

# Towards a Framework to Optimise Social Media Usage in Academic Libraries in Ghana: An Empirical Study

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## Abstract

*This paper sought to propose a framework that may help academic libraries in Ghana to optimise the use of social media in their endeavour to provide library services as well as access to library resources. Using the unified theory of acceptance and use of technology (UTAUT) as its theoretical lens, this study employed a cross-sectional survey whereby quantitative data was collected from a total of six-hundred and five respondents through the use of a questionnaire. Statistical analyses were carried out using the statistical package for social sciences (SPSS) and the structural equation model (SEM) analysis to analyse data. The study sought for the following data, which informed the development and constituted the components of the framework: types and extent of social media commonly used in the libraries, UTAUT variables and respondents' demographics that significantly influence adoption and use of social media; and strategies and policies that necessitate the successful adoption and usage of social media. The framework offers a deep understanding regarding the aforementioned aspects as well as provides a basis for further research on the utilisation of social media in academic libraries in not only Ghana but worldwide.*

**Keywords:** *Social Media, Academic Libraries, UTAUT, SEM Analysis, Ghana.*

## Introduction

The socio-economic development, right from the age of industrialisation to what is currently termed as the knowledge age, has been accompanied with new technological innovations in the information environment. In this environment, it has become imperative for academic libraries to integrate interactive online media systems into mainstream library and information services. One of such innovations is the social media platforms and technologies. Indeed, the adoption and use of social media are becoming so prevalent that they have remarkably altered and dominated the daily personal and professional lives of human beings in today's globalised world (Patra 2020). This revolution and popularity have affected the operations and activities of service providers such as academic libraries and is gradually becoming an indispensable tool in the work of the library professional.

The proliferation of social media applications in academic libraries is not unexpected, particularly in this era where academic libraries' clients are increasingly techno-savvy. Furthermore, libraries need to adopt and increasingly engage on varied social media platforms so as to move beyond the traditional bounds of the library, connect with its users and to keep abreast with new trends. Consequently, the importance of studying the adoption and use of social media in academic libraries in Ghana stems from the demand for the provision of timely information in today's increasingly competitive and global technological world, to have competitive advantage over other information providers, and to attract patrons.

Undeniably, the crucial goal of an academic library is to ensure that library resources are made accessible to patrons and that there is optimal use of the information resources hosted by the library. Social

media has come in handy to support the library efforts in providing services and information resources to clients. Undoubtedly, social media continue to empower academic libraries to connect with, and engage its different stakeholders in an ever-present method of information services delivery. It is, however, not enough for academic libraries to merely have a presence on social media, for instance, by having a Facebook page or a Twitter account (Kiron *et al* 2012). To use social media successfully, academic libraries must have a strategy to consider which social media platforms to adopt and use, the purpose for which social media are used and how they can support organisational objectives. Moreover, with the number of social media platforms available, it is essential for academic libraries to resolve on how best to commit their time and resources to social media (Winn *et al* 2017). In this regard, academic libraries need to appreciate and understand how the varied social media platforms adopted can be successful, sustainable, and engaging for both the staff and the patrons.

### Contextual Setting

This study was conducted in Ghana, a nation in the sub region of West Africa.. This study was focused on libraries within the tertiary educational institutions, designated as academic libraries (ALs). These constitute libraries of universities and polytechnics. These libraries support the institution's curriculum as well as faculty and students' research. There are three (3) main categories of academic library systems in Ghana. These are: libraries of accredited public universities, private universities, and technical universities (formerly known as polytechnics). These libraries are regulated by management of the universities, and managed by the heads of the library (usually referred to as the 'University Librarian' in the case of the private and public universities and simply 'Librarian' in the technical universities), and their deputies as well as a group of library staff designated as 'senior members'. The management structure of each library is however dependent on the size, statute, and policy of the library. Currently, Ghana has 93 academic libraries consisting of ten public ALs, 75 private ALs with eight technical universities spread across its ten regions. For this study, libraries from each of the three categories identified were included as part of the study

population.

### Problem Statement and Purpose of the Study

In Ghana, given that quite a number of studies have been conducted on the use of social media in academic libraries (e.g. Agyekum and Trivedi 2016; Ahenkorah- Marfo and Akussah 2017), very little is known about service offerings derived from such applications and its effectiveness. Furthermore, the aforementioned studies have identified several challenges faced in the use of social media in the libraries and as a result, there is need to provide a viable solution in the form of a framework to facilitate optimal use of the social media platforms in the academic. Consequently, we conducted a study to broadly investigate the use of social media in academic libraries in Ghana, with a view to developing a framework to optimise the use of such platforms in academic libraries in the country. In order to actualise the framework, the study sought to:

- Examine the extent to which various types of social media platforms are used in academic libraries in Ghana.
- Determine the influence of, performance expectancy, effort expectancy, social influence, and facilitating conditions on the behavioural intention and use behaviour of social media in academic libraries in Ghana.
- Assess the moderating influence of age, gender and experience on factors influencing the intention to use and actual use of social media in academic libraries in Ghana.
- Analyse the strategies regarding the use of social media in academic libraries in Ghana.

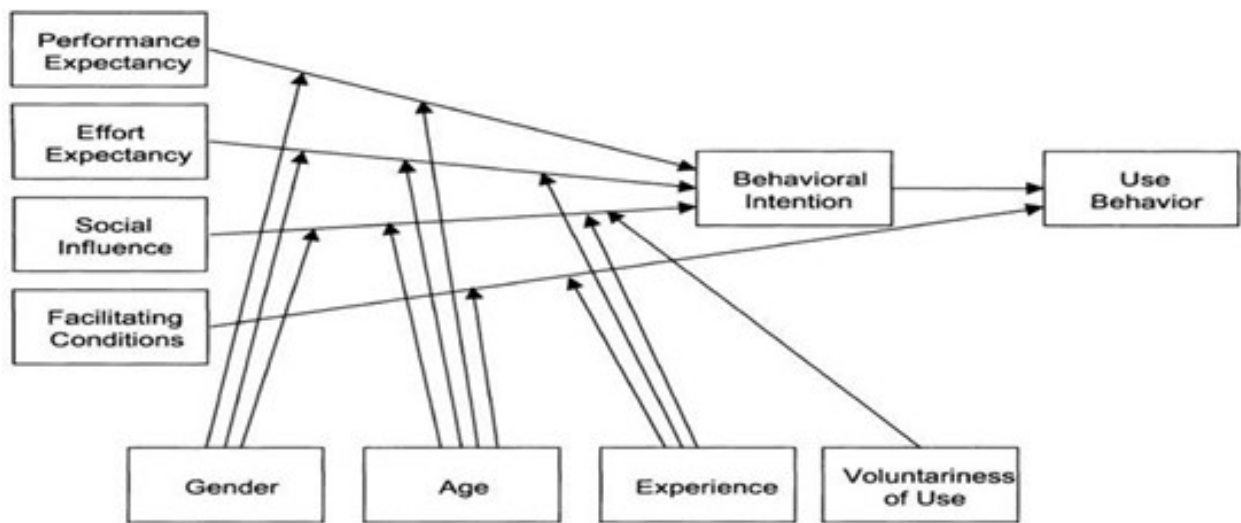
### Theoretical Lens for the Study

This study is informed by the unified theory of acceptance and use of technology (UTAUT). The UTAUT is one of the most advanced models of technology adoption and use in the organisational context (Yuvaraj 2016). The UTAUT model theorises that the intention to use and behavioural use of technology is dependent on four key factors, namely performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh *et*

al 2003) [see Figure 1]. According to the UTAUT, performance expectancy, social influence, and effort expectancy influence the behavioural intention (BI) to use an information system whilst facilitating conditions and behavioural intention to use influence the use behaviour of an information system or technology or an innovation.

Figure 1 further demonstrates that the UTAUT model considered four variables that have a moderating effect on the above-mentioned variables that influence the use of technology. The UTAUT assumes that the path from all four key predicting constructs to the outcome variables are moderated

by personal characteristics that comprise age, gender, experience, and voluntariness of use. These moderators, Jaradat and Ateh (2017) admitted, permit inferences and explanations on behavioural intention, and have been noted to play an important role as control variables, especially for investigating and understanding their relationships with factors influencing the intention to use technology. Accordingly, apart from identifying and discussing the key factors that may affect the intention to use and actual use of social media, this study observed the effect of these moderating variables on the relationships proposed in the hypothesised original research model.



**Figure 1: Original UTAUT model (Source: Venkatesh et al 2003).**

The model in Figure 1 was adapted and developed a framework (see Figure 2) that guided the conduct of the current study. The decision was informed by the fact that UTAUT is widely acknowledged as an appropriate theoretical lens to study the adoption and use of technology (or a technological innovation). All constructs except voluntariness of use were adopted to guide the study. Voluntariness was excluded as the use of social media is neither voluntary nor compulsory in academic libraries in Ghana. The UTAUT was specifically used to not only identify the factors but also the extent to which each variable influenced the adoption and use of social media in the academic libraries in Ghana. Using UTAUT, the following hypotheses were formulated to examine the relationships between the

independent variables (factors influencing adoption and use of social media) and dependent variables (intention to use and behavioural use of social media).

*H1: Performance expectancy has a significant relationship with the behavioural intention to use social media in academic libraries in Ghana.*

*H2: Effort expectancy has a significant relationship with the behavioural intention to use social media in academic libraries in Ghana.*

*H3: Social influence has a significant relationship with the behavioural intention to use social media in academic libraries in Ghana.*

*H4: Facilitating conditions have a significant relationship with behavioural intention to use social media in academic libraries in Ghana.*

*H5: Facilitating conditions have a significant relationship with use behaviour of social media in ALs in Ghana.*

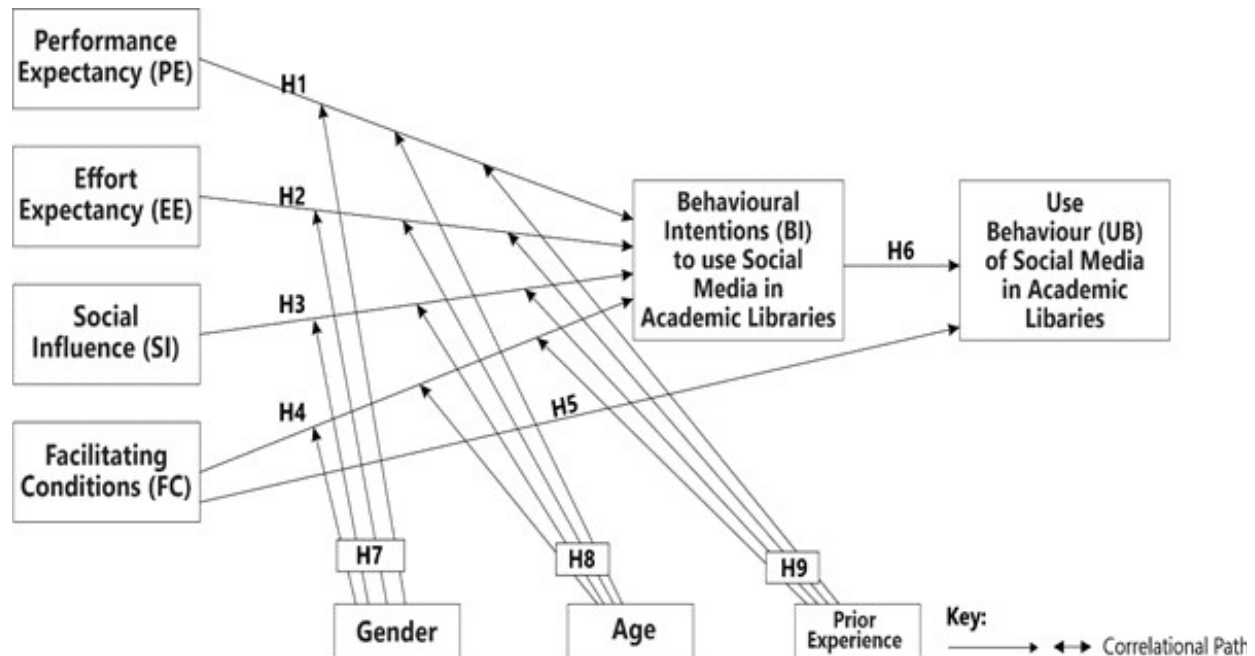
*H6: Behavioural intention has a significant relationship with the use behaviour of social media in academic libraries in Ghana.*

*H7: The path from performance expectancy, effort expectancy, social influence and facilitating conditions on behavioural intention*

*is moderated by gender, such that the influence is stronger for females than for males.*

*H8: The path from performance expectancy, effort expectancy, social influence and facilitating conditions on behavioural intention is moderated by age, such that the influence is stronger for older people than for younger people.*

*H9: The path from performance expectancy, effort expectancy, social influence and facilitating conditions on behavioural intention is moderated by experience, such that the influence is stronger for persons with increased experience.*



**Figure 2: Proposed theoretical framework for the current study (Adapted from Venkatesh *et al* 2003).**

## Literature Review

Admitting that some initial hesitations existed, the use of social media in academic libraries is no longer a novelty. Today, it is almost unimaginable to find an academic library without a social media presence (Deodato 2018). Almost all academic libraries especially in the developed world have readily adopted different social media platforms into their

day-to-day information services, and have at least one social media platform to keep patrons informed and updated on library services (Hamad, Tbaishat and Al-fadel 2017). In their literature review paper, Magoi, Aspura and Abrizah (2019) affirmed the relevance of social media as powerful tools for academic libraries especially from the developing countries. Magoi, Aspura and Abrizah (2019)

however presented challenges relative to lack of awareness of adopted social media applications by patrons, lack of relevant skills or manpower, and inadequate technical infrastructure as hindrances to the effective and efficient utilisation of such platforms in the academic libraries.

In Hong Kong, Fong, Au, Lam and Chu (2020) confirmed the use of social media in academic libraries and announced that even though the academic libraries are yet to fully utilise existing social media applications to optimise the academic libraries services to its patrons, Facebook, YouTube and Twitter came out as the most preferred platforms in the libraries. Likewise, Fasae (2020) from Nigeria revealed that although social media presence is no longer foreign to the libraries in Ekiti and Ondo states, the use of such platforms for promoting library services to its patrons was rare. Fasae (2020) as part of their recommendations proposed the development of training programmes for library staff to acquire the requisite skills needed for using social media as a library communication tool as well as the appointment of a dedicated library staff to manage the libraries adopted social media platforms that meet the library's core mandate. In Malawi, Chaputula, Abdullah and Mwale (2020) equally confirmed the use of social media in Malawian academic libraries, but equally reported on a number of technical, human and service related factors that posed challenges to the delivery of library services using such platforms.

Furthermore, prior literature has confirmed and/or disproved the significant correlations between performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitation conditions (FC) and the intention to use, and the actual use of social media (Calderón, López, & Peña 2017; Hoffman, Suphan & Meckel 2016; El Ouiridi, El Ouiridi & Pais 2016). For instance, El Ouiridi, El Ouiridi & Pais (2016) surveyed 244 recruiters from Central and Eastern Europe and found PE, EE, FC and SI to have a significant influence on the behavioural intention (BI) and use behaviour (UB) of social media in employee selection. Equally, in the political context, Hoffman, Suphan and Meckel (2016) applied the UTAUT to analyse the impact of use motives on politicians' social media adoption in Switzerland. With the structural Equation Model as a data analysis tool, the study confirmed performance

expectancy and behavioural intention as significant influencers of social media use intention and usage behaviour among the politicians. Similarly, in their survey of 502 students from Colombia, Calderón, López, and Peña, (2017) discovered a high adoption rate (68%) of social media applications such as Facebook, Google+, Instagram, and Twitter, and reported that performance expectancy is a relevant predictor of social media use.

Besides, research demonstrates that the use and gratification of technology differ relatively to user characteristics, such as age, gender, and experience (Khan *et al* 2017). Indeed, literature has considered gender (e.g. Lin and Yeh 2019), age (e.g. Hwang, Lee and Kim 2019), and experience (e.g. Suki and Suki 2019) as the most commonly tested antecedents as moderators of factors influencing the behavioural intention to adopt and use a given technology, and have produced mixed results. However, there seems to be paucity of literature on their relationships with regards to social media use in academic libraries. That notwithstanding, as part of their study, Esteve del Valle *et al* (2017) employed the moderators of the UTAUT to analyse 333 university level instructors' use of social media in the assessment of factors contributing to the use of social media for teaching and highlighted the effect of age and gender as moderating variables on the factors predicting usage intentions and use. The study however presented an interesting outcome that is in contrast with the projected trend for age, where younger individuals are regarded as being more involved with social media use, since age recorded a greater number of social media use by older teachers.

On the contrary, the results from the validation of the hypothesised relationships between the key constructs and moderators of the UTAUT demonstrated no significant relationships between age, gender and experience on the path from performance expectancy, effort expectancy, and social influence to behavioural intentions, and from facilitating conditions to use behaviour of academic social networking sites by academic researchers in Malaysia (Salahshour Rad *et al* 2019). Similarly, gender was reported to have no significant effect on the relationship between PE, EE, SI and FC on the intention to use and actual use of mobile payment services, although age was presented to have positive impact on the relationship between EE, SI and the

behavioural intentions where the relationships were stronger for younger users (Sobti 2019).

Certainly, the use of social media continues to be a vital tool for academic libraries to connect with and engage its different stakeholders. However, to use social media successfully and efficiently, academic libraries should go beyond having a presence on social media, to developing strategies on why these tools are adopted, how they can be sustained to support organisational objectives (Winn et al 2017). Consequently, academic libraries must formulate comprehensive social media strategies to drive patrons' engagement with the libraries on such platforms. Such strategy includes the development of comprehensive social media policies, planning the use of social media, and human resources with the requisite skills and knowledge in social media, user engagement in the choice of social media platforms, continuous update of social media sites, and encouragement of user feedback (Schaffer 2013).

## Methods and Materials

The quantitative research approach was adopted to conduct this study, wherein a survey was considered as an appropriate research design to collect data from four academic libraries comprising of two private universities, one public university and one technical university, as the data collection sites. The study population comprised a total of thirty-one thousand, one hundred and fifty-seven (31,157) comprising of library staff (110), students (30,006) and teaching staff (1,041) of the four universities. Due to the population of the library staff, the census approach was used wherein all participants in this category were regarded as the sample. For the population regarding students and teaching staff the sample determination table (Krejcie and Morgan 1970) approach was used to select sample sizes from each group. (See appendix 1). Thus, the sample size for the study was 767 comprising of 110 library staff, 379 students and 278 teaching staff.

Copies of the questionnaire designed for this study were administered to all groups in the sample. It was used as the main data collection tool and it was pre-tested prior to the data collection process, to assess validity and reliability. Statistical analyses were carried out using the statistical package for social sciences (SPSS) and the structural equation

modelling (SEM) technique. The SEM analysis was used to analyse and test the path-significance of the hypothesised relationships of the key constructs and the overall explanatory power of the research model. The use of the SEM is predominantly acceptable in social science research due to its capacity to explain relationships between dependent and independent variables (Khan et al 2021), and has been used to estimate the relationships and correlations between theoretical constructs from the UTAUT to understand behavioural intentions and use behaviour (e.g. Adanýr and Muhametjanova 2021; Abbasi 2021). Additionally, t-test analysis was performed to test the hypotheses regarding the moderating effect of age, gender and experience in the proposed research model. To adhere to research ethical principles, letters seeking permission to conduct the study were sent to all the study sites. Thereafter, authorisation letters were obtained from the management of the academic libraries studied before the collection of data from the research respondents. The study results have been anonymised to conceal respondents' identity as a way of adhering to ethical practices stipulated by the research sites.

## Summary of Results

This section provides a summary of the main findings, which led to the development of the proposed framework for the optimisation of social media use in academic libraries in Ghana. The constructs that were deemed necessary for the development of the framework were duly captured in the objectives of the study and included:

- Extent of social media usage in academic libraries (types of social media, and user awareness)
- Factors influencing the adoption and use of social media (i.e. the factors and the extent of their influence)
- Moderating influence of age, gender and experience
- Social media strategies (including policy, planning and staffing)

Of the 767 copies of the questionnaire distributed, 710 were returned. A total of 105 (14.8%) were not completed fully and therefore considered as invalid

to be used for analysis. As such, the copies of questionnaire returned in their complete and usable forms for analysis were six hundred and five (605),

giving response rate of 78.8%. A breakdown of the respondents presented in Table 1.

**Table 1: Distribution of Respondents according to Institutional Affiliation**

Institutional Affiliation	Respondent Category			
	Library Staff	Library Patrons		Total
		Teaching	Students	
Public University	68	95	211	374
Technical University	9	58	56	123
Private Universities	17	35	56	108
Total	94	188	323	605
		511		

### Participants' Demographics

The library staff included 3 (3.3%) university librarians 11 (11.7%) assistant librarians, 51 (54.3%) senior library assistants, 23 (24.5%) library assistants, and 6 library ICT officers. Teaching staff comprised 55 (29.3%) senior lecturers, 44 (23.4%) assistant lecturers, 20 (10.6%) professors, and 14 (7.4%) associate professors. One hundred, eighty eight (i.e. 188, 58.2%) of the students were in their third year (level 300), and 135 (41.8%) in their fourth-year level of study. A mean value ( $\bar{x}$ ) of 2.68, and a standard deviation (sd) value of 1.82, computed from the frequencies obtained, revealed that 94.6% (572) of the respondents surveyed (have used social media as a personal tool at least between 1 year and 2-5 years, indicating an appreciable level of awareness of such platforms.

### Extent of Adoption and Use of Social Media in Ghanaian Academic Libraries

The first objective of this study was to assess the extent to which various types of social media platforms are used in academic libraries in Ghana, in terms of their presence and services provided on social media, social media use frequencies in the academic libraries, the purposes for which social media are used, information content provided on the academic libraries' social media platforms and patrons' level of interest and likeliness to follow the

academic libraries on social media. Firstly on the social media platforms used to provide and access library services, findings show that, in order of importance, the academic libraries have adopted and are using a Facebook, Instant Messaging, Twitter, LinkedIn, and YouTube for the provision of and access to library services and resources as well as for contacting the libraries. Flickr, RSS feeds, Pinterest, Snap Chat, and wikis were however identified to be almost not used in the academic libraries surveyed.

Further, to determine the extent to which the academic libraries have embraced and applied these tools, the respondents were asked to indicate how frequently they used social media in their respective libraries with the use of a Likert scale ranging from 0-5, where 0= 'never use', 1= 'less than once per month', 2= 'at least once monthly', 3= 'at least once weekly', 4= at least once daily' and 5= 'multiple times daily'. The mean value obtained ( $\bar{x}$  =1.46, sd=0.682) gives an indication that majority of the respondents scarcely use the social media platforms adopted by their university libraries' for providing and accessing library services as well as for contacting the library. Instant messaging ( $\bar{x}$  =1.57, sd=1.352), Facebook ( $\bar{x}$  =0.91, sd=1.859), and YouTube ( $\bar{x}$  =0.70, sd=1.783) however came out as the most frequently used social media tools in the academic libraries for providing and accessing library services.

In addition, to determine the purposes for which social media tools were used in the academic libraries' surveyed, respondents were provided with some expressions relating to academic libraries services to select from. Findings indicate that whilst the library staff predominantly adopted social media platforms for publishing library news and events 93 (98.9%), marketing library services 70 (74.5%), facilitating information sharing 69 (73.4%) and promotion of library services' 67 (71.3%), the library patrons used such platforms for the purposes of getting information about latest books and articles in their field of study 236 (46.2%), get help on how to use the library 173 (33.9%), and 'to remain updated about what is trending in the library 173 (33.9%).

Besides, to ascertain what content the academic libraries provide on available social media platforms, as well as their patrons' level of interest in the content provided, library staff were invited to indicate the type of information provided, whilst library patrons were requested to indicate what kind of information they were interested in seeing on their university libraries' social media platform(s). Findings here show that information content provided on the academic libraries social media platforms, and which were of key interest to the library patrons included content relating to library logistics ( $x = 4.15$ ,  $sd = 0.455$ ), research techniques and tips ( $x = 4.15$ ,  $sd = 0.495$ ), how to use library resources and services ( $x = 4.26$ ,  $sd = 0.43$ ), library collections and resources information ( $x = 4.19$ ,  $sd = 0.46$ ), and library services updates ( $x = 4.0$ ,  $sd = 1.45$ ). Lastly, to ascertain social media platforms most preferred for accessing and contacting the university libraries, the patrons were requested to indicate how likely they were to follow their libraries on social media, and on which platforms they were most likely to do so, using a five point Likert Scale ranging from 1 to 5 where 1= 'extremely unlikely', 2= 'somewhat likely', 3= 'neither likely nor unlikely', 4= 'somewhat likely' and to 5= 'extremely likely'. Findings indicate that the patrons of the academic libraries were somewhat or extremely likely ( $x = 4.835$ ,  $sd = 0.0028$ ) to follow their libraries especially on Facebook ( $x = 4.05$ ,  $sd = 0.965$ ) and YouTube ( $x = 3.76$ ,  $sd = 1.016$ ).

## Factors Influencing the Adoption and Use of Social Media

To answer the second objective of the study that sought to determine the influence of performance expectancy, effort expectancy, social influence, and facilitating conditions on the behavioural intention and use behaviour of social media in the academic libraries surveyed, statements adapted from Venkatesh et al (2003) were used. These statements were self-rated on a five point Likert scale ranging from '1' to '5' where '1=strongly disagree', '2=moderately disagree', '3=moderately agree', '4= agree' and to '5=strongly agree'. This section presents the descriptive statistics of results from data obtained and analysed. For the descriptive analysis, the 'mean values' (M), are used to determine respondents' level of agreement or disagreement with a particular statement on each concept. Thus, a score of '1' indicates that respondents 'strongly disagree' with a statement used to measure a particular concept, whilst a score of '5' demonstrates that respondents 'strongly agree'.

On performance expectancy, all statements used recorded x-values above '4' an indication that a large number of the academic libraries surveyed either 'agree' and/or 'strongly agree' that the use of social media in their daily transactions will help the provision and delivery of library services and resources, as well as contacting the library. Similarly, a breakdown of the responses on effort expectancy show that most respondents will use the library social media when it is: easy to operate ( $x = 4.33$ ,  $sd = 0.996$ ), easy to use ( $x = 4.23$ ,  $sd = 1.093$ ), and understandable ( $x = 4.21$ ,  $sd = 1.095$ ).

However, the analysis of the responses used to measure the degree to which the academic libraries surveyed intend to use the library social media as a result of social influence, shows that academic libraries will not use social media for library services due to influences from their peers. The mean values recorded for all statements ranged between 2.41-2.51 an indication of the respondents' level of disagreement (moderately disagree) with the items on the scale. This indicates that the success to provide library services as well as access to library resources using social media does not lie in the power to convince the academic libraries on the efficiency of such tools for such purposes. So, library staff and



library patrons of academic libraries in Ghana are not more likely to adopt or intend to think positive about the use of social media in the libraries just because persons in their social circle suggested the use of such platforms. This finding could however be attributed to the characteristics of the study respondents, as they had prior knowledge on, and were using social media for personal purposes.

Additionally, the mean values ( $\bar{x}$ ) recorded for all statements used to measure facilitating conditions were below '3'. This finding shows that the academic libraries would largely not use the library social media platforms when they feel that the required resources and support to do so are not available and, or inaccessible. Further, the analysis of statements used to measure the respondents' behavioural intention to use social media for library services shows that even though the academic libraries desire ( $\bar{x}$ 4.39) and anticipate ( $\bar{x}$ 4.46) to use the library social media platforms, their expectation in terms of intention to use the library social media was low 2.43 indicating that the respondents 'moderately disagree' with the intention of planning to use the library social media. Lastly, the findings from statements used to measure the academic libraries actual frequencies of social media use in academic libraries show that whilst, the respondents 'moderately disagreed' their intentions to actually use the library social media ( $m$ =2.96,  $sd$ =1.69), consistently ( $\bar{x}$ =2.36,  $sd$ =1.548), or regularly ( $\bar{x}$ = 2.16,  $sd$ =1.39), they were however optimistic that it is worthy to use the library social media for the provision of and access to library services ( $\bar{x}$ =4.49,  $sd$ =0.986)

### **Moderating Influence of Age, Gender and Experience**

The third objective of this study was to assess the differences among respondents' personal characteristics such as age, gender and prior experience on variables relative to performance expectancy, effort expectancy, social influence, facilitating conditions, behavioural intention and use behaviour in academic libraries in Ghana. To evaluate the differential effects of moderators, the t-test analysis using the Levene's Test for Equality of Variances was assessed in terms of the difference in degrees of freedom (df). On gender, findings from the t-test analysis, reveal that apart from effort

expectancy ( $P$ =0.000;  $p$ <0.05) and use behaviour ( $p$ =.038;  $p$ <0.05), there was no statistical significant difference between female and male respondents on all variables relative to performance expectancy ( $p$ =.320;  $p$ <0.05), social influence ( $p$ =.258;  $p$ <0.05) facilitating conditions ( $P$ =.231;  $p$ <0.05) and behavioural intentions ( $p$ =.362;  $p$ <0.05) With regards to age, there were no statistical significant differences between the 'young' respondents and 'old' respondents relative to their views on: performance expectancy ( $p$ =.008;  $p$ <0.05), effort expectancy ( $p$ =.011;  $p$ <0.05) and social influence ( $p$ =.012;  $p$ <0.05). The t-test analysis however presented significant differences between 'young' and 'old' respondents' relatively on facilitating conditions, behavioural intentions and use behaviour. For experience as a moderator, the respondents were divided into two main groups according to their prior experiences in the use of social media. Group 1 comprised respondents who had used social media for less than 5 years, whilst group 2 includes those who have used social media for 5 years or more. Findings indicated no statistically significant difference for the two groups on performance expectancy:  $p$ =0.280, effort expectancy: ( $p$ =0.655;  $p$ <0.05), and social influence: ( $p$ =0.412;  $p$ <0.05). Statistical significance were however recorded for the two the groups on facilitating conditions: ( $p$ =0.036;  $p$ <0.05), behavioural intention ( $p$ =0.001;  $p$ <0.0), and use behaviour ( $p$ =0.000;  $p$ <0.05).

### **Strategies for Enhancing the Use of Social Media in the Academic Libraries**

This section addresses the fourth research objective. It presents the descriptive statistics of statements used to measure strategies relative to key concepts, perceived to enhance the use of social media when observed. Concepts included: planning the use of social media, social media policy, patrons involvement in the academic libraries choice of social media, staff with requisite knowledge and skills in the use of the academic libraries social media platforms for their intended purposes, constant update of the libraries social media platforms, and encouragement of user feedback. Statements used to measure each concept were self-rated on a five point Likert scale where '1 =strongly disagree', '2=moderately disagree', '3=moderately agree' '4=agree' and '5=strongly

agree'. For the descriptive analysis, the "mean values" were used to determine respondents' level of agreement or disagreement with a particular statement on each concept. Thus, a score of '1' and a score of '5' demonstrate that respondents strongly disagree or strongly agree with a statement used to measure a particular concept respectively.

First, the results from the analysis of all statements show an appreciable level of the need for planning on social media among the respondents. All statements scored mean values above 4.7, suggestive that respondents either 'agree' and/or 'strongly agree'. Regarding the need for a social media policy, the mean values from the analysed responses reveal the respondents' affirmation of a policy as a social media use strategy. All statements recorded mean values above 4.5 showing respondents either 'agreed' and/or 'strongly agreed' with the statements on the need for a social media policy in the academic libraries. Further, the analysis of findings on the views of the respondents' on the involvement of patrons in the choice of social media platforms the academic libraries have adopted or intend to adopt and use depicts that academic libraries seem to 'agreed' and or 'strongly agreed' with the need for the academic libraries, to focus on social media accounts relevant to their users ( $m=4.62$ ,  $sd=0.806$ ), 'tailor appropriate information to target users on their preferred social media platforms ( $m=4.62$ ,  $sd=0.782$ ), to direct social media towards user needs and preferences ( $m=4.60$ ,  $sd 0.819$ ), and users' influence on social media platforms adopted by the academic libraries ( $m=4.55$   $sd=0.910$ ).

Likewise, majority of respondents 'strongly agreed' and had positive responses, on the need for library staff with requisite skills and knowledge to manage their social media platforms, with all statements recording mean values above 4.5. Additionally, analysis of the responses on the need for constant update of the libraries' social media platforms show that the respondents largely 'strongly agreed' with all statements used with mean values ranging from 4.70 to 4.75. Finally, the analysis of responses of the statements used to measure the views of respondents on the importance of feedback from patrons on the use of the academic libraries' social media platforms, generally depicts that the academic libraries perceive user feedback as a vital social media use strategy. All three statements used

recorded mean values higher than '4.5', demonstrating a strong level of agreement with the items on the scale.

## **Structural Equation Modelling Analysis**

### ***Results of Measurement Model***

In this study, the adequacy of sample size, construct reliability and convergent validity were performed for the assessment of the measurement model. For the adequacy of sample size, the Kaiser-Meyer-Olkin (KMO) value obtained highly exceeded the threshold of 0.5 showing adequacy in the sample size. The Cronbach's alpha values obtained exceeded 0.82 verifying the construct reliability (George & Mallery 2016). For the convergent validity, three criteria were used, namely; the significant value of item loadings, composite reliability (CR) and the value of Average Variance Extracted (AVE). For this study, the standardised loadings for each factor loadings were all greater than 0.707 with an AVE higher than 0.5, and a CR value of each construct greater than 0.60 (Park *et al* 2019), showing a high proportion of commonality among the model constructs, and confirms the data used in the study model is reliable and valid.

### ***Outcome of Study Hypotheses***

The second and third objectives of the study were relative to the study hypotheses. A SEM analysis was carried out to test the study hypotheses to either confirm or refute the relationships hypothesised. The hypotheses tested relate to linking the independent variables (i.e. performance expectancy (H1), effort expectancy (H2), social influence (H3) and facilitating conditions (H4)) that bear on the conduct of the dependent variables {i.e. behavioural intention (H5) and use behaviour (H6)}, as well as the influence of moderating variables {gender (H7), age (H8) and experience (H9)} on the relationship between the dependent and independent variables. As presented in Table 2, the outcome of the study hypotheses shows that H1, H2, H4, and H5 were supported. H3 and H6 are rejected. H7, H8 and H9 were however partially supported. For instance, gender and experience moderated the path from PE, EE, and FC to UB but do not alter from SI to BI and from BI to UB. Similarly, age moderated the path from PE, EE, SI and FC to BI and UB but not from BI to UB.

**Table 2: Summary of Outcome of study Hypotheses**

Research Hypotheses	Hypothesised Path	Result of Hypotheses					
		$\beta$	P	R <sup>2</sup>	Remarks		
					Significant Level	Supported	
H1	PE $\square$ BI	0.410	0.000	0.420	SS	Yes	
H2	EE $\square$ BI	0.263	0.000	0.260	SS	Yes	
H3	SI $\square$ BI	0.070	1.120	0.120	NS	No	
H4	FC $\square$ BI	-0.181	0.000	0.18	SS	Yes	
H5	FC $\square$ UB	0.024	0.000	0.20	SS	Yes	
H6	BI $\square$ UB	0.196	0.560	0.020	NS	No	
				0.338	PS	Yes/No	
H7	PE $\square$ Gen $\square$ BI	0.416	0.000				Yes
	EE $\square$ Gen $\square$ BI	0.263	0.000				Yes
	SI $\square$ Gen $\square$ BI	0.124	0.397				No
	FC $\square$ Gen $\square$ BI	0.196	0.000				Yes
	FC $\square$ Gen $\square$ UB	0.181	0.000				Yes
	BI $\square$ Gen $\square$ UB	0.024	0.376				No
H8				0.437	PS		
	PE $\square$ Age $\square$ BI	0.408	0.000				Yes
	EE $\square$ Age $\square$ BI	0.261	0.000				Yes
	SI $\square$ Age $\square$ BI	0.124	0.000				Yes
	FC $\square$ Age $\square$ BI	0.187	0.000				Yes
	FC $\square$ Age $\square$ UB	0.196	0.000				Yes
	BI $\square$ Age $\square$ UB	0.024	0.576				No
H9				0.531	PS	Yes/No	
	PE $\square$ Exp $\square$ BI	0.410	0.000				Yes
	EE $\square$ Exp $\square$ BI	0.263	0.000				Yes
	SI $\square$ Exp $\square$ BI	0.128	0.248				No
	FC $\square$ Exp $\square$ BI	0.182	0.000				Yes
	FC $\square$ Exp $\square$ UB	0.196	0.000				Yes
BI $\square$ Exp $\square$ UB	0.024	0.436			No		

**Note:** SS= Significant; NS=Not Significant; PS=partially Significant  $\beta$ = Path Coefficient ,  $P < 0.05$

### Proposed Framework to Optimise the Use of Social Media in Academic Libraries in Ghana

The purpose of this study was to propose a framework that may help academic libraries in Ghana to optimise the use of social media in their endeavour to provide library services as well as access to library resources. For this purpose, the study examined the extent to which various types of social media platforms are used, determine the

influence of the key factors and moderators of the UTAUT on the behavioural intention and use behaviour of social media, and analyse the strategies regarding the use of social media in academic libraries in Ghana. In view of the study’s findings, the study proposed the framework depicted in Figure 3. Discussions for this study are hence made in line with the recommended framework to offer worthwhile implications to serve as blueprints for academic libraries to increase their social media activities.

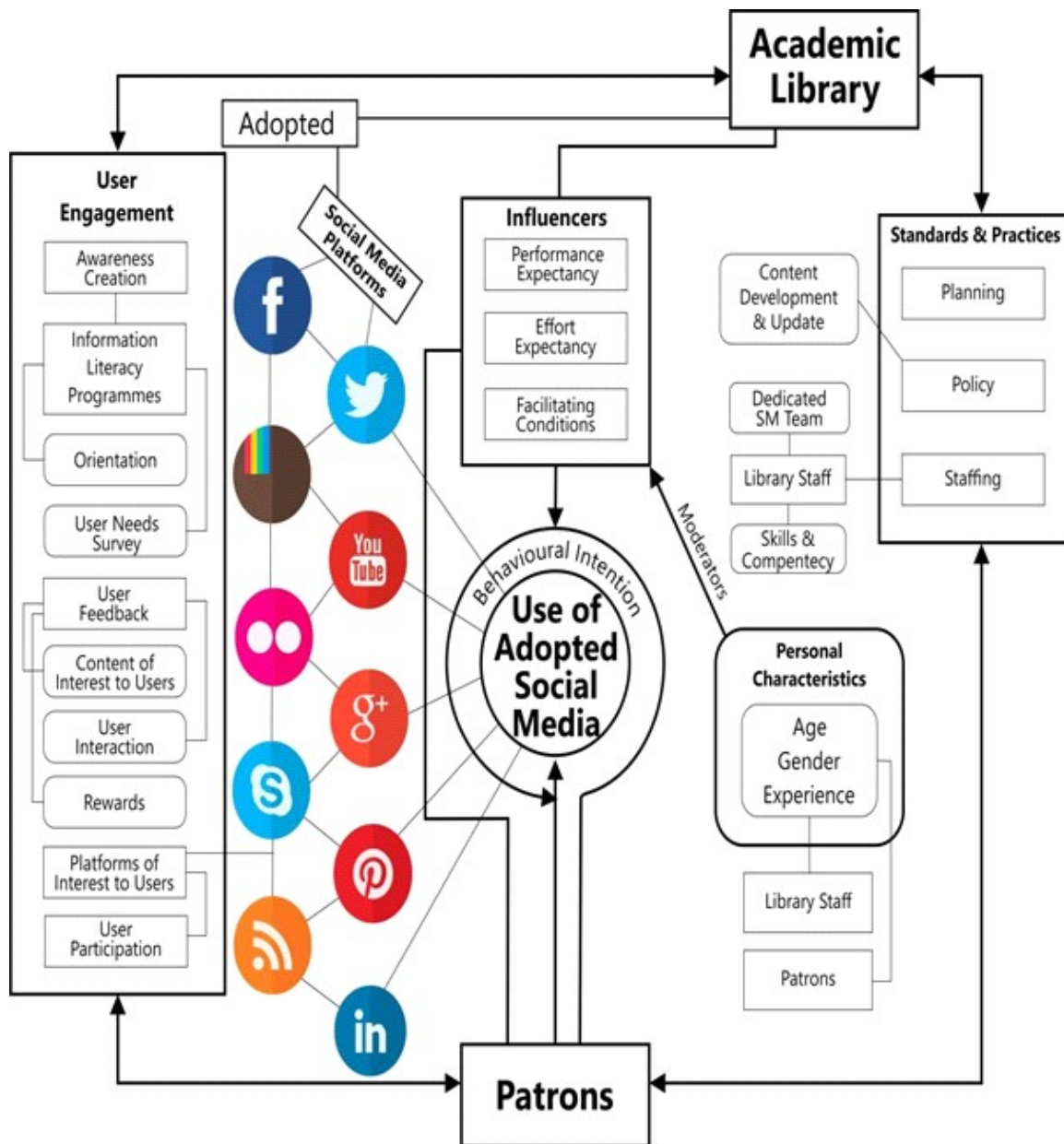


Figure 3: Proposed Framework to Optimise Social Media Use in Academic Libraries in Ghana.

Beginning from the extreme right to the extreme left of the recommended framework illustrated in Figure 3, it is anticipated that to ensure the success of social media implementation, academic libraries in Ghana should be leveraged strategically to take into account the best standards and practices of social media application in the libraries to help instil a mandate, key factors that may be judged as successful drivers to the intention to use and subsequent use of social media, as well as and factors that may drive user engagement with adopted and available social media platforms.

### **Standards and Practices**

Undoubtedly, social media best practice implies the provision of available and satisfactory evidence of compliance with standards and practices. By standards and practices, this study as shown in the framework in Figure 3 refers to planning the use of social, availability of a social media policy and the availability of library staff with competency in the use of social media for the provision of library services. In other words, this study proposes that, careful planning, policy and staffing are essential in monitoring and tracking the academic libraries' activities on adopted platforms in an efficient and systematic way, to achieve its intended purposes.

First, the literature highlights how important a comprehensive planning and assessment approach is to the successful achievement of intended purposes of social media adoption and use (McCann & Barlow 2015). Likewise, in the academic libraries surveyed, findings confirmed the need for a social media plan as very vital by the majority of the respondents. Hence, academic libraries in Ghana are encouraged to develop social media plans to serve as indicators for the effective and efficient management and use of its social media platforms. Planning on the use of social media should however go beyond considering what social media tools to adopt or use, but on how best the academic libraries can set goals and define objectives to outline suitable measures in their social media efforts. This is because once the academic libraries have a social media plan specifying set goals and objectives, only then will they be in a position to choose the suitable social media platforms for providing and accessing library services.

Further, an essential component of any social media approach is the establishment of policies mandatory for patrons and staff to read before accessing and using these services. Indeed, findings from this study affirmed the need for a policy document to serve as a guideline for the academic libraries social media adoption and use strategy. Nevertheless, the recognition of the concept of social media as a general phenomenon has resulted in a neglect of policy documents for social media applications in most academic libraries (Peacemaker, Robinson & Hurts 2016). That notwithstanding, academic libraries in Ghana should develop comprehensive social media policies to provide clear guiding principles on acceptable and unacceptable social media use behaviours in the libraries. These policies should define the guidelines and clearly explain the rules on content development and updates of the academic libraries' social media activities.

Besides, innovations such as social media are dynamic, and will therefore require human resource skills in the library to move along with the change. Consequently, the need for a dedicated staff with the requisite skills and knowledge in the use of such platforms is critical. In conformity with the literature, (e.g. Agyekum & Trivedi 2016) a majority of respondents in this study were very much in agreement and had positive responses on the need for library staff who are well trained on the use of social media for library services delivery, as well as a dedicated staff responsible for maintaining the academic libraries' social media platforms. However, a number of studies especially from Africa (e.g. Ahenkorah-Marfo & Akussah 2017) have reported lack of staff with the required knowledge and skills in the use of social media as one of the obstacles for effectively using social media to achieve its adoption objectives. Thus as shown in the proposed framework in Figure 3, academic libraries in Ghana are encouraged to have dedicated library staff with the skills, experience, and knowledge in the use of adopted social media platforms to help optimise the available resources and services using such platforms. These staff must be adaptable to new social media conditions to proactively meet the patrons of the academic libraries across time and generations. If possible a special dedicated team if not already in place, is necessary to come up with a social media programme in the respective academic libraries.

## Influencers

As presented in the proposed framework in Figure 3, it is essential for academic libraries in Ghana to consider three key factors that may be judged as successful drivers to the intention to use and subsequent use of social media. Based on the findings from the SEM analysis for this study, these factors include performance expectancy, effort expectancy and facilitating conditions. First, like other studies in the context of social media adoption and use (e.g. Salahshour Rad et al 2019), this study found a relationship between performance expectancy and behavioural intention. This implies that the adoption and use of social media applications in academic libraries in Ghana is influenced by the trust that using such platforms to operate services will improve performance and accessibility.

Academic libraries in their periodic library programmes could emphasise the benefits associated with the use of such platforms to build patrons interest in their use for library services provision and access. Further, the study results also supported the relationship between effort expectancy and behavioural intention to use social media. This is in accordance with the literature (e.g. Chua et al 2018 etc.), and is suggestive that success in the use of social media lies mainly on how easy it is to use. It is therefore expected that when library services provided on adopted social media platforms are easily accessible, simple and with less mental efforts, staff and patrons of academic libraries will become comfortable in providing and accessing library services via such applications. Hence as part of the measures to optimising the use of adopted social media platforms in the academic libraries, social media platforms adopted should be more user-friendly, and easy to understand to stimulate and encourage their use for library services activities.

Additionally, this study found that facilitating conditions, in terms of required resources, continuous support, and requisite skills and guidance have significant relationship with the intention to use and actual use of social media. This result corroborates previous studies in the context of social media (e.g. Engler & Alpha 2018). Consequently, for the academic libraries the enabling facilities are central to the use of social media in an effective and efficient manner for its intended purposes. The academic

libraries could therefore provide proper support, assistance and directions on how to use social media applications for library services. This the libraries can do with the use of online platforms such as YouTube, Libguides and Tiktok videos to offer short tutorials on its activities on social media.

## Moderators

This study also indicates that the decision to use, and actual use of social media for the provision and access to library services as well as for contacting the libraries may be influenced by the personal demographic profiles (gender, age and prior experience) of the library staff and library patrons. As shown in the proposed framework in Figure 3, these personal characteristics have impact on the three key factors (performance expectancy, effort expectancy and facilitating conditions) influencing the intention to use and actual use of social media in the academic libraries surveyed. For instance, similar to other studies, (Odewumi, Yusuf & Oputa 2018) findings of this study showed, that for gender whilst males were more likely to perceive the use of social media as an easy to use platform for library services than females, females may use the library social media more often than males. Again, on age, younger individuals were found to use the library social media for providing services and for contacting the library when the needed supports for the use of such platforms are provided, than their older counterparts just like that of Hardy and Castonguay (2018). Regarding experience, this study concludes that given the requisite skills, support, guidelines, resources and assistance, library staff and library patrons in academic libraries in Ghana, with increased experience in the use of such platforms will have the tendency to use, and subsequently use such platforms to provide and access library services. Consequently, relative to the above findings on moderating effects of gender age and experience, academic libraries in Ghana need to appreciate that library staff and library patrons may attach different weights to various factors that influence their use of the library social media relative to their gender, age and prior experience in the use of such tools. Thus, to recognise and channel appropriate library services on its social media platforms, knowledge of the personal characteristics of library staff and library patrons is key.

## User Engagement

Successful social media programmes require careful consideration of the needs and desires of stakeholders, which in the case of academic libraries, are faculty and students. With the limited time and resources to allocate to activities like the promotion of social media, the probable interest and the level of engagement of the library patron is critical. It is therefore important for an academic library to find out whether its patrons actually use a social media platform prior to a decision to adopt or not adopt it. This the academic libraries can do by engaging its users in their social media endeavours. Certainly, the assessments of the library staff alone may not fully explain the factors that contribute to the acceptance and use of social media platforms in academic libraries, because the user (patrons) constitutes the focal point and reason for which these services delivery tools are deployed. As such the level of user engagement on the adoption and use of such platforms to access library resources and services is very critical. The study presents some elements as part of the ways in which the academic libraries could engage their users, to optimise the use of adopted and available social media platforms to achieve its numerous intended benefits. These factors as presented in the proposed framework (from extreme left) include awareness creation, user feedback, adoption of platforms of interest to users, and user participation in the choice of social media tools for library services activities.

Regarding awareness creation, a key finding on the extent of use of the adopted social media platforms in the academic libraries surveyed was the lack of user engagement resulting in lack of awareness on the presence of the libraries' among its patrons. On average, more than 50% of the respondents had never used at least one of the social media platforms adopted by their academic libraries. Surely, as Howard et al (2018) exposed, most academic libraries have presence on one or more social media platform(s), but do not appear to have much interest in finding out patron's awareness and knowledge of the existence of such platforms. Indeed, as alluded in the literature, since most library patrons have generally fit into the social media age, and are familiar and comfortable with the use of varied social media platforms, libraries often tend to make social media assumptions about their users

without consulting them (Jones & Harvey 2019).

Besides, further findings from this study also gave an indication, given that most of the respondents had never used the library social media for library services, 96.3% of them were reported positive reactions to follow their university libraries on varied social media platforms such as Facebook, Instant Messaging, Twitter, LinkedIn, and YouTube among others. This clearly confirms that they do not actually seem to know that their libraries were present or used any of such platforms for the provision of library services. In view of above, the academic libraries could create awareness about the libraries' social media adopted platforms by organising periodic social media literacy programmes to expose users to the various way of using social media applications to access and contact the libraries'. These literacy programmes as shown in the proposed framework in Figure 3 (under user engagement) could be offered during the libraries orientation programmes, promotional campaigns, and on the library home pages or websites to relay and boost the attention of patrons on current information pertaining to social media and its application for library services.

Furthermore, beyond a marketing tool, social media permits a feedback function as a conduit through which users can report grievances, compliment, inquire, and suggest (Enis 2017). It is therefore not sufficient for libraries to merely talk on social media; they are also required to listen. Indeed, the findings from this study commend the need for a social media feedback system to provide every opportunity to its users to submit their response, both positive and negative and to make constructive comments on library services through adopted social platforms. On the other hand, the literature (e.g. Jones & Harvey 2019) seems to indicate a low level of interaction with library users on adopted social media platforms resulting in lack of user feedback. All the same, as pointed out in the proposed framework in Figure 3, academic libraries in Ghana should not use social media solely as an avenue to convey news and information to patrons, but also as an venue for interacting and engaging discussion. In other words, the libraries should dialogue with it users to ascertain their social media preferences, and decide on which platforms to use based on an understanding of their users to avoid the possibilities of channelling efforts in a wrong direction.

Finally, similar to the library literature on academic libraries' use of social media (e.g. Deodato (2018) this study reported the use of at least one social media tool, with Facebook, Twitter and Instant Messaging as the prominent platforms used to keep patrons informed and updated on the library's daily information services and support. The use of platforms such as (in order of importance), YouTube, LinkedIn, blogs, RSS feeds, Bookmark, wikis, Snap Chat and Pinterest were minimal. However, even though social media enable the academic library to meet users in their own spaces where ever they may be, many academic libraries are still challenged in determining which tools to use, which ones to discard or maintain and how to assess outreach effectiveness (Gaha 2015). Indeed, few academic libraries have deployed social media that link directly with the libraries' mandate (Xie & Stevenson 2014). Jennings (2012) emphasised the consequence of selecting social media platforms and noted that libraries must concentrate and choose social media applications that are pertinent to their user community. Accordingly, a key approach to achieving the social media objectives in the academic libraries in Ghana is to focus on platforms that are of interest to users. As presented in the proposed framework on 'social media platforms', given that Facebook, twitter and instant messaging were discovered as the prominent social media tools in the academic libraries' surveyed, the academic libraries could explore and extend the use of other social media tools such as Google+, Flickr, wikis, RSS, blogs, Pinterest, and LinkedIn for varied purposes. LinkedIn for instance can be leveraged by the libraries for offering selective dissemination of information (SDI), to provide special library services to specific library users for the purpose of linking library users with users in their field of interest.

## Conclusion

Social media have become not only a major common channel of communication among peers and relatives, but also an innovative, yet cost-effective avenue for academic libraries to enhance the quality of their services to patrons. Developments in social media have improved library services tremendously by offering the potential to communicate with users more directly with minimal expense as compared to

the traditional mediums of communication, and have created more friendly social environments for accessing and disseminating knowledge. Today, with the induction of social media, the inured role of providing access to collections in academic libraries from traditional library resources such as catalogues, databases or even books have changed. In fact, the increase and broad utilisation of social media in recent years has resulted in a paradigm shift in terms of the traditional function of academic libraries as a physical accumulation of research material to a virtual community. This study draws on the UTAUT theory to examine the adoption and use of social media in academic libraries in Ghana, with the aim of assessing the extent of use, factors influencing use and strategies towards optimising use. Findings from the SEM analysis presented performance expectancy, effort expectancy and facilitating conditions as significant predictors of behavioural intention and use behaviour of social media, whilst refuting the influence of social influence on behavioural intention, and behavioural intention on use behaviour of social media in the academic libraries surveyed. Based on the literature reviewed, together with the outcome of the study findings, a framework is proposed to direct the adoption and use of social media for the provision of and access to library resources and services, as well as for contacting academic libraries in Ghana.

Findings of this present study make practical contributions to academic libraries that use social media for delivering services to patrons, and may serve as a guide for future researchers in their understanding of the acceptance and use of social media as a service provision platform among academic libraries in Ghana. First, the development and use of information technology such as social media requires high budget and investment. As such, understanding the factors that influence the behavioural intention to use and use behaviour of social media is especially critical for academic libraries with often insufficient budget. Further, the current study can be implemented as the guidelines for the effective development of social media strategies to encourage the adoption and use of such platforms especially in academic libraries in developing countries. Such academic libraries could use these findings to make informed decisions that are related to the adoption and use of social media



for the provision and access to library services and resources and thereby improve patrons' engagement in the use of such platforms.

Despite the theoretical and practical contributions a drawback of this study is concerned with the generalisability of the study findings. Since this study focuses specifically on academic libraries in Ghana, there are concerns regarding the applicability of the results to other libraries across the globe. Future research could hence consider a cross-country comparative study on of social media use in different academic libraries.

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