressio*, *25* (2), 38-47.

Everson, M., Gundlach, E., & Miller, J. (2013). Social media and the introductory statistics course. *Computers in Human Behavior*, *29*, 69-81.

Frazier, S. D. (2013). An analysis of the current use and intentions to use mobile learning strategies among full-time community college faculty.

Freidman, L. W., & Friedman, H. H. (2013). Using social media technologies to enhance online learning. *Journal of Educators Online, 10 (1),12-19*

Friesen, N., & Lowe, S. (2011). The questionable promise of social media for education: Connective learning and the commercial imperative. *Journal of Computer Assisted Learning*, *28*(3), 183-194.

Gambo, S. & Apuke O.D. (2017). Benefits of Accessing Health Information on Social Media among Female Students: A Study in a Nigerian Public University. *Global Journals Inc.* (USA)

Geck, C. (2007). The Generation Z Connection: Teaching Information Literacy to the Newest Net Generation. Toward a 21st Century. *School Library Media Program*, 235. (http://goo.gl/1 tur7F) (01-12-2014).

George, D., & Mallery, M. (2010). *SPSS for Windows Step by Step: A Simple Guide and Reference, 17.0 update* (10a ed.) Boston: Pearson.

Ghosh, K., Chawla, S., & Mallot, K. (2012). Use of Social Media by U.S. Colleges: Potential and Pitfalls. *Journal of Higher Education Theory and Practice*, *12*.

Gibson, J. J. (1977). The theory of affordances. In R. Shaw & J. Bransford (Eds.), *Perceiving, acting, and knowing. Toward an ecological psychology (pp.* 67-82). Hillsdale, NJ: Erlbaum.

Gingerich, A.C., & Lineweaver, T. T. (2014). OMG! Texting in class=U fail: Empirical evidence that text messaging during class disrupts comprehension. *Teaching of Psychology*, 41(1), 44-51

Gordon, N. (2014). Flexible Pedagogies: technology-enhanced learning. *Higher EducationAcademy*.https://www.heacademy.ac.uk/sites/default/files/resources/tel_report_0.pdf

Goudreau, J. (2010). What men and women are doing on Facebook. Forbes.com Retrieved from http://www.forbes.com/2010/04/26/popular-social-networking-sites-forbes-woman-time-facebook-twitter.html.

Gray, K., Annabell, L., & Kennedy, G. (2010). Medical students' use of Facebook to support learning: Insights from four case studies. *Medical Teacher, 32*(12), 971–976. http://doi.org/10.3109/0142159X.2010.497826.

Greenberg, S. E. (2013). Impact of social media as an instructional component on content knowledge, attitudes, and public engagement related to global climate change.

Greeno, J. G. (1994). Gibson's affordances. *Psychological Review, 101*(2), 336-342. doi:10.1037//0033-295X.101.2.336

Grossman, P. L., & Richert, A.E. (1988). Unacknowledged knowledge growth: A re-examination of the effects of teacher education. *Teaching and Teacher Education, 4*(5).

Guerriero,S (2017). Pedagogical knowledge and the changing nature of the teaching profession. *Paris OECD Publishing.*

Hamidi, F., Meshkat, M., Rezaee, M., & Jafari, M. (2011).Information technology in education. *Procedia Computer Science*,3, 369-373.

Harris, J. B., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge: Curriculum-based technology integration reframed. *Journal of Research on Technology in Education*, 41(4), 393–416. 393-416. https://doi.org/10.1080/15391523.2009.10782536

Hart, J. (2013). Top 100 tools for learning: Facebook. Retrieved from http://c4lpt.co.uk/top100tools/facebook/ (accessed 13/07/2014).

Hartson, R. (2003). Cognitive, physical, sensory, and functional affordances in interaction design. *Behaviour & Information Technology*, 22, 315–338. doi:10.1080/01449290310001592587

Hemmi, A., Bayne, S., & Land, R. (2009). The appropriation and repurposing of social technologies in higher education. *Journal of Computer Assisted Learning*, 25(1), 19-30.

Henning, E., van Resburg & Smit,B (2004) Fining Your Way in Qualitative Research, *Pretoria, Van, Schaik Publishers*.

Hew, K. F. (2011). Students' and teachers' use of Facebook. Computers in Human Behavior, 27(2), 662–676.doi:10.1016/j.chb.2010.11.020

Hilton, J. (2009). Improving the secure management of personal data: Privacy on-line IS important, but it's not easy. *Information Security Technical Report, 14*(3), 124-130. doi:10.1016/j.istr.2009.10.005

Hoffman, T. (2003). Preparing Generation Z. Computerworld, 37 (34), 41. (http://goo.gl/w6jIt9) (05-10-2014).

Hood, D., & Yoo, S. (2013). Gender divide and acceptance of collaborative Web 2.0 applications for learning in higher education. *Internet & Higher Education*, 16, 57-65.

Howard, P.N. & Parks, M.R. (2012) Social Media and Political Change Capacity, Constraint, and Consequences. *Journal of Communication*, 62, 359-362.

Hrastinski, S., & Aghaee, N. (2012). How are campus students using social media to support their studies? An explorative interview study. *Education and Information Technologies*, 17(4), 451-464.

Huang, T.C., Huang, Y.M., & Yu, F.Y. (2011). Cooperative weblog learning in higher education: It's facilitating effects on social interaction, time lag, and cognitive load. *Educational Technology & Society*, *14*(1), 95-106.

ITU (2016), ICT Facts and Figures 2016. https:// www. itu. int/ en/ ITU- D/ Statistics/ Documents/ facts/ ICTFactsFigures2016.pdf.

Ivala, E., & Gachago, D. (2012). Social media for enhancing student engagement: The use of Facebook and blogs at a university of technology. *South African Journal of Higher Education,* 26(1), 152–167. http://hdl.handle.net/10520/EJC123970

J. Mao. (2014). Social media for learning: a mixed methods study on high school students' technology affordances and perspectives. *Computer and Human Behaviour, 33,* 213-223.

John, P. D. (2006). Lesson planning and the student teacher: Re-thinking the dominant model. *Journal of Curriculum Studies, 38*(4), 483–498.

Johnson, B., & Christensen L. (2008). *Educational Research: Quantitative, Qualitative and Mixed Approaches.* Sage Publications, Inc. USA.

Junco, R., Heiberger, G., & Loken, E. (2011). The effect of Twitter on college student engagement and grades. *Journal of Computer Assisted Learning*, 27(2), 119-132.

Kaplan, A. M., & Haenlein, M. (2010). Users of the World, Unite! The Challenges and Opportunities of Social Media. *Business Horizons, 53*(1),59-68.

Kaplan, M. (2013). Curation and Tradition on Web 2.0. Tradition in the Twenty-First Century: Locating the Role of the Past in the Present, 123-148. doi:10.7330/9780874218992.c05

Katai, Z. (2015). The challenge of promoting algorithmic thinking of both sciences- and humanities-oriented learners. *Journal of Computer Assisted Learning*, 31(4), 287–299. https://doi.org/10.1111/jcal.12070.

Kennedy, G., Judd, T.S., Churchwood, A., Gray, K., & Krause, K. (2008). First year students' experiences with technology: Are they really digital natives? *Australasian Journal of Educational Technology*, *24*(1), 108-122.

Kent, M. (2013). Changing the conversation: Facebook as a venue for online class discussion in higher education. *MERLOT Journal of Online Learning and Teaching*, *9*(4), 546–565.

Khan, M., Ahmed, M., Din, S., & Amin, A. (2017). The Impact of Social Media on Teacher's Performance: A Case of Higher Educational Institutions of Pakistan. *European Online Journal of Natural and Social Sciences*, *6*(2), 206-220. Retrieved from http://european-science.com/eojnss/article/view/4841

Kim, S.H., Mims, C., & Holmes, K. P. (2006). An introduction to current trends and benefits of mobile wireless technology use in higher education. *Association for the Advancement of Computing in Education Journal*, *14*(1), 77–100

Kim, J., Kwon, Y., & Cho, D. (2011). Investigating factors that influence social presence and learning outcomes in distance higher education. *Computers & Education*, 57(2), 1512-1520

Kimmons, R., Veletsianos, G., & Woodward, S. (2017). Institutional uses of Twitter in U.S. higher education. *Innovative Higher Education*, 42 (2), 97-111.

Kitsantas, A., & Dabbagh, N. (2010). Learning to learn with Integrative Learning Technologies (ILT): A practical guide for academic success. *Greenwich, CT: Information Age Publishing*.

Kocak, N. G., Kaya, S., & Erol, E (2013). Social Media from the Perspective of Diffusion of Innovation Approach. *Macrotheme Review*, *2*(3), 22-28

Koehler, M. J., & Mishra, P. (2008). Introducing TPACK. In AACTE Committee on Innovation & Technology (Eds.), *Handbook of technological pedagogical content knowledge for educators* (pp. 3–29). New York: Routledge.

Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education (CITE)*, *9*(1), 60-70.

Koren, N. E. (2010). User-generated platforms. Working within the boundaries of intellectual property. (Ed: R. Dreyfuss, D. L. Zimmermanve H. First). Oxford University Press.

Krejcie, R.V., & Morgan, D.W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement, 30*, 607-610.

Kumar, S. (2009). Undergraduate perceptions of the usefulness of Web 2.0 in higher education: Survey development (pp.308-314). Proceedings of 8th European Conference on E- learning. Italy.

Kwak, H., Lee, C., Park, H., & Moon, S. (2010, April). What is Twitter, a social network or a news media? In Proceedings of the 19th international conference on World Wide Web (pp. 591-600). ACM.

Lai, L.S.L. & Turban, E. (2008).Groups formation and operations in the Web 2.0 environment and social networks. *Group Decision and Negotiation, 17*(5), 387-402.

Levy, M. (2009). Web 2.0 implications on knowledge management. *Journal of Knowledge Management, 13*(1), 120-134.

Lampe, C., Wohn, D. Y., Vitak, J., Ellison, N. B., & Wash, R. (2011). Student use of Facebook for organizing collaborative classroom activities. *International Journal of Computer-Supported Collaborative Learning*, *6*(3), 329–347. http://doi.org/10.1007/s11412-011-9115-y

Lay-Arellano, I.T. (2013). Young people and the appropriation of technology. *Paakat, 4.*

Lazda-Cazers, Rasma. (2010). A Course Wiki: Challenges in Facilitating and Assessing Student-Generated Learning Content for the Humanities Classroom. *The Journal of General Education, 59.* 193-222. 10.1353/jge.2010.0023.

Leafman, J. S. (2015). Online Instructor Perceptions of Social Presence and Educational Use of Social Media. *Advances in Social Sciences Research Journal*, *2*(11), 85-96. doi:10.14738/assrj.211.1637

LeNoue, M. D. (2012). Educational social software: The use of social network sites for teaching and learning.

Lincoln, Y. S., & Guba, EG. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.

Lin, M. G., Homman, E. S., & Borengasser, C. (2013). Is social media too social for class? A case study of Twitter use. *Tech Trends,* 57(2).

Liu, I. L. B., Cheung, C. M. K., & Lee, M. K. O. (2010). Understanding Twitter usage: What drive people continue to tweet? In PACIS 2010 Proceedings, Paper 92 (pp. 928–939).

Looi, C. K., Seow, P., Zhang, B. H., So, H.-J., Chen, W., & Wong, L.-H. (2010). Leveraging mobile technology for sustainable seamless learning: A research agenda. *British Journal of Educational Technology, 42*(1), 154-169.

Lubua, E. W., Semlambo, A., & Pretorius, A. D. (2017). Factors affecting the use of social media in the learning process. *South African Journal of Information Management* https://sajim.co.za/index.php/sajim/article/view/764/1182, 19(1)

Lyytinen, K., & Damsgaard, J. (2001). What's wrong with the diffusion of innovation theory: The case of a complex and networked technology? In Proceedings of

the International Federation for Information Processing (IFIP). Banff, Alberta, Canada.

Maccini, P. M., Gagnon, J. C., & Hughes, C. A. (2002). Technology-Based practices for secondary students with learning disabilities. *Learning Disability Quarterly*, *25*, 247-261.

Madge, C., Hooley, T., Wellens, J., & Meek, J. (2009). Facebook, social integration and informal learning at university: "…it is more for socialising and talking to friends about work than for actually doing work"'. *Learning Media and Technology*, 34(2), 141-155

Martin, M.H. (2003). Factors influencing faculty adoption of Web-based courses in teacher education programs within the State University of New York (Doctoral dissertation, Virginia Polytechnic Institute and State University, 2001). *Pro-Quest Digital Dissertations.* (UMI No. AAT 3089087).

Mason, J. (2002). Qualitative researching (2nd ed.). London: Sage.

Matukwe, E. (2015). Higher Education and the Social Media Technology: A Dilemma Unfolding in Institutions of Higher Learning. *Journal of Education and Human Development. American Research Institute for Policy Development*, *4* (3) 119-133.

Mazman, S.G., & Usluel, Y. K. (2010). Modeling educational usage of Facebook. *Computers & Education*, *55*, 444-453.

McCombs, B., & Whistler, J. (1997). The learner-centered classroom and school: Strategies for increasing student motivation and achievement. San Francisco: Jossey-Bass Publishers.

McGuire, W. J. (1989). Theoretical foundations of campaigns. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 43–65). Newberry Park, CA: Sage

McKenzie, J. (2001). How teacher learn technology best. From Now On: *The Educational Technology Journal*, *10*(6).Retrieved March 01, 2005, from http://www.fno.org/mar01/howlearn.html

Melanie, B. (2010).Virtual teacher talk: Blogging with and by pre-service teachers

Minocha, S. (2009). Role of social software tools in education: a literature review. Education and Training, 353-369.

Mikre, F. (2011). The Roles of Information Communication Technologies in Education Review Article with Emphasis to the Computer and Internet. Retrieved March 4, 2016, from https://ju.edu.et/ejes/sites/default/files/The role of ICT in Education.pdf

Mok, J. C. H. (2012). Facebook and learning: Students' perspective on a course. *Journal of the NUS Teaching Academy, 2(*3), 131–143. Retrieved from http://www.nus.edu.sg/teachingacademy/article/lorem-ipsum-dolor-2/

Motiwalla, L. (2007). Mobile Learning: A framework and evaluation. *Computers & Education*. 49. 581-596. 10.1016/j.compedu.2005.10.011.

Moran, M., Seaman, J., & Tinti-Kane, H. (2011). Teaching, learning, and sharing: How today's higher education faculty use social media [Pearson Social Media Survey 2011]. Retrieved from Pearson Learning Solutions website: http://www.pearsonlearningsolutions.com

Moran, M., Seaman, J. & Tinti-Kane, H. (2012). Blogs, Wikis, Podcasts and Facebook: How Today's Higher Education Faculty Use Social Media. *Boston: Pearson Learning Solutions.*

Morgan, D. L. (2007) Paradigms lost and pragmatism regained: methodological implications of combining qualitative and quantitative methods. *J Mixed Methods Res, 1*, 48–76.

Morgan, D. L. (1997). Focus Groups as Qualitative Research. Sage Publications, Thousand Oaks. https://doi.org/10.4135/9781412984287

Morse, J. (1991). Strategies for sampling. In J. M. Morse (Ed.), *Qualitative nursing research: A contemporary dialogue* (pp. 127-146). Newbury Park, CA: Sage

Mugenda, O. M., & Mugenda, A. G. (2003).*Research Methods: Quantitative and Qualitative Approaches.* Nairobi: African Centre for Technology Studies.

Mugenda, O. M., & Mugenda, A. G. (2013). Research methods: Quantitative and qualitative approaches. Nairobi: ACTS Press. National Center for Education Statistics, 2005. State non-fiscal public elementary/ secondary education survey. American Counselling Association

Mumtag, A. A., Akmar H. A. G., Ezhar T. & Mohd N. O. (2018). A Review of New Media in Malaysia: Issues Affecting Society. *International Journal of Academic Research in Business and Social Sciences, 8(2),12-29.*

Mura, A., Yaacob, R. A. I., Endut, M. A. A., & Langove, N.U. (2016). Strengthening the Academic Usage of Social Media: An Exploratory Study. *Journal of King Saud University – Computer*.

Mutekwe, E., Machingambi, S., Maphosa, C., Ndofirepi, A., & Wadesango, N. (2013). A SWOT analysis of the rise and pedagogical implications of the social constructivist epistemology in educational practice. *The anthropology: International Journal of Contemporary studies of man, 15* (1), 53-65.

Neely, L. S. (2011). An analysis of Facebook intensity and privacy management practices of public school educators in the United States.

Neuman, W. L. (2011). *Social Research Methods: Qualitative and Quantitative Approaches (7th ed.)* Pearson, Boston.

Ng'ambi, D., & Lombe, A. (2012). Using podcasting to facilitate student learning: A constructivist perspective. *Educational Technology & Society*, 15(4), 181–192.

Nielsen report (2012). Social-media-report-2012-social-media-comes-of-age https://www.nielsen.com/us/en/insights/news/2012/.html

Ocansey, K., Ametepe, W., & Oduro, C. F. (2016). The Impact of Social Media on the Youth: The Ghanaian Perspective. http://dx.doi.org/10.15282/ijets.6.2016.1.12.106287

OECD (2012). Education at a Glance 2012: OECD Indicators, *OECD Publishing*. http://dx.doi.org/10.1787/eag-2012-en

Olson, D. (2011). The relationship between community college student engagement and student usage of online social networking.

Ophus, J. D., & Abbitt, J. T. (2009). Exploring the potential and perceptions of social networking systems in university courses. *Journal of Online Learning and Teaching*, 5(4), 639–648. Retrieved from http://jolt.merlot.org/vol5no4/ophus_1209.pdf

O'Reilly, T. (2005). What is Web 2.0: Design patterns and business models for the next generation of software? Retrieved from http://oreilly.com/web2/archive/what-is-web-20.html.

Oliver, B., & Goerke, V. (2007). Australian undergraduates' use and ownership of emerging technologies: Implications and opportunities for creating engaging learning experiences for the Next Generation. *Australasian Journal of Educational Technology*, *23*(2), 171-186. http://www.ascilite.org.au/ajet/ajet23/oliver.html.

Otu, A. A. (2015). Social Media Addiction among Students of the University of Ghana (Doctoral dissertation, University of Ghana).

Parisot, A.H. (1995). Technology and teaching: The adoption and diffusion of technological innovations by a community college faculty (Doctoral dissertation, Montana State University, 1995). *ProQuest Digital Dissertations*. (UMI No. AAT 9542260).

Parisot, A. H. (1997). Distance education as a catalyst for changing teaching in the community college: Implications for institutional policy. *New Directions for Community Colleges*, *99*, 5-13.

Parry, M. (2010). Most professors use social media. The Chronicle of Higher Education. Retrieved from http://chronicle.com/blogs/wiredcampus/most-professors-use-social-media/23716

Pennings, J. (2012). The emerging European nutraceuticals innovation system. A functional comparison with the United States nutraceuticals innovation system. Master's Thesis, Utrecht University.

Phillipson, S. N., & Lam, B. (2011). Learning and Teaching in the Chinese Classroom Responding to Individual Needs. doi:10.5790/hongkong/9789888083428.001.0001.

Piotrowski, C. (2015). Emerging research on social media use in education: A study of dissertations. *Research in Higher Education Journal*, *27*, 1–12. Retrieved from http://www.aabri.com/manuscripts/142097.pdf

Ponce, O. A., & Pagan-Maldonado, N. (2015). Mixed methods research in education: Capturing the complexity of the profession. *International Journal of Educational Excellence*, *1*(1), 111-135. 362

Posnick-Goodwin, S. (2010). Meet Generation Z. *California Teachers Association*. (http://goo.gl/oq8J99) (23-09-2014).

Potter, J. & Banaji, S. (2012). Social media and self-curatorship: Reflections on identity and pedagogy through blogging on a master's module. *Scientific journal of Media Education,* 39(19), 83-91, http://dx.doi.org/10.3916/C38-2012-02-09

Prensky, M. (2001). Digital Natives, Digital Immigrants. On the Horizon, *MCB University Press*, *9* (5) 1-8

Prensky, M. (2010). Teaching Digital natives: Partnering for Real learning. New York: Corwin Press.

Punch, S. (2002). Research with Children: The same or different from research with adults? *Childhood, 9*(3), 321-341.

Quan-Haase, A., & Young, A. (2010). Uses and gratifications of social media: A comparison of Facebook and instant messaging. Bulletin of Science, Technology & Society, 30, 350–361.

Redecker, C., Ala-Mutka, K., Bacigalupo, M., Ferrari, A., & Y. Punie (2009). Learning 2.0: The Impact of Web 2.0 Innovations on Education and Training in Europe. Final Report. JRC Scientific and Technical Report, EUR 24103 EN: http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=2899.

Renfro, A. (2011). 8 Social media strategies for your classroom. Getting Smart. Retrieved from http://gettingsmart.com/2011/12/developing-a-social-media-strategy-for-your-classroom/. Accessed on 12 November 2014.

Riehemann, J., & Jucks, R. (2017) How much is Teaching and Learning in Higher Education Digitized? Insights from Teacher Education. *International Journal of Higher Education*, *6*(3), 127-137 http://ijhe.sciedupress.com.

Roebuck, D. B., Siha, S., & Bell, R. L. (2013). Faculty usage of social media and mobile devices: Analysis of advantages and concerns. Interdisciplinary *Journal of E-Learning and Learning Objects*, 9,171-192.Retrieved from http://www.ijello.org/Volume9/IJELLOv9p171-192Roebuck0859.pdf

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press

Rogers, E. M. (2007). Diffusion of Innovations. Knowledge and Innovation Management.

Rohini, R., & Mahadevappa, B. (2006). Service quality in Bangalore hospitals-an empirical study. *Journal of Services Research*, *6*(1), 59.

Rosen, ML. (2010). *Nowhere Man: The Final days of John Lennon*. New York: Brooklynn.

Roth, B. F., & McCully, M. S. (2010). Tweeting and friending in the graduate classroom: Can social media tools work? Proceedings of Information Science and IT Education Conference, Southern Italy.

Rubin, A. M. (1983). Television Uses and Gratifications: The Interactions of Viewing Patterns and Motivations. *Journal of Broadcasting*.

Rubin, H. J., & Rubin, I. S. (2005). Qualitative interviewing: The art of hearing data. Thousand Oaks, CA: Sage.

Rudestam, K. E., & Schoenholtz-Read, J. (Eds.). (2010). *Handbook of online learning, 2nd ed.* Thousand Oaks, CA: Sage Publications.

Ruleman, A. (2012). Social media at the university: A demographic comparison. *New Library World*, *113*(7), 316-332.

Russo, C., Morabito, F., Luise, F., & Neurol, J. (2008). 255: 64. https://doi.org/10.1007/s00415-007-0668-7

Ryan, T. G. (2014). Social media use in the classroom: Pedagogy and practice. Proceedings of the 58th ICET World Assembly 308-319.

Sahin, I. (2006). Detailed review of Rogers' Diffusion of Innovations theory and educational technology-related studies based on Rogers' theory. *Turkish Online Journal of Educational Technology*, 5(2), 3.

Säljö, R. (2010). Digital tools and challenges to institutional traditions of learning: Technologies, social memory and the performative nature of learning. *Journal of Computer Assisted Learning.* 26. 53 - 64. 10.1111/j.1365-2729.2009.00341.x

Salomon, G. (1979). Interaction of media, cognition and learning. San Francisco, CA: Jossey-Bass.

Sang, G., Valcke, M., Braak, J. V., & Tondeur, J. (2010). Student teachers' thinking processes and ICT integration: Predictors of prospective teaching behaviors with educational technology. *Computers & Education*, *54*(1), 103-112. doi:10.1016/j.compedu.2009.07.010.

Saunders, M., Lewis, P. & Thornhill, A. (2009) Research Methods for Business Students. Pearson, New York.

Sayan, H. (2016). Affecting Higher Education students learning activity by using by using WhatsApp. *European Journal of Research and Reflection in Educational Sciences*, *4* (3), 88-93.

Schroer, W. (2008). Defining, Managing, and Marketing to Generations X, Y, and Z. The Portal, 10, 9. (http://goo.gl/Fc40dB) (15-02-2015).

Seaman, J., & Tinti-Kane, H. (2013). Social media for teaching and learning. Retrieved from Pearson Learning Solutions website Retrieved 25 September 2014 from: http://www.pearsonlearningsolutions.com/assets/downloads/reports/social-media-for-teaching-and-learning-2013-report.pdf 2.

Selwyn, N. (2009). Faceworking: Exploring students' education-related use of Facebook. *Learning, Media, and Technology*, *34*(2) 157-174. 367.

Selwyn, N. (2011). Social media in higher education. *The Europa World of Learning*, *1-9*. Retrieved from www.educationarena.com/pdf/sample/ sample-essay-selwyn.pdf

Shaw, D. L., & Weaver, D.H. (2014). Media agenda-setting and audience agenda-melding." In M.E. McCombs (Ed.). Setting the agenda: *The mass media and public opinion*, (pp. 145– 150). Cambridge, England: Polity Press.

Sherrer, P., & Shea, T. (2011). Using online video to support student learning and engagement. College Teaching, 59(2), 56–59. doi:10.1080/87567555.2010.511313

Sherry, L. (1999). Using the internet to enhance standards-based instruction. *Texas Study of secondary Education*, *8*(2), 19-22.

Sigalit W., Sivia B., & Michal I., (2016). Factors associated with nursing students' resilience: communication skills course, use of social media and satisfaction with clinical placement. *Journal of Professional Nursing*, 153–161 153

Sim, J.W.S., & Hew, K.F. (2010). The use of weblogs in higher education settings: A review of empirical research. *Educational Research Review*, 5(2), 151-163.

Siraj-Blatchford, I., Sylva, K., Muttock, S., Gilden, R., & Bell, D. (2002). Researching effective pedagogy in the early years. Institute of Education, University of London.

Smith, S. D., & Caruso, J. B. (2010). The ECAR Study of Undergraduate Students and Informational Technology, 2010. EDUCAUSE Centre for Applied Research (ECAR). Retrieved: July 21, 2014 from http://www.educause.edu/library/resources/ecar-study-undergraduate-students-and-information-technology-2010.

Spotts, T. H. (1999). Discriminating factors in faculty use of instructional technology in higher education. *Educational Technology & Society, 2*(4), 92-99.

Sprague, D., Kopfman, K., & Dorsey, S. (1999). Faculty development in the integration of technology in teacher education courses. *Journal of Computing in Teacher Education, 14*(2), 24-28.

Strauss A., & Corbin J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory (2nd ed.).* Thousand Oaks, CA: Sage Publications.

Surendra, S. S. (2001). Acceptance of Web technology-based education by professors and administrators of a college of applied arts and technology in Ontario (Doctoral dissertation, University of Toronto, 2001). *ProQuest Digital Dissertations*. (UMI No. AAT NQ58603).

Swanson, T. A. (2010). The administration of community college blogs: Considering control and adaptability in loosely coupled system.

Tang, B. G. & Whinston, A. (2012). Content contribution of social media: the case of You Tube. *Hawaii international conference on systems sciences*, *2* (1), 4476-4485.

Tess, P. A. (2013). The role of social media in higher education classes (real and virtual): A literature review. *Computers in Human Behavior*, 29, 60-68.

Tuma, L. A. (2012). The impact of Facebook access in creating a sense of community in tourism and recreation classes.

Vaismoradi, M., Jones, J., Turunen, H., & Snelgros, S. (2016). Theme development in qualitative content analysis and thematic analysis. *Journal of Nursing Education and Practice, 6* (5). http://jnep.scietupress.com

Van der Bank, C. M. (2014). The Impact of Social Media: Advantages or Disadvantages. *African Journal of Hospitality, Tourism and Leisure, 4*(2), ISSN: 2223-814X.

Veletsianos, G., & Navarrete, C. C. (2012). Online Social Networks as Formal Learning Environments: Learner Experiences and Activities. *The International Review of Research in Open and Distance Learning, 13* (1), 11.

Verran, H. (2008). Staying true to the Laughter in Nigerian classrooms. *The Sociological Review, 47* (1), 136-155.

Vigdor, J. L., & Ladd, H.F. (2010). Scaling the digital divide: Home computer technology and student achievement. National Bureau of Economic Research working paper, No. 16078.

Vigurs, K. (2016).Using twitter to tackle peripherality? Facilitating networked scholarship for part-time doctoral students within and beyond the university

Voorn, R.J., & Kommers, P. (2013). Social media and higher education: Introversion and collaborative learning from the student's perspective. *International Journal of Social Media and Interactive Learning Environments, 1*(1), 59-71

Waldeck, J. H., & Dougherty, K. (2012). Collaborative communication technologies and Learning in college courses: Which are used, for what purposes, and to what ends? *Learning, Media and Technology, 37*(4), 355-378.

Wang, Z., Tchernev, J. M., & Solloway, T. (2012). A dynamic longitudinal examination of social media use, needs, and gratifications among college students. *Computers in Human Behavior*, 28(5), 1829-1839.

Waterman, S. J. (2004). The Haudenosaunee College experience: A complex path to degree completion (Doctoral dissertation). Retrieved from Pro Quest Dissertations & Theses database (AAT 3132719)

Waters, R. D. (2010). The use of social media by nonprofit organizations: An examination from the diffusion of innovations perspective. Handbook of research on social interaction technologies and collaboration software: *Concepts and trends*. Hershey, PA: IGI Publishing.

Watkins, C., & Mortimore, P. (1999). Pedagogy: what do we know? In: Mortimore P (ed) Understanding Pedagogy and its Impact on Learning. Paul Chapman/Sage, London

Wortham, J. (2010). *Facebook Says Membership Has Reached 500 Million.* NewYork Times p. B8(L).

Xiang, Z., & Gretzel, U. (2010). Role of Social Media in Online Travel Information Search. Tourism Management, 31, 179-188. http://dx.doi.org/10.1016/j.tourman.2009.02.016.

Xiang, X., & Liu, Y. (2016). Understanding 'change' through spatial thinking using Google Earth in secondary geography. *Journal of Computer Assisted Learning, 33*(1), 65–78. https://doi.org/10.1111/jcal.12166.

Yin, R. K. (2009). *Case study research: Design and methods (4th ed.).* Thousand Oaks, CA: Sage.

Yinger, R. (1979). Routines in teacher planning. *Theory into Practice, 18*(3), 163-169.

Yousapronpaiboon, K., & Johnson, W.C. (2013) Out-Patient Service Quality Perceptions in Private Thai Hospitals. *International Journal of Business and Social Science, 4,* 57-66.

Zgheib, G. (2014) Social Media Use in Higher Education: An Exploratory Multiple-Case Study. A Dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy at George Mason University.

APPENDIX 1 ETHICS COMMITTEE APPROVAL

UNIVERSITY OF GHANA
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)
P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No.....

21st February, 2018

Ms. Patricia Appiah-Boateng
Department of Adult Education and Human Resources Studies
University of Ghana
Legon

Dear Ms. Appiah-Boateng,

ECH 114/17-18: INTEGRATING SOCIAL MEDIA INTO HIGHER EDUCATION PEDAGOGY IN GHANA: THE CASE OF TWO GHANAIAN UNIVERSITIES

This is to advise you that the above reference study has been presented to the Ethics Committee for the Humanities for a full board review and the following actions taken subject to the conditions and explanation provided below:

Expiry Date:	20/02/19
On Agenda for:	Initial Submission
Date of Submission:	15/01/18
ECH Action:	Approved
Reporting:	Bi-Annually

UG/ISSER/ECH VALID UNTIL 20 FEB 2019 APPROVED DOCUMENT

Please accept my congratulations.

Yours Sincerely,

Rev. Prof. J. O. Y. Mante
ECH Chair

CC: Prof. Olivia A. T. F. Kwapong, Department of Adult Education and Human Resources Studies, University of Ghana.

Tel: +233-303933866 Email: ech@ug.edu.gh | ech@isser.edu.gh

APPENDIX 2 STUDENTS QUESTIONNAIRE

SURVEY ON SOCIAL MEDIA USE FOR HIGHER EDUCATION PEDAGOGY

STUDENTS QUESTIONNAIRE

Dear student, this survey is solely for academic purpose and it is intended to seek your views about the use of social media in your academic work. All information will therefore be treated with confidentiality and no individual or institution's name will be identified. You are kindly requested to use a pen to write your responses. Your sincere opinion is therefore highly sought.

Please, in each case put a tick in the box that corresponds to your choice or write your response in the space provided.

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender *(tick one)*

1. Female	
2. Male	

2. Age: ……. years

3. What is the name of your institution?
……

4. Which level are you as a student?

Level	Tick one
1. 100	
2. 200	
3. 300	
4. 400	

5. Which of the following programme categorization do you belong to? (**Indicate by ticking)**

   1. B.Ed.
   2. BBA
   3. B.Sc.
   4. BA
   5. Other, please specify ……

6. **Which academic programme are you offering?**

Discipline	Tick one	Discipline	Tick one
1. ICT		7. Physical Education	
2. Special Education		8. Home Economics	
3. Mathematics		9. Social Science	
4. Science		10. Ghanaian Language	
5. English Language		11. If other, specify here	

……

SECTION B: USE OF SOCIAL MEDIA FOR TEACHING AND LEARNING

(*Respond with a tick*)

7. Do you own a digital media? (e.g. Computer, Mobile Phone, etc.)

Yes ☐ No ☐

8. If. Yes, what type of mobile device do you own?

Android ☐ Analogue ☐

9. If No, why don't you use one?

……

10. . How many years have you been using digital media?

……. years

11. What do you use digital media for?

……
……
……
……
……
……
……

12. Which the following types of internet connection devices or routers do you use in browsing for your academic work? [*Tick as many as appropriate*]

Internet connection	**Tick** as many as appropriate
1. Wi-Fi (University)	
2. Modem wireless router	
3. MiFi wireless router	
4. Mobile Wi-Fi hotspot	
5. Mobile Bundles	
6. Others	
7. If other, specify here:	
8. ……	

13. . On the average, how long do you use the following types of internet connection?

Type of internet connection	Number of days per week	Never
1. Wi-Fi (University)		
2. Modem wireless router		
3. MiFi wireless router		
4. Mobile Wi-Fi hotspot		
5. Mobile Bundles		
6. Others		

11. List the five (5) top social media platforms you visit every week in order of frequency from the most (a) to the least (e) visited

a) ……
b) ……
c)……
d) ……
e) ……

12. List the three (3) top social media platforms you use mostly in your actual studies in order frequency from the most (a) to the least (c) visited

a) ……
b) ……

c)……

13. Which of these is true about your use of social media? **(***Tick the appropriate response)*

Strongly Agree = SA Agree=A Neutral=N Disagree = D Strongly Disagree = SD

	SA	A	N	D	SD
1. I use social media a lot	5	4	3	2	1
2. It is relevant to my studies	5	4	3	2	1
3. It makes me communicate efficiently with my lecturers	5	4	3	2	1
4. I use social media for group discussion related to my studies	5	4	3	2	1
5. I can learn without the use of social media	5	4	3	2	1
6. Social media is very relevant for my studies	5	4	3	2	1
7. Social media should not be introduced as an essential part of my studies	5	4	3	2	1
8. I use social media to communicate with my lecturers	5	4	3	2	1
9. I am interested in using social media as an educational tool	5	4	3	2	1
10. My peers and I will learn better if social media is integrated into instruction	5	4	3	2	1
11. Social media is good to be used by lecturers	5	4	3	2	1
12. I use social media to discuss academic work with my lecturers	5	4	3	2	1
13. I use email to communicate issues about my studies with my lecturers	5	4	3	2	1
14. I am personally motivated to use social media for my studies	5	4	3	2	1
15. My colleagues encourage me to use social media for my studies	5	4	3	2	1
16. My lecturers compel me to use social media for my studies	5	4	3	2	1
17. Use email to communicate academic issues with my class mates	5	4	3	2	1
18. I use the internet to search for information relating to my studies	5	4	3	2	1
19. I use YouTube for my studies	5	4	3	2	1

SECTION C: HOW SOCIAL MEDIA IS INTEGRATED INTO PEDAGOGY

14. TO what extent do you AGREE or DISAGREE with the following statements about your social media use for academic activities? (*Circle the appropriate response to each of the questions)*

Pedagogical activities	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. To engage in course group discussions	1	2	3	4	5
2. To do a course work assignment	1	2	3	4	5
3. To contact my lecturer for further clarification of concepts	1	2	3	4	5
4. Contact or communicate with colleagues for information	1	2	3	4	5
5. Other(s), please specify: …….					

15. Briefly describe how helpful social media has been for you in your academic activities or studies.

……

……

……

……

SECTION D: OPPORTUNITIES AND THREATS IN THE USE OF SOCIAL MEDIA IN TEACHING AND LEARNING

16. Please indicate (by circling the appropriate number) the extent to which you agree to the following statements about benefits in the use of social media for your studies.

Statements about opportunities of social media	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. I actively engage with social media in my studies	1	2	3	4	5
b. I collaborate through social media with my friends about my studies	1	2	3	4	5
c. I use social media independently in my studies	1	2	3	4	5
d. I collaborate through social media with my lecturers in my studies	1	2	3	4	5
e. Social media bridges the geographical distance between me and my lecturers	1	2	3	4	5
f. Social media helps me to satisfy my desire for new knowledge	1	2	3	4	5
g. Social media helps me to find instructional content	1	2	3	4	5
h. Social media helps me to learn both formally and informally	1	2	3	4	5
i. Social media allows me to receive administrative communication	1	2	3	4	5
j. Social media makes it easy for me to search for relevant information for my studies	1	2	3	4	5
k. Social media allows me to combine face-to-face and online learning	1	2	3	4	5

17. Briefly state the difficulties you face in using social media in your academic activities or studies.

……
……
……
……

……
……

Please indicate (by circling the appropriate number) the extent to which you agree to the following statements about difficulties you have in the use of social media for your studies.

19. I find it difficult to use social media because:

Statements about difficulties in the use of social media	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. It interferes with my studies					
b. Gives me little privacy					
c. Lack of policies on its use prevent me from using it for my studies					
d. It focusses on social interaction more than academic work					
e. It reduces personal contact					

23. The second part of this study is a focus group discussion, kindly indicate your willingness to participate by ticking YES or NO below.

Yes …… No……

24. If your response in 23 above is Yes, Please, provide your mobile number so that you can be contacted

……

APPENDIX 3 INSTRUCTORS' QUESTIONNAIRE

SURVEY ON SOCIAL MEDIA USE FOR HIGHER EDUCATION PEDAGOGY INSTRUCTORS' QUESTIONNAIRE

Dear faculty, this survey is solely for academic purpose and it is intended to seek your views about the use of social media in your academic work. All information will therefore be treated with confidentiality and no individual or institution's name will be identified. You are kindly requested to use a pen to write your responses. Your sincere opinion is therefore highly sought.

Please, in each case put a tick in the box that corresponds to your choice or write your response in the space provided.

SECTION A: DEMOGRAPHIC INFORMATION

1. **Your institution**: ……

2. **Sex** *(tick one)*

1. Female	
2. Male	

3. **Age: ……. years**

4. **Years of teaching in your institution:** ……. *Years*

5. **Indicate your current rank** (i.e., Assist. Lecturer, Lecturer, Snr. Lecturer, Associate Professor, Full Professor) …….

6. **How would you describe your current post? You can tick more than one.**

1. Teaching	
2. Research	
3. Administration	
4. Teaching and research	
5. Teaching and Administration	
6. Research and Administration	
7. Teaching, Research and Administration	

7. **In which category does your main discipline fall? [**Tick only one]

Academic Discipline	*Tick*	*Academic Discipline*	**Tick**
1. ICT		7. Physical Education	
2. Special Education		8. Home Economics	
3. Mathematics		9. Social Science	
4. Science		10. Ghanaian Language	
5. Research		11. Other	
6. English Language		12. If other, specify here ……..	

8. Which specific course(s) do you teach?

……

……

SECTION B: USE OF SOCIAL MEDIA FOR TEACHING AND LEARNING

9. Do you own a digital media? (e.g. Computer, Mobile Phone, etc.) [*Respond with a tick*]

Yes **No**

10. If yes, what type of mobile device do you own?

Android ☐ **Analogue** ☐ **Don't' know** ☐

11. If No, Please, indicate why you do not use a digital media

……
……
……

12. How many years have you been using digital media? …… years

13. **Which of the following types of internet connection devices or routers do you use in browsing for your academic work?** [*Tick as many as appropriate*]

Internet Connection	Tick
1. Wi-Fi (University)	
2. Modem wireless router	
3. MiFi wireless router	
4. Mobile Wi-Fi hotspot	
5. Mobile Bundles	
6. Others	
7. If other, specify here:	

14. **On the average, how long (*number of hours per week*) do you use the following types of internet connection?** *[Tick as many as appropriate*]

Internet connection	Number of hours per week	Never
1. Wi-Fi (University)		
2. Modem wireless router		
3. MiFi wireless router		
4. Mobile Wi-Fi hotspot		
5. Mobile Bundles		
6. Others		

15. How long do you spend on social media platforms during a typical day?

..... hours ..... minutes

16. Which of these is true about how you use social media? [*Respond with a tick*]

Strongly Agree = SA Agree=A Neutral=N Disagree = D Strongly Disagree = SD

Social Media use for academic and professional work	**SA**	**A**	**N**	**D**	**SD**
1. I use social media	5	4	3	2	1
2. It is relevant to my teaching	5	4	3	2	1
3. It makes me communicate effectively with my students	5	4	3	2	1
4. It makes me communicate effectively with my fellow lecturers	5	4	3	2	1
5. I use social media for group discussions with my students	5	4	3	2	1
6. I can teach without the use of social media	5	4	3	2	1
7. Social media is very relevant for my professional growth	5	4	3	2	1
8. I am a member of a group on social media platform that discusses issues on my professional development	5	4	3	2	1
9. Social media should be introduced as an essential part of my teaching	5	4	3	2	1
10. I am interested in using social media as an educational tool	5	4	3	2	1
11. My colleagues and I will teach better if social media is integrated into instruction	5	4	3	2	1
12. Social media is the best way for students to learn	5	4	3	2	1
13. I use social media to discuss academic work with my students	5	4	3	2	1
14. I am personally motivated to use social media for my teaching	5	4	3	2	1
15. My colleagues encourage me to use social media for my teaching	5	4	3	2	1
16. The institution motivates me to use social media for teaching	5	4	3	2	1
17. I use social media to communicate with my fellow lecturers on academic issues	5	4	3	2	1
18. I have the capacity to use social media for my teaching	5	4	3	2	1
19. There are policy guidelines in the use of social media for teaching in my institution	5	4	3	2	1

SECTION C: HOW SOCIAL MEDIA IS INTEGRATED INTO PEDAGOGY

17. How often do you use social media for of the following pedagogical activities? *(Tick the appropriate response)*

Pedagogical activities	Once a week	Twice a week	Thrice a week	Four times a week	More than four weeks
1. For course group discussions					
2. To explain concepts after lecture hours					
3. Post class announcements					
4. Individual student attention					
5. To refer students for further reading					
6. Other					

18. Which of these social media platforms do you use during your lectures and other teaching sessions (i.e. tutorial, practical, etc.)? (**Tick as many as you use**)

Social media platforms	Tick	Social media platforms	Tick
1. Facebook		8. Word Press	
2. Google+		9. Hotmail	
3. Gmail		10. Skype	
4. Yahoo		11. LinkedIn	
5. YouTube		12. Instagram	
6. Wikis		13. WhatsApp	
7. Word Press		14. Blogs	

If other, specify here

……..

19. If you ticked any one of the social media platforms above, state briefly at least three things you used them for your lectures and other teaching sessions

……
……
……
……
……

SECTION E: OPPORTUNITIES AND THREATS IN THE USE OF SOCIAL MEDIA IN TEACHING AND LEARNING

20. Please indicate **(by circling the appropriate number**) the extent to which you agree to the following statements about the opportunities in the use of social media for your teaching.

Statements about opportunities of social media	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
1. I actively engage with social media in my teaching	1	2	3	4	5
2. I collaborate through social media with my friends about my teaching	1	2	3	4	5
3. I use social media independently in my teaching	1	2	3	4	5
4. I collaborate through social media with my lecturers in my teaching	1	2	3	4	5
5. Social media bridges the geographical distance between me and my students	1	2	3	4	5
6. Social media has helped me to satisfy my desire for new knowledge	1	2	3	4	5
7. Social media has helped me to find instructional content	1	2	3	4	5
8. Social media has helped me to teach both formally and informally	1	2	3	4	5
9. Social media allows me to give and receive administrative communication	1	2	3	4	5
10. Social media makes it easy for me to search for relevant information for my teaching	1	2	3	4	5
11. Social media allows me to combine face-to-face and online teaching	1	2	3	4	5

21. Briefly state the difficulties you face in using social media in your academic activities or teaching.

……
……
……
……
……
……
……

22. Please indicate (by circling the appropriate number) the extent to which you agree or otherwise to the following statements about the difficulties you have in the use of social media for your teaching.

Statements about difficulties in the use of social media	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. Social media interferes with my teaching	1	2	3	4	5
2. Social media gives me little privacy	1	2	3	4	5
3. Lack of policies on the use of social media prevent me from using it for my teaching	1	2	3	4	5
4. Social media focusses on social interaction more than academic work	1	2	3	4	5
5. Social media reduces personal contact	1	2	3	4	5

23. Kindly indicate your willingness to participate in the second phase (**one-on-one interview**) of this study by indicating Yes or No below

Yes …… No……

24. If your response to question 23 above is Yes, Please, provide your mobile number in the space below, so that you can be contacted.

…….

APPENDIX 4 FOCUS GROUP DISCUSSION PROTOCOL FOR STUDENTS

(FOCUS GROUP DISCUSSION QUESTIONS)

The purpose of this study is to elicit responses from higher education students regarding social media use in learning. Respondents are assured that their identities are not relevant to the study and so will not be disclosed to the public. They are therefore kindly requested to spare some of their time to contribute to knowledge.

Areas questions will revolve are as follows:

1. **How are social media tools being used by students for learning in Higher Education?**
    a. What in your opinion is social media about?
    b. What are the types of social media platforms you know?
    c. What do you use social media for?
    d. Do you use any form of social media for your studies?
        i. If yes, share with me the social media platforms you use.
        ii. If no, why don't you use any social media platforms?
    e. Within which contexts (what instances) do you think social media platforms are useful (Probe further)?
        i. Give examples of instances where social media is useful (academic, personal, research, etc.)
        ii. Explain how it has been useful in these instances
    f. Mention some of the contexts in which you think social media can be useful, with examples.

2. **What factors are associated with social media usage by students?**
    a. What inspires or arouses your interest in the choice of a particular social media platform for your studies? (**Probe further**).

i. List the motivating factors that make you use social media for your studies.

(Let them list and explain)

This should be after you realize that the responses are not forth coming

(e.g. personal interest, lecturers, some websites, etc.)

ii. If there are no motivating factors, why is it so?

b. Do you have "free use" control over social media platforms? Or ease of use

i. If yes, how free are you?

ii. How much control do you have when using them?

iii. If no, why do you think it is so?

3. How is social media being integrated into pedagogy by faculty and students of Higher Education institutions?

a. Do you think it is useful for lecturers to integrate social media in their teaching?

i. If yes, why do you think so?

ii. If no, why do you think they are not?

iii. How often do your lecturers use social media platforms for teaching you?

b. Do your lecturers use social media platforms for their teaching?

i. If yes, which types of social media platforms do they use?

ii. Why do you think they use them?

iii. If no, why in your opinion don't they don't use them?

iv. Which aspect(s) of the course(s) they teach, do they integrate/use social media?

v. How do they integrate/use the social media types in their teaching? (**probe further**)

c. Do you use social media for your academic work?

i. if yes, list the academic activities that you have used social media in

ii. explain how helpful social media has been to you in these academic activities you have listed above

iii. If no, explain why you don't use social media for any academic work

4. What opportunities and threats exist in using social media for teaching and learning in higher education?

a. Do social media use have any opportunity for teaching and learning?

b. If yes, what are the major opportunities/ advantages that you see exist in the use of social media platforms for your studies?

i. List and explain all of them (P**robe further**).

c. If No, why do you think that there are no opportunities? (probe further)

d. What are the major disadvantages/threats that you see exist in the use of social media platforms (students and instructors) in your courses?

i. List and explain all of them (P**robe further**).

APPENDIX 5 FOCUS GROUP AND ONE-ON-ONE INTERVIEW PROTOCOL FOR INSTRUCTORS

The purpose of this project is to elicit responses from higher education faculty regarding social media use in teaching and learning. Respondents are assured that their identities are not relevant to the study and so will not be disclosed to the public. They are therefore kindly requested to spare some of their time to contribute to knowledge.

1. **How are social media tools being used by faculty for teaching and learning in HE?**
    a. What in your opinion is social media about?
    b. What are the types of social media platforms you know?
    c. Do you use any form of social media? If yes share with me the social media platforms you use.
        i. Please list the platforms you use
        ii. How do you use each of the platforms you have listed? (**Probe further)**
    d. If you do not use any form of social media platform, give your reasons for not using them.
    e. What do you use those social media platforms you have identified in **(c)** above for?
        i. Within which contexts do you think social media platforms are useful? Mention some of the contexts with examples of appropriate social media you have used academic, personal, research, and professional development.)
        (**Probe further**).

2. **What factors are associated with social media usage by faculty and students?**
    a. What motivates your choice of use of a particular social media platform?

i. List the motivating factors that make you use social media **(probe further) (The factors may include access to internet connection, institutional drive, intrinsic drive, passion, etc.)**

b. Do you have "free use" (control) over social media platforms? In other words, are you restricted in using social media in teaching?

i. If yes, how free are you in using social media?

ii. How much freedom do you have when using them? (Explain with examples) **(Probe further)**

iii. If no, why do you think it is so?

3. How is social media being integrated into pedagogy by faculty of HE institutions?

a. Do you use social media platforms for your teaching?

i. If yes, which types of social media platforms do you use and why?

ii. If no, why don't you use them?

iii. Which aspect(s) of the course(s) you teach, do you integrate social media?

iv. How do you do integrate (use/combine) social media into the courses you teach? (**probe further**)

b. Is the use of social media useful to your teaching?

i. If yes, how useful is it to your teaching?

ii. If no, why do you think it is not useful?

iii. How often do you use social media platforms for teaching?

4. **What opportunities and threats exist in the use of social media for teaching and learning in higher education?**

    a. What are the major opportunities that you think exist in the use of social media platforms in?

        i. Teaching

        ii. Research

        iii. Professional development **(probe further)**

    b. What are the major threats (disadvantages) that are involved in the use of social media platforms in?

        i. Teaching

        ii. Research

        iii. Professional development **(probe further)**

APPENDIX 6 OBSERVATIONAL GUIDE

OBSERVATIONAL GUIDE

Inside lecture hall

- Observe on-going lesson
- Identify the technological tools used by instructors and students
- Identify SM platform types used by instructor and students
- How the SM platforms are integrated into teaching and learning of the various topics
- Identify involvement and participation levels of students whiles using SM platforms in class

Outside lecture hall

- Get access to SM platforms
- Observe the various activities on SM platform
- Identify the various posts and notices by instructors
- Identify student responses to instructors' questions and discussions
- Identify instructors' reactions to students' questions and responses
- Observe the interval between sent notices and posts and their respective responses (duration of feedback)
- Observe the pedagogical atmosphere during the interactions on the SM platforms

APPENDIX 7 SAMPLE INSTRUCTOR INTERVIEW TRANCRIPT

Please introduce yourself

My name is … Am a PhD holder and a senior lecturer (graphic design). Currently, am the Acting Dean, school of creative arts (UEW). My area is basically in graphic design but specifically, components of graphic design that I teach are research.

Question1. What is social media?

They are the modern kind of communication avenues that are available online and we can say currently that it is what we use to communicate because it comes in handy and available on cell phones and so on and so forth. It a means of communication and that has been brought about by modern technology.

Question2. What are the types of social media?

Well, I think they are many some of which we have not used before but there are others that are very common, very popular and these are the ones I know and use. I know of Facebook, Instagram, and WhatsApp and lately slack. It is also important one I have fallen in love with. Unfortunately, it is not popular and so am actually educating people, especially my colleagues on how it is used because I find that one very useful

Question 4. The various types you have identified, which one do you use specifically?

I use Facebook, WhatsApp and slack

Question 5. How do you use them?

For Facebook, I actually use it for group activities, and everything am saying is not official. It's something that I have developed interest and I have decided to find out ways of using them. Why I decided to use WhatsApp for example for group discussion was that it's one thing I have realized with the students is that, students are always on so I ask myself, students are always on WhatsApp, then why don't I also Interact with them? So, with group work, I want to get their groups if I give group activities, it will help with the communication. I have also some email groups I have formed. So, email is one of them, but I don't know if we can identify it as one of social media. So, I use them mainly for group activities in classroom activities where I want to deal with individual group, I prefer to use social media so that I can communicate with them directly.

Question 6. what about YouTube?

I don't really use YouTube. As I speak right now, I have a YouTube address where I have decided to put some of the students group work especially the multimedia component. If you type my name, you will get a couple of videos that I have uploaded and they are all student projects and some of them are very good and some of them are receiving a lot of responses. It makes the students proud when they see their work online and they see the likes and comments. So that is what I use YouTube for because it is not interactive apart from the comments you get. I also refer students to YouTube for tutorials that I have

identified. Some very good tutorials are on YouTube and occasionally, I refers students to some tutorials I find useful on YouTube.

Question7. What are your motivating factors?

Whether we like it or not, this social media has come to stay with us and the students are using them for various reasons some of which are very very bad. They are not using it productively so am always saying, then why don't we channel out activities on the things that they like doing best so they will be using it for whatever they want to use it for but once they know learning can also take place there, then they will combine learning with play and they will be able to make meaningful use of it. I can say that, it is the relevance of it. It serves as a way of getting the students to make profitable use of social media instead of always using it on their things that waste their time.

Question8. Is there any institutional drive of using social media?

You know institutionally, there is nothing like that and that is one of the problems we have. This is something that we have been taught of long before now where we should try to identify ways of making use of it and institutionalizing it and making the students get that aspect that will make them learn so that we project the component that will make them learn instead of allowing them to use it for their own things. The point here is that, they are very easy if you want to use social media to do anything because they are available. Every useless man can go online and install WhatsApp, YouTube and everything so there is no problem with availability. They are available and almost ready and sometimes even where there is no Wi-Fi, they are able to do small small bundles thanks to the internet service providers and the Telco's and so on. They are able to do small small bundles that makes it possible for them to use it. So, it's available. Virtually, there is no restriction.

Question9. Which aspect of your courses do you integrate social media?

Currently, am more into pedagogical component of graphic design so I teach seminars on graphic design so I try to get group presentations that they will do in class, groups and we discuss what is going on right from operation to delivery. Why I do that? I have realized along the line that when you give group works, some students don't participate but in a group discussion on WhatsApp for example, it is easy for you to know those who are contributing. You put a question and you get responses so if they are six in a group, you realize that only four people are constantly responding, it is easy to know who is taking part in the discussion or who is not taking part and they are not staying at the same place for you to say they are even comparing so you schedule a meeting time and then we start talking about the topic. There are some discussions that involve the whole class and sometimes too, in the area of topography for example, if you are teaching or am teaching design, I would want to look at the work they present because it is so difficult to pay individual attention. Because phones are with us all the time so by the close of the day, you have seen a whole lot of works. Right now for example, there is a project that I have given them (the final years). They are doing graphic design for the real world. They are actually working for clients and execute design work. So what am doing is, I want to save them work, so occasionally they will bring where they have gotten to individually and am able to look at it and make one or two comments. So it's very easy to pay attention when you are on social media. Now am trying to introduce slack. I haven't had time to prepare

my note that one is a bit complicated but I realized that with slack, not like WhatsApp, for example, if you are not in the group, you wouldn't have access to the past discussions that have passed but with slack, like am teaching four courses and they are all on slack and this year, those who will join, the current group level 400 going, next year those who will join slack will see all the works and discussions that I had with the previous students. So that one is a very big platform and I believe academically, that one can really help so it's one social media platform that am very interested in. am trying to know more about it and see how I can seriously integrate it in teaching.

Question 10. Would you say that social media is useful?

It is like any other thing that has happened to us since creation. They have their pros and cons. Even cutlass have their disadvantages and I always describe the modern technology and social media and others like cutlasses or weapons. If you bring a weapon to the house and you don't tell your children the good and the bad aspect of them, before you realize somebody has used the cutlass to kill somebody but if you bring a sharp cutlass and the child has been educated to know that this thing can kill, this thing can also weed and clear a bushy area you know, you are giving the children choices and if the child who has these choices refuses to use it, then it's up to them just like other things. What is happening with social media is that they are happening, children are using them and learning them on their own, doing their own things with it and we are just sitting back saying its bad, the children are now on the phone all the time. What are we doing? This is one of the responsibilities of education. If this is it, why don't we channel our practices so that through it, they will play with it and also learn with it and you know if we can use social media effectively, we can have the best students in the sense that nothing is more exciting than learning through play. So, when student is learning these gadgets, it's like playing to them and along the line they will also be chatting. You may say it's distractive but then, if you really organize things well, I personally believe that we have lot of advantages of social media that we haven't explored yet but in any case, whether we try or not, the children will never stop using them and that is the danger. So it's good or bad, it has a lot of attraction thus a lot of good things for children that will never stop them from using them so we better identify ways of using them instead of lamenting that it is bad instrument

Question11: How often do you use it?

For now, I cannot say it because it is not a structured thing and personal experimentation and something that am talking about with friend. I can't say it is occupying a greater of my teaching methodology but I can say about 25% of activities I do with students, I try to involve social media for example when we are in class and I ask of anybody with a dictionary, they will be sitting down. It's like they don't even know they can learn with the phone meanwhile; they have dictionaries on their phones. I ask them, don't you have dictionaries on your phone? And you realize that quickly everybody is bringing up their phones and it's so interesting. Google can give a lot of responses so there is nothing that baffles me in class which I wouldn't refer students to their phones and they get result and they are able to give good responses and because of that, when I ask a question in class, they quickly give answers and we explain and discuss the definition of terminologies. I think that alone can improve student's vocabulary and their understanding of terminologies in art and all of that.

Question12: opportunities in teaching and in research

Ok I think in teaching, everything that I have said will really help. Students will feel good knowing that teachers would want them to learn with social media. so it enhances learning and makes learning interesting, they learn through play, through what they like doing best so I believe that in teaching, if we use it effectively, it will promote learning and it will motivate students to learn more because they are doing everything through play and in research, these days every information is online and data collection using social media is one of the coolest thing we can think of. There is this paper am trying to do and I told myself that in fact the kind of questions I wanted to ask, if I want to use interview like we are doing or use questionnaire, I wouldn't get anything. I didn't want to use google survey because they are all formal unless you are going to deal with matured people who are going to give you really what they feel. So, I decided to give it to students to put them on their WhatsApp groups. It is very difficult to collate but if you know how to connect it to your pc, it's not really difficult. Just copy and paste the responses. So what I did was to give it to student and I made I made the student to put them as if they are the ones asking the questions in their WhatsApp groups for their class and all of that. When they do that, their colleagues think the questionnaire is coming from them and so they are able to give genuine and honest answers where somebody would want to insult, they do and you know exactly how they feel and when you read the kind of the things they say about it, you will know that this is exactly how they feel about it. It is a research among the lecturers and I wanted to find out whether students read what they even know that we publish and the responses are so interesting and am still compiling them and anytime I sit and read, ha-ha. Somebody will say "our department who publishes"? And others will say "I heard Dr. has published something and what is it about"? "OH! That thing I read, there is nothing in it. Am telling you, this is the discussions that goes on and few times amongst the graduate students, some people have read certain things and they are not too sure whether they are relevant to their course of study. Right now, am also establishing that, most of the things we are teaching so our students are not benefiting from it. That is for those few people who read, and many people don't even know that we do something called research and publish. They don't know the journal we are publishing in because they say we should publish in foreign journals so how can our students get access to them and a whole lot. Am getting them informally through WhatsApp that is those from the student for research, I think it's very interesting avenue for data collection.

Question13: what about for professional development?

Professional development of course, if you are able to use it well in research, we are promoting ourselves and working professionally.

Question 14: What are the challenges of using SM for teaching and learning?

Disadvantages: yes, you know, it is very very addictive. A lecturer can be addictive to it and so are the children. I think that is what we want to avoid and that is why we want to integrate it into students learning. The fear is that allowing them to use their mobile phones frequently will promote this addiction. That is me, if you want to talk about the disadvantages of social media, addiction is the first thing and once addiction sets in, then waste of time and energy. Some of them don't even read. Some will sleep, others will chat the whole night and all of that and it affects them. These are the disadvantages and there

is general disadvantage to other things. If we want to integrate then, we have to look at things and also regulate them and we will use social media itself to educate them to get them know what they didn't know about social media.

Question15: What would you recommend as the way forward?

Personally, I wish something like what you are doing will be formalized even for staff because with the things that am saying, most of the staff members don't know and don't discuss and most of the time, the reservations are more than the good things that we stand to gain from social media When we employ these things. So I think that we have to take our time and study the social media. There are many of them. You know we have blogs and we can create a blog and if you create a very good blog, you don't need to give lecture notes to them. There are times that you can put all your lectures on your blog as you refer your students to read and make their reflections on them so they are very important and we have to learn. We ourselves need more education on that. We have to educate ourselves properly and the moment we are able to find so many ways of using it. I think we should learn. Whether we like it or not, our children are learning very very well and that is what brings the danger. If you know they know, then you can direct them to use it appropriately and here is the case they know we don't know, and we are always condemning it. Like my 8yrs boy will tell me, "you papa you don't know whatsup" like you don't know what is going on. So, they want to tell you they know more than you. So, my recommendation goes to parents and teachers. We have to learn it and know the good and the bad so that we can be at the better position to direct how to use. Unfortunately, this years I have not done mush teaching but if it was last year, I would have referred you to my students and the experiences they have had and what they learnt to do and all of the things we did.

Thank You

APPENDIX 8: PROTOCOL CONCENT FORM

UNIVERSITY OF GHANA

Ethics Committee for Humanities (ECH)

Official Use only Protocol number

PROTOCOL CONSENT FORM

Section A- BACKGROUND INFORMATION

Title of Study:	Integrating social media platforms into higher education pedagogy in Ghana
Principal Investigator:	Ms. Patricia Appiah-Boateng
Certified Protocol Number	

Section B– CONSENT TO PARTICIPATE IN RESEARCH

General Information about Research

- The purpose of this study is to explore the integration of social media into higher education pedagogy in Ghana. It seeks to fill gaps in literature by exploring the upcoming storm of social media in higher education. The study adopts a triangulation mixed methods approach in exploring the research problem in its entirety.
- Participants will be required to use about 15 to 30 Minutes to respond to the questionnaire and interviews respectively.
- Questionnaire, interviews, focus group discussion and observation will be used to elicit information from faculty and students from the University of Education, Winneba and Ghana Technology University College. Participants will be sampled using stratified, multistage cluster design with purposive and simple random sampling techniques.

- Descriptive statistics and the thematic approaches will be used to analyse the quantitative and qualitative data respectively.

Benefits/Risks of the study

- Findings from the study will inform policy on adopting appropriate social media technology into higher education pedagogy in Ghana. It is anticipated that as demand for higher education is increasing with limited infrastructure to meet this high demand, current trends in technology and for that social media will be embraced as a strategy to meet this challenge.
- There will be no hazard or risk to participants in this study.

Confidentiality

The participants will be assured of confidentiality and anonymity before the data (survey, interview and focus group discussion and observation proceedings) will begin, especially in the aspect of a voice or audio recorder that will be used to record the data. The data will not be shared with any party and will be kept solely by the researcher and saved with password on computer. The identity of participants will be anonymized, and pseudonyms will be used in the research report.

Compensation

No compensation packages will be given to the respondents in this study.

Withdrawal from Study

- Participation in the study is voluntary and respondents have the right to withdrawal from the study at any time they deem to.
- Participants will not be adversely affected in any way if they decline to participate or decide to withdraw participation later.
- Participant will be informed in a timely manner if information becomes available that may be relevant to the participant's willingness to continue participation or withdraw.

Contact for Additional Information

- Please you may contact the researcher for additional information and clarifications on the research.
  Ms. Patricia Appiah-Boateng
  Telephone number: +233543044818
  Email: patricia.ananga1@gmail.com

- If you have any questions about your rights as a research participant in this study you may contact the Administrator of the Ethics Committee for Humanities,

ISSER, University of Ghana at ech@isser.edu.gh / ech@ug.edu.gh or 00233- 303-933-866.

Section C- PARTICIPANT AGREEMENT

"I have read or have had someone read all of the above, asked questions, received answers regarding participation in this study, and am willing to give consent for me, my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records."

_____

Name of Participant

_____

_____

Signature or mark of Participant Date

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered, and the volunteer has agreed to take part in the research.

_____

Name of witness

_____ _____

Signature of witness / Mark Date

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

_____

Name of Person who Obtained Consent

_____ _____

Signature of Person Who Obtained Consent Date

APPENDIX 9: SAMPLE STUDENT FOCUS GROUP DISCUSSION TRANSCRIPT

1. Q. The first item is going to touch on how social media tools are being used by learners. So, what in your opinion is social media? Can we start with P1?

ANS. P1 Social media is a platform whereby individuals can visit in order to get information. Yes. So that is my view on social media.

2. Q. Mention some of the types of the social media platforms you are conversant with

ANS. M1: For me I am conversant with WhatsApp, YouTube, instagram, IMO, telegram, snap chat and Facebook

3. Q: What do you use social media for, basically?

ANS. M1: I use social media basically for social interaction and getting information.

4. Q. Do you use any form of social media for your studies? If yes, share with us what you use it for

ANS. M1: the answer to that question is yes. I actually use telegram, WhatsApp and Facebook in general to help me get information. And actually when it comes to telegram, we have channels where we have groups, about fifteen thousand people inside there and we have different, different channels. If you are in a channel let's say a channel that deals with technology and let me just say hacking they almost always update the channel by imputing information such as pdfs and actually APKs that will help you do some stuffs that you might want to learn and with the pdfs it's very educative so through that information are also learnt. And for the WhatsApp also, sometimes you can be in the house and your friend will. WhatsApp you a question that oh! Charlie help me solve this and you solve and you just snap, you take a picture and send it to the person also help you so that is WhatsApp

5. Q. which point of your lessons do you think social media platforms are necessary for you to use and how do you use it in those instances?

ANS. M5: in the context where I use social media the most is when I see, getting to examinations and then you have to solve different questions and because you know there is very little amount of time in the examination hall and you have to solve different questions, different times is when I use social media, you go there and people are using shorter approaches and different ways to just get it and the understanding just ok, ok so I can you this and arrive at this at the content where I need to get something simple, something more easier is when social media comes more into content.

6. Q. What arouses your interest to use a particular social media platform? In other words, what are the factors that influence your usage of social media platforms?

M3: I have two main underlining factors that enable me to use the social media and that one it has to do with my academic and the other has to do with entertainment. With the case of the academic work, as said earlier, sometimes it happens that you will not be aware that there are quizzes and other lecture schedules so upon that fact people, through the social media post it in the group for you to be aware that something of that sort is going on. And sometimes it happens that there are some sort of information which are given to the course reps and other people by the lecturers for we to have access to and it can happen that you can't get it directly from them so what they do is they put it in the group for you to download and have access to it. Then in the case of entertainment sometimes if you are feeling bored and other things you use the social media for you to get a little satisfied in those things.

Q.7. we want to know whether there is that freeness in the use of social media. Are there any restrictions

M4: Yeah in my opinion, there is freeness most of the time without restrictions it is only that for some files there are keys so getting the files are difficult, but the platforms are easy to access

Q.8.Do you think it is useful for lecturers to integrate social media in their teaching? If so, give us the reason.

ANS T2: integration of social media in the classroom, I will be more specific to watsup, we have a watsup group and we are all working on a project, visual basic project. What happens here is that you work, whiles you work you get errors, you face problems what you do is that you just take a picture of what is on your screen to the lecturer. Questions will be asked if you have done what is right and you are not getting what you are

supposed to get you will know. If you are not doing the right thing too, he will let you know and through this it is very unessential to us. It is very important

Q.9. How often do your lecturers use social media platforms for their teaching?

ANS.: M1 the lecturers actually use it most at times. The lecturers often use the social media often times to, often times let's say let me give a scenario when we were in level hundred. One our lecturer who was teaching us ComSkills, he was part of the group and since Com Skills was about this Grammar, English and those stuffs and sometimes someone will post a question like "neither nor" and that kind of stuffs and the teacher will just clarify it simply and then we will move forward. So, in terms of that I can say that they use it most often, often times but not all the lecturers use that'

Q.10.Which aspects of your courses or your program do they use social media to teach?

ANS. M2: ok as my colleague just said, actually when it comes to mathematics per say, it is not all the time that you see lecturers actually posting things about what we are studying apart from maybe when they want to schedule a lecture or when we have a quiz. But there are some instances maybe once a while when they want you to get a particular thing. I remember our Geometry lecturer, that is level 100 second semester, we were studying this ***connect section*** where he actually posted a picture of them on our watsup page. And about the Comskills level hundred where our lecturer too was putting some of these subject verb agreement things on the watsup page. That was when we actually were sharing information on the watsup pages.

Q.11: I want you to list the number of activities that you use social media for. Academic activities.

ANS. M1: I actually use CORA. That is the social media that I like to use most apart from YouTube, CORA is also very cool where most at times, almost every information that I look for, I get answers which I am always satisfied with.

Q.12: What are some of the pportunities and threats that exists in the use of social media for teaching and learning.

ANS. M3: I will say that social media has a lot of advantages and some of these advantages are research findings and helping us to get a lot of information from the media and also not just researching and getting information but it helps you to get better in-depth of understanding of what is because it happens that sometimes you go there and you get various source of or varieties of information and upon that fact what you do is you go through and pick the one that you think is best suits what you need. So, it helps you to get better understanding of what you need.

Q.13: What are some of the challenges?

ANS. M4: Yeah, I think I agree with what my colleagues said the first disadvantage is distraction. Sometimes you go there to find information about a given topic and you find yourself at another place one dawn I was searching information about a given topic whiles I was at YouTube I saw a video about Cristiano Ronaldo scoring a goal against Juventus so I went there straight forward and I watched that video that is one disadvantage. In addition, some of the networks they use more data at YouTube so when you go there you have to spend more credit there too. So, I think that is a disadvantage.

Q.14: What are some of your recommendations for the way forward?

ANS. M2: I think to improve the use of social media, I think some of the lecturers should incorporate the idea of on-line lectures and then actually maybe at the beginning of the semester, they should actually give us a specific site where we can search for specific information so that we will not be misled by going for any chaff on the media since we have chaff messages or information on the media

Thank you

You are welcome Madam

SN	DATE	LOCATION	AUTHOR(S)	TITLE	SAMPLE	FRAMEWORK(S)	METHODS	KEY FINDINGS
1.	2017	Nigeria	Sarah Gamboc & Oberiri Destiny Apuke (2017)	Benefits of Accessing Health Information on Social Media among Female Students: A study in a Nigerian Public University	100	Health Belief Model: individuals are moved to carry information on media is it will help them health wise	Quantitative	Facebook is the commonest of platforms used; Users depend on social media because it is credible; High benefit of social media to diffuse health-related information; Facebook & twitter has increased awareness of outbreak of diseases
2.	2017	Germany	Jens Riehemann & Regina Jucks (2017)	How much is teaching and learning in higher education digitized? Insights from teacher education	75		Qualitative	University academics think that the level if digital usage in university course is appropriate; Digital media offers ways to organise materials & learning opportunities; However, digital media might generate negative consequence

APPENDIX 10: SYSTEMATIC LITERATURE REVIEW TABLE

3.	2016	India	Sarwatay et. Al (2016)	Role of media in decision-making: what helps students join a business school	210		Quantitative	Top 3 social media platforms were WhatsApp, Facebbok & YouTube, followed by Skype, Hike, Google+, Twitter & LinkedIn
4.	2016	Malaysia	Nur Shamsiah Abdul Rahman, Mohd Shahizan Othman & Waleed Al-Rahmi (2016)	Exploring the use of social media tools among students for teaching and learning purpose	235	Structural equation modelling	Quantitative	Use of social media positively and significantly relates to active learning, which in turn affect teaching and learning.
5.	2017	Canada	George Veletsianos, Royce Kimmons & Laura Pasquini (2017)	Selective openness, branding, broadcasting, and promotion: Twitter use in Canada's public universities		• Social Constructivism • Acceptable Identity Fragments	Mixed methods	Institutional twitter accounts were used predominantly for branding and marketing.
6.	2017	Malaysia	Ali et. Al (2017)	Strengthening the academic usage of social media: An exploratory study	47	• Social Constructivist Motivation theory; TAM	Qualitative	Psychological characteristics, information quality, social influence and system usefulness are leading motivating factors to use social media for academic purposes

1.		Malaysia	Al-Rahmi & Othman	The impact of social media use on academic performance among university students: A pilot study	80	Conceptual framework using social media influences on students' academic performance thru' collaborative learning. Thus, students' awareness from Peer interaction, teacher interaction, engagement, simplicity of use of social media promote active collaborative learning, resulting in enhanced students' academic performance.	Quantitative	Social media facilitates academic experience of students; Students need to control and manage their time to curtail the negative impact of social media on their academic lives.
2.	2015	America	Edmore Mutekwe	Higher Education and Social Media Technology: A Dilemma unfolding in Institutions of Higher Learning	20	Social constructivist epistemology	Qualitative	Attitudes of HE educators towards social medial use in the classroom is among the strongest predictors of whether or not HE institutions would adopt or integrate it into their classrooms;

								in spite the popularity of social media tools, many of the HE lecturers are hesitant to use it in their classrooms; A generation of young university lecturers particularly those between the ages of 25 and 35 years identified the effective use of the social media technology as an important area for supervisory professional development, leadership and dialogue; However, the old guard or old professors and some senior lecturers cautioned the use of social media in the classroom on the grounds that it is difficult for them to monitor the responsible use of social media as teaching and learning tools and to make sure that the social media technology adheres to the code of professional standards;

								Social media engages the students and lecturers in the content and thus allows them to be included as active participant as they construct a learning landscape rooted in social interaction, knowledge exchange and optimum cognitive development with their peers; However, communication in education is something that has to be strictly controlled, filtered and measured yet social media takes that control away from the authorities, teachers, administrators and other stakeholders unleashing the use of social media in the classroom has the potential to unsettle, rouble rouse and present a host of uncertainties through new communication pathways some of which might render the HE institutions ungovernable

3.	2016	Staffordshire	Katy Vigurs	Using Twitter to Tackle Peripherality? Facilitating networked scholarship for part-time doctoral students within and beyond the university	62		Qualitative	The use of twitter gave them the opportunity to 'silently' observe others' networked scholarship of peers, supervisors or other academics Twitter usage can help manage 'fractured student identity' experienced by many part-time doctoral students
4.	2016	Malaysia	Mura Ali, Raja Ahmad Iskandar Bin Raja Yaacob, Mohd Nuri Al-Amin Bin Endut & Naseeb Ullah Langove (2016)	Strengthening the academic usage of social media: An exploratory study	47	Social Constructivist, Motivation TAM	Qualitative	The uses of different social media applications are mainly consumed for information sharing, entertainment & socialisation; As a new form of communication, social media can enhance students learning performance Students agreed that psychological characteristic, information quality, social

								influence and system usefulness are the leading factors that can motivate them to use social media platforms for learning and academic purposes
5.	2016	India	Velsamy & Karthikeyan (2016)	Social media in the professional development of B-school faculty	153		Quantitative	The time spent on social media by faculties depend on different age group of faculty Gender had significant relationship among usage and awareness of social media for faculty professional development; Faculty get subject knowledge as well as research knowledge by the use of social media; Averagely, maximum post-graduate faculties spend 20 hours on social media; Facebook & blog sites are highly used by Assistant Professors;

								Popular social media sites are Twitter, Facebook Google+, LinkedIn, Instagram, YouTube and Blogs; Professors and students are highly using social medial in the classroom.
6.	2017	Pakistan	Khan, Ahmed & Amin (2017)	The Impact of Social Media on Teacher's Performance: A Case of Higher Educational Institutions of Pakistan	186	Conceptual model of social media and teachers' performance using 4 factors (usage of SNS, creativity, knowledge sharing and collaboration & interaction)	Quantitative	Social media are now becoming leading media with significant impact on teachers and students: Collaboration and interaction of teachers through social media for discussion and knowledge sharing has positive impact on teacher's performance Creativity enhanced through social media has positive impact on teacher performance; knowledge sharing through social media is positively related to teachers' performance

7.	2017	Turkey	Aydogan & Buyukyilmaz (2017)	The effect of social media usage on students' stress and anxiety: A research in Karabuk University faculty of Business	487	Social satisfaction model/social action model	Quantitative	The need to follow the developments in the social media increases stress levels rather than the time spent in social media. This finding points out to the necessity of intensely examining the Cyber public sphere, identities generated in the cyber public sphere and adaptation problem.
8.	2012	UK	Potter & Banaji (2012)	Social Media and Self-curatorship: Reflections on Identity and Pedagogy through Blogging on a Masters Module	6	Social capital theory (Hargitai, 2007) Identity theory (Goffman, 1990)	qualitative	The students saw the blog as a space in which they presented and represented aspects of themselves within a performative context; Blogging allows different modes to become available to be combined to make meaning but it is uncertain how we account for them fully and this tension goes to the heart of the integration of new literacy practices in a system which is essentially based in old literacy practices; The idea that requiring a blog as part of an academic assessment

								might be less challenging than writing a traditional academic essay, turned out to be quite misplaced since most students were more comfortable and experienced in traditional academic formats than they were in the reflection-made-public mode required by the blog format.
9.	2015	USA	Leafman (2015)	Online instructor perceptions of social presence and educational use of social media	92	Community of Inquiry	Quantitative	Instructors indicated that online discussions in an LMS helped them develop a sense of collaboration: However, communication through LMS was not an excellent medium for social interaction
10.	2014	Malaysia	Najwa Hayaati Mohd Alwi, Normazla Ahmad Mahir & Shaharudin Ismail	Infusing social media in teaching and learning (TnL) at Tertiary Institutions: A case of effective communication in	263		Quantitative	Social media are highly used: a. For keeping in touch with classmates b. Useful for academic work

				Universiti Sains Islam Malaysia (USIM)				c. Help to develop social skills & enhance their campus life d. Social media are preferable as the effective communication medium between lecturer and students
11.	2014	South Africa	Godwin P. Dzvapatsva, Zoran Mitrovic & Anthony D. Dietrich	Use of social media platforms for improving academic performance at Further Education and Training Collegaes	38	Theory of knowledge creation	Quantitative	Students agreed that FB could be useful for increasing contact time with the learning material, their peers and the lecturers or subject experts There were some challenges reported: a. Bandwidth problem resulting from abuse by students b. Increase in network activity c. Access everywhere on campus
12.	2014	Middle East	Ilknur Celik & Cyril Schoreels	Use of social media across different generations in higher education in a developing country	1,8310 1,606 students 225 faculty		Quantitative	Social media is considered beneficial irrespective of generation association in education However, experiences and concerns seem to differ across generations.

								Even though participants think social media is beneficial and easy to use, the Baby Bloomers (BB) indicated that it is difficult to manage and follow many platforms, generations X and Y equally struggle to maintain information flow across platforms It is important to agree on one or two platforms for educational purposes will be useful to enhance the advantages in social media use
13.	2016	Saudi Arabia	Alsuraihi, Almaqati, Abughanim & Jastaniah (2016)	Use of social media in education among medical students in Saudi Arabia	657		Quantitative	YouTube was the most used site, followed by Facebook. On YouTube, was easier to search for specific topics, to share with others without the need for an account, and to find a variety of examples on the same subject YouTube was found to be better regarding content, integration of information, and interaction among users when compared to textbooks and eMedicine

								articles; A majority of students considered SM as beneficial to their learning; Most students in the study think their tutors do not use SM effectively something to be attributed to the absence of organizational policies or the underestimation of SM's importance in education.
14.	2016	Israel	Sigalit, Sivia & Michal (2016	Factors associated with nursing students' resilience: Communication Skills Course, use of social media and satisfaction with clinical placement	149		**Mixed**	Students' social media use was positively correlated with both personal and group resilience Use of social media and having friends were both positively correlated with a higher perception of the helpfulness of the course; Students who use social media for learning increase their chances of peer learning.
15.	2013	New York	McAliney, Peter J. (2013)	How undergraduate students use	11		**Qualitative**	a) prior SM use for academic work, b) students' SM communications are critical, c)

				social media technologies to support group project work				SM 'immediacy' can blur team member roles, i.e., individual responsibility, integrated planning. Colleges/universities should support use of SM for instructional purposes by providing workshops/tutorials for both students and faculty
16.	2013	California	Zheng, Binbin (2013)	Social media and classroom writing: Participation, interaction, and collaboration			Implemented a one-on-one Laptop program, using microblogging and Google Docs, on upper-elementary students' authentic writing skills	At-risk favoured netbooks the most; Hispanics and low SES students gained the most in standardized writing achievement. Results show educators that the integration of SM technology facilitates students' participation, interaction, and writing/literacy development.
17.	2013	USA	Frazier, Stephanie D. (2013)	An analysis of the current use and intentions to use mobile learning strategies among full-time	546 community college fulltime faculty from the South		**Quantitative**	About 67% of the faculty members utilized at least 1 or more m-learning tools; Some faculty felt that SM use can be disruptive to student learning

				community college faculty	responded to a 21-item survey on mobile-learning strategies for student engagement			and that institutional support may be limited.
18.	2013	Ghana	Kofi Sarpong Adu-Manu, John Kngley Arthur & Clement Yeboah (2013)	Challenges and opportunities for the implementation of social media network technologies (SNTs) in teaching in universities in Ghana	80		**Quantitative**	Some students could not own smart phones although all of them carried mobile phones hence use of technologies could only be considered complementary; In the field of education social networking sites offer students the opportunity to connect with other students, educators. **Benefits include** support different teaching methods due to its flexibility, creates effective teaching and learning environment, teaching location is independent, brings about creativity and innovation,

								convenient and easy to use for teaching due to its interactivity enhances quality academic outcomes Challenges include incompetence in the use of multimedia tools, safety and privacy issues, and change in teaching methodology brings about dissatisfaction since most teacher prefer traditional methods for teaching.
19.	2013	Pittsburgh	Zywica, Jolene (2013)	Using social media to connect families and kindergarten classrooms			Using a directive instructional approach, this study outlines strategies that school principals can use in implementing SM tools for classroom communication and instruction	Discussion centres on overcoming the challenges and drawbacks (e.g., inappropriate content, socializing, bullying) on SM use in classroom learning; the central importance of preparing students for the tech-savvy skills needed for college success are noted.

20.	2013	Chicago-USA	Greenberg, Sallie E. (2013)	Impact of social media as an instructional component on content knowledge, attitudes, and public engagement related to global climate change			Used Facebook as an integrated component of a community college environmental biology course; measured student a) content knowledge, b) attitudes toward climate change, & c) public engagement intentions; used comparison group analyses	Although no significant differences between the 2 instructional formats were noted in content knowledge, the Facebook group was more concerned and more socially active about climate change. Interview data showed that Facebook use removed class engagement barriers for shy students, facilitated class discussion time, and provided supplemental reading provided by posts from fellow classmates.
21.	2012	Arizona	Lenartz, Andrew J. (2012)	All my rowdy 'friends': The use of social media in higher education			Using a **qualitative** design, with focus groups, examined SM use by administrators & faculty at large community college system	Exploratory findings indicated that faculty expect SM use for instructional purposes, at the college level, to increase; one downside expressed was the blurring of the boundaries between SM for personal versus professional use

22.	2012	Liberty University-USA	Williams, Robert W. (2012)	Digital immigrant teacher perceptions of social media as it influences the affective and cognitive development of students: A phenomenological study	10		A **qualitative** design (using interview data, observation, and focus groups), evaluated 'immigrant' teachers' views on the impact of SM on high school students; 10 teachers from 3 H.S. in Alabama participated	Findings showed that teachers acknowledged that SM can enhance teacher-student interaction and serve as a 'communication' forum in educational settings.
23.	2012	USA	Tuma, Lorie A. (2012)	The impact of Facebook access in creating a sense of community in tourism and recreation classes			A **quantitative** design compared college students with 'full access' to their instructor's Facebook page and degree of 'sense of community	ANOVA analysis indicated no significant differences with regard to social cohesiveness of these students. Findings question the utility of Facebook in enhancing a 'sense of community' in the college classroom.
24.	2012	USA	LeNoue, Marvin D. (2012)	Educational social software: The use of social network sites for			This **mixed-methods** research examined the	Survey respondents a) strongly felt that 'privacy' controls are the key feature in the educational use of SNS, and b) supported the

				teaching and learning			use of SNS in education and training settings	utility of SNS applied to the delivery of education.
25.	2012	USA	Luttrell, Regina (2012)	Social networking sites in the public relations classroom: A mixed methods analysis of undergraduate learning outcomes using WordPress, Facebook, and Twitter	34		**Mixed methods** - survey data, focus groups, & an evaluation rubric) the efficacy of 3 SM modes regarding comprehension of course materials	Twitter and WordPress were rated as more effective than Facebook in comprehension and completion of academic assignments. However, Facebook was viewed as a valuable platform for conducting course objectives
26.	2012	USA	Nowell, Shanedra D. (2012)	Stories of digital lives: Teacher-student relationships in secondary classrooms and digital spaces			**Qualitative** (interviews, focus groups), both high school teachers' and students' views toward digital purposes was investigated online media for academic	Teachers used Internet, online video, mobile phones, and SM to support classroom instruction. Although teachers felt that digital use would increase student learning and engagement, these H.S. students felt somewhat reserved about crossing the boundaries between social and academic adaptations of SM with their teachers.

27.	2011	USA	Olson, Douglas (2011)	The relationship between community college student engagement and student usage of online social networking			This **quantitative** analysis examined both social and academic use of social networking in a large sample of community college students; age, enrolment status, ethnicity, and gender differences on SM use for academic purposes were examined	Findings showed that SM, for this sample, was used predominantly for social rather than educational purposes; age, collaborative learning, and student-faculty interaction demonstrated medium effect sizes. The students who use SM academically experienced greater levels of engagement for active and collaborative learning and student instructor interaction
28.	2011	USA	Ahmadi, Zia (2011)	Technology-enhanced project-based learning in a large undergraduate anthropology lecture course			In a **qualitative** exploratory case study design, this research assessed tech-based learning in a college-level course; the instructor, 3 TAs, and 2	Interview and observational data showed that the instructor relied on Facebook and a wiki course management system for instruction; Although the initial reaction of the students regarding SM use was tepid, they adapted, in a positive manner, as the course progressed.

							students were the participants	
29.	2011	USA	Bradley, Tabitha L. (2011)	Perceptions of in-service teachers on their interactions and behaviors on Facebook: A phenomenological study	10		Qualitative	The phenomenological analysis indicated that these teachers do not see any difference between school related or social communications through Facebook; the study supports proactive educational guidelines so as to deter any inappropriate online behaviours or communications on the part of educators
30.	2011	USA	Buono, Lisa L. (2011)	Thinking like twenty-first century learners: An exploration of Blog use in a skills-based counsellor education course			Qualitative – The phenomenological study explored the lived experiences of counsellors in training when blogging during coursework; criterion sampling methods were used	The following themes emerged-feeling supported, developing connections, expressing oneself, discovering diverse perspectives, finding commonalities, perceiving online safety, and reflection; Findings suggest that a course blog can be a valuable instructional tool.

31.	2011	USA	Cohen, Alexis (2011)	Higher education students' perspectives of the relevance of the online social networking site Facebook to education	283		Quantitative Descriptive statistics, correlational analyses, and ANOVAs were performed	Interestingly, this sample of students in higher education 1) did not view Facebook as a useful academic tool, 2) did not desire contact with instructors via Facebook, and 3) held negative attitudes about integration of Facebook into the educational process; males used Facebook significantly more than female students for academics.
32.	201o	USA	Swanson, Troy A. (2010)	The administration of community college blogs: Considering control and adaptability in loosely coupled systems			A multiple case study method was applied to 1) understand how college administrators view the academic applications of blog authors, and 2) develop a model that facilitates the integration of Web 2.0 technologies	Exploratory findings examined the adaptability of college administrators to advances in Web 2.0 mediums, particularly how tools like Facebook and Twitter are incorporated for educational applications in higher education.

33.	2010	USA	Bishop, Melanie (2010)	Virtual teacher talk: Blogging with and by pre-service teachers			Qualitative Based on an Action research design, 34 undergraduate pre-service teachers participated in the use of blogs during a foundational course; data sources included reflective field notes, focus groups, and observer notes	Findings demonstrated that blogs were effective and enhanced the communicative learning experience; however, not all students benefited from the experience; the author cautions that educators cannot ignore the challenge of the appropriate use of Web 2.0 platforms in academic settings.