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## Perceptions of University of Botswana Librarians on the Potential of Web 2.0 Tools

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### **Abstract:**

*A study on the perceptions of the usage of Web 2.0 technologies was carried out among library staff of the University of Botswana (UB) using an online questionnaire and content analysis of the UB Library. This research work targets the University of Botswana library professionals, including librarians and senior management of the library, on their perceptions of what Web 2.0 tools are, what conditions prevail for their use, and whether they are willing to use them in enhancing library services for users.*

*Two methods of data collection were used in order to triangulate the findings. These were an online survey with an open ended question as well as content analysis of the UB Library website. Facebook, blogs, Twitter, wikis, podcasts, and LinkedIn were chosen for this study because they were found to be very popular in most academic libraries, according to the literature consulted. The study employed a qualitative design due to the smallness of the sample. The sample comprised of mainly librarian and senior management cadre. The senior cadre was purposively chosen because it is assumed that they have the qualifications, experience and exposure needed in the library. There are a total of 137 UB library employees out of which 19 are senior officers comprising senior librarians (15) and top management staff (4), and librarians (47). This was a purposive study which targeted the three top*

*cadres of librarian, senior librarians and library management. These cadres have a total of 66 potential participants and 30 responses were received.*

*The results were analysed using qualitative methods and were mapped against the Library Unified Theory of Acceptance and Use of Technology (UTAUT) model, one of the popular models identified in the literature for studying the adoption of Web 2.0 in both libraries and academic institutions. Authors also identified traits among librarians that can be defined by the present model. The findings show that library staff has adopted some Web 2.0 tools such as Facebook, and use them personally, however some tools such as wikis, podcasts, Twitter, LinkedIn and blogs were not very popular. The research also established some facilitating conditions and social influences which negatively impacted the librarians and slowed down the rate of adoption and use of Web 2.0 technologies. This, then, informed the recommendations at the end on how the university library management can align Web 2.0 processes and tools to enrich their services. The study will help the University of Botswana Library Management with the status of Web 2.0 technologies in the library, understand the hurdles librarians face with regards to facilities and training, as well as inform strategic planning towards the adoption and use of these tools.*

**Keywords:** Web 2.0, UTAUT Model,

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## **1.0 Introduction**

This paper investigated the prevalence and use of Web 2.0 technologies in the University of Botswana Library. The introduction of Web 2.0 tools has changed the static web, which was known for storage of large amounts of information with very little collaboration, content creation and interaction between all users and providers. The advent of Web 2.0 technologies has changed the communication and collaboration patterns between library staff and users all over the world today, thereby transforming service delivery in libraries. The key transformations in library service are seen mostly in user centeredness, participation in content creation, two way communication, collaboration, formation of online communities, information sharing and creativity or innovation for both the library staff and the users. Thus Web 2.0 tools make it easy for collection, packaging, dissemination, access, and consumption of library based services. This culminated in the popular Library 2.0 notion of referring to Web 2.0 compliant libraries (Berube, 2011).

The University of Botswana (UB) has been in existence since 1982 (UB Intranet, 2015) therefore a study of its library services is pertinent. UB is a government funded institution with a student enrolment of 18,176 and six faculties, namely: Business, Education, Engineering and Technology, Humanities, Science, and Social Science with well over 3,000 university employees (UB Intranet Facts and Figures, 2015). The UB library is a hybrid library which serves three campuses in three separate areas. These are Gaborone campus (Main library), the Centre for Continuing Education (located in Francistown) and Okavango Research Institute (located in Maun). The University of Botswana library is one of the largest and most well-resourced libraries in Africa, and it has both paper and electronic resources with about 137 staff. The present study concentrated on the librarian, senior librarian, and library management cadres because it is assumed that they have more experience and exposure to Web 2.0 tools.

### **1.1 Aims of Paper**

The literature has shown the popularity of Web 2.0 tools in academic libraries in the developed world, and yet research in Africa is scarce on the uptake and use of these technologies. It has also been shown that Web 2.0 tools are instrumental in extending services to *Generation Y*, who are born after the 1990's with technology all around them. Given the importance of adopting Web 2.0 technologies by academic library staff, it is imperative that studies be done to find out whether the concept of Library 2.0 prevails in the University of Botswana Library. To address the aims of the study, the following objectives were examined:

1. To assess whether Web 2.0 tools are visible in the UB Library website and what they are used for.
2. To assess the adoption and use of Web 2.0 technologies amongst the University of Botswana librarians using the Unified Theory Acceptance and Use of Technology.
3. To find out if there are any hurdles that hamper the implementation and use of Web 2.0 tools amongst University of Botswana library staff.

## **2.0 Literature**

The literature reviewed concentrated on the description of Web 2.0 technologies, uses of these tools in libraries in general, possible hurdles towards adoption and use of newer technologies, as well as Generation Y's use of technology.

### **2.1 Web 2.0 Description**

The origins of Web 2.0 can be traced back to a brainstorming session by O'Reilly and Dougherty in O'Reilly, T (2005) who first coined the phrase based on the observed effectiveness of business models that encompassed Web 2.0 characteristics such as collaboration and information sharing. According to Nichol, Hunter, Yaseen, Prescott-Clements (2012, p.437), "Web 2.0 is a broad term given to those technologies that promote sharing, communication and collaboration." Most researchers consulted describe the characteristics of Web 2.0 tools and this helps to explain their functions. Thus Web 2.0 technologies are characterized by better dissemination of information, extensive development of online services, decentralization of information enabled by democratic participation to content creation on the web, community building facilitated by the prevalence of Web 2.0 tools such as Facebook, Twitter, MySpace, LinkedIn and various other technologies (Berube, 2011; Chua and Goh, 2010; Shulman, Yep and Tome, 2015; Yi, 2014).

### **2.2 Web 2.0 Uses**

Literature abounds on the efficacy of Web 2.0 technologies in enhancing library services. In a paper by Chua and Goh (2010) Web 2.0 tools that were implemented and popular in libraries in North America, Asia and Europe were (in their order of popularity) blogs, RSS, instant messaging, social networking services, wikis, and social tagging applications (p.203). Other studies carried out in Malaysia found that the most popular tools in libraries (by order of importance) were Facebook, Really Simple Syndication (RSS), podcasts/vodcasts, blogs, wikis, photo sharing (Ismail Abidin, Kiran and Abriza, 2013, p.74). Researchers in South Africa (citing Vermeulen, 2013) found the most popular Web 2.0 tools to be Facebook, Twitter and LinkedIn, in that order (du Toit and Mulatiningsih, 2013). A study carried out in Australian Academic Libraries established that librarians perceived blogs, Facebook, instant messages, podcasts, RSS, tagging, Twitter, vodcasts, wikis and

YouTube to be effective tools for marketing services and resources (Yi, 2014, p.223). It can be concluded that most libraries in North America, Asia and Europe have adopted Web 2.0 technologies, therefore it is important to find out the status of adoption in African countries, particularly at the University of Botswana library.

The Web 2.0 tools chosen for this paper include Facebook, blogs, Twitter, wikis, podcasts, and LinkedIn. According to the literature in the field, Facebook, Twitter, blogs, wikis and podcasts feature amongst popular tools in academic libraries (Cassidy, et al., 2014; Chua and Goh, 2014; Ismail Abidin, et al.,2013; Yi, 2014). Table 1 shows the tools, their description and their functions in a library according to the literature consulted (Berube, 2012; Chua and Goh, 2010; Ismail Abidin, et al, 2013; Nichol et al., 2012; Rudman & Steenkamp, 2012; Shulman, Yep and Tome, 2015).

**Table 1**

Tool	Description	Use in Library
Facebook	<ul style="list-style-type: none"> <li>▪ Two way communication tool for sharing information between libraries and their users.</li> </ul>	<ul style="list-style-type: none"> <li>• To forge relationships or communities</li> <li>• Display past events in the library</li> <li>• To enhance reference services</li> <li>• To create user accounts to aid in catalogue searching or library messages</li> </ul>
Blogs	<ul style="list-style-type: none"> <li>▪ A tool for information creation, messaging, blogging, video streaming, and social tagging. This allows librarians to connect with users, raise awareness about library services and events, and broaden the contact base</li> </ul>	<ul style="list-style-type: none"> <li>• To generate interest in topics or new materials</li> <li>• To add a human touch or voice in the communication between users and librarians (connecting with users)</li> <li>• To build communities of users, e.g. Teen bloggers</li> </ul>
Podcasts	<ul style="list-style-type: none"> <li>▪ Audio and video recordings available through the web. Downloadable through RSS feeds and can be available offline</li> </ul>	<ul style="list-style-type: none"> <li>• To broadcast library services</li> <li>• To record instruction on library use</li> <li>• Access to updated information</li> </ul>
Twitter	<ul style="list-style-type: none"> <li>▪ A one to many facility/tool for information dissemination or broadcasting</li> </ul>	<ul style="list-style-type: none"> <li>• To distribute of information</li> <li>• Market programs through tweets to users and through the network outside the library users</li> <li>• Promotion and outreach for library activities</li> </ul>
Wikis	<ul style="list-style-type: none"> <li>▪ Tool for information acquisition from sources external to the library, e.g. Wikipedia</li> <li>▪ Two way communication where addition to existing wikis is permitted</li> </ul>	<ul style="list-style-type: none"> <li>• To gather information</li> <li>• To arrange information thematically</li> <li>• To archive past user questions on library usage</li> <li>• To get feedback from users</li> </ul>
LinkedIn	<ul style="list-style-type: none"> <li>▪ Social networking platform for linking with professionals</li> </ul>	<ul style="list-style-type: none"> <li>• To build networks</li> <li>• To communicate information</li> </ul>

### 2.3 Theoretical Framework

Several theoretical frameworks have been applied to the study of new technologies including the Diffusion of Innovations by Rogers (1995) and technology adoption models such as Technology Acceptance Model (TAM) by Davis (1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) model, as proposed by Venkatesh, Morris, Davis and Davis (2003). The conceptual framework used in the present study is the Unified Theory of Acceptance and Use of Technology because of its suitability for studying technology acceptance and use perceptions using four variables, namely; performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions (FC) and one dependent variable: behavioural intention (BI) to adopt a technology. The literature in the field has established that adoption and use of any new technology is not without obstacles. Among the hurdles found in the literature on adoption are an anxiety or

fear of new technology (Compeau & Higgins, 1995; Nichol, et al., 2012; Raaij and Schepers, 2008), lack of skills using a technology (Totolo, 2011; Wang and Shih, 2009), the negative influence of facilitating conditions in institutions (Duyck et al., 2008; Gruzd, et al., 2010; Venkatesh et al., 2003; Wang and Wang, 2010), and the impact of social influence in technology use (Duyck et al., 2008; Venkatesh et al., 2003; Minishi-Majanja and Duelle, 2012). The present study aims at investigating what prevails at the UB library in relation to Web 2.0 technologies and challenges.

## **2.4 Generation Y Clientele**

The clientele in academic libraries has changed dramatically since the advent of the digital era. The literature on the prevalence of new technologies in academic libraries is plentiful (Chua and Goh, 2010; Cassidy, Colmenares, Jones, Manolovitz, Shen, & Vieira, 2014; Ismail Abidin, et al., 2013; Shulman, et al., 2015; Yi, 2014) with some confirming that there is an “increased student interest in accessing library services via popular technologies” (Cassidy, et al., 2014, p.129). The proliferation of hand held devices such as smart phones has also added to the accessibility of library services anywhere and at any time. Therefore academic libraries and indeed all other libraries have responded to the needs of Generation Y clients by providing Web 2.0 compliant services and resources (Chua and Goh, 2010; Cassidy, et al., 2014). Nichol et al., (2013) also attest to the changing profile of students in academic institutions as more and more students prefer to access information via Web 2.0 tools. The need for Library 2.0 services and resources in the information era cannot be overlooked.

## **3.0 Methodology**

The study employed a qualitative design due to the smallness of the sample. This study is therefore exploratory in nature: further studies with bigger samples would be necessary in the future. The tools used for data collection are a survey, content analysis of the UB library site and open ended questions in order to triangulate the results. An online survey was sent to the sampled University of Botswana librarians to solicit their perceptions on the adoption and use of Web 2.0 technologies.

### **3.1 Population and sample**

The sample comprised of mainly librarian and senior management cadre. The senior cadre was chosen because it is assumed that they have the qualifications, experience and exposure needed in the library. There are a total of 137 UB library employees, out of which 19 are senior officers comprising senior librarians (15) and top management staff (4), librarians (47), assistant librarians (17) and library officers (54). This was a study which targeted the three top cadres of librarians, senior librarians and library management. These cadres have a total of 66 potential participants and 30 responses were received.

### **3.2 Variables of Study**

The theoretical framework used in the study was the Unified Theory of Acceptance and Use of Technology (UTAUT) because of its suitability for studying technology acceptance and use

perceptions. The four independent variables used in the study were performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions (FC) and one dependent variable: behavioural intention (BI) to adopt a technology. The four UTAUT core determinants of behavioral intention (BI) and usage are explained as follows (Duyck et al, 2008 p.150):

- *performance expectancy (PE)*: the degree to which an individual believes that using the system will help him or her attain gains in job performance.
- *effort expectancy (EE)*: the degree of ease associated with the use of the system.
- *social influence (SI)*: the degree to which an individual perceives that important others believe he or she should use the new system.
- *facilitating conditions (FC)*: the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.
- *behavioral intention (BI)* a person's perceived likelihood or subjective probability that he or she will engage in a given behavior

### **3.3 Survey and Content Analysis**

The survey had four types of questions, namely; demographic questions of gender, job title and qualifications, a Likert scale on their perceptions based on the UTAUT, a question on the frequency of Web 2.0 tool use, and an open question for respondents to comment on any of the questions they answered. To triangulate the findings a qualitative method of assessing the UB Library website was also used to answer two questions (through content analysis). These were 1) What Web 2.0 tools are available on the library website, 2) Is there evidence of Web 2.0 activity between the user and the library staff? These two questions will help with the triangulation of results.

## **4. Findings**

Data were analysed qualitatively through descriptive content analysis (using frequencies and charts) due to the small sample of 30 respondents. The results emanating from observing the UB Library website and the responses from open ended questions were described qualitatively and compared to the results from the survey.

### **4.1 Library Web 2.0 Facilities**

The first observation made on the Library website established the availability of Web 2.0 facilities such as Facebook page, Twitter, and blogs.

#### **4.1.1 Website**

The university Library has a website, <http://medupe.ub.bw/>. The website is a simple list of links to subscription journals and repositories of material. It services as a portal to the already existing literary papers and eBooks. However, a library specific web portal that can enable users to use Web 2.0 services is non-existent. The Library website has links to the Library Catalogue Search links, Trial access, Quick access to user records, and a link to UB Library Full Text Journals. These are just links

that do not offer a more flexibility and dynamic Web 2.0 related services. It can be surmised that the UB Library site is not actively promoting the use of Web 2.0 technologies; therefore it is necessary to find out what the obstacles are. On the same web page there are two links to Facebook and Twitter, and these are discussed next.

#### 4.1.2 Facebook

Evidence of the use of Facebook, albeit minimal, was found on the UB Website. Facebook use was limited to an *About Page* with opening and closing hours, photos of library staff with limited information, a time line showing that the last comment was posted about a month ago. There is also a video link containing only four videos on Blogger, EndNote, EBSCOhost mobile tutorial, and the UB Library. The Library Facebook has 6,876 likes, which shows very minimum usage considering the 18,176 student population and over 3,000 staff members at the University of Botswana.

#### 4.1.3: Twitter

In addition to the website and Facebook, UB library has a Twitter account that has only 103 followers and a following of only 32. This shows that library Twitter account is almost inactive considering the university population of well over 20,000.

### 4.2 Demographic Information

The first question asked the participants to state their gender. The sample of 30 respondents has shown that female librarians dominate the work force in the UB library at 73.3% (22) female staff and 26.7% (8) male staff. This trend has been reported in the United States where Record and Green (2008) attested to a female dominated library system. The same authors did allude to the fact that male library staff dominated leadership and ICT areas; however that is not the scope of the present paper.

**Table 1: Gender**

<b>Gender</b>	<b>no.</b>	<b>%</b>
Male	8	26.7
Female	22	73.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

The next question asked the respondents to give their job title. The librarian cadre was the majority of the responses at 80% (24) followed by assistant librarians at 10% (3), management of the library, conservator, and senior librarian each at 3.3% with only one person responding to the questionnaire from each. The librarian post is a senior cadre; therefore the UB library seems to have capacity in terms of human resources. Table 2 below shows the posts.

**Table 2: Designation**

<b>Position</b>	<b>no.</b>	<b>%</b>
Librarian	24	80.0
Manager/Dir	1	3.3
Conservator	1	3.3
Senior Librarian	1	3.3
Assistant Librarian	3	10.0
<b>Total</b>	<b>30</b>	<b>100.0</b>

The last demographic question sought to find out their qualifications, the majority of the University library staff had a master's degree at 73.3% (22) followed by a degree at 23.3% (7) and only one participant had a diploma. This result demonstrates that the University of Botswana library has a convincingly qualified staff; however, it will be interesting to see how this qualified staff viewed and understood Web 2.0 services.

**Table 3: Qualifications**

<b>Qualifications</b>	<b>no.</b>	<b>%</b>
Diploma	1	3.3
Degree	7	23.3
Masters	22	73.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

### **4.3 Web 2.0 Librarian Perceptions**

Librarians' perceptions were investigated through the lens of the Unified Technology Acceptance and Use Theory (UTAUT). A Likert scale with Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A) and Strongly Agree (SA) was used. This theory posits that four constructs, namely Performance Expectancy (PE), Effort Expectancy, (EE), Social Influence (SI) and Facilitating Conditions (FC) are independent variables that influence a person's intention to adopt and use a technology. Therefore, this theory was used in this study to find out the perceptions of librarians towards adopting Web 2.0 tools. The results are discussed next.

#### **Performance Expectancy of Web 2.0 Tools**

According to UTAUT constructs, Performance Expectancy is (PE) the degree to which an individual believes that using the system will help him or her attain gains in job performance (Duyck et. al., 2008 p.150). Performance expectancy was tested and the results show that up to two (2) out of 30 people in each statement did not think that Web 2.0 tools enhance their job, up to 6 people were neutral, while up to 27 (18 +9) people agreed with the statements. However, the responses varied for each statement as shown on Table 4. The four statements that were tested are shown below.



**Table 4: Performance Expectancy**

N=30						
	SD	D	N	A	SA	TOTAL
PE1	0	1	2	9	18	30
PE2	0	1	2	12	15	30
PE3	0	2	3	15	10	30
PE4	0	0	6	11	13	30

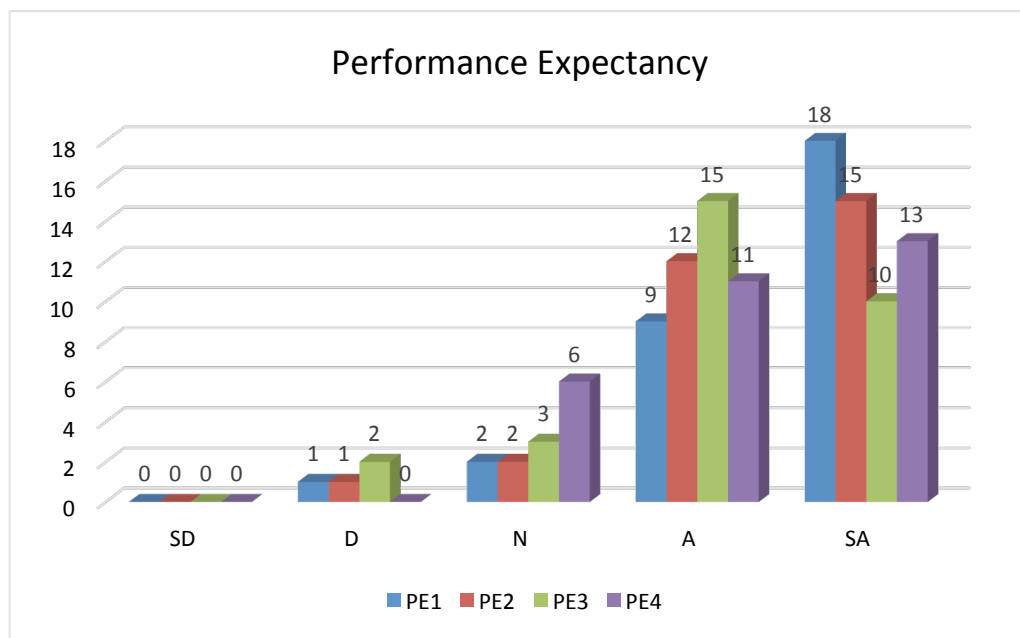
**KEY:** SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree.

**PE1** I find Web 2.0 tools useful in my information access and job.

**PE2** Using Web 2.0 tools enables me to accomplish tasks and information access more quickly.

**PE3** Using Web 2.0 increases my productivity and information access.

**PE4** If I use Web 2.0, I will increase my ability to do my job and to get timely information.



**Figure 1: Performance Expectancy**

The above results are perceptions, and a majority of 27 out of 30 people who agreed that Web 2.0 tools can improve job performance is quite significant. However, the 6 neutral responses and two (2) negative responses show dissenting voices that prove that some members of staff do not think Web 2.0 tools enhance their job performance. Although these results could not be tested quantitatively using a regression technique, due to sample size, it is quite clear from the figure above that those librarians seemed ready to embrace the new technologies because a significant majority of them either said *Agree* and *Strongly Agree* to PE1, PE2, PE3, and PE4. The eight seemingly negative responses however should not be ignored and more analysis of other constructs will reveal a better picture of what underlies such responses. The qualitative data on the UB Library site showed a negligible use of Web 2.0 tools, therefore there is a mismatch between the positive perceptions on the PE results and what was observed on the website. The reasons for these positive results will become clearer in the next variable: Effort Expectancy.

#### 4.4 Effort Expectancy of Web 2.0 Tools

Table 5: Effort Expectancy

	SD	D	N	A	SA
EE1	0	0	8	12	10
EE2	0	1	6	12	10
EE3	0	1	7	9	12
EE4	0	1	9	7	12

KEY: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree.

- EE1 My interaction Web 2.0 is clear and understandable.
- EE2 It is easy for me to become skilful at using the Web 2.0 tools.
- EE3 I find Web 2.0 technologies easy to use
- EE4 Learning to operate the following Web 2.0 tools is easy for me.

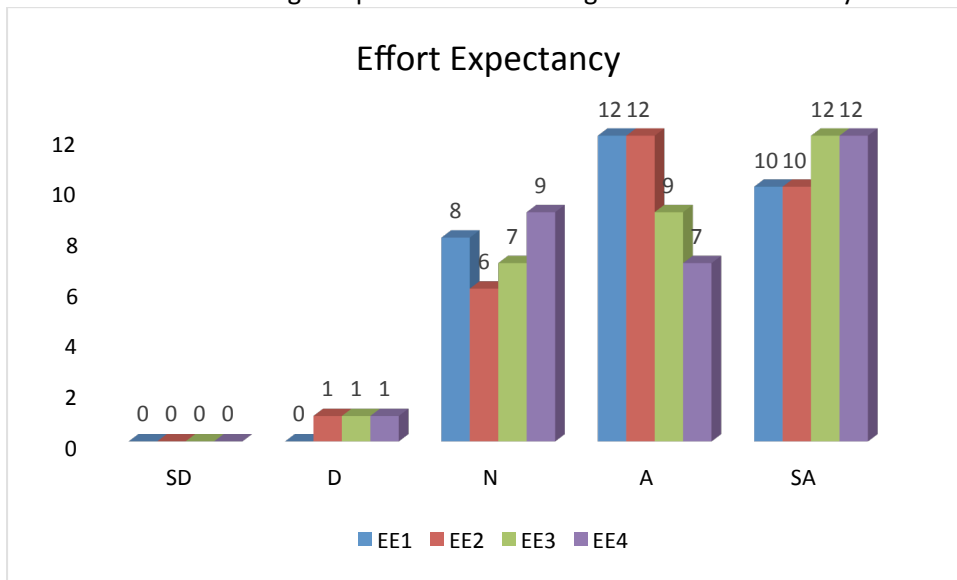


Figure 2: Effort Expectancy

Effort expectancy (EE) is “the degree of ease associated with the use of the system” (Duyck et. al., 2008 p.150). For the four statements, one person did not agree with three statements and up to nine (9) were neutral. As many as 22 (12 + 10) respondents agreed that Web 2.0 tools are easy to use, but the ease of use was not translated into a robust Web 2.0 service as earlier shown in the analysis of the website results. Possibly, librarians use the tools for personal use and not work related services. Up to nine (9) people were neutral, indicating that some people did not find using the tools easy, and this is a follow-up to the above variable on effort expectancy where up to six (6) people were neutral and up to two (2) people did not agree that Web 2.0 tools enhanced their work. It can be concluded that the fact that Web 2.0 tools were not expected to enhance the job of some participants in the PE construct above, that probably has a lot to do with their lack of knowledge of using these tools. This assumption will become more evident in the next section on Social Influence. Table 2 shows the responses.

#### 4.5 Social Influence on Web 2.0 tools

Social influence (SI) is “the degree to which an individual perceives that important others believe he or she should use the new system” (Duyck et. al., 2008 p.150). The response to the statements on social influence was both positive and negative. Out of 30 participants, 20 (13+7) agreed with the statement that “People who influence my behaviour will think that I should use Web 2.0 technologies” (SI 1) but up to 10 respondents registered the neutral and negative response (disagree). The next statement, “People who are important to me will think that I should use Web 2.0 technologies,” got the same results as SI1 which shows that there was influence on them to use Web 2.0 tools, be it from peers, seniors, or the organization. Table 6 below shows the results.

**Table 6: Social Influence**

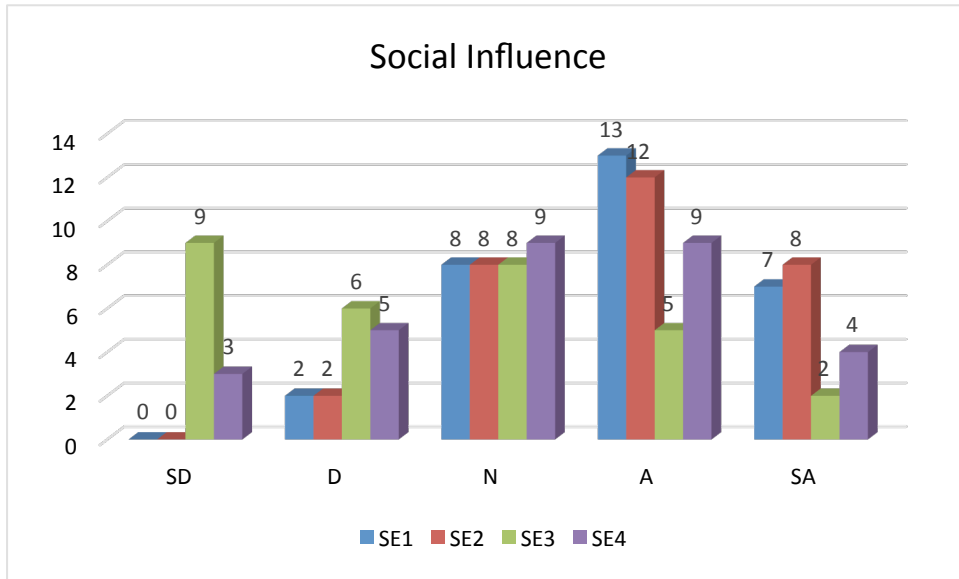
	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
<b>SE1</b>	0	2	8	13	7
<b>SE2</b>	0	2	8	12	8
<b>SE3</b>	9	6	8	5	2
<b>SE4</b>	3	5	9	9	4

**KEY:** SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree.

- SI1 People who influence my behaviour will think that I should use Web 2.0 technologies.
- SI2 People who are important to me will think that I should use Web 2.0 technologies."
- SI3 The seniors in my organization have been helpful in the use of Web 2.0 technologies.
- SI4 In general, my organization has supported the use of Web 2.0 technologies

The response to “The seniors in my organization have been helpful in the use of Web 2.0 technologies” (SI3) registered more negative responses than the positive ones: 15 disagree and eight (8) are neutral making a total of 23 people who do not think the seniors in the organization help to promote Web 2.0 tools usage. The fourth statement , “In general, my organization has supported the use of Web 2.0 technologies,” also attracted more negative responses when the “disagree” scale is added to the “neutral” one making a total of 17 out of 30 people who do not think that the

organization is supportive of Web 2.0 tools.



**Figure 3: Social Influence**

The conclusion that can be drawn from the above discussions is that librarians feel pressured to use Web 2.0 technologies and they feel that they do not have enough support from the seniors and the organization. The facilitating conditions variable supports this finding and it is discussed next.

#### 4.6 Facilitating Conditions and Web 2.0 tools

The other construct was facilitating conditions, which is “the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system” (Duyck et. al., 2008 p.150).

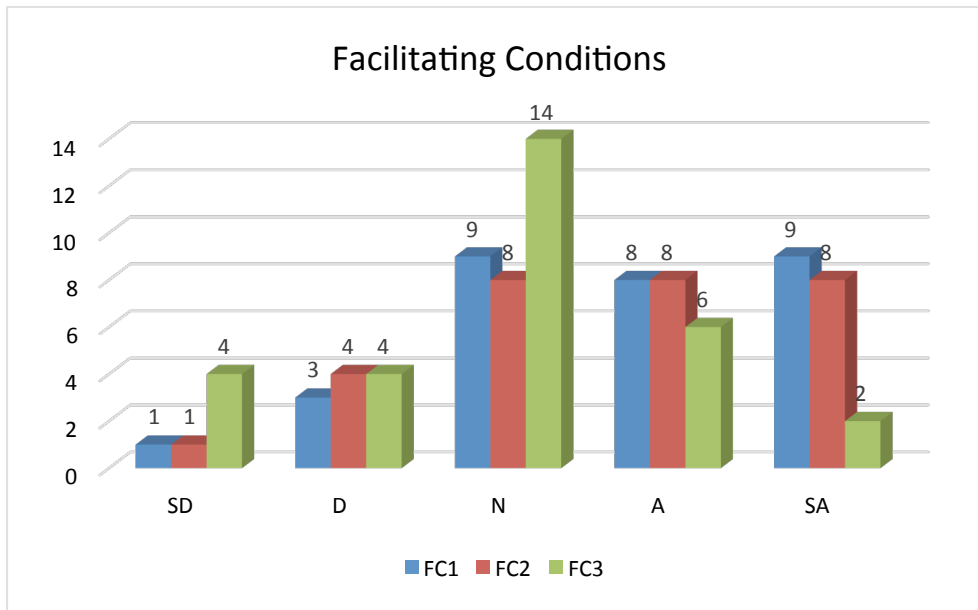
**Table 7: Facilitating Conditions**

	SD	D	N	A	SA
FC1	1	3	9	8	9
FC2	1	4	8	8	8
FC3	4	4	14	6	2

**KEY: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree.**

- FC1 I have the resources necessary to use Web 2.0 technologies.
- FC2 Web 2.0 technologies are compatible with other systems I use.
- FC3 A specific person (or group) is available for assistance with Web 2.0 technologies system difficulties.

A total of 30 people responded to all statements. 17 (8 + 9) out of 30 respondents agreed they have the resources necessary to use Web 2.0 technologies and about the same number of people, 16 (8+8) agreed the Web 2.0 technologies are compatible with their systems. When asked if there was a specific person (or group) available to assist with Web 2.0 technologies system difficulties, the majority at 18 (4+4+14) were either in disagreement or neutral to the question. See table 7 above.



**Figure 4: Facilitating Conditions**

The above results indicate that although Web 2.0 tools are available for librarians, there was no assistance from the institution for those who might need it. These results complement the earlier results which showed that the organization was not doing enough to help with the implementation of Web 2.0 tools.

#### 4.7 Behavioural Intention to Adopt Web 2.0 Tools

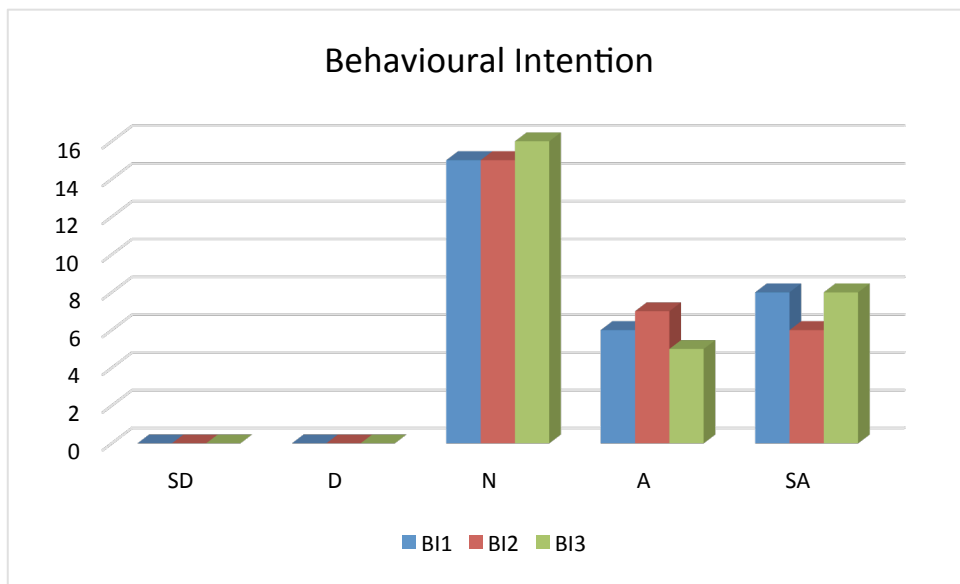
The use of UTAUT requires the variable on intention to adopt and use a technology. Twenty-nine (29) people responded and in each of the statements consistently half of respondents were neutral about all the statements while the remaining half either agreed or strongly agreed to: intention to use Web 2.0 technologies in the future, predicted they would use Web 2.0 technologies in the future, and planned to use Web 2.0 technologies in the future. These results are in line with the findings above which show lack of knowledge, facilitating conditions and social influence as catalysts in Web 2.0 adoption and use. See Table 8 below.

**Table 8: Behavioural Intention to Adopt Web 2.0 Tools**

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
<b>BI1</b>	0	0	15	6	8
<b>BI2</b>	0	0	15	7	6
<b>BI3</b>	0	0	16	5	8

**KEY:** SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree.

- BI1 I intend to use Web 2.0 technologies in the future.
- BI2 I predict I would use Web 2.0 technologies in the future.
- BI3 I plan to use Web 2.0 technologies in the future.



**Figure 5: Behavioural Intention to Adopt Web 2.0 Tools**

The results on the dependent variable behavioural intention to adopt Web 2.0 tools are quite significant and revealing. Clearly the respondents have some obstacles since about half of them were neutral about adopting the technology. The obstacles surfaced above in the form of the effort expectancy, facilitating conditions and social influence variables. The usage of the Web 2.0 tools discussed next will shed more light on these findings.

#### **4.8 Usage of Web 2.0 tools per week**

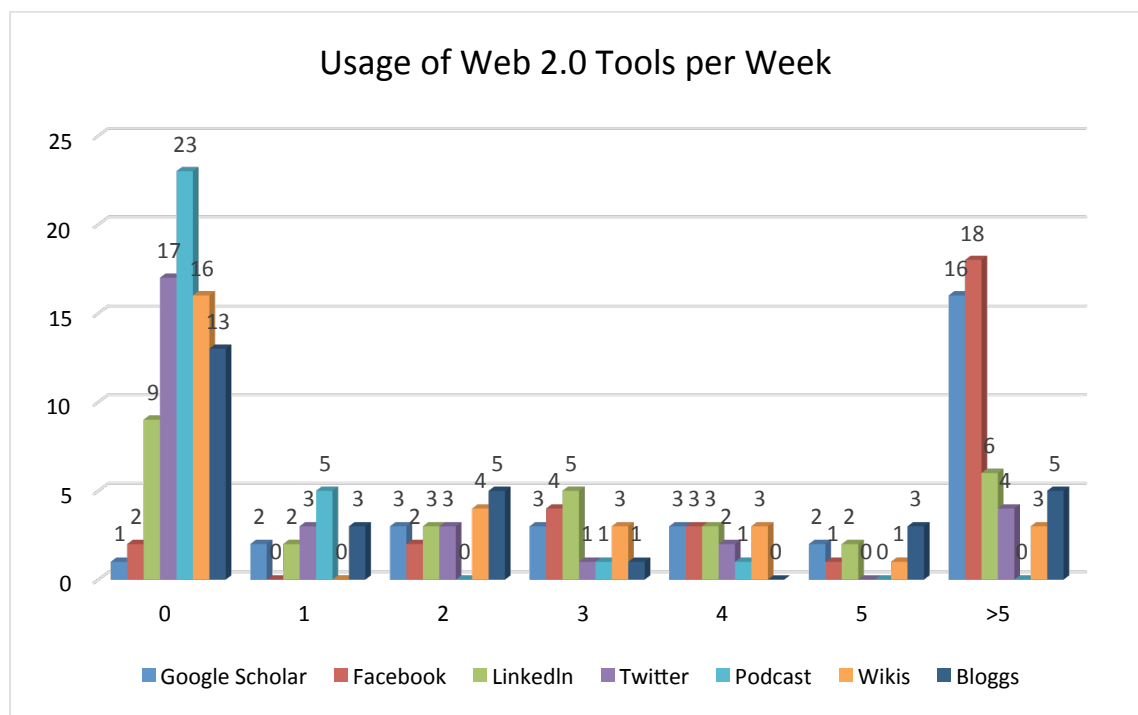
The tendencies of librarians in the use of several tools is reviewed by asking the librarians what Web 2.0 tools they use and how many times they use them in a week. The tools included in the survey were: Google Scholar, wikis, Facebook, Twitter, LinkedIn, podcasts, and blogs. The results show that the most frequently used tools are Facebook and Google Scholar, with up to 18 and 16 respondents respectively using these tools more than five times a week. On the other side, TwitterTwitter and podcasts suffer the worst usage by the library staff. As many as 23 out of 30 never use podcasts, 17 librarians never use TwitterTwitter, and 16 never use Wikis. The pattern is that the librarians use

Google Scholar and Facebook fairly frequently but they don't use Twitter, LinkedIn, Podcasts and Blogs often enough. Therefore wikis, Twitter, LinkedIn, podcasts, blogs and LinkedIn were not very popular amongst the librarians as shown in Table 9 below.

**Table 9 Pattern of Web 2.0 tools usage during the week**

Times ->	0	1	2	3	4	5	>5	Total
Blogs	13	3	5	1	0	3	5	30
Facebook	2	0	2	4	3	1	18	30
Google Scholar	1	2	3	3	3	2	16	30
LinkedIn	9	2	3	5	3	2	6	30
Podcast	23	5	0	1	1	0	0	30
Twitter	17	3	3	1	2	0	4	30
Wikis	16	0	4	3	3	1	3	30

**KEY:** 0= zero times a week, 1=once, 2=twice, 3=thrice,4=four times, 5=five times, >5=more than five times



**Figure 6: Pattern of Web 2.0 tools usage during the week**

#### 4.9: Librarians Observations on Web 2.0

The findings on the open ended questions support the discussions on UTAUT constructs and content analysis on the library website. The results from observing the UB Library site showed that there was very little evidence of services that use Web 2.0 tools. Similarly, the

UTAUT constructs on effort expectancy (EE), facilitating conditions (FC) and social influence (SI) had revealed that there were some obstacles to full utilization of Web 2.0 tools.

The UTAUT construct that seemed to have more positive responses was perceived usefulness, where most librarians (up to 27/30) agreed that Web 2.0 tools are useful in their jobs. One participant commented that, *“Web 2.0 tools are simple & easy to use. They have little downtime, low-cost, it takes little effort to make them productive, they facilitate collaboration.”* However, the study has not established that usefulness in the job since there was little evidence of the use of technologies in the UB Library. The librarians also responded positively about the benefits derived from Web 2.0 technologies. This finding was supported too when one participant mentioned that *“The bottom line is that there are benefits. They tend to be less expensive than their mainstream competitors. They are easier to implement and maintain.”*

The UTAUT variable on intention to adopt further proved that Web 2.0 tools were not fully adopted because the participants produced mixed results. Half of the participants were non-committal on the intention to adopt the technology. Three types of data from the UTAUT constructs, open ended questions, and the content analysis of the UB Library site converge to unravel the underlying implication of the findings.

First of all, the respondents almost unilaterally agree that Web 2.0 tools are useful in their job. The open ended data attests to this when one participant says *“I use web 2.0 (sic) technologies daily in my work even to socialize with other colleagues and friends locally and internationally.”* However, the analysis on the UB Library Website does not reveal popular use by both librarians and their patrons, following the overwhelming majority who strongly agree that the tools are useful. That is why the response from one of the respondents that *“Generally the uptake of Web 2.0 technologies is very slow and this is primarily due to lack of technical know how to drive the new technologies and attitude on the part of staff; who are mostly digital immigrants”* seems contradictory yet intuitive in the opinion of the researchers. This possibly reveals some of the hurdles to the slow uptake of these technologies in the UB library. One conclusion that can be drawn from the above findings is that there are several factors at play which have been confirmed in the literature consulted pertaining to social influence, apprehension for new technologies and lack of relevant skills (Duyck, Nichol et al., 2012; Totolo, 2011). Social influence is the degree to which people who matter think of you in relation to use of technology (Duyck, et al., 2012) therefore it is possible that librarians who responded to the questionnaire want to be accepted by their peers by admitting to using Web 2.0 technologies with their friends, but they need skills on how to apply these to enhance services in the library. This was confirmed by one of the respondents who said, *“... it is assumed we will learn on our own but at times one tries and on the way gets lost. Like one creates a Facebook page, does not know how to market it to clients.”* This quotation from one of the respondents speaks to the results from the content analysis of the website which revealed that there is very little Web 2.0 activity or service. The participant alludes to the fact that librarians know about Facebook but they do not have the relevant skills for engaging with clients. This finding is also in line with the results on facilitating conditions and social influence, which both pointed to lack of institutional support for the new technologies.



It is quite clear that behind the positive response to acceptance and use of Web 2.0 lie uncertainty, doubt and knowledge gaps. That is why one participant also said, *“We understand to keep up with the techno savvy clients of today we must be familiar and using these technologies, but we need motivation and also training.”* The lack of confidence in the use of new technologies, implied earlier by alluding to *“attitude,” “digital immigrants,” “motivation,”* and *“keeping up with techno savvy clients”* is all too obvious. This assertion is further confirmed by qualitative data where respondents mentioned that *“A concerted effort should be made to get everyone in the department [to] embrace and use this technology if we are to meet the information challenges from the Google generation that we serve.”* Another comment on lack of skills was, *“as much as we understand the advantages and benefits of using web 2.0 (sic) technologies, there is not much training offered...”* The three sources of data mentioned earlier have revealed vital information which seems to be at play in the University of Botswana Library. One of the respondents even mentioned that *“I wish there was thorough training on the above to open some of us who have never been exposed.”*

## **5.0 Discussion**

The present paper set out to investigate the status of adoption and use of Web 2.0 technologies at the University of Botswana library. Three types of data were collected: surveys, content analysis of the UB library website, and open ended questions for triangulation purposes. The following results were revealed.

Firstly, the results showed that respondents felt that the tools were available in their institution and that they find them useful in their social life and in the job according to the UTAUT perceived usefulness results and the open ended questions. The fact that Web 2.0 tools are easy to use has been confirmed in the literature consulted (Berube, 2012; Chua and Goh, 2010; Ismail Abidin, et al, 2013; Nichol et al., 2012; Rudman & Steenkamp, 2012; Shulman, Yep and Tome, 2015).

Secondly, it was found that UB librarians did not optimally use some of the popular tools, such as wikis, podcasts, LinkedIn, Twitter and blogs, mentioned in the literature consulted. The utility of these tools to serve library clients were outlined in Table 1 above. Researchers stress the efficacy of these tools in libraries in the literature consulted (Ismail Abidin, et al, 2013; Nichol et al., 2012; Rudman & Steenkamp, 2012; Shulman, Yep and Tome, 2015). The tools that librarians tended to use, albeit minimally, were Facebook and Twitter.

Further investigation revealed that even though the tools were said to be useful for librarians, according to the perceived usefulness construct, the rest of the UTAUT constructs produced mixed results showing both negative and positive responses. The results seemed to produce two camps of users, those who were either in disagreement or neutral and those who agreed with the UTAUT statement. The open ended question aided in revealing further explanation. It turned out that librarians showed signs of apprehension since they lacked the relevant skills. Literature has confirmed such behaviours before (Compeau & Higgins, 1995; Totolo, 2011).

Lastly, although UTAUT constructs were not tested using regression methods due to the small sample, indications show that half of the librarians were neutral to adopting and using the Web 2.0

tools. The qualitative data further clarified the hurdles librarians seemed to face, such as lack of support from authorities (facilitating conditions and social influence). Literature consulted confirmed that these factors can slow down the adoption and use of technologies (Nichol, et al., 2012; Raaij and Schepers, 2008; Venkatesh et al., 2003; Wang and Wang, 2010). This finding has implications for the Generation Y clientele that the library is serving. This clientele is said to have adopted these technologies in large numbers (Chua and Goh, 2010; Cassidy, Colmenares, Jones, Manolovitz, Shen, & Vieira, 2014; Ismail Abidin, et al., 2013; Shulman, et al.; 2015; Yi, 2014).

## **6. Conclusion and Recommendations**

The present paper investigated the perceptions of UB librarians towards Web 2.0 technologies and established the obstacles faced by librarians towards the implementation of new technologies. The use of UTAUT has been instrumental in revealing the conditions under which librarians operate at UB. Indeed the facilitating conditions and social influence negatively impact the adoption and use of new technologies.

Today Web 2.0 technologies are widely accepted and used all over the developed world; therefore the UB library will risk being left behind in the improvement of services. The idea of Library 2.0 emerged because of the popularity of these technologies amongst librarians around the world. More technologies are invented on a daily basis and it will not be wise not to take advantage of them, especially today when technology has become more affordable and ubiquitous. Therefore it is recommended that UB authorities institutionalise the use of new technologies in the library to enhance service.

The lack of relevant skills reported in this study is another common problem experienced in developing countries. Although Web 2.0 tools are said to be easy to use, it is necessary for institutions to prepare accordingly for their implementation. The results that showed lack of Web 2.0 visibility are likely to affect UB ranking amongst other universities. It is recommended that in-service for new technologies be introduced periodically in order to equip librarians with the right skills.

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