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USING TECHNOLOGY ACCEPTANCE MODEL TO MEASURE THE USE OF SOCIAL MEDIA FOR COLLABORATIVE LEARNING IN GHANA

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Abstract

In this Digital era, thousands of teens in the universities use social network sites; it has become a way of life. Social Media Usage has recently received numerous debates in its impact on academics, with its advent, communities have become link to each other, but the lecture room still remains quite isolated, from other teachers, students, and a host of others who could potentially enhance learning**.** This study aimed at investigating the impact of social media usage on students' academic performance through collaborative learning among university students in Ghana. Based Davis, Bagozzi & Warshaw (1989), Technology Acceptance Model (TAM), a conceptual framework was adopted for the study. To achieve the objectives, a quantitative data analysis method was employed. A total of 200 students were randomly surveyed for the study. Regression analysis revealed that, Interaction with peers, perceived ease of use and perceived usefulness had a significant positive relationship with collaborative learning. Furthermore, results suggested that there exist a significant mediation effects on the relationship between social media usage dimensions and academic performance. TAM does not take into account environment or economic factors that may influence a person's intention to perform a behavior. The study recommends a clear mobile learning methodologies, rules and policies for integrating student activities on social media into their final grades.

Keywords – Social media, Technology acceptance model, Academic performance, Collaborative learning.

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1. Introduction

When a simple question was asked why he robbed banks? Willie Sutton who had robbed more than 100 banks with amount worth around $2 million remarked; "Because that's where the money is." Almost all students from various universities have Social Media (SM) account and this makes them to be 21st century students. When a simple question was asked to students why they use SM, they proclaimed that it's easy to use for entertainment, to connect family and friends and to use for academic purposes. From the birth of motion pictures in 1922, to the advent of computers in the mid-1970s, educators have been intrigued with the potential of technology to help transform education and improved students' learning. Social media has become an indispensable tool and therefore received unparalleled attention in recent years. It has permeated into all aspects of human life, be it health, politics, social, culture, entertainment, education, etc. Ghana has not been isolated from the global social media craze.

Collaborative learning is in a form of learner and learner interaction. Historically, collaborative learning has been considered as an effective instructional method in both traditional and distance learning settings (Bernard & Rubalcava, 2000). In this modern era of education, there have been increasing interests in learning by collaboration. This idea is categorically put into two dimensions: computer-mediated communication (CMC) and social constructivism. Regarding the technical dimension of collaborative learning, CMC tools have played an important role in facilitating group learning processes among group members who may live in different geographical areas and have different learning styles. Previous research has suggested that it is important to provide distance learners with multiple channels, both synchronous and asynchronous, in order to accommodate their preferences for different communication styles (Curtis & Lawson, 2001).

Thousands of students are making good use of the various network sites platforms. Universities are now using the power of social media platforms to reach out to their students directly. Is there a need for universities and other educational institutions to use social network sites at all? Definitely, universities use social media sites to showcase the resources they have available. Universities are not exempted from these rapidly changing technological advancements and hence, cannot afford to lag behind in these developments as these can provide valuable insights to the academic community. For instance, students of today have become technologically savvy to social network sites. Social media offers students varied learning styles that would encourage them to be active learners instead of shallowly memorizing facts which have long been the case with some adult learners hence adoption of SM is needed.

In the technological era, the teen students found themselves to be watching streaming videos. These give them the idea and the opportunities to have social interaction with peers and to build their learning capabilities. According to Thompson (2013)**,** today's students can be described as digital natives, they were born in the digital age and have been interacting with digital technology from an early age. According to Hartman, Moskal and Dziuban (2005), if a lecturer wants to make strong relationship with his students and engage them with the materials he wants them to learn, he needs to uphold the teaching strategies to their lifestyles. It is necessary to move from a traditional teacher-centered approach to learning, where the teacher imparts knowledge to students to a learner-centered approach. According to Veen and Vrakking (2006), children belonging to this 21 century develop on their own cognitive skills necessary for enquiry-based learning, networked learning, active learning, self-organization, self-motivation and self-regulation, problem-solving, and making their own implicit and explicit knowledge. Children of today leave their lives immersed in technology using computers and mobile phones and other related equipment for their daily activities.

According to Ajjan and Hartshorne (2008) argued that despite social media enhance learning capabilities some teachers still feel uncomfortable to incorporate it to their teaching methods. Schulmeister (2008) indicates that student's day in day out use new technology for their personal gain but still feel that it should not replace the traditional method of lesson delivering and prefer moderate use of social media. Teachers have serious concerns about the use of social media for academic related purposes, particularly as a learning tool (Moran, Seaman & Tinti-kane, 2012; Davis, Deil-Amen, Rios-Aguilar & González-Canche, 2012). One of these concerns is the personal privacy on social media (Au, Lam & Chan, 2015) since with todays advanced technology it is easy to keep track of peoples online activities which may put security and privacy of its user at risk. In addition, teachers may not want their students to get involved in their personal life and see their personal profiles. It's a canal knowledge and believed that children of today who are spoiled, love luxury, have bad manners, have contempt for authority, are disrespectful to their elders, contradict their parents, and tyrannize their teachers (Kirschner & Karpinski, 2010). Rosen (2007) posits that, students live in social network sites such as Facebook, YouTube, WeChat, WhatsApp, Twitter, and second life gathering friends; they text more than they talk on the phone; and they twit the night away often sleeping with their cell phones vibrating by their sides. Some researchers argued that the over-participation or addiction of students to social networking will lead to a negative impact on their academic performance (Kirschner & Karpinski, 2010). But other researchers argued that

the performances from learning should be measured through different dimensions that adopting social media in learning increase students' satisfactions on learning process (Al-rahmi, Othman & Musa, 2014).

However, social network sites offer the possibility of replacing poor lecture by good ones. Good lecturers with innovative teaching techniques are inadequate, and it is suicidal and egalitarian to exclude from access to the finest lecturers those who happen not to have access to the institutions that they teach. Textbooks and teaching syllabus have hitherto been the students main protection against poor teaching methodology and have disseminated the works of the masters.

Most of the social media in principle permit students to study more at their own pace than it's possible with instruction by living teachers. Some of them, though not all, can also provide the students with more immediate awareness of whether they understand what has been presented to them. Moreover, if different students learn best in different ways, a system using a number of social media at the same time could allow each to work where his comparative advantage lies.

In light of these potential benefits, SM, and social software in general, are being considered as potential learning platforms in higher education courses for their facilitation of connectivity (Veletsianos & Navarrete, 2012). In sum, social media has changed the way of teaching and learning. Students are no longer message receivers who learn from teachers or books. Sometimes, they could possess more knowledge and skills than the teacher, equipped with online searching engines (such as Google), video guide (such as YouTube), and others' experiences (from professional groups). Therefore, teaching with social media should be different from traditional teaching. Students are more involved in communication with teachers, their peers, or maybe professional people online. They can contribute to not only class discussion but also the curriculum design and course development. The role of teacher is changed to facilitator to encourage students' searching and sharing ideas during class. But it is important for teachers to identify the usefulness of the knowledge online and quality of information from social media. Teachers can also encourage critical thinking and creative thinking during this process to lead the students on the right track. Social media, if combined with collaborative learning, can be more powerful and attractive to learners.

Looking at the trajectory trend of this media platforms in Ghana, paucity of research has been done to the best of my knowledge to use social media for academic purpose through collaborative learning. The study seeks to used Technology Acceptance Model (TAM) as a theoretical framework with this study since it's an Information Technology based. TAM is commonly used in research involving adults, however, nowadays children start to use technology at an early age and, although there are obvious differences in cognitive and psychomotor growth between adults and children, the investigation of the relevance of TAM constructs in studies of technology adoption by children is an important matter.

2. Theory Development and Research Model

Technology Acceptance Model (TAM) was developed from the Theory of Reason Action (TRA), in order to describe an individual's information technology (IT) acceptance behavior (See Figure 1). TAM was adopted from a popular theory TRA (Fishbein & Ajzen, 1975) from field of social psychology which explains a person's behavior through their intentions. TAM has become well-known as a robust, powerful, and parsimonious model for predicting user acceptance (Venkatesh & Davis, 2000). The objective of TAM is to examine why users' attitudes and beliefs influence their acceptance or rejection of IT. TAM aims to provide an explanation of the determinants of the adoption and use of IT. Davis (1989) developed the TAM, which is based on the TRA, to understand the causal relationships among users' internal beliefs, attitudes, and intentions as well as to predict and explain acceptance of computer technology (Davis et al., 1989). Behavioral intention is determined by both the user's attitude and its perception of usefulness. The user's attitude is considered to be significantly influenced by two key beliefs, perceived usefulness (PU) and perceived ease of use (PEOU), and that these beliefs act as mediators between external variables and intention to use. TAM theorizes that an individual's behavioral intention to use a system is determined by PU and PEOU.

Davis et al. (1989) showed that the attitude construct does not significantly mediate in the belief-intention relationships. In 2000, Venkatesh & Davis (2000) proposed an extension for TAM (called TAM2), which includes the theoretical constructs of social influence and cognitive instrumental processes. They found that these additional constructs directly affect adoption and usage of "information technology" (IT) in the workplace. TAM was originally created to explain computer usage behavior, some academician argue that perceived playfulness, perceived critical mass, and social trust should be included to effectively explain new technologies such as social media (Rauniar, Rawski, Yang & Johnson, 2014). Since the late 2000s, many different types of social media sites have been in existence, some continue to exist and experience astronomical growth in terms of the number of users, while others have faltered and closed. Failure of many of these social media can be attributed to their poor services. The importance of PEOU signifies the degree to which an innovation is perceived not to be difficult to understand, learn, or operate (Zeithmal, Parasuraman & Malhotra, 2002). In the context of social media, the user may assess the site based on how easy it is to use and how effective it is in helping them accomplish their social-media-related needs. SM applications and tools needs to be user-centric. The SM site should be intuitive for the first time user, and should be efficient in getting tasks done. Past studies (Rauniar, Rawski, Crumbly & Simms, 2009) indicate that an easy to use SM can enhance the user's experience.

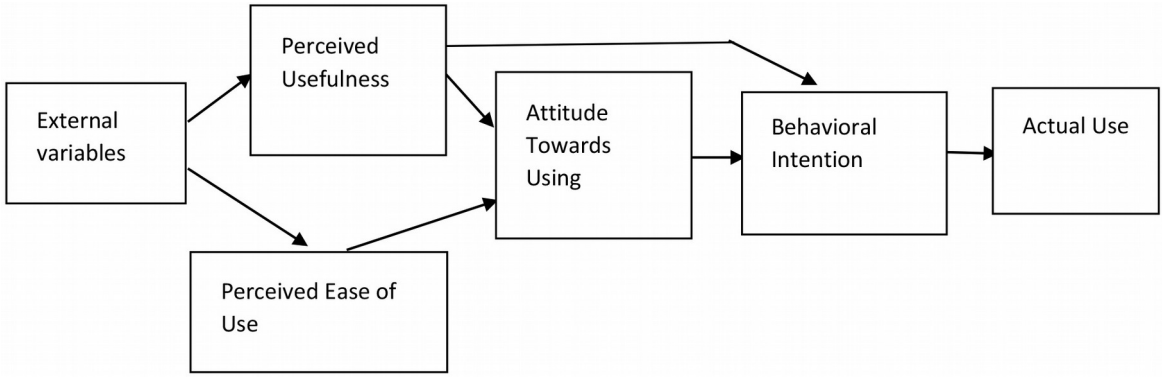

Figure 1. Technology Acceptance Model (TAM) (Based on Davis et al. 1989)

2.1. Hypothesis

This study accounts for a brief discussion on the content in the suggested framework for evaluating students academic performance by the use of social media through collaborative learning in higher institutions of learning is presented. The variables observed in this study are: perceived ease of use, perceived usefulness, interactive with peers, collaborative learning and students' academic performance. Below figure 2 is the proposed conceptual framework for the study.

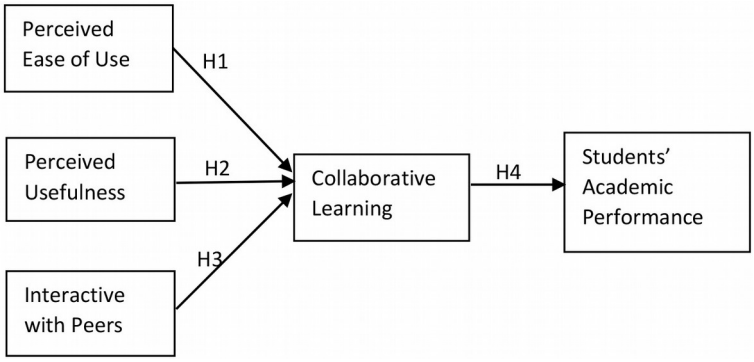

Figure 2. Proposed conceptual framework

2.2. Perceived Ease of Use (PEOU)

Perceived Ease of Use refer to the degree to which a user expects use of a system or technology to be free from efforts (Davis, 1989). TAM consists of two salient values: perceived simplicity of use and perceived effectiveness. Davis (1989) posits that, PEOU and perceived usefulness have a direct effect on behavioral intention. The predictive energy of perceived simplicity of use and perceived effectiveness for users' technology acceptance continues to be empirically confirmed by many studies. Mathieson (1991) compared TAM and TPB and each of this theory is talking about behavior intention of users of IT. He found that both predict behavior intention and confirmed Davis TAM findings. Barki and Hartwick (1994) compares TRA and TAM in 1994 using undergraduate students. They confirmed that TAM predicted behavior while showing how subjective norms made a different in behavior.

H1: Perceived ease of using social media improves students' academic performance through collaborative learning

2.3. Perceived Usefulness (PU)

Perceived usefulness (PU) refer to a user's subjective probability that using a different system or technology will increase his or her job performance (Davis, 1989). Taylar and Todd (1995) compared Theory of Planned Behavior (TPB) and TAM in 1995. TAM was found to be parsimonious and solid predictor of behavior. However, they found that self–efficacy and subjective norms also affect behavior. Gefen and Straub (1997) studied genders may have difference in the use of e-mails. They found that while genders may have different subjective norms, perceptions of use and ease of use, none of these created differences in actual usage. Social media is used in boosting pedagogical effectiveness within the class. Studies in the past revealed that perceived effectiveness helps in utilization of social network on collaborative learning (Davis, 1989), based on this reason, the hypothesis was formulated.

H2: Perceived usefulness of social media improves students' academic performance through collaborative learning

2.4. Interactivity with Peers (INT-P)

Peers in this study were categorized into two extrovert and introvert students. Extrovert students tend to opt for group-based discussions; thus, they may be more likely to participate in classroom activities. Balakrishnan and Lay (2016) indicate that, students who prefer collaborative work can be considered extroverts, allowing students to discuss and exchange ideas and opinions. Presumably, anonymity is not a concern for extroverts who thrive in active social environments. As such, popular platforms can be used effectively to foster collaborative learning. Balakrishnan and Lay (2016) posits that, popular platforms such as Facebook and YouTube allow students with participatory style of learning to interact with their peers online, regardless of their location. Therefore, these students may prefer using SM for learning, as information and feedback from peers or lecturers can be obtained quickly through such platforms. Introvert is self-learners and they can use social media for their learning and they want anonymity. Students of this caliber prefer working alone in individual assignments. Dunn and Carbo (1981) argue that students reflect on the information obtained in solitude, that is, think and process the information for better understanding. It is imperative that introverts have been found to prefer asynchronous form of communications, such as blogs and posts, to synchronous forms such as chatting (Ryan & Xenos, 2011). Introverts prefer online communication to face-to-face communication with new acquaintances, which can be intimidating and uncomfortable (Orchard & Fullwood, 2010).

H3: Interactivity with peers as a result of using social media improves students' academic performance through collaborative learning

2.5. Collaborative Learning (CL)

Studies have indicated that social media improve academic performances. Al-rahmi and Othman (2013) and Johnson, Johnson and Holubec (2008) stated that collaborative learning depends on how students are put into cluster of groups. Groups that are actively involved perform significantly well and the reverse is the case. The interest on active collaborative learning increased, the attention of researchers started to

move toward social media (Ractham & Firpo, 2011). Through the online social environment, students become abler to communicate with their peers solving problems or organize social events in a collaborative way (Anderson, Hepworth, Kelly & Metcalfe, 2012). Collaborative learning is far more important when learners are equipped with cognitive ability (Janssen, Kirschner, Erkens, Kirschnker & Paas, 2010). Social media by students in doing their assignments was of a positive impact on the level of learning. Zhu (2012) maintained that it has a positive impact on students who became able to do activities like discussing their writing with peers and send as well as receive feedback before publishing their final work. It is remarkable to mention that this tool 'wiki' can be used as an indication of sharing knowledge within the learning group. According Goertler (2009), Social network sites can promote collaborative models of learning, link students and teachers, increase learners' motivational level, and create a more resilient and conducive classroom climate. In addition, social network sites can create strong environment of practice for teaching and learning that expands the learning process beyond the limit of a colloquial classroom (Yang, Wang, Woo & Quek, 2011)

H4: Collaborative learning as a result of using social media improves students' academic performance

2.6. Students' Academic Performance (SAP)

Junco (2011) have the strong believe that social media across fields of study can impact on academic performance on its users. Facebook has been found to facilitate student development there are some exceptional cases in which findings show positive relationships between Facebook and Twitter integration to improve learning. The value of interactive social media technologies in high institutions of learning is now recognized in the way that teaching and learning strategies are increasingly globalized process (Gray, Chang & Kennedy, 2010). The ability to explore unasked questions inside a less formal atmosphere, getting a strong voice through web technology and social media (Kirkup, 2010). According to Brady, Holcomb and Smith (2010), revealed that students' engagement is positively influenced by social media due to the relation found between social networking sites and students' achievement by which the former has a great influence on the latter.

3. Methodology

A quantitative research design was chosen for this study to explore the impact of social media usage on students collaborative learning and academic performance via the TAM among university students in Ghana. The study participants were users of smart phones and social network applications. Survey questionnaires were administered to participants in November, 2017. Students were instructed in the survey to offer information about their experiences on using social media and its benefits on collaborative learning and academic performance.

3.1. Respondents

In this study 200 set of questionnaires was randomly distributed to students. Participants were predominantly traditional university students with undergraduate 141 (70.5%) and graduate 59 (29.5%) students. With respect to gender 125 students (62.5%) were female and 75 students (37.5%) were male. The age ranges from 15 to 20 years (15.5%), 21 to 25 years (37.0%), 26 to 30 years (29.0%) and 31 to 35 years (18.0%). The instrument used in this study was designed based on the objectives of the study. It was piloted and the Cronbach's alpha of the reliability and validity of the instrument was put at .855. This is acceptable and the instrument has met the reliability requirement for the study.

3.2. Measures

A questionnaire consisting of 30 items was designed, following minor revisions to the layout; the survey was administered at the end of the semester (2017, November). The items used in the survey instrument to measure the constructs were identified and adopted from prior research; particularly from social media research, in order to ensure the face (content) validity of the scale used. The items were widely used in the majority of prior studies indicating potential subjective agreement among researchers that these measuring

instruments logically appear to reflect accurate measure of the constructs of interest. Table 2 lists construct developed in this study as well as set of prior studies where these variables have been adopted from.

The respondents were asked to identify different social media use, motivations, teaching practices tools such as Twitter, Facebook, WeChat, LinkedIn, Research Gate, Academia.edu, Blogs, Wikis, YouTube, Vimeo and Slide Share. The advantage of using this questionnaire was from the formal point of view, to provide the anonymity of respondents and confidentiality of data. A five-point Likert scale (1 for strongly disagree to 5 strongly agree) was applied to items in in this study with the exemption to Age, Gender, student type and Department (demographic Data).

3.3. Data Collection Procedures

Table 1 is an overview adopted sample questions from previous studies. The questionnaire was fine-tuned with reference to a pilot study carried out with 20 students and tested before-hand to examined the students' opinions about the use of social media on academic performance through collaborative learning in Ghana higher education. This helped in the refinement of the survey items. Each participant was provided with a questionnaire and a brief background to the study.

Focus of the study	Research approach	Data collection method	References
Perceived ease of use			
User acceptance of computer technology: A comparison of two theoretical models.	Explanatory Quantitative study	Questionnaire	(Davis, 1989)
Perceived Usefulness			
Davis, Perceived usefulness, perceived ease of use and user acceptance of	Explanatory Quantitative study	Questionnaire	(Davis, 1989)
Interactive with peers			
Embedding educlick in classroom to enhance interaction	Explanatory Quantitative study	Questionnaire	(Liu, Liang, Wang, Chan & Wei, 2003)
Collaborative learning			
Students' perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors.	Explanatory Quantitative study	Questionnaire	(So & Brush, 2008)
Students' academic performance			
Service-learning and engagement, academic challenge and retention.	Explanatory Quantitative study	Questionnaire	(Gallini & Moely, 2003)

Table 1. Overview of adopted questionnaire's

4. Data Analysis and Results of Hypothesis Testing

Quantitative data were analyzed using Statistical Package for Social Sciences (SPSS) Statistics version 23 (IBM SPSS, Inc., 2015) and addressed the main research question, "Does social media usage affect students collaborative learning among university students?". Apart from basic descriptive statistics, the main quantitative analytic techniques implemented included the following: (1) Correlations to examine relationships between all variables in the regression models, (2) Regressions was use to investigate the direct and indirect relationship between SM use, Collaborative learning and academic performance in the samples and (3) the reliability and validity of measurement items were also examined. These correlational and regression data analysis techniques were considered the most appropriate for the exploratory, predictive and descriptive nature of the study.

4.1. Validity and Reliability

Table 2 shows the relationship between the student PEOU, PU, INT-P, CL and SAP. The table shows the Pearson correlation coefficient at 93 % confidence level. The best correlation was found between the INT-P and PU with intention to use social media with correlation coefficient of 0.677. The moderate correlation was found between the SAP and PU with correlation coefficient of 0.328. Finally, the lower correlation was found between technology SAP and CL with correlation coefficient of 0.168.

The results of the current study support the framework as well as the hypotheses proposed in terms of the directional linkage between the framework variables. Figure 3 is an analytical proposed result of the conceptual framework of the study. The four hypotheses proposed in the current study were accepted and verified. The relation between perceived ease of use and collaborative learning is positive and significant with ($\beta = 0.064$, $p < 0.001$). The second hypothesis is the relation between perceived usefulness and collaborative learning with a significant level of ($\beta = 0.184$, $p < 0.001$). As for the third hypothesis, the relationship between the interactive with peers and collaborative learning is ($\beta = 0.523$, $p < 0.001$). The fourth hypothesis suggest a positive relation between active collaborative learning and students' academic performance is ($\beta = 0.168$, $p < 0.001$).

Students GPA were analytically examined to ascertain if social media network impacted on their performance. From Table 3 below, it can be observed that majority of respondents indicated that their participation on social media networks has increased their GPA. These included 103 students representing 51.5% indicating an increase in their GPA as compare to the time they were not using social media, 45 students representing 22.5% were of the view that using social media has actually made their GPA to come down and 52 students representing 26.0% were of the view that using social media has no bearing effect on their GPA. They believed that their performance neither increased nor decreased, however, they feel that it was good to use it to link up with friends from different schools.

	PEOU	**PU**	**INT-P**	**CL**	**SAP**
PEOU	1				
PU	0.689**	1			
INT-P	0.517**	0.677**	1		
CL	0.333**	0.493**	0.614**	1	
SAP	0.406**	0.328**	0.280**	0.168*	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2. Correlation Matrix

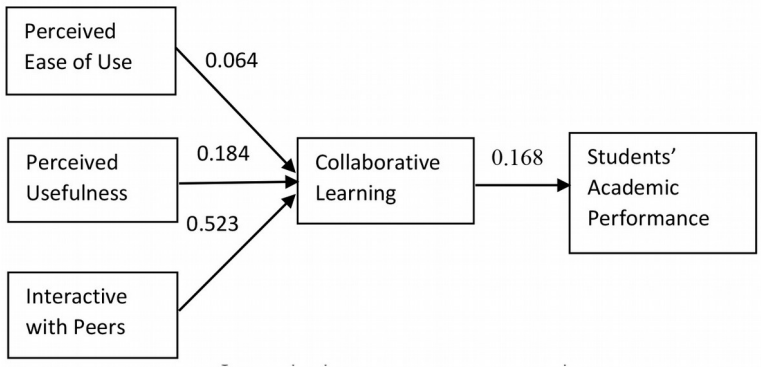

Figure 3. proposed result of the conceptual framework

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increase in GPA	103	51.5	51.5	51.5
	Decrease in GPA	45	22.5	22.5	74.0
	Maintain in GPA	52	26.0	26.0	100.0
	Total	200	100.0	100.0	

Table 3. Descriptive statistics for students' GPA

4.2. Discussion

The outcome of this study indicates that interactive with peers, perceived ease of use, and perceived usefulness through collaborative learning aid students' academic performance at the university since they find it easy and useful to their studies. Interacting with peers on social media by students received a very good response in terms of students' academic performance. This was very effective because students could ask so many questions since they were dealing with classmates.

According Shin and Ismail (2014), the universities will be strongly influenced by their peers. Our finding was consistent with this, students were of the view that most of them use social media because of their friends are using it. They believed that it is easy to have access to it. Technology accessibility is no longer a problem to them as most of them have smart phones where they can easily access internet. Based on analysis of correlation the students' who were most influenced by their peers were also strongly influenced by their parents.

Social media is a powerful tool for teaching and learning on the basis of interactivity and sociability. The study is consistent with Al-Rahmi, Othman and Yusuf (2015) and he argued that social media allows students to exchange and share information with their peers. In this study the behavior intention (students), indicates that students embraced the use of social media based upon the result gotten from and that of interactive with peers with collaborative learning (β =0.523, p <0.001). Students were of the view that they performed very well with lecturers who use social media in addition to the traditional method of teaching.

Collaborative learning contributes greatly to the GPA of students (β =0.168, $p < 0.001$). This study was consistent with Johnson et al. (2008). Students was of the view that social media makes them feel joy and happy with their friend students, teachers and family members. Some of them indicate that all work and no play make 'Jack a dull boy'. They believed that after reading and they become tired they need to refresh their brains. This study was consistent with (Davis, Bagozzi & Warshaw, 1992). The adoption of a self-service technology can be strongly influenced by the perceived enjoyment. The idea that social media has provided its learners with a high level of enjoyment and a great deal of interaction with their peer. The study reveals that students, lecturers and school administrators use social media to collaborate with each issues regarding the well-being of students.

The significant impact of perceived usefulness ($\beta = 0.064$, $p < 0.001$) and perceived ease of use ($\beta = 0.184$, $p < 0.001$) show students who feel that this platform is easy to use to access information relating to their studies. Students believed that social media is free from effort and is useful for their academic purpose. It was also found that social media usage intensity significantly predicted academic performance. The students argued that, social media enhances their job performance and there it led to an increase in their GPA. According to (Brady et al., 2010), revealed that students' engagement is positively influenced by social network sites due to the relation found between this media networks and students' achievement.

The study reveals that out of 200 students' sample, 103 students (51.5%) unreservedly stated categorically that there is an improvement in their GPA positively as compared to the time that they were not using this tool for studies. Through this study, a positive effect of social media use on academic performance was confirmed. One plausible reason to explain this positive effect may be task switching. Task switching involves moving from one task to another while carrying them out, when switching between tasks there is

a concomitant benefit both in processing time and accuracy. The premise behind this is the switcher of the human information processing which is sufficient for attending to multiple stimuli and performing simultaneous tasks which lead to an increase in time to carry out the tasks accurately and so, an increase in accuracy. The human brain is multifunctional, capable of task switching from one social media to another in search for good materials to upgrade their knowledge. In fact, social media-use also bring about benefits such as accruing social capital (Liu & Baumeister, 2016; Liu, Ainsworth & Baumeister, 2016; Liu & Compbell, 2017).

However, this contradicts most past studies which have reported that higher usage of Facebook results in lower Academic Performance (Junco, 2012). In this study, 45 students representing 22.5% rather feel uncomfortable using the platform for academics since it affects their academics. However, 52 students representing 26% indicated their GPA still remain unchanged. Some researchers argued that the over-participation or addiction of students to social networking will lead to a negative impact on their academic performance (Kirschner & Karpinski, 2010). Junco (2012), examined the relationship among numerous measures of frequency of Facebook use with time spent preparing for class and overall GPAs. Hierarchical linear regression analysis from the 5 study by Junco (2012), indicates that time spent on Facebook was strongly and significantly correlated with overall GPA negatively. Instructors usually carefully select one or several social media that is suitable for the teaching and learning disciplines, materials and skills such as Facebook (Poore, 2013), YouTube (Ferris & Wilder, 2013), Google + (Heatley & Lattimer, 2013) and WeChat (Mao, 2014). Not all social media suit all learners. The readiness of teachers and learners on social media usage and technical skills of using it is important (Poellhuber & Anderson, 2011; Cheon, Lee, Crooks, & Song, 2012). If the vision of the organization that has mandated the use of social media is not coherent with the readiness from teachers or students, it usually brings unexpected results (Wallace, 2014). Ophir, Nass and Wagner (2009) show that student multitasking seems to have an adverse effect on concentration; that is, self-proclaimed heavy multitaskers seem to be losing the ability to disregard irrelevant stimuli.

According to Tapscott and Williams (2010) higher education is not a fancy, scientists have begun to implement elements of research, because they know that universities cannot exist separately from the current generation, so they must make progress in wider educational strategy of knowledge production. Changing the pedagogy of knowledge production models is crucial for the survival of universities in the world.

However, few concerns were raised about the use of social media as a learning tool, it requires institutions to deploy new pedagogical approach and they may need to re-evaluate their position as a knowledge provider in the community and define new strategies, methodologies and tools. Some students indicate that not all lecturers were inclined to use social media as a teaching method.

Despite educational institutions encouragement for collaboration among students and faculty to facilitate positive learning outcomes, they are still concerned about control and monitoring of quality of learning and teaching. As there are many kinds of external open social media sources available, it is hard for institutions to monitor each tool to ensure learners are using them properly (Davis et al., 2012).

Since the media is still popular among students and since universities are interested in engagement and stronger connecting among students, it is important for those who work in higher education to get themselves acquainted with the social network (Facebook and other similar technologies), and to project support to students who show interest and meet the requirements, in order to help them achieve their goals and get where they are heading (Junco, 2012). Lecturers have the opportunity to, with their overall academic experience, help students use Facebook, YouTube, Wiki as virtual classroom, which will be useful to students on their path to personal development and engagement. Analysis among Ghanaian students shows that the implementation of Facebook or Wiki as virtual classroom is aimed at social media student-users, who participated in this study, to improve communication with peers and professors, improve and expand the discussion with other students, post announcement related to lectures, exams and

other events at the university, thus providing support in task execution, quality improvement of educational process and expansion of the total quantum of knowledge.

5. Conclusion

It is vivid that social media is heavily used by students to learn. These platforms allow students to exchange and share information with their peers (Al-rahmi et al., 2015). The major aim of the study was to explore the impact of social media on collaborative learning and students' satisfaction which lead to a better academic performance. TAM was the ground of the proposed model used in the current study and that involved five constructs: perceived ease of use, perceived usefulness, interaction with peers, collaborative learning and student academic performance. The outcome of this study indicates that interaction with peers, perceived ease of use and perceived usefulness through collaborative learning help students to achieved a higher GPA at the university since they find it easy and useful to their studies. It is worth knowing that the study proved that social media should be accepted as a tool for lessons delivery since students of 21st century is technological savvy and pro-active to its use. This acceptance should then parlay itself into marketing the inherent educational values of the platform to teachers, instructors, staff, and students. The technology has the potential to be a valuable learning asset and powerful learning tool, but users must understand the proper ways (the how's and whys) via which social media should be used in a positive ethical fashion.

Social media networks are not going to disappear, as the frequency and breadth of use suggest that these media are highly integrated into students' lives, and institutions, driven by their leaders, must find a way to make them relevant to student development. This tool is here to stay, as such, it needs to be embraced by educational administrators.

Despite the endless possibilities offered by social network sites to enhance the learning experience, we must remember that it is only a tool that should never replace a good teaching strategy. Professors need to plan the learning process very carefully, they need to clearly articulate course objectives, learning goals, and student expectations. In addition, professors must design and coordinate teaching activities that engage students and require interactive participation, focusing on concepts and insuring that the students understand the material (Tay & Allen, 2011). We may be doing our students a greater disadvantage by not integrating these tools into their education. Social media have disrupted traditional classroom teaching methodologies but have also introduced newer teaching capabilities allowing for innovative learning experiences. If there is a high level of acceptance by students to try new technologies to learn subject matter, the question is how the lecturers will re-calibrate their methods to the students' learning experience to accept their willingness to use these technological tools. This brings the idea of teachers to be very innovative in terms of their lessons delivering. Where are we heading to with the used of social media technology in educational practices? While we cannot say for certain, we can say that the capacity for social media technologies to facilitate and leverage deep learning is evidence enough to warrant further exploration and the development of new best practices. However, we don't need to wait for the distance future to understand if and how we can. There will be difficulties to implementing these social media in the classroom. Even the blackboard, white marker boards and non-tech lessons have their hiccups. Anything that is new, there is a learning curve. But the challenges may not be a big as you think, and the simple way to avoid these hiccups is to spend a small bit of time with these new technologies before getting the classroom, in order to address these potential obstacles.

5.1. Practical Implication of the Finding

From a practical point of view, the Table 4 below enable a hierarchy of practical objectives and associated actions.

In relation to the actions specified in Table 4, it is possible to suggest some of the practical means by which these actions may be executed, and these are summarized in Table 5.

Objectives	Actions	Model Variable
Social media improved students' academic performance through collaborative learning	1. Ensure that the use of SM is free from efforts.	Perceived Ease of Use
	2. Ensure that the user feels that SM is useful for achieving for their purpose.	Perceived Usefulness
	3. Ensure that both extrovert and introvert participate in classroom activities	Interactive with Peers
	4. To ensure that the learners are equipped with cognitive ability	Collaborative Learning

Table 4. Objectives and actions to improved students' academic performance

Actions (Related Variables)	Means of Executing Actions
Provide hardware and software at schools to let students easily access social media.	1. Offer attractive sales bundling with cheap and affordable price for students.
	2. Donate hardware and software to schools, so students may try to use technology at schools.
Using social media Applications for academics	1. Lecturers using simple social media applications for teaching.
	2. Develop games about students' friendly technology usage to attract students' curiosity.
Increase the lecturers' and school administrators' understandings of technology	1. Organize free seminars for lecturers about technology understanding and usage.
	2. Organize technology exhibition and invite lecturers to educate them the best application for academic work.

Table 5. Practical Means Associated with Actions in Table 4

5.2. Future Research Areas and Limitations

There are some limitations which further researchers would like to address in future studies. For instance, looking at the control measures, the schools should adopt to control the usage of this social network sites at the universities. Given this, future research should use TAM3. Students who participated in our study were domestic students coming from the same institution, future studies should deal with international students from different countries to determine whether differences in sociocultural contexts have an impact on Social Media use. Another limitation would be the fact that we focused our study on a specific Social Media. There are many other types of Web 2.0 technologies and their use and impact on teaching could differ. TAM is unable to account for other variables, such as fear, threat, mood or past experience.

Social Network Sites is inevitable and has come to stay with the teens of students to augment their academic fortunes, but with it advert effect. In Table 6 are problems, examples and recommendations of using social media for collaboration in Ghana.

Problems	Examples	Recommendations
Awareness	Lack of awareness by students on how to use SM as teaching and learning tool.	Training session and workshops by students on how to use social media for learning purposes
Infrastructure	IT policy Internet access	Establish IT mobile learning policy. Improve internet access in campus Wi-Fi
Digital divide	Different sites	Specify a number of social media sites to be used for teaching and learning
Ethical issues	Improper post	Establish ethical code for using the social media in learning and teaching
Grading and assessment	Lack of rules and policy to integrate into Learning	Establish clear mobile learning methodologies, rules and policies for integrating student activities on social media into their final grades.
Privacy and Security	Personal life Tracking activities	Closed group for student with an assigned teacher

Table 6. Problems and recommendation of SM in teaching and learning

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