Web 2.0 Knowledge and Use by a Select Group of Teacher-Librarians in Jamaica

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The innovation of Web 2.0 tools such as blogs, wikis, podcast, and social networks has provided librarians with added instructional tools. The researcher set out to find out the knowledge and use of these tools by a select group of teacher librarians. The research objectives that guided the study were to: find out how knowledgeable a select group of Jamaican teacher librarians are about five Web 2.0 tools; establish the level of use of Web 2.0 tools by these librarians; and to find out the barriers and issues, if any, that have affected implementation of Web 2.0 as an educational tool. The findings show that all of these teacher librarians know about the Web 2.0 tool but not in-depth. Their lack of in-depth knowledge as well as lack of computers and Internet connections, and school policy that bans social networks in their schools among other things have prevented all of them from using these tools.

Web 2.0 in school libaries, Web 2.0 as educational tools, social learning in libraries

Introduction

In the early 1600's, William Shakespeare wrote "All the world's a stage, and all the men and women merely players. They have their exits and their entrances and one man in his lifetime plays many parts" (139). In this 21st Century, it is explicitly evident that the academic world has become one stage and the technologies are the players. They become outdated as quickly as they are invented, and one innovation in its lifetime has played many parts in delivering information in various formats to students.

The invention of computers and various software packages such as Web 2.0 is a concept that began with a conference brainstorming session between O'Reilly and MediaLive International. This new version of the World Wide Web offers superior interactivity in many forms, for example, wikis, blogs, podcasting and social networks. While Web 2.0 is recognized for its social value it has facilitated learning in an academic setting. Web 2.0 allows students to be exposed to teaching strategies that are more exciting and suited for their learning style. Students now have quick and ready access to information that once seemed far fetched and impossible and they are also able to generate and share information because of the opportunities for participation and dialogue afforded by the social network.

With the advent of Blogs, Wikis, Podcasts, Facebook and other Web 2.0 tools, students who are living in various parts of the world can participate in asynchronous educational activities. The innovation of Web 2.0 has made teaching and learning more effective, efficient, enjoyable, and cost effective. In addition to these, Web 2.0 facilitates written communication in an environment where students do not find this task boring or frustrating.

Teacher librarians all over the world including Jamaica are expected to keep abreast of technology and use these technologies in their teaching and learning, so that students will be information literate and be adequately prepared to function effectively and efficiently in the workplace. In this millennium, it is apparent that students are more technologically inclined than in previous years. Their exposure to technology at home and elsewhere has influence their choice of learning and the appeal that this technology has made on students makes it a worthwhile tool to use to help them to learn.

The Purpose

The purpose of this research is to find out how knowledgeable a select number of teacher librarians know about Web 2.0 tool and the educational activities for which they have used them. It is also to determine if there are any barriers that would prevent these teacher librarians from using these tools in their library instruction. Of importance, there are no known studies that have been conducted in Jamaica of this nature; therefore, this research will be a significant and valuable resource in the field of librarianship in Jamaica.

Importance and Interest of Study

Teacher librarians are expected to be on the cutting edge of technologies created to improve library instruction in order to make students information literate. According to the Becta Report (2008), "Web 2.0 practices must be grounded on convincing research that shows its appeal and its impact" (48), therefore, it is extremely necessary that studies are conducted to provide us with empirical evidence of how knowledgeable these librarians are about these new innovations and how they use them in library instruction.

This research is of interest because social learning is now being promoted as a method of increasing students' participation and improving their academic achievement. Using these Web 2.0 tools, provide enjoyment for students as they exchange opinions, digital products, or conversation. As they create content rather than just consuming it, they are learning in a collaborative environment which forms the framework for social learning.

Literature Review

Black (2007) argued that the principles and concepts of Web 2.0 are demonstrated in tools associated with the terms. She further mentioned that "these facilitate collaboration and social connections. What these tools do is to replace the desktop applications to make the Web the platform and provide rich user experiences running regularly up-dated programming that uses data as a key component" (6).

Librarians Knowledge of Web 2.0 tools

The literature has shown that school librarians are very much knowledgeable about Web 2.0 tools. The article titled Web 2.0 and Library Programmes written in the Medium (2006) states that for librarians to make a digital shift "they must first become knowledgeable about Web 2.0 tools, how they are being used, their value and their limitations. The article points out that there are many teacher-librarians, classroom teachers and educational technologists who use blogs and other Web 2.0 applications to share their knowledge, their practice and their thoughts about the changing educational environment.

White (2007) in her article informed us that the skills that are needed by students in the 21st Century inorder for them to be successful are definitely ifferent from those taught in the 20th Century schools. She further mentioned that the information landscape of today, incorporates Web 2.0 communication and creativity tools and teacher-librarians recognize this and have adopted a new role in the age of education reform. White (2007) reiterated the fact that teacher-librarians have been leaders of Web 2.0 technologies as they are taught to adopt creative ways for students to express their learning using blogs and wikis. They also use tools such as del.icio.us to create electronic pathfinders, iGoogle to help students organize and efficiently access information, and Voicethread to share student-created book talks.

Farkas (2008) declared that "librarians need to study the fine art of anthropology when it comes to social networking" because of they need to "understand these tools, how they are used, and how they are viewed by the people using them before we start building presence and friending our patrons" (1). She pointed out that it is not only about understanding social networking but also about understanding our own unique population. The example she gave is, "Where one library's population may be perfectly comfortable with the library "friending" them in MySpace, another library's population would be horrified. Of importance, she stated that teacher librarians need to 'understand not only their users' needs and wants, but also how they approach these tools, what sort of sense of privacy they have, and what sort of interactions they might want from the library. In addition to these she mentioned that it's so easy to get tunnel vision or to see one librarian who has implemented a social technology successfully and to think that you can just do the same at your library but it's dependent on your population and your understanding of the culture of the technologies" (1).
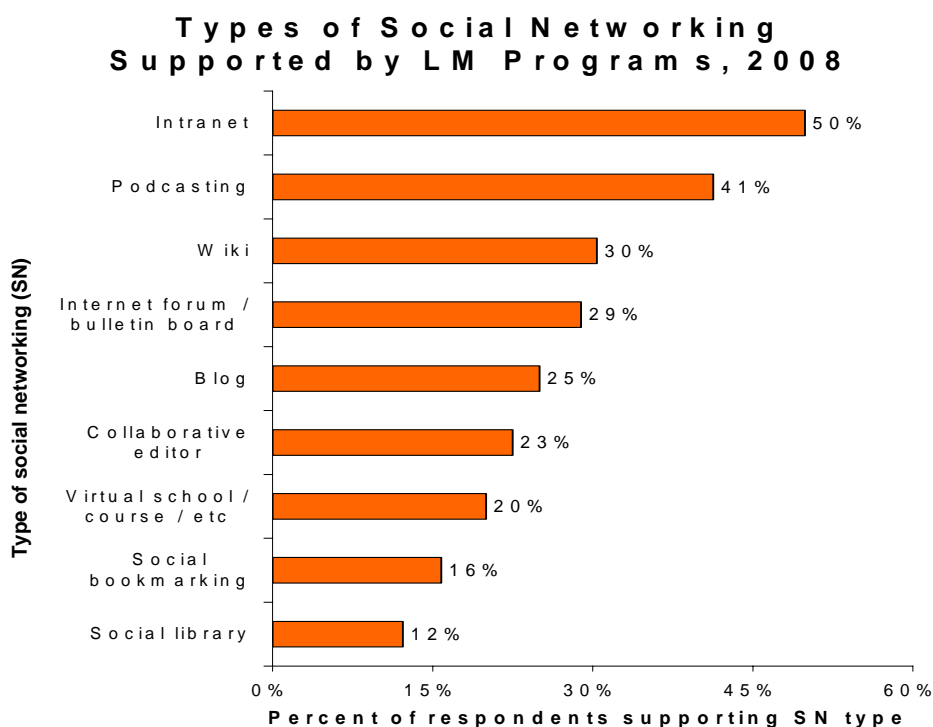
However, it is likely that librarians can know about the Web 2.0 and its benefits when used an educational tool but the digital divide issues such as lack of appropriate infrastructure that will prevent some of our users from even accessing information from these Web 2.0 tools. Other issues such as school policy can also prevent teacher librarians from introducing these tools to their users. Kirkland (2007) reported that there are many teachers and teacher-librarians who are using social software to enhance students' learning. However she further mentioned that while there are many examples of Web 2.0 technologies being used in schools, adoption is sporadic. Kirkland (2007) also pointed out that "there is significant bureaucratic lag in developing policies and technical infrastructures that keep pace with innovations in teaching with technology, a situation that is accentuated by the widespread accessibility of web-enabled tools outside the technical infrastructure of school districts" (1).

 It was reported in the Becta School research on Web 2.0 that, the majority of teachers questioned had never used Web 2.0 applications in lessons, despite being frequent users of technology in their personal and professional lives. Their main concerns involved a lack of time to familiarise themselves with the technology (Becta Report, 2008).

Survey of Web 2.0 educational tool in libraries

According to the American Association of School Librarians (2008), there are several social networking options that are beginning to receive instructional support within school library media programmes. The chart below will indicate the types of social networking support by library media programmes in 2008.

Figure1: Types of Social Networking Suppoert by Library Media Programmes in 2008.

Types of Social Networking Supported by LM Programs, 2008

Type of social networking (SN)	Percent
Intranet	50%
Podcasting	41%
Wiki	30%
Internet forum / bulletin board	29%
Blog	25%
Collaborative editor	23%
Virtual school / course / etc	20%
Social bookmarking	16%
Social library	12%

Percent of respondents supporting SN type

- ■ Half (50%) of responding library media programmes reported supporting intranets.
- ■ Two out of five (41%) support podcasting.
- ■ Three out of ten support wikis (30%) and Internet forums or bulletin boards (29%).
- ■ One in four supports blogs (25%) or collaborative editors (23%).
- ■ One in five supports a virtual school, course, or instructional unit.
- ■ One in six supports the use of social bookmarking sites (e.g., del.icio.us).
- ■ And, one in eight supports the use of library sites (e.g. Library Thing). (American Association of School Librarians 2008).

The Use of Educational tools in School Libraries

According to Richardson (2007), "With all the buzz about "Web 2.0 technologies" and the implications that new social Web tools such as Weblogs, wikis and the like have for

education and information literacy, it's no wonder that school libraries are suddenly on the front lines of change" (1). He further mentioned that this is happening because librarians are now launching blogs, not only to give updates on resources but also to provide an avenue for interaction among students and host collaborative discussions. The Web is available 24/7 and according to Kretz (2007) this generation is expecting to use it whenever they want to on whatever devise they have available to them. These users are considered collaborative group and so they prefer to work together and doing so on blogs wikis, podcasts and online social networks among others is only natural. The blog has become a tool for communicating timely information as well as excellent tools for sharing news and events information. They can contribute information on wikis, the most popular being Wikipedia. Podcasting allows them to send audio files and according to Kretz (2007), "This is a way to syndicate content and make it automatically available to remote subscribers' (36).

Blogging in libraries

Blog, short for weblog, is "A web site that contains an online personal journal with reflections, comments, and oftern hyperlinks provided by the writer" (Courtney, qtd. Merriam Webster 2006). Black (2007) gave instruction that in order to blog, "the prospective perspective author needs to subscribe to an account with a blog provider, such as Blogspot or Wordpress. The subscription includes a graphical user interface containing a single word processor" (6). She remarked that blogs are user friendly and it makes it easy for the reader to move from reading Web pages to creating their own Web content.

According to the Becta Report (2008), "Young people seem to be particularly attracted to many Web 2.0 developments, often for the social aspects of easy communication, coordination and online expression of personal identities" The report also stated that while this is so, Web 2.0 tools have harmonized well with current policy initiatives and modern thinking about educational practice because they seem to: "offer new opportunities for learners to take more control of their learning and access their own customized information, resources, tools and services; encourage a wider range of expressive capability; facilitate more collaborative ways of working, community creation, dialogue and knowledge sharing; furnish a setting for learner achievements to attract an authentic audience" (Becta 2008).

Richardson (2007) gave the following examples of use of blogs in school libraries: one of the earliest and best school library blogs comes from Galileo High School in San Francisco, where the librarian uses a "Li-Blog-ary" to identify resources for classes, update the school community on new offerings, link to online databases, and publish student reviews. Similarly, the library blog of Mission Read at Chiddix Junior High School in Illinois involves students in online conversations. Richardson (2007) also pointed out that libraries are taking blogging one step further by connecting to teen readers by creating pages on social networking sites such as MySpace.com. He identified the Stoneham, Mass., public library site which comes complete with hip hop music, notices on recently arrived CDs, and links to teen authors who have their own MySpace.

Kirkland (2007) made mention of a secondary school library that runs a blog, engaging students in conversation about the books they are reading. Therefore, students are involved in podcasting their own book reviews. At another school, a teacher librarian is using a blog for

literature circles, while the wiki is providing an ideal format for collaborative writing, and is being used very effectively to develop higher order thinking skills through conversation and collaboration. Kirkland further mentioned that students are using podcasting as a presentation format for everything from book reviews to interviews and research reports. An interesting example given by Kirkland (2007) is that of a local high school that podcasts its daily radio programme so that members of the school community can listen in when, where and how they want. Social bookmarking is used by students to collaborate on collecting resources for research.

Wikis in libraries

Klobas (2006) defined wiki as a "Collaborately authored knowledge resource that is accessed and edited for a web browser using wiki software" (20). According to Farkas (2007), "Web design" was only attempted by people who had specific technological knowledge. These persons would control the design and in many cases its content. This has changed because in recent times various tools have leveled the playing field somewhat by giving almost anyone the ability to develop a Web page. Wiki is one such tool.

Wikis, according to Farkas (2007) let a group of people with no knowledge of HTML or other mark up languages develop a Web site collaboratively. She explained that 'a wiki is expandable and its pages are created and connected to one another through hyperlinks" (68). Farkas quoted Cunningham and Bo leuf in giving the following characteristics of wikis.
- A wiki invites all users to edit any page or to create new pages within the wiki web site, using only plain-vanilla Web browser without any extra adds-ons.
- A wiki promotes meaningful topic associations between different pages by making page link creation almost intuitively easy and by showing whether an intended target page exist or not.
- A wiki is not a carefully crafted site for casual vsitors. Instead it seeks to invlove the vistor in an on going process of creation and collaboration that constantly changes the Web site landscape (68).

Richardson (2007) revealed that libraries are also using wiki sites to get staff and students involved in creating online library-related resources. Examples include the Teacherlibrarianwiki site hosted by Joyce Valenza, a librarian/blogger, from the Springfield Township High School in Pennsylvania to collect information from staff members, and the Moncrief Library Wiki in Texas, developed by freshmen at Fort Worth Country Day School to help other students learn to use library resources.

Podcasts in libraries

As stated by Farakas (2007), "Podcast a term that combines "iPod" and "broadcast" are syndicated audio broadcasts that can be played on any MP# player" (181). This has created for libraries a new way of communication. According to Farakas, this means of communication is an excellent medium of diseminating information because of the personal feel of hearing the person's voice. This means of communication is also exceptional in that users who are not able to read from a computer screen or those who hate reading able able to receive the information

Podcast is one of the newest social software tools and libraries are using it to provide better services to their users and to empower young patrons and encourage their creativity (Farkas, 2007).

Richardson (2007) provided some examples of how school libraries are using podcast and vodcasts including RES Library Learners podcasts at the Randolph Elementary School in Virginia where student do book reviews podcasts posted by Grandview Elementary School in Monsey, N.Y. Richardon (2008) further mentioned that, "RSS and Social Bookmarking School libraries are also offering Real Simple Syndication (RSS) tools that allow users to subscribe to online information so they get new content as soon as it goes online" (1). The example he gave is the Media Center site of Nashville Community High School in Illinois, which uses RSS to compile dynamic pages of constantly updated local and world news from various sources.

Myspace/Facebook

Whelan (2008) commented that "There's a lot more to MySpace and Facebook than meets the eye" (1). The reason given is that teachers and librarians can employ these social networking sites to reinforce students' technology, literacy, and communication skills. Whelan (2008) sees these sites as important as he expressed that "Using these sites to communicate, collaborate, and create means learners can use and develop a wide range of literacy skills" (1). Reference is made that a new report suggests that when students use these sites they learn about copyright issues and what kinds of permissions service providers require, and important digital literacy skills that can help develop creative, social, or entrepreneurial skills (2).

Despite these benefits there are schools and libraries that have already banned social networking sites. However, Whelan (2008) informed us that the report mentioned that schools and libraries can instead promote e-safety which is "Staying safe, keeping personal information safe, protecting yourself and your belongings, making sure that we don't participate in bullying or other antisocial behavior, and helping out other people who might be affected by these issues, is a key part of digital citizenship" (1). Courtney (2007) in her discussion mentioned that "Facebook has avoided much of the problem of MySpace because it focuses on specific communities such as univerisities, workplaces and schools" (9).

Farkas (2007) warned that though there are many reasons for a library to have a profile on MySpace and Facebook, the library should not do so just to look cooler or to be more visble. Instead the library should have these social networking site to meet the patrons where they are and being useful to their patron. Also a profile should be designed to offer something to patrons so that they can return to using it. To add value to MySpace and Facebook, the library can provide a space for patrons to give feedback, by providing news and information, or by providing a portal to library services.

Facebook in libraries

The article by LibGuides (2007) mentioned that LibGuides was the first library application available within Facebook. To use this, a "user simply needs to select LibGuides from the list of applications in order to access LibGuides content. LibGuides will recognize the user's school affiliation and present them with their "home" LibGuides system (1). Facebook can be important to the library because it is one of the fastest growing social networks and it

provides a convenient way for your users to access the library content and services from Facebook, this serves as an excellent marketing tool for libraries. Making the content and services available in Facebook greatly improves the visibility of your library services (LibGuides). Courtney (2007) added that, "Facebook has advantages over other social networking sites for developing a seamless presence, because students' social world in Facebook is more or less limited to the school they attend" (120).

MySpace

Bell, Peters and Pope (2007) explained that it might be difficult to find a local library's page in MySpace. However, she emphasized that library can use MySpace to design their profiles with Cascading Style Sheet (CSS) to design a similar look to other library Web pages and that MySpace has a built-in instant messaging client right inside users' profile. Farkas (2007) stated that, "Under interest, where people can put book and movies they like, the libray can provide links to the catalog or to readers' advisory pages and reviews. Libraries can also link to MySpace profile on thier own home pages making the connection between the library and MySpace nearly seamless" (121).

An example of the use of MySpace in library outreach is the Denver Public Library integration of their MySpace account with eVolver the library's Web site for teen. The sites have a similar look, and the Myspace account links back to teen reviews of book, movies, and other media on the eVolver site. They have also added friends who can comment on the library. Some libraries have also made their MySpace page a portal to library services, with links to their catalogue, virtual reference services, and remote access instructions for the databases (Farkas 2007).

Web 2.0 and educational practices

Educational theorists and psychologists have theorized how people learn. They have all come to the conclusion that people learn differently because they have different learning styles or multiple intelligences. Students educational needs will also cause them to excel in various educational environments because video content includes both visual and audio channels learning is more lasting (Farkas 2007).

According to the Becta Report (2008), Web 2.0 harmonizes well with contemporary thinking about educational practices. These tools specifically guarantee learners new opportunities to be independent in their study and research. Their use facilitates a wider range of expressive capability and generates more collaborative ways of working. Web 2.0 tools are also able to provide a setting for learners to attract an authentic audience. Harris (2006) expressed that the Web 2.0 tools "will necessarily redefine the learning landscape as we know it and school libraries—if they are to remain relevant—must undergo transformation as well" (1). Richardson (2006) argued that "Web 2.0 technologies are transforming the ways in which school libraries operate and deliver their services in this fast changing online social and collaborative world" (1).

The Benefits of Web 2.0 Educational Tools

The Becta studies on Web 2.0 technologies for learning (2008) found that young learners use Web 2.0 technologies frequently in their leisure time but that the use of Web 2.0 in the classroom was limited. Despite the limited use, schools and teachers who have used it, have found benefits, such as: "Web 2.0 helps to encourage student engagement and increase participation – particularly among quieter pupils, who can use it to work collaboratively online, without the anxiety of having to raise questions in front of peers in class – or by enabling expression through less traditional media such as video" (Becta 2008).

The interaction with Web 2.0 tools within the classrooms can extend to usage outside of the classroom as reported by, the teachers who participated in the Becta (2008). They mentioned that use of social networking technology can encourage online discussion amongst students outside school. The reason they gave is that these tools can be available anytime, anywhere, which encourages some individuals to extend their learning through further investigation into topics that interest them.

Whelan (2008) highlighted the fact that a growing number of educators are also starting to recognize the benefits of other Web 2.0 tools, where users can include video and photo-management sites. "Educators and other professionals are increasingly using social networking services to form communities and connect to others who share their interests," the report adds. "In addition to providing a whole community with useful information about a school, college, organization or event, a profile on a social network sends a clear message to learners that you are aware of the types of spaces they enjoy online."
Barrier and issues that prevent implementation of Web 2.0 by librarians.

The American Association of School Librarians (AASL) (2008) mentioned that the types of social networks that are most likely to be prohibited by district or school policy are the ones that people perceive to be less useful for educational purposes and/or sites that are more vulnerable to online predators. AASL (2008) also stated that "MySpace and Facebook, could be used—and certainly are used by a few—for educational purposes; but, accurately or inaccurately, the popular perception is likely to be that they are distractions" (25). They explained that this perception is stronger when it comes to communications, such as chat, texting, and instant messaging but intranets, podcasting, wikis, blogs, and the like are more readily adaptable to educational purposes.

The result of a study by Lightspees System and thinkonize Inc. (Sandbury 2009) revealed that 'teachers and students are largely driving the adoption of Web 2.0 technologies in schools, but human and technological barriers are holding back the use of these as learning tools in many classrooms" (1). This study also reveals that "Web 2.0 technologies are making inroads into schools--but some of these technologies are being adopted faster than others (1).

In addition to these Ileana Rowe vice president of marketing for Lightspeed Systems reported that "Education leaders are challenged with maintaining a high level of security and safety while allowing for creative and collaborative work in a 21st-century classroom," "To meet this challenge, [Lightspeed] and netTrekker developed *Safe Schools in a Web 2.0 World*, an ongoing initiative to help schools implement Web 2.0 technologies safely and effectively to improve teaching and learning" (1).

Another challenge mentioned by Farkas (2009) is the lack of planning to use Web 2.0 technologies in a strategic way. She explained that some libraries jumped on the blogging bandwagon because they thought (or were told) that every library must have a blog. Other libraries started wikis because staffs were really excited about the idea of having a wiki. The QA Focus (2008) also reported that information professionals are concerned about inability to keep up with the speed of technology, and the longevity of the web 2.0 tools. The first reason is that frequently social software implementations are not tied to institutional goals. Research has shown that libraries have been much more successful in marketing information literacy instruction when it's tied to University goals/General Education requirements/etc. It's the same with 2.0 technologies. Whatever we're doing should be tied to the library's strategic goals and planning. If it's not tied to the library's goals, then how will it be seen as a priority? The QA Focus article also stated that neither are good reasons to implement a technology as librarians need to understand the needs of our population (be it patrons or staff) and then implement whatever technology and/or service will best meet those needs. In addition to this, librarians need to have clear goals in mind from the outset so that we can later assess if it's successful or not.

Farkas (2009) also mentioned that in some cases, social software is treated as one staff member's "pet project." The use of Web 2.0 technologies in the library is often one person's initiative at their library. They will make a passionate case for a blog, wiki, or whatever and will end up handling every aspect of its implementation. When that person leaves their job or gets too busy with other job responsibilities, the "pet project" gets abandoned. The article relates a horror story from a library that entrusted one staff member with running their MySpace profile and when she left under not-so-friendly circumstances, she refused to give anyone at the library the login information for their profile. This is just as foolish as a library only having one person who can access the back-end of their server. Cross-training is a critical component of building an effective organization, and the same should be the case with any 2.0 technologies a library implements. Making it one person's sole responsibility is a great way to doom a project.

Farkas (2009) thinks that one of the biggest reasons for problems with 2.0 technologies is also one of the major reasons why so many libraries are using them. That is, they are just so easy to get started with because it takes just five minutes to start a blog, a wiki, a del.icio.us account or a MySpace page. However, keeping 2.0 technologies going takes significantly more time and effort because, "Blogs need to be posted to, MySpace pages need to be updated, and wikis need content"(2). She added that people might lose the excitement over time about the maintenance of these sites. She emphasized that if there is no maintenance plan from the start whether it is scheduling posting and moderation, updating the software, etc. it is very possible that it will be abandoned when staff become less enthusiastic about it or they just get busy with other things. Farkas (2009) urged that libraries need to plan for the implementation and continued maintenance of 2.0 technologies in the same way they plan for the technologies for which they pay a small fortune.

Farkas (2009) mentioned that many library staff end up abandoning Web 2.0 projects because they simply are not given the time to work on them because they have lots of duties that are non-negotiable in our job, such as reference shifts, instruction, web updates, committee appointments, etc. Using blogs, wikis and podcasts are often seen as "extra", because they should become totally bogged down one week with library instruction, it is clear what will not get done. Farkas (2009) further explained that while administrators may initially say that implementing 2.0 technologies is important to keep up with other libraries and our patrons, they may not give you

any additional time to work on these things. The writers stated that "I've heard that complaint from a number of people at talks I've given. If you already have a full workload, your Director tells you that it's critically important that the library have a blog, but doesn't free up any time for you to work on it, he or she is sending a really mixed message about its import"(2).

Methodology

A qualitative research design was used because the researcher wanted to search for understanding and to find out how the participants are thinking and why they think the way they do in relation to the research being conducted. In addtion to this, the researcher wanted to analyze the data giving clear descriptions of the responses and to use the literature to substantiate the findings.

The population consisted of approximately one hundred and twenty trained librarians who were trained in the Department of Library and Information Studies at the University of the West Indies, Mona. These are teacher librarians who have to teach information literacy as well as another subject in the school's curriculum. They are working in high schools libraries.

Purposive sampling was used to select the participants because the researcher wanted to ensure that the sample was uniquely suited to the intent of the study (Fraenkel And Wallen 2008).The sample consisted of twenty teacher librarians who are known to have knowledge of Web 2.0 tools. The librarians who were selected are three males and seventeen females who attended one of the training workshops on Web 2.0 conducted by the Library and Information Association of Jamaica and the Jamaica Library Service. They respresented both the urban and rural areas in Jamaica.

The data collection instruments was a semi-structured interview. Semi-structured interviews were used because the researcher would be able to ask further questions for clarification of any vague responses received from the respondents. Also, all respondents would answer the same questions and the researcher would collect comprehensive data in a systematic way. In addition to this, any logical gaps in data would be closed. (Fraenkel and Wallen 2008) through additional questioning. The interview schedule was pilot tested to eliminate ambiguous and irrelevant questions. Some questions were omitted because they were deemed irrelevant and three questions were re-worded to avoid ambiguity. The interview schedule consisted of ten questions which were open-ended. This was done to allow the respondents to express themselves fully on the questions asked. These interviews were conducted over the telephone because of the distance between the researcher and the respondents. Each interview lasted approximately thirty minutes. The data was collected over a period of two weeks. The questions were limited to five (5) Web 2.0 tools – blogs, wikis, podcast, Facebook and MySpace, as these were the ones that the respondents were somewhat familiar with.

The research objectives that guided the study were:
1. To find out how knowledgeable a select group of Jamaican librarians are about five Web 2.0 tools;
2. To establish the levels of use of Web 2.0 tools by a select group of Jamaican librarians;
3. To find out the barriers and issues, if any that have affected implementation of Web 2.0 as an educational tool.

Analysis and Interpretation of Data

The study examined in detailed "Web 2.0: Knowledge and Use by a Select Group of Teacher-Librarians in Jamaica. This section is organized in terms of the three research questions posed. These are: to find out how knowledgeable a select group of Jamaican librarians are about five Web 2.0 tools; to establish the levels of use of Web 2.0 tools by a select group of Jamaican librarians; to find out the barriers and issues, if any that have affected implementation of Web 2.0 as an educational tool. In this section, the researcher will analyse the data as they emerge. Visual figures such as graphs, tables, were used in addition to the discussions.

The findings show that the majority of teacher librarians are adequately experienced in that their years of service as indicated in Figure 2 below which shows a range from 1 to 20 years.

Figure 2: Teacher Librarians Years of Teaching Experience
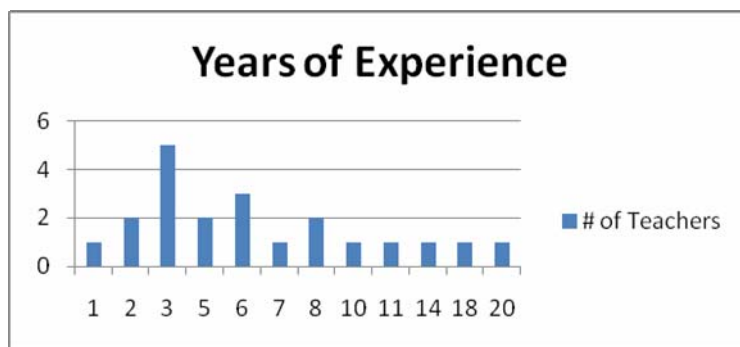
The number of years for the majority of these teacher librarian is an indication that they are in their position long enough to be aware of the five Web 2.0 tools. The respondent with the least experience should be equally knowledgeable especially just coming out of library school training.

How teacher Librarians became knowledgeable about Web 2.0 tools

Figure 3: How teacher librarians became knowledgeable about Web 2.0
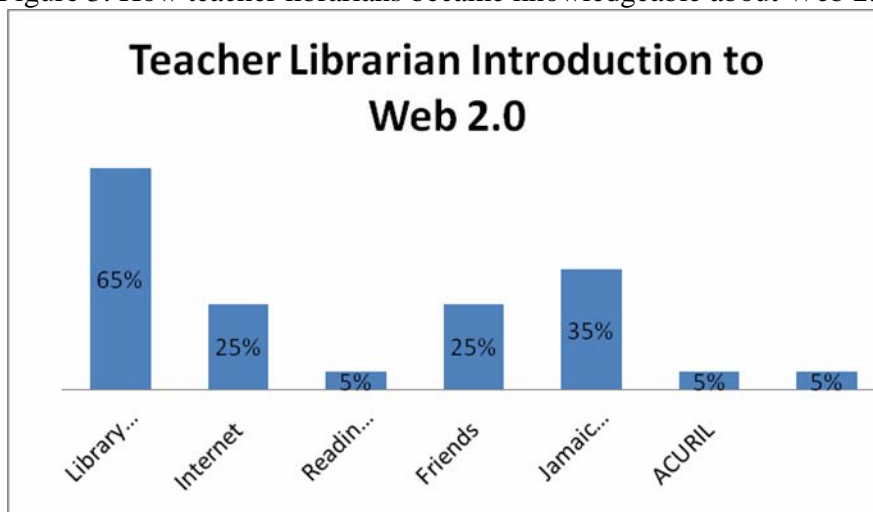
As Figure 4 above indicates the majority of teacher librarians (65% , 25% and 5%) confirmed that they became knowledgeable about Web 2.0 from workshops conducted by the Library and Information Association of Jamaica, the Jamaica Library Service and the Associations of Caribbean University, Research and Institutional Libraries (ACURIL).

This finding is important as it reveals that the Library Associations in this Caribbean Regions are making efforts to inform and train librarians about current technologies in their field. The Library and Information Association of Jamaica has conducted workshops in this area and ACURIL and the Jamaica Library Service have held conferences, pre-conference and workshops on the topic of Web 2.0.

It should also be noted from Figure 4 that 25% of the teacher librarians learned about Web 2.0 from their friends. Thirty percent (25%) confirmed that they received information about Web 2.0 from the Internet and one respondent (5%) gained knowledge of Web 2.0 by reading books. The findings for this questions mean that networking is a strong communication link among these librarians and they use this link as a means of gaining knowledge. It can also be assumed that not many books about Web 2.0 are in these school libraries. It is obvious that some students are ahead of at least one teacher librarian who has learned about these tools from her students. The respondent who has one year's experience mentioned that she was introduced to these tools when pursuing the Library and Information Studies degree at the University of the West Indies, Mona. This is an indication that the Department of Library and Information Studies have begun to introduce students to these tools. When she was asked how was this tool used, she replied that she was given an assignment to find out about these tools and to report her findings in class.

The most knowledgeable Web 2.0 tools by Librarians

Figure 4: The Most Knowledgeable Web 2.0 Tools by Respondents

	Blogs	Wikis	Podcast	Facebook	MySpace
■Serie1	26%	7%	0%	56%	11%
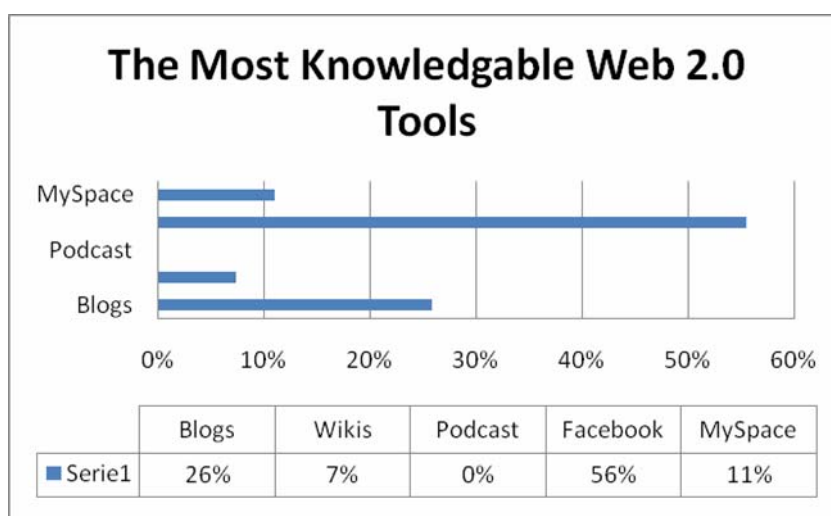
The responses to the question which sought to find out which of the Web 2.0 tool was most well known revealed that most of the respondents (75%) were most knowledgeable about Facebook. It was surprising to find out that these teacher librarians (26%) knew more about Blogs than MySpace. Only one respondents (5%) knew about podcast. When questioned further to find out how she knew about it, she explained that she attended a workshop session at the Association of Caribbean University, Research and Institutional Libraries (ACURIL) Conference held in Jamaica in 2007.

The probable reason Facebook is known by so many of the respondents is that it is is reported to be one of the fastest growing social networking site ((LibGuides, 2007). The least known Web 2.0 tool of the five discussed in this research is Podcast. This is understandable because according to the literature Podcast is one of the newest social software tools (Farkas 2007).

How do these Web 2.0 tools cater to students learning?

The answers respondents gave for how can the Web 2.0 cater to students' learning revealed that they all knew that these tools can cater for the different learning styles.. The responses they gave can be summarized as: these tools cater for students who are visual learners; learners who learn best through collaboration with others; facilities the learners who learn best when they see, hear and touch; support independent learning and it caters for students who learn while having fun.

These teacher librarians perceived that these tools are important because they facilitate independent as well as collaborative learning. It is possible that because these teacher librarians are dually trained - as teachers tend as a librarian that they have some knowledge of learning styles and how these tools can facilitate students' learning styles from courses taken in the Department of Educational Studies. This helps to reinforce the importance of school librarians to be dually trained.

These responses are substantiated by Farkas (2007) who mentioned that educational theorists and psychologists concluded that using this channel of learning makes learning more lasting. The Becta Report on Web 2.0 also confirmed this findings as it stated that these tools specifically guarantee learners new opportunities to be independent in their study and research. Their use facilitates a wider range of expressive capability and the use of them generates more collaborative ways of working.

The importance of Web 2.0 tools

Responses to the question about the importance of Web 2.0 tool revealed that eighty percent (80%) of the respondents mentioned that we are living in the technological age and the use of Web 2.0 is a good way of demonstrating this to students. Thirty- percent of the respondent stated that these tools are important because teachers can educate students fom a distance and communication between teachers and students are opened even though they may be distance apart. Ninety percent (90%) replied that these tools are important because when they are used it means that they are communicating with students at their level and in the manner which they

like. Sixty-five percent mentioned that these tools are important because they foster collaboration , a method which helps students to learn.

There is no doubt that these teacher librarians are aware of the educational values that these tools have. This knowledge may have been gain during their course of studies in the Department of Educational Studies. These finding are in line with the literature in that Courtney (2007) explained that these tools facilitate collaboration and social connection. She further mentioned that users prefer to work together and doing so on blog, wikis, podacast, Facebook among others is only natural.

Specific educational activities of blog, Wikis, Podacst, Facebook and MySpace

Respondents were asked to identify some specific educational activities that Blogs, wikis, MySpace, Facebook and Podcast can provide. The responses received showed that 35% of the respondents were not able to identified any specific activities. Of the 65% who responded 40% were not sure what educational activities Podcast could provide as they gave activities that the specific tools names could not facilitate. For example, using Podcast to have a video conferencing session, play interactive games and the use of Wiki meant that they use Wikipedia.

From the responses given it can be deduced that these librarians though having a good knowledge of the importance of these tools were not able to fully identified specific applications. These teacher librarians were obviously again using the information that they learned about Technology in Education. This suggests that they might have just heard about these tools and have not really stopped to find out how they can be used for educational activities, but instead generalized their use with that of the Technologies in Education that they have studied. Those who were able to identify activities gave examples as shown in Table 1 below.

Table 1: Educational Activites that can be provided by Web 2.0

Blogs	Wikis	MySpace	Facebook	Podcast
To write comments about any lesson that was taught	Journal entries		Literature circle	Conduct interviews
Create literature circle, reading clubs	Group assignments	Post notices and assignments	Distribute and upload assignments	Provide graphic representations for lessons
Online discussion on a specific topics	Can create their own Wiki as a project	Post class readings	Share pictures related to specific lessons	To teach Public Speaking
Publish poems written by students	Students can gather information on class assignments and present it for others to see	Use to disseminate and acquire information	Teachers and students can post questions and make comments	Use to select appropriate background music for a specific class session
Students can			Illustration of a	Drama or role

respond to class mates views on story characters			family Tree	playing
Make comments on their classmates work			Create a biography	Listening comprehension
Create newsletter			Discussion on various topics	
Use for revision of lessons			Interactive games	

A number of examples given by 15% of the respondents showed limited or incorrect knowledge. For example, some respondents thought that they could use podcast to have video conferencing sessions and play interactive games or that the use of Wiki meant that they used Wikipedia.

The educational activities identified revealed that respondents are aware of some of the educational activities that the Web 2.0 can facilitate. However, they need to have further training or they need to research more on these tools so that their misconceptions can be corrected. In the literature, the article on Web 2.0 and Library Programs mentioned that for librarians to make a digital shift they must become knowledgeable about Web 2.0 tools and how they are being used.

Level of use of web 2.0 in the respondent library

Eighty percent (15%) of these teacher librarians confirmed that they have not used any of the Web 2.0 tools in their library instructions. This is an alarming high percent since librarians are to be on the cutting-edge of technology. Most importantly,they will not be able to fully satisfy the information needs of their users. It is also possible they will not be able to attract their students to the library or be able to meet them where they are in the technology world. Students at this age have an idea about how to use these tools to socialize, hence the the library will seem to them an 'old fashion place'. This also means that those students who are not exposed in any way to these tools will not be exposed to them through the library before they reach the tertiary level of their education.

What are the reasons for the non-use of Web 2.0 tools?

Figure 6: Reasons for none use of Web 2.0 Tools in Library Instruction
The reasons given by 80% of the respondents who have not used the tool are: no Internet connection in their libraries can be seen in Figure 5 below.
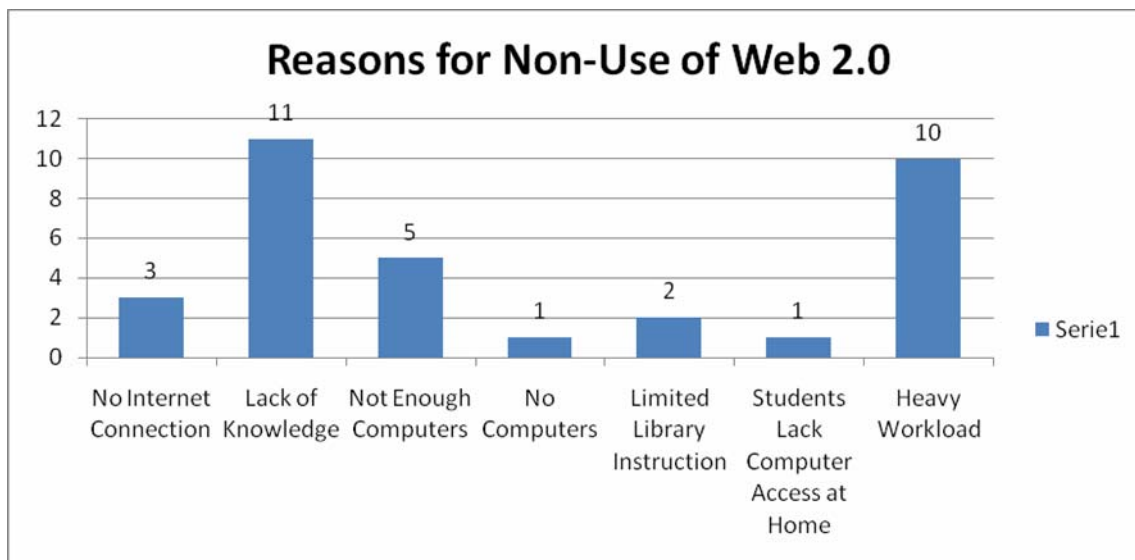
Figure 6: Reason for None-Use of Web 2.0

Figure 6 above shows that 55% (11)of the respondents indicated that the lack of adequate knowledge about these tools is the most significant reason given for not using them. Fifty percent (50% or 10) replied that their heavy work load is a factor that prevents use. They explained that the number of sessions that they have to teach another subject other Information Literacy are too many. This prevents them from spending sufficient time in the library and with their users.This is followed by 25% (5) who responded that not enough computers are in their libraries, lack of Internet connection 15% (3) and 5% (1) did not have computers in the library and 5% (1) mentioned that it did not make sense to teach using these tools because the users did not have computers and Internet connection in their homes. One respondent (5%) responded that these tools are not used because of limited library instruction. When questioned further he explained that each class visits the library only once per week so there is not enough time to use these tools in his instruction as other information literacy skills such as writing references, have to be taught.

It can be seen that lack of knowledge of Web 2.0 educational tools is the main reason given by 55% of the respondents for the none use of these tools. This implies that respondents' knowledge of these tools means that they hear of them but do not know how to use them. Limited computers or no computers (30%) along with 15% lack of Internet access , is a reflection of the digital divide that this region faces. It howver seems that if these were present they would still not be used to offer educational activities using Web 2.0 until these teacher librarians get more training how to use them. Farkas (2007) concurred with the complain of the heavy workload. She alluded to this when she mentioned that library staff are abandoning 2.0 projects because they are not given time to work with them. She stressed that because of the heavy workload of librarians they will become less enthusiastic about these tools.

The high percentage of none use discovered cannot be good when the academic benefits that can be gained from using these tools are clearly obvious. The literature is replete with instances where libraries and equipped with computers and the Internet and librarians are able to use the Web 2.0 tools. This therefore, suggests that these librarians have to become proactive and learn about these tools in-depth as well as advocate for funds for their libraries so that enough funds will be had to put the proper infrastructure in place for these tools to be used.

How do you use the Web 2.0 tool that you have selected in your teaching?

Of the 20% that uses these tools 15% uses Facebook and MySpace(one respondent using both MySpace and Facebook) and, 5% uses Wiki. The Facebook is used for Virtual Literature Circle. However, the reported use of Wiki for searching for information highlights the fact that persons mistake to use of Wikipedia for the Web 2.0 tool, Wiki. The teacher librarian who responded that she used MySpace replied that it is used to conduct research and to have lectures. When she was asked to explain how this was done, she simply memtioned that students who had MySpace account was sent information about her lessons. This also shows the limited knowledge of the use of this tool in a library environment.

Although the literature did not mention Facebook being used for Literature Circle, this is possible. This respondent mentioned that he gained this knowledge from a workshop attended on how to use Facebook to build a virtual literature circle conducted by the Jamaica Library Service.

Those who indicated that they use one or two of these tools in their library instruction have indicated various frequency of use. Two respondents use it monthly, one weekly and one rarely. This frequency is not adequate for any meaningful learning to take place.

Figure 6: Teacher librarians' Perception of Students Awareness of Web 2.0 tools
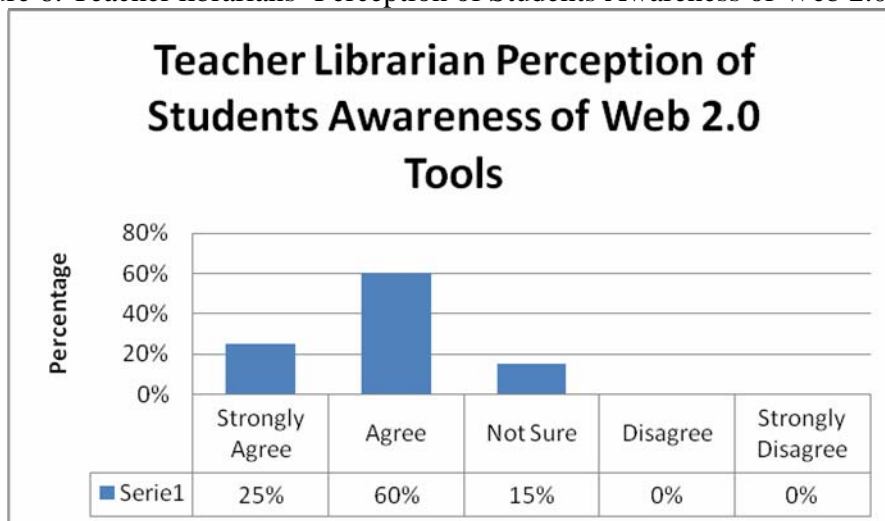
The 85% (17) reported that their students have knowledge of these tools. This knowledge could be superficial as it is likely that they only use these (Facebook, MySpace) as a means of social communicatiion with their friends. It is hardly likely that they will use Blogs, Wikls, and Podcast outside of the educational setting except for the ones that have been using it for the Literature Circle as reported by some of the respondents. The Becta studies on Web 2.0 Technologies for Learning (2008) revealed that young learners use Web 2.0 tools frequently in their leisure time but the Web 2.0 in the classroom is limited.

Barriers that affect use

The reasons given for the low level of usage of these tools was grouped as personal barriers and school barriers. The personal barriers have been reported have been summarised : 1. Lack of knowing how to use these tools for educational purposes. 2. Heavy administrative workload which leaves little or no time to use technology as part of the library instruction and 3. lack of interest. One respondent lamented that she would have used them if she knew how to incorporate them in her library lessons.
When questioned further to find out the cause for the lack of interest, it was revealed that this respondent was concerned about privacy and the fact that students can use the social network sites to portray unscrupulous behaviour. According to Whelan (2008) this librarian needs to learn about and practice e-safety, and teach her users e-safety.

It is good that these librarians have recognised their deficiency in using these tools. When the other reasons were closely scrutinized it is believed that if all the issues are not addressed such as lack of sufficient instruction time, Internet access, these teacher librarians will not be able to teach using these tools.

Barriers that are linked to the schools were some of the ones mentioned when they were asked about level of usage. These are lack of Internet connection, the school has not provided computer/sufficient computers for students to use. In addition to these, 20% of the respondents mentioned that the school policy bans students from using the social networks in their school. Twenty percent (20%) of the respondents mentioned that students are not computer literate, and 40% also mentioned that the library activities are not integrated into the schools' curriculum as such there was evidence of disconnect in the classroom curriculum and the library curriculum. Two (10%) respondents mentioned that the principals and the classroom teachers were unaware of these tools and so no arrangement can be made to have them integrated in the schools' curriculum.

The barriers pertaining to the school which are the lack of proper infrastructure and lack of computers are already dealt with. The banning of these sites from the library is evidence that these administrators are not aware of the benefits and the safety methods that can be practiced to ensure privacy. They are also unaware of the educational benefits that their students can derive from using these tools. The Sandbury (2009) revealed that human and technological barriers are holding back the use of these learning tools in many classrooms. The American Association of School Librarians (2008) also highlight the fact that the social networks that are more vulnerable to online predators are the ones that are usually banned by district or school policy. Hoewever, if all staff members are educated about these tools and the e-safety methods it is likely that they would agree to use them.

Teacher librarians' suggestions for removing barriers

Fifty percent of the respondents emphasized that the Ministry of Education should revise the curriculum to show an integration of these tools into the relevant subject areas. Eighty percent mentioned that they need proper training in this area is needed. In addition to this, 40% wants all the teachers and administrators to be sensitized and trained about these tools. Those who are aware that students use these tools (60%) want students to be trained to use them for

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educational purposes. Fifty percent (50%) of the respondents wanted their non-library teaching sessions to be reduced or terminated so that they will have sufficient time to use these tools with students in the library. Forty percent of these teacher librarians want the timetable to reflect double sessions so that the librarian and the students can have sufficient time to use these tools.

These are excellent recommendations given by these teacher librarians. These are recommendations that they can take to their administrators and work along with them to make these changes. Approaching the solution by forming a network should be more beneficial than trying to do it single handedly.

Summary of findings

The information gathered from these teacher librarians revealed that they have limited knowledge of these Web 2.0 tools and they have not been using them in their library instructions. These teacher librarians became knowledgeable about these tools from workshops and conferences that they have attended. It was obvious that they were more aware of Facebook and MySpace than the other tools. The least known tool was podcast. Various reasons were given for the none-use of these tools. A lack of in-depth knowledge about these tools was evident on more than one occasions. The lack of computers/sufficient computers plus the lack of Internet conection were also given as reasons. In some schools the school policy banned these sites and only in one instance was the teacher librarian concerned about privacy.

Conclusion and Recommendations

This was a qualitative research which was conducted to find out from a select number of teacher librarians their knowledge and use of Web 2.0 tools for educational purposes. It can be concluded that the number of workshops that these teacher librarians attend were not sufficient to make them proficient users of these tools. This and other factors such as lack of computers and Internet connection have caused these important tools to be omitted from these teacher librarians library instruction. There is concern for the users because the majority of them are aware of some these tools, though they use them only for social communication, and may view the library as an "old fashion place" if they are not seeing them used in libraries and the educational institution on a whole. As users, they may exit and forget the entrance.

Recommendations

Based on the findings the following recommendations are made.
1. The Library and Information Association of Jamaica (LIAJA)and the Association of Caribbean University, Research and Institutional Libraries (ACURIL) need to collaborate and plan a series of workshops to train teacher librarians how to use these tools in their library instruction. These workshops should include a lot of practical sessions to reinforce the concepts taught.

2. These library associations should introduce principals and other school administrators to these tools and educate and train them along with the teacher librarians.

3. When library conferences are held, the participants at these conferences should include Education officers from the Ministry of Education, principals, teachers and teacher librarians and students. This will alllow them to realize that the library is an integral part of the school and the library activities should be integrated into the school's curriculum. The principals and teachers will realize that collaboration is neceesary for these tools to be used effectively and efficiently.

4. The International Association of School Librarianship (IASL) should have the slogan , "No Librarian left Behind" and work with its Regional Directors to ensure that workshops are being conducted. This international body could help to advocate on the behalf of libraries in the information poor regions for computers.

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Statement of Originality

This statement certifies that the paper above is based upon original research undertaken by the author and that the paper was conceived and written by the author(s) alone and has not been published elsewhere. All information and ideas from others are referenced.