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TERTIARY STUDENTS' ENGAGEMENT WITH PROFESSIONAL LEARNING NETWORKS AND EMERGING TECHNOLOGIES IN LEARNING: THE CASE OF A COASTAL UNIVERSITY IN WEST AFRICA

***Bernard Wiafe Akaadom (PhD)**
Department of Mathematics and ICT Education,
University of Cape Coast,
Cape Coast,
Ghana.

**** Florence Afua Takramah**
Department of Mathematics and ICT Education,
University of Cape Coast,
Cape Coast,
Ghana.

***** Gloria Bless Anagbonu**
Department of Mathematics and ICT Education,
University of Cape Coast,
Cape Coast,
Ghana.

ABSTRACT

The main aim of this study was to investigate students' views on their engagement with professional learning networks and emerging technologies for students' use and how these impact their studies. A sample of 150 students from the University of Cape Coast, Ghana was used for study. Respondents were selected from second year to final year students pursuing undergraduate degree programmes from three different departments of the university. The research instrument used was a carefully constructed questionnaire. Undergraduate students generally exhibited positive attitude towards the use of professional learning networks and emerging technologies across the five attitudinal subscales they were measured on. As a result, from the findings, it is recommended that the use of professional learning networks and emerging technologies should be taken advantage of at all levels in a university curriculum.

KEY WORDS: *Professional learning networks, emerging technologies, engagement, curriculum.*

INTRODUCTION

Recently, there has been a rise in the use of social media networks mainly for infotainment. Over the past decade, people especially the youth have been making use of social networks such as Facebook, WhatsApp, Instagram and Twitter to interact with their peers and share relevant information ranging from personal through to education and business issues. From scratch, these sites were purposely used for entertainment but through the advancement of technology, people have developed several uses for these sites including educational purposes. As students are expected to learn more complex and analytical skills in preparation for further education and work in the 21st century, there is the need to advance their way of learning in order to meet the changing demands that are required of them to excel in their studies.

Traditionally, most internal and distance learning higher education institutions adopt learning management systems to deliver online learning to learners. Nowadays, however, many students use social networking sites to share information, discuss topics or concepts, and collaborate to complete home works, assignments or term projects. These networking

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learning sites provide convenient and speedy ways of peer-to-peer exchange of knowledge and collaboration, which seems to be a preferred method of learning. Many students and teachers are joining online communities of like-minded individuals and subscribing to various blogs and websites to continue learning, obtaining information, entertaining themselves and improving their professional practice.

Professional learning is described as an internal process through which individuals create and process knowledge (Timperley, 2008). Timperley (2008) also concludes that professional learning is best conducted collaboratively. Cooperative / collaborative learning is defined by a set of processes which help people interact together in order to accomplish a specific goal or develop an end product which is usually content specific. Collaborative learning is student-centered. Professional learning was also discussed in 'What makes great teaching' (Coe R., Aloisi C., Higgins S. & Major L., 2014) report commissioned by *The Sutton Trust* that emphasised the importance of effective, ongoing professional learning. Sustained professional learning is most likely to result when the focus is kept clearly on improving student outcomes; feedback is related to clear, specific and challenging goals for the recipient; attention is on the learning rather than to the person or to comparisons with others; teachers are encouraged to be continual independent learners; feedback is mediated by a mentor in an environment of trust and support; and finally an environment of professional learning and support is promoted by the school's leadership.

The nature of learning within Professional Learning Network is social, as educators forge "relevant and meaningful connections within and beyond the school community, thereby establishing a much broader base of ideas on which to draw" (Stevenson et al., 2015). Professional learning networks consist of complex combinations of people and organizations, face-to-face and digital spaces, and cognitive and technological tools that can support continuous learning and professional growth (Trust, Krutka, & Carpenter, 2016).

Flanigan (2011) describes Professional learning networks as teacher-driven, global support networks that decrease isolation and promote independence. There are two types of Professional learning networks: information aggregation and social media connections. The information aggregation type of Professional learning networks allows teachers to stay up to date on new information by following multiple websites and news sources through RSS (Really Simple Syndication) feeds. RSS feeds allow material from one website (e.g. New York Times Education Column) to be read on other website (e.g. Google Reader). RSS readers use RSS feeds to collect new posts, articles, and updates from websites that teachers identify as valuable and "push" this information to them via the RSS reader. RSS readers save teachers time because they do not have to visit each individual website and check for updates. Teachers can rapidly skim through hundreds of articles in RSS readers and then select the articles they would like to read in their entirety. Warlick (2009) describes how RSS feeds have tamed the acquisition of information, as individuals are no longer "hunting and gathering information" (p. 14).

Another form of information aggregation is e-mail subscriptions. Many websites include a "Follow Me" or "Subscribe" widget that allows subscribers to input their e-mail addresses and receive e-mails anytime there is a new post or update on the website or blog. This turns the e-mail inbox into a RSS reader and allows learners to gather information in their e-mail instead of visiting a RSS reader website.

The social media connection type of Professional learning networks refers to students' use of social media tools to connect with various individuals around the world. These social media tools include social networking sites (e.g. Facebook, Twitter, Instagram), affinity-based group sites (e.g. Ning, Wikispaces), and real-time interaction tools (e.g. online chat rooms, instant messaging, Skype, Second Life). Although Ning, Facebook, and Twitter have real-time interaction capabilities, students generally use these sites for asynchronous learning, in that they post a question to a community discussion board or send a message to another individual and check back at a later time to find a response as is done in *Researchgate* and *Academia*. These sites are less demanding on students' time because they can write or respond to posts whenever they have free time in their schedule. These sites also provide a space for collective knowledge building and sharing where students can find support from large groups of individuals that pool their answers to find the best solution to a problem.

A Professional Learning Community is created when practitioners come together and engage in ongoing inquiry-based teacher learning (Hord, 2003; DuFour, Eaker, & Many, 2010). It involves educational professionals collaborating to identify challenges to student learning, to use data to inform discussions, to create, implement, monitor and review solutions and strategies to address these challenges. Learners thus visit these online communities to seek clarification on issues which they find quite challenging. This is in the context of finding meaning and relevance of new knowledge in order to deepen understanding so that adapting, applying and updating practice becomes a continuous cycle. Professional learning networks provide a medium where schools, institutions and

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group of learners can interact with others by developing each other's skills while sharing ideas (Eaker, DuFour & Burnette, 2002; McLaughlin & Talbert, 2006). Killion and Roy (2009) believe Professional Learning Communities to be a powerful internal capacity-building model for "re-culturing".

Patel, Darji, and Mujapara (2013) conducted a survey to show how an intelligent community and Professional learning networks are useful for students and professionals. Their study generated some descriptive statistics describing how the use of Professional learning networks among a sample of learners and professionals enhances learning. They found that approximately 163 participants out of 226 use social networking for learning purposes. Moreover, recent research has investigated how Professional learning networks benefit learners and professionals (Redmond & Lillis, 2010). They found that some top-ranked MBA schools are actively using Social Networking Sites to provide a learning environment for an extensive network of students and faculty members. Stokic, Correia, and Reimer (2013) conducted a study to explore supportive social computing-based technologies for cross-organizational collaborative learning and knowledge building activities. The results of their study confirmed the relationships between collaboration supported by Social Networking Sites and motivation to learn, and between the willingness to share knowledge and the self-efficacy for learning and knowledge building.

Students use Professional learning networks in several ways most of which enhance studies and others which are used for amusement. It can be found that one major use of Professional learning networks by students is for chatting and discussion. Based on the theoretical work by Majchrzak et al. (2013), chatting and online discussion can be defined as an activity, through which ideas, concepts, assignment issues, practice, etc., are thrown around, reflected upon and negotiated among a group of individuals using one or more learning networks. The study views the chatting and discussion construct as one concept since it is focused on understanding the learner use of any of the learning network tools for the purpose of communicating views, questions and answers, discussing assignments, or discussing any issue related to their course of study.

Students also make use of Professional learning networks for file sharing. University students often use Professional learning networks to share content files such as lecture notes, assignment information, project tasks, instructional videos, etc. Examples of these commonly used Professional learning networks for file sharing include Dropbox, WhatsApp, and YouTube. File sharing is an activity through which knowledge contents are saved in files and exchanged by learners using one or more learning networks. Elaimi (2014) found that frequently used technologies of Web 2.0 include social networking, instant messaging, and file sharing. Thus, students make use of Professional learning networks to share files with other students at a near or distant location within the shortest possible time unlike the traditional way of sharing information where students have to meet their peers in person to pass on a material to them.

Trybus (2014) posits that game-based learning motivates learners and improves learners' engagement and interactions, which greatly improve student learning. Pastor (2012) believes that social media entertainment tools provide optimal conditions to encourage engagement in learning, and calls for further research in the use of entertainment in education. This thus reveals under use of professional learning networks by students in their studies. Some courses call for the use of educational games for learning. Obviously, students make use of online computer games to gain the necessary knowledge and skills needed for problem solving in order to excel in those courses.

Chang and Chuang (2011) have the confidence that knowledge emerges from integrating information, experience, and theory. When people form groups and interact with each other, they tend to share knowledge and experiences, thus augmenting learning. In investigating knowledge sharing and learning in an organizational context, Kane, Robinson-Combre, Zane, and Berge (2010) identified that knowledge sharing supports organizational learning with social networking tools. In the academic context, Cao, Ajjan, and Hong (2013) found that social media use has a positive effect on student's learning outcomes and their satisfaction.

Based on the foregoing, this study thus investigated students' use of professional learning networks and how these impacts or enhance their studies. The study examined what professional learning networks students use and how conversant they are in using those tools to enhance their studies in a university setting.

METHOD

A descriptive survey design was used to allow for the collection of quantitative data. This method was employed as the main source of primary data from respondents. The instrument consisted of two sections. The first sought to investigate how well students make use of professional learning networks. The second tried to find out if students make use of variety of emerging technological tools in their studies. This guaranteed that data characteristics of the sample used for the study

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could be quantified for statistical analysis whilst ensuring that none of the variables were influenced in any way. It also allowed for cross-sectional sections of the same group were studied.

Participants

The respondents of the study were second to final year students pursuing undergraduate degrees in various study areas from three different departments. Respondents were randomly selected to ensure that the results of the study could be generalised to the population under study. A total of 150 respondents were sampled for the study.

The collected data were analysed statistically by the use of descriptives such as means, standard deviations, percentages and frequencies.

RESULTS

The results of the study are as presented below. Please note that the professional learning networks students were educated on in order to respond to the instrument included Edmodo, Google classroom, Schoology and social networks such as WhatsApp, Twitter, Facebook among others.

Data analysis

Table 1: Age

Range	Frequency	Valid Percent	Cumulative Percent
18-24	110	73.3	73.3
24-30	36	24.1	97.4
30-36	3	2.0	99.3
OVER 36	1	0.7	100.0
Total	150	100.0	

The results of the study as shown in Table 1 indicates that the ages of respondents ranged from 18 years to 36 years. Responses showed that, majority of students representing 73% (n=110) fell within age 18 to 24. Also, 24% (n=36) of respondents were between the ages of 24 to 30 years while 2% (n=3) of the respondents stated that they were between the ages of 30 to 36 years. The least proportion forming 0.7% (n=1) of the respondents were over 36 years.

Table 2: Gender

	Frequency	Valid Percent	Cumulative Percent
Male	107	71.3	71.3
Female	43	28.7	100.0
Total	150	100.0	

Table 2 shows the results of the gender of respondents. Results indicate that, out of a total number of 150 students who responded to the questionnaire, 71%(n=107) of the students were males while 29%(n=43) of the students were females.

Table 3: Programme of study

	Frequency	Valid Percent	Cumulative Percent
B. Ed Computer Science	23	15.3	15.3
B. Ed Management	79	52.7	68.0
B. Ed Mathematics	48	32	100.0
Total	150	100.0	

The results in Table 3 indicates that students from three different programmes took part in the survey. Of the responses, 15%(n=23) of the total pursued Bachelor of Education (B.Ed) Computer Science, 53%(n=79) pursued Bachelor of Education (B.Ed) Management while the remaining 32%(n=48) offered Bachelor of Education (B.Ed) Mathematics.

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Table 4: Use of professional learning networks (PLN)

PLNs	SA N(%)	A N(%)	N N(%)	D N(%)	SD N(%)	Mean
Enable me to collect data/information from multiple sources	62(41.3)	68(45.3)	15(10.0)	3(2.0)	2(1.3)	1.77
Engage me in constructing knowledge	50(33.3)	83(55.3)	15(10.0)	1(0.7)	1(0.7)	1.80
Help integrate ongoing reflection, analysis, critique, ideas, principles, concepts, practices, etc.	43(28.7)	74(49.3)	29(19.3)	3(2.0)	1(0.7)	1.97
Support my professional learning experience	49(32.7)	74(49.3)	21(14.0)	6(4.0)	-	1.89
Promote mastery and refined use of information for assignments and learning	53(35.3)	70(46.7)	23|(15.3)	3(2.0)	1(0.7)	1.86
Provide support to supplement lecture instruction	45(30.0)	67(44.7)	28(18.7)	7(4.7)	3(2.0)	2.04
Linking feedback with own thought processes when asked questions on platforms	29(19.5)	75(50.3)	33(22.1)	8(5.4)	4(2.7)	2.21
Promote high level information to improve academic performance	55(36.7)	65(43.3)	24(16.0)	5(3.3)	1(0.7)	1.88
Deepen content knowledge on issues under discussion	37(24.7)	80(53.4)	27(18.0)	6(4.0)	-	2.01
Use of professional learning networks helping to address educational challenges	45(30.0)	60(40.0)	39(26.0)	4(2.7)	2(1.3)	2.05
I either initiate discussions or contribute to topics under discussions	33(22.0)	68(45.3)	38(25.3)	10(6.7)	1(0.7)	2.19
Using platforms to plan educational events	33(22.3)	56(37.8)	44(29.7)	13(8.8)	2(1.4)	2.29
Platform basically deals with fun issues	18(12.1)	45(30.2)	52(34.9)	25(16.8)	9(6.0)	2.75
Platform basically deals with important issues to help my studies	42(28.0)	58(38.7)	32(21.3)	9(6.0)	9(6.0)	2.23

Key: SA-Strongly Agree, A-Agree, N-Neutral, SD-Strongly Disagree, D-Disagree.

Table 4 shows results of how students make use of professional learning networks (PLN) in their studies. Responses indicated that 87%(n=130) agree PLN enable them to collect data/information from multiple sources. Also, 89% (n=133) agree PLN enable them to engage me in constructing knowledge for themselves. Furthermore 78% (n=117) of students agree it helps them integrate ongoing reflection, analysis, critique, evaluation and synthesis of information, ideas, principles, concepts, practices. Additionally, 82% (n=123) also agree PLN supports their professional learning experiences. Another 82% (n= 123) agreed that PLN promotes mastery and refined use of information for assignments and learning. To further explore how PLN impacts respondents, 75% (n=112) of students agreed that it provides support to supplement lecture instruction and 70% (n=104) agreed that they link feedback with their own thought processes when asked questions on platforms. Invariably, 80% (n=120) of students also concurred that it promotes high level information to improve academic performance. In addition to that, 78% (n=117) asserted it deepens their content knowledge on issues under discussion. Moreover, 70% (n=105) agreed that the use of professional learning networks helps them to address their educational challenges. A high number of respondents constituting 66% (n=99) agreed that they always try to share their ideas and resources with others on their networks. Most students, 67% (n=101) agreed that they either initiate discussions or contribute to topics under discussions when using PLNs whilst 60% (n=89) of the respondents also agreed that they use PLN platforms to plan educational events. It was also indicated in the table that, 42% (n=63) agreed that their platform basically deals with fun issues. Again, majority 67% (n=100) of the respondents agreed that their platform basically deals with important issues to help their studies. The mean of the responses thus ranges from 1.77 to 2.75.

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Table 5: Emerging technologies

	SA	A	N	D	SD	Mean
	N(%)	N(%)	N(%)	N(%)	N(%)	
Using services provided by WhatsApp, SMS to get relevant academic information	68(45.3)	52(34.7)	21(14.0)	6(4.0)	3(2.0)	1.83
Participating in class online discussions using platforms such as Google Classroom, Edmodo, Schoology	45(30.4)	52(35.1)	35(23.6)	14(9.5)	2(1.4)	2.16
Reading e-books with emerging technological tools such as the iPad, smartphone, laptop, kindle, etc.	68(46)	44(29.7)	27(18.2)	6(4.1)	3(2.0)	2.0
Researching, typing, completing and submitting my assignment and project using emerging technologies	67(44.7)	59(39.3)	15(10.0)	8(5.3)	1(0.7)	1.78
Watching tutorials and videos on difficult concepts using YouTube and other related technologies	73(48.7)	52(34.7)	17(11.3)	5(3.3)	3(2.0)	1.75
Using emerging technology tools like WIFI to access information on the internet	84(56.4)	47(31.5)	12(8.1)	4(2.7)	2(1.3)	1.61
Emerging technology tools (e.g. laptop, smartphone, etc.) allowing for multimedia resources when learning	79(52.7)	48(32.0)	16(10.7)	6(4.0)	1(0.7)	1.68
Comparing lecturers' lessons to online information	47(31.5)	47(31.5)	33(22.1)	20(13.4)	2(1.3)	2.21
Taking online courses easily with the aid of technology tools	47(31.3)	61(40.7)	30(20.0)	12(8.0)	-	2.05
Watching educational movies and playing educational games more than learning with emerging technologies	35(23.5)	43(28.9)	43(28.9)	19(12.8)	9(6.0)	2.49
Using online cloud accounts to back up my educational documents in case of any loss of information.	41(27.3)	51(34.0)	39(26.9)	15(10.0)	4(2.7)	2.27

Key: SA-Strongly Agree, A-Agree, N-Neutral, SD-Strongly Disagree, D-Disagree.

From Table 5, responses reveal the activities that students use emerging technologies for. Results showed that majority (80%, n=120) of the respondents agreed they use services provided by messaging apps such as WhatsApp, SMS to get relevant academic information. Also, 66% (n=97) agreed that they participate in their class online discussions using platforms such as Google Classroom, Edmodo, and Schoology. Of the total, 76%(n=112) of respondents asserted that they read e-books with emerging technology tools such as the iPad, smartphone, laptop, kindle, etc. to get more understanding of concepts. Furthermore, 84%(n=126) agreed they research, type, complete and submit their assignment and project using emerging technologies. Another 83%(n=125) of respondents agreed that they watch tutorials and videos on difficult concepts using YouTube and other related technologies. Also, 88% (n=131) agreed that they use emerging technological tools like WIFI to access information on the internet. Majority (84%, n=127) of the respondents agreed that emerging technology tools (e.g. laptop, smartphone, etc.) allow them to use multimedia resources when learning. It was further indicated in Table 5 that, a large proportion of students (63%, n=94) agreed that they usually compare lecturers' lessons (information) to online information. Moreover, the results revealed that 72% (n=108) takes online courses easily with the aid of technology tools. The results of students' responses further indicated that 52% (n=78) watch educational movies and play educational games more than they learn with emerging technologies. Finally, on the assertion that they use online cloud accounts to back up their educational documents in case of any loss of information, 61%(n=92) of the students agreed. Mean of the total responses on Table 5 ranged from 1.61 to 2.49

DISCUSSION AND CONCLUSION

The results from this study shows that there is an increase trend in the use of professional learning networks and emerging technologies for that matter. Most literature review have confirmed the findings of this study. Results from the study showed that students use services provided by messaging apps such as WhatsApp, SMS to get relevant academic information which matches with Patel, Darji, and Mujapara (2013)

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who conducted a survey to show how an intelligent community and professional learning networks are useful for students and professionals. They found that most participants use social networking tools for learning purposes. This study revealed that professional learning networks and emerging technologies also help students to integrate ongoing reflection, analyze, critique, evaluate and synthesize information, ideas, principles, concepts and practices to mention but a few. It also supports students' professional learning experiences, promotes mastery and refined use of information for assignments and learning, provides support to supplement lecture instruction, link feedback with own thought processes when asked questions on platforms and deepens students' content knowledge on issues under discussion whilst preparing students for the digital future. This finding is in line with Stokic, Correia, and Reimer (2013) who conducted a study to explore supportive social computing-based technologies for cross-organizational collaborative learning and knowledge building activities. The results of their study confirmed the relationships between collaboration supported by Social Networking Sites and motivation to learn, and between the willingness to share knowledge and the self-efficacy for learning and knowledge building.

Students use professional learning networks in several ways most of which enhance studies and others which are used for pleasure. Respondents also stated that they participate in class online discussions using platforms such as Google Classroom, Edmodo which concurs with other studies done in the area (e.g. Ekoç, 2020; Kom & Simamora, 2019; Marín-Juarros, Negre-Bennasar, & Pérez-Garcias, 2014).

Generally, the students exhibited positive attitude towards the use of professional learning networks using emerging technologies. It is in this vein that teachers are challenged to search means of applying emerging technologies which will assist them in organizing and managing their service-learning project for students to participate and gain the needed knowledge and skills in order not to deny their students of tomorrow's digital exposure. From the research, it is also recommended that drawing of academic curricula should contain emerging technologies so as to improve ways of learning, especially professional learning networks. Educators should be encouraged to make available learning materials in the form of videos, audios, and make them accessible through social media and other handles for students' benefit. Furthermore, institutions are encouraged to improve on Wi-Fi networks accessibility at their institutions. Education on the usage of emerging technologies' usage should be intensified as well to outline their advantages and discourage users from patronizing the negative side of technology.

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