
School Library Design, Facilities and Resources for Sustainable Cognitive and Social Development of Students: An Evaluative Case Study

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This evaluative case study examined the perceived effects that new school library functional and inspirational spaces, relevant resources and comfortable facilities had on students' cognitive and social development. The principal and teacher-librarian were interviewed. A questionnaire was administered to eight students from grades 10-13 who had used the old and new library. Findings revealed that the design of the library, the resources and the facilities seem to positively impact students' cognitive ability and social development. It is recommended that Ministries of Education should redesign school libraries where necessary on a phased basis in order for its users to achieve the perceived educational and social benefits experienced by these participants.

Introduction

Internet access, electronic media, computer technology and other modern-day advancements have had a profound effect on the design of libraries. The Whole Building Design Guide (WBDG) (2017) posits that the "primary goal of effective library design and space planning is that the facility must respond to the needs of its service population" (Overview para. 1). When these needs are determined, the design of the interior and exterior of the library should effectively address the immediate and future needs of the school population. Freeman (2005) showed agreement with this concept when he mentioned that "the way in which we plan libraries today has changed significantly. Planners and designers define space in response to anticipated user patterns, identifying the physical characteristics of the space and the specific value it will add to the educational mission of the institution as a whole" (p. 6).

To attract students to a new library in the digital age, school administrators should not "forget the important role of architectural design in creating spaces that are functional and, even more important, inspirational" (Frischer, 2005). Bland, Hughes, Willis and Burns (2013) note that libraries, though "generally seen as physical buildings, should not be static" (p. 50). Design needs to allow for "flexibility, movement, fun and discovery... the external world has to be almost seamlessly integrated with the internal spaces of the library" (Bland, Hughes, Willis & Burns, 2013, p. 12).

The Chicago Architecture Foundation (n.d.) points out that re-imagining a school library can involve redesigning the "interior of the existing library space, expanding on the existing space, or creating a completely new addition" for the school building ("Design Brief", para. 3). This design

should contain all the spaces and functions required for a typical school library – a variety of seating options for students (inside and out), storage space for books and other media formats, space for the teacher-librarian, computer areas, audio/visual labs and meeting spaces. In addition, there can be a cafe, an information kiosk or a workshop area. The re-designed library should include both old and new ideas and should also consider sustainability issues such as the environmental impact of the design.

The school library should be designed with spaces to facilitate the development of students' interpersonal, academic and problem-solving skills while they are exploring new ways of learning that will provide a rich and dynamic learning experience. According to Smith System (2014), a manufacturer of innovative products that makes educational environments more healthy, comfortable and inspiring for students and educators, "collaborative learning projects require group spaces where students can meet, exchange ideas and brainstorm, [as well as] individual study areas where students can research specific topics individually" ("Collaborative Areas" para. 1).

Joint Information Systems Committee (JISC) (2009), an institution that encourages the adoption and usage of digital technologies within United Kingdom for teaching, learning and research, envisions that a well-designed school library can have a positive impact on students' cognitive ability. According to JISC (2009), well-designed learning spaces have a motivational effect because "learning areas infused with natural light, for example, provide an environment that is easy and pleasurable to work in. Wireless connectivity within a brightly lit atrium, learning café or open-plan social area will encourage engagement in learning, and instil a desire to continue activities beyond timetabled classes" (p. 6).

JISC further states that well-designed social spaces, such as learning commons, cafeterias, corridor space and open-access information technology areas are likely to increase students' motivation and may even have an impact on their ability to learn. It is further noted that learners have been shown to benefit academically from social interaction with their peers as open-plan informal learning areas provide individualized learning environments which also support collaborative activities (JISC, 2009).

Background of the study

There is a paradigm shift in the design of libraries because modern technologies have been informing the teaching and learning experience and school administrators have been working with architects to design libraries that will support this evolution. The Whole Building Design Guide (WBDG) (2017) posits that planners and designers define space in response to anticipated user patterns, identifying the physical characteristics of the space and the specific value it will add to the educational mission of the institution as a whole" (p. 6). Libraries are also designed to facilitate the social development of students because the library is a place where students meet in ways that are different from meeting in classrooms and out of school locations. When a student meets in the library, "the student becomes part of a larger community—a community that endows one with a greater sense of self and higher purpose.... while students are intensely engaged in using modern technologies, they also want to enjoy the library as a contemplative oasis" (Freeman, 2005, p. 6).

These characteristics were not evident in the previous library in this study which is a 56-year-old co-educational institution with a population of 1,493. When the school was built, a two-story library was constructed. Even though the library's structure was ideal for the time period it was built, it was not central to the school's facilities. Also, the infrastructure of the library was not suitable for students to interact and collaborate. Students did not have the flexibility to use their own devices based on the building's design.

Prior to her appointment, the principal conducted a survey to find out students' level of satisfaction with their school. The findings showed that most of the students wrote "we do not have a library." This indicated that the students' expectations of the library were not being met. The principal reported that approximately 30% of students had no Internet access at home and would seek the services of the library to fill that gap. She remarked that, "I could not in good conscience give priority to the building of a new auditorium over a library because without the access to library resources and the Internet these students would likely perform less academically than those who had access".

The principal realised that she had never seen the structure of a modern school library. During the time the concept of the modern library was discussed among the administrators, she was invited to a college in the United States of America and she took the opportunity to tour various libraries with the aim of studying the design. Her husband, an architect, asked pertinent questions about the various spaces observed and discovered that the spaces catered to trans-disciplinary and collaborative learning. They saw the need for the library to be technology rich, with an information technology expert. Altogether, they learned that school libraries should be inviting spaces for the 21st Century learner. The principal's approach was commendable, and her decision could have been prompted by her attendance at the International Association of School Librarianship conference held in Jamaica in 2011. It was this conference that peaked her interest in school libraries and their importance in the educational and social lives of students.

Research objectives

This study seeks to:

1. Examine the circumstances which prompted administration to construct a new library.
2. Assess the strategies used to design the new library.
3. Discover how the resources were obtained to construct the new library
4. Find out if there is an increase in the level of library usage
5. Determine the perceived effects that the library design, resources, and modern facilities have on students' cognitive ability and social development.

Significance

The research is significant as it may contribute to knowledge of library design and its impact on students' academic and social development. The findings can inform architects' design of library buildings to appeal to the cognitive domain and social development of students. It is also critical to find out if the cognitive and social impact implicit in the design of a learning environment was experienced by students who used this library. In addition, the findings may be valuable for teacher-librarians contemplating the continued relevancy and currency of school libraries.

Conceptualization of cognitive and social development.

This study adopts Dahl and Cilliers's (2012) conceptual definition of *cognitive ability* as individuals' varying ability to learn from their environment and "acquire stores of knowledge" for "making skilled decisions based on that knowledge" (para. 12-13). Schudlich and Schudlich's. (2008) definition of *social development* is used in the context of the research. It refers "to the ways in which children grow in terms of their social skills, awareness of others, cooperative behaviors, and ways of approaching and interacting with others" (p. 912).

Theoretical framework.

Monahan (2002) posits that the term “built pedagogy” to refer to “architectural embodiments of educational philosophies” (“Built Pedagogy” para.3), which means that the way in which a space is designed affects how students learn. Scott-Webber (2004) explains that when space is linked to knowledge creation, communication and application, the space configurations exert powerful influence on the activities that take place within that space. Chism (2006) further explains that environments that offer experience, stimulate the senses, encourage the exchange of information and provide opportunities for rehearsal, feedback and application, and transfer are most likely to support learning. They also mention that social constructivists assert that the social setting influences learning.

Literature review

Designing a school library

An educational building such as a school library is an expensive long-term resource; therefore, the space needs to be flexible to accommodate both current and evolving pedagogies. In addition, the library's space should be created to energize and inspire learners and tutors, encourage their development and also be enterprising, to make each area capable of supporting different purposes (JISC, 2009). JISC (2009) explains that consultation with key stakeholders on their aspirations for the new spaces and experiences with the limitations of the old one is important. The stakeholders in a school setting are: school boards, administrators, teachers, parents and students. These individuals should ensure that the design of physical space is linked to the institution's strategic vision for teaching and learning. The strategic vision should be articulated in every detail of the design and shared with all relevant parties, including the learners.

Ghaziani (2008), states that school designs are usually made by “administrators, public officials, builders, architects and others who, in most cases, will not use the finished building” (p. 226). While children “are seldom able to influence the reality of school design” (Bland, Hughes, Willis and Burns, 2013, p. 3), Clark (2010) has shown that students are capable of innovative ideas in relation to learning environments. In addition, research by Bland and Sharma-Brymer (2012) found that children's ideas and imaginations could result in the creation of more engaging student-centred learning space designs. Calhoun, cited in Bland, Hughes, Willis and Burns, confirms that some of these activities have demonstrated children's intuitive understanding.

Nayak and Bankapur (2016) emphasize that “School library physical environment places more focus on the learning that will take place in the space than on the resources or collections that are housed there.” They also noted that the library space can be created to stimulate students to discover, collaborate, connect, create and share their knowledge. The design of a library's space according to the five design elements purported by Nelson and McConachie (2008), is essential for students' wholistic development. These design elements were used as a benchmark to measure and discuss the design of the library under study. The five design elements are as follows:

Design element one highlights that the space for teaching, learning and production of knowledge is more important than storage space. This means that when designing a school library, the teaching and learning goals must take precedence. This is critical as these goals drive the criteria for evaluating the space devoted to books, media technology, networked content, offices, and formal and informal teaching areas. This consideration is important because high school students need space other than the generic classroom to read, view, write, talk and produce evidence of their

learning. A centralized library is an ideal work space for this to happen (Nelson & McConachie, 2008).

Design element two specifies that the library must support multiple ways of teaching and learning. Therefore users of the library should have the flexibility to do individual or group work, with network resources or assistance from the teacher-librarian as well. In addition, these elements advocate for flexible and adaptable library space to support different learning styles. These are spaces that can be quickly rearranged to accommodate the different uses for which the students need to use the library from one hour to the other or from one day-to-day. This calls for flexible furniture and adaptable library spaces that can be economically re-modelled (Nelson & McConachie, 2008).

Design element three suggests that the collection development policy that should influence library space needs. The goal of having resources on a wide variety of subjects is no longer necessary because of the ubiquitous web-based content. This design element is related to design element four which states that content and services increasingly reside at the network level. The quality of the library's electronic infrastructure (Air-condition Wi-Fi, etc.) is of highest priority. If the library has the right licenses to electronic databases the school library can provide access to far more content than the library can purchase and store (Nelson & McConachie, 2008, p. 21).

Design element four prescribes that the intellectual content and services of the library is increasingly delivered through a library's networked infrastructure rather than as physical media stored within the library. The quality of the library's electronic infrastructure (AC, data, wireless) should therefore be of highest priority.

Design element five states that the library must be grand, beautiful and inspiring with ample unencumbered floor area, generous spatial volume, and abundant natural light. They argue that the library's location, size, technology infrastructure and aesthetic quality attract students to the school's signature academic space. Nelson and McConachie (2008) also emphasize that all adolescents deserve school library space which is out of the ordinary and that an inspiring library space elevates the importance of academic work.

However, it should be noted that the type of design described is not evident in most of the school libraries in Jamaica or even in the Caribbean due to the seemingly lack of funding and possible lack of knowledge about the school library design that is required to impact students' academic and social development. The ideal is used as this knowledge can be used when a library is being renovated or a new one has to be built such as the one being studied.

Research Design

This qualitative research used the case study design. The qualitative case study approach is appropriate as Gaya and Smith (2016) explain that case studies are appropriate where "investigators adopt the research design to understand a real-life phenomenon under important natural conditions that are relevant to the occurrence under investigation" (p. 532).

The researcher used exploratory interviews, and photograph analysis of library space to gather data pertinent to the research. Three separate interview schedules were used to collect data from the principal, the teacher-librarian and the students. An open-ended interview schedule was administered to the students to complete as it was not possible to have the planned focus group with them. According to Better Evaluation (n.d), several observations should be made to capture as many details as possible. With this knowledge in mind, three unobtrusive observations were conducted of the library while in use by the students. The data was collected over a period of six weeks and was analysed by identifying the themes, patterns and then organizing them into coherent categories that were summarized to bring meaning to the text (Taylor –Powell and Renner, 2003).

Sample

Purposive sampling was used to select eight students from grades 10 -13 (2 from each grade). Tongco's (2007) strategy was used to recruit the students. This strategy allowed for the researcher to develop a set of criteria on what would constitute a good participant, and then ask the teacher-teacher-librarian to select participants consistent with the criteria (Tongco, 2007). The teacher-librarian was given a list of criteria which should be used for the selection of the participants. Students should:

1. Be in grades 10 -13.
2. Have knowledge and experience of using the old and the new libraries.
3. Be willing to respond to questions in a group setting.
4. Include both male and female participants
5. Be interested in participating
6. Have the consent of their parents in order to participate in the study

Limitations

There were 148 high schools in Jamaica but this study was only conducted in one school. At the time of the research, this was the only known high school with a newly built library with modern spaces. The findings will not be generalized, although they can be used as good examples for those institutions that seek to re-design or re-build their school libraries.

Findings

Strategy Used to Garner Funds for the Construction of the Library

The principal confessed that the construction of a new library was not in the school's development plan, therefore there was no budget for the construction. A search was launched for a major donor. A prominent citizen whose son attended the school but died shortly after graduation was contacted. The idea of building the library in the memory of his son was discussed with him and he accepted. To avoid nepotism, her husband could not be employed to construct the building. However, he created an architectural brief based on what was seen of other libraries in the United States for the architect who was selected by the major donor. The estimated cost for construction was US \$700,000 or JA \$5.3M according to the exchange rate at that time. The main donor contributed US \$350. To obtain funds, various amounts of monetary donations were requested and received. The school administrator was able to garner sufficient funds to complete the building except for the purchasing and installation of the elevator and the tiling of the ground floor.

Hinds (2015), in reporting on how to build a library from scratch, stated that she sought grants from various individuals. She also used the same method of seeking donors and commented that, "DonorsChoose.org has been good to me: my colleagues and I have raised over \$25,000 in materials for our library" (Hinds, 2015). Celsus: A Library Architecture Resource (n.d.) indicates that, "No one funding source will typically cover all of the costs associated with library construction" (para. 11). This was the experience in the case of the school library funding in this research.

The School Library Design

Based on the interview with the principal, the stakeholders wanted a state-of-the-art library that would symbolize learning on the school compound. The findings showed that this was achieved. The three-story school library space appeared as a grand, beautiful and inspiring picture of a well-established human-centred environment that appeals to the senses (Powell, 2007).

The first floor had a very large reading room with seven computers at two workstations, tables and chairs, bean bags and sofas and a number of bookshelves placed against the wall stocked with books relevant to the curriculum.

The second floor, the smallest of the three levels, provides entrance to the library by steps and ramp and consist of the reference desk , baggage holder, one student room and two computer stations with five computers each, a wedged-shaped chair for relaxation while waiting on a computer and the photocopying machines. The reference desk, the information technology staff office as well as a beautiful showcase in the centre that displayed important notices and current books that were purchased were also on this floor. A ramp was at one side for physically challenged students to enter the first floor.

This is one major difference from the old library in that, according to Educause Learning Initiative (2011), the design of this school library is in keeping with the evolving needs of the students and the requirements for their academic work. The layout of this floor made it appear warm and welcoming, especially since it had the appearance of a “living room” in a house. Based on the researcher’s observation, students used this attractively designed space for relaxation, reading and connecting to the Internet

The third floor could be entered from steps on either side of the building. There was another very large reading room with another reference desk with computer for library volunteers who were either students, past students or parents whose task it was to assist the teacher-librarian in offering reference services. There were three other computer stations that have a total of seven computers. The recording studio was at the far corner. This was used by teachers and students to record lessons and assignments to support the flip classroom initiative by the school. The teachers delivered lessons using this pedagogical model which required them to make videos of lessons they intended to teach. Students used the recording studio to view the videos created by their teachers as well as to make their own videos related to their lessons. This is what Sullivan (2011) describes as the changing of the learning model where classrooms are moving away from a “front of the room” mentality and adapting to students’ learning style. She emphasised that in this respect school libraries need to take the lead.

Also on this floor were four study rooms fitted with computers and overhead projectors, a large seminar room that was used for teaching purposes as well as collaborative and individual work. The large study room was used by students to do collaborative work and by the teachers to conduct lessons. This usage sustained the notion that school libraries support teaching and learning in order to help achieve the mission and vision of the school. Grigsby (2015) supports this type of design, commenting that “teachers whose classroom has become the community center of the school will see that school libraries will continue to enjoy relevance by becoming the space where the learning community comes not just to retrieve but to create” (p. 104). Educause Learning Initiative (2011), in support of these collaborative spaces, mentioned that these areas not only offer a common gathering space but to the academic environment they also provide a “single space, which allows students to make connections among themselves and direct their own learning” (para. 7). Moreover, teachers will be able to have more flexibility in assigning projects because the learning commons offers spaces for work to be done either individually or collaboratively, with or without media support. The most important aspect of these spaces according to Educause Learning Initiative (2011) is that they “invite students to devise their own approaches to their work and to transfer what they learn in one course to the work they do for another” (para. 7). These kinds of spaces Head (2016)

describes as versatile, in that the same space was used for teaching as well as for learning; this reflects the response to new pedagogical approaches and the rapid growth in information technology education. The dual use of these spaces also allow lessons to be extended beyond the classroom.

The well-stocked bookshelves on this floor were placed in one section. The other section had a computer workstation, two bathroom facilities and a balcony which would encourage collaborative work. Head (2016) mentioned this as “intended to stimulate impromptu exchanges or what one architect called “happenstance learning” (p. 13). The balcony can also create a “social space where students can take a break from studying and chat with a friend” (Powell, 2007, p. 117) or just relax and take in the beautiful scenery. The idea of comfortable external social spaces within school libraries was now being reflected in those libraries.

The large and small study rooms were used by students to do collaborative and individual work and by the teachers to conduct lessons. During the researcher’s observations, students and teachers were seen using the study and lecture rooms. This usage sustained the notion that school libraries support teaching and learning in order to help achieve the mission and vision of the school.

The open-space concept design of the library made it extremely attractive, uncluttered and inviting. It was clear that design element five was taken into consideration in the construction of this library (Nelson and McConachie, 2008). All the spaces described were in line with the trend in library design. It was very obvious that there were only few textbooks on the tables that students were studying. Instead, they had their own laptops and smart phones which they were able to use to access electronic information from within the library. The Bring Your Own Devices (BYOD) was necessary as the computers were always heavily used during the researcher’s observation. As students used the library, it was clear that they were able to converse freely and openly among themselves. They sat around the tables, on the bean bags or on the couch, whichever made them more comfortable. Gretes (2013) refers to Trilling’s (2010) comments that “libraries are evolving into ‘laboratories’ – environments where a wide variety of learning activities and projects can take place: project space, design studio, community meeting and presentation space, and research and development lab” (p. 10).

Green building features used in the design

The joint use of the facilities was also considered a green building feature in the construction of school libraries. Zafar (2017) states that “A green building incorporates environmental considerations into every stage of the building construction and focuses on the design, construction, operation and maintenance phases” (para. 1). The green building features that could easily be seen were: the lecture room and the recording studio that was used by both teacher and students, the construction of one side of the outer wall using glass blocks which admitted sunlight into the room but restricted view from the outside, thereby improving privacy. Only a few lights needed to be switched on during the day. The windows on either side of the building caused the air to flow through the library. Hence only one overhead ceiling fan was necessary for distributing air to all three floors. Rain water was harvested from the roof to water the flower garden which surrounded the library. The rain water storage tanks blended well with the outer construction of the building.

Based on the observation of the school library building, the researcher concluded that this library was constructed at a desirable location on the school compound to serve the entire school population. It was aesthetically designed with pedagogical concerns implicit in its design. The internal and external spaces catered to cognitive and social development. The building was designed with attractive and adequate spaces conducive for active learning. The spaces promoted student-centered learning with the support of teachers who shared these spaces with the teacher-librarian

and students. The researcher concluded that the library design made the library a warm, hospitable and attractive space where students and teachers are able to do serious work or relax and socialize based on their need.

Students' Cognitive Development

The teacher-librarian also mentioned that the library facilities seem to have contributed to students' learning as the relaxing furniture caused students to spend longer hours in the library to read and study. Students had their individual preference and so some curled up on bean bags or sat on the soft seats to read or do work. The balcony allowed the students a scenic view of the area while studying. She further remarked that "for those who learn best while listening to soft background music they were provided with headphones, or they could use theirs to listen to music while they worked in the library." Student statements concerning the impact of the library's design on their cognitive development can be seen in Table 1.

Table 1. Students' Statements that Suggest the Effects of the Library Design, Resources and Facilities on their Cognitive Development

Library design	Library resources	Library facilities
"The larger space helps me to breathe better and provides more space to read and study. This promotes healthier brain performance and hence better academic performance."	"It has increased my homework grades because of easy access to research materials."	"A quiet place to work in helps me to do my best without being disturbed."
"The required spaces are available for me to focus and do my work."	"I get 100 % when I use the library." "The library has provided me with a wide array of information that has allowed me to make my studies more in-depth. My grades have improved slightly."	"I am able to do work when I am at school late in the evenings, instead of idling while I wait to go home."
"The study rooms are quiet which helps to maintain focus when doing work."	"The availability of computers with Internet access prevents me from getting a failing grade."	"Working space on the table is adequate."
"Due to the space I can find quiet space for myself in order to completely immerse myself in my work."	"The library has helped me to find information to complete my homework and this has positively affected my academic performance."	"There are meeting rooms which provide exclusiveness and also furniture which provides comfort."
"My academic success is due to the creation of this new library as it is easier to finish the necessary assignments."	"Reading the variety of resources has developed my vocabulary. I am now a very good English student."	"The provision of couches and bean bag chairs in lounging spaces to sit on helps my friends and I to relax and unwind from the stress of school life."
"The comfort relaxes the mind, which in turn relaxes the body. Relaxed minds and bodies help people to develop socially positively by helping them feel less frustrated and this helps them to listen to their peers and appreciate what they are saying. This promotes better social relationships."	"The resources help me to successfully complete major assignments. Coming to the library more frequently has definitely helped improve my grades. It has become a routine that I use the library."	"We are able to engage in quiet and intelligent discussion in a quiet and safe environment."
"The environment helps to create the circumstances for spending time with peers through working together on a piece of work or just to have a 'chill' session in the library."	"All the resources needed to complete my work are available."	

The teacher-librarian's perception was consistent with research findings that student academic scores increase "...when the library media collection is adequate and students borrow materials frequently; the library media center has computers with access to library resources, online databases, and the Internet..." (Gretes, 2013 p. 13). The findings of other research mentioned by Gretes (2013) showed "that the number of visits to the library can play a part in student achievement, library usage correlates with student achievement and different types of seating such as easy chairs and straight chairs, and areas for students to be seated together or in private cater to academic achievement" (p. 10).

Research findings on the impact of school libraries on learning conducted by Williams, Wavell, and Morrison (2013) indicate that library resources—both print and electronic including technology—have a significant contribution to higher test scores and student achievement. Gretes (2013) lists many impact studies on school libraries that show that student achievement was attained through teacher-librarian collaboration, support from administration, the school library programme, administrative support and the library's collection. This, therefore, shows that library design can also be added to this list.

Differences in Level of Use by Students

The teacher-librarian responded that approximately 250 students used the library each day and this increased when major assignments were due. This was in comparison to the average of 30 students who usually used the old library daily. Not only did the frequency of use increase but also the length of time students stayed in the library. One student wrote “of course” to the question, “Has the length of time you spend in the library increased since you began using the new library?” Five students reported that they stayed in the library for 1-3 hours, and two for ½ hour to 3 hours. One student said, “As long as my break lasts.” This level of usage was an improvement as the data collected show that in the previous library these participants used the library once a week, every two weeks/months, a few hours and rarely.

Teacher and Students' Reasons for Increased Use

The participants reported that the increase in use was not only because of the design of the library but also because there were sufficient, faster and more reliable computers connected to printers with better printing quality. In addition, there was now a Wi-Fi connection, tired students could rest on cosy bean bags between classes and the library had all the resources they needed. They also commented that the library was now closer to the classrooms.

The teacher-librarian added that the huge increase in the number of students using the new library was due to its design, resources and comfort. This was also due to the extended opening hours of the library. The new library opened from 7 a.m. to 6.00 p.m. instead of from 8 a.m. to 4.00 p.m. The teacher-librarian explained that parents were scheduled to be in charge of keeping the library open from 4.30 p.m. to 6.00 p.m. During the observation from 5 p.m. to 6 p.m. parent involvement was noticeable.

The researcher concluded that students' infrequent use of the old library might have also resulted from it not being aesthetically appealing to 21st century learners—who are described as ‘born digital.’ Observations showed that it did not provide an avenue for collaborative work. As a result of the various social media, students are inclined to interact and collaborate and would prefer a space where they can learn in a social context. The observation highlighted the difference between the old and the new library.

Differences Between the Old and New Library

The participants explained that when the old library was being used, they had to wait a long time to use one of the three computers and sometimes the time ran out so they could not do what they wanted. At the time this research was conducted, there were 30 computers with modern functionalities and these were attached to the printers. One student indicated that “in the old library, everything was clustered, [there was] not enough space to get things done and the library would be packed very quickly.” Participants reported that the modern design of the new library resulted in

more comfortable space which was better organized and provided access to a wider variety of current and appealing books without students having to rent them. The library was equipped with a portal developed by the teacher-librarian that allowed students access to reference information, past papers for examinations and academic papers.

Main reason students were attracted to the new library

Students were asked to tell the main reason they were attracted to the new library. The responses indicated that the library was aesthetically appealing, had current and relevant resources and modern facilities. Students mentioned that the library was more inviting to study in because it had comfortable upholstered seating and it was a good place for completing homework/assignments (without noise) on computers that had printing facilities, Internet and Wi-Fi. They also enjoyed meeting with peers to complete group projects, study, “for sleeping”, to have “bit of fun,” to sit on the lounge chairs or bean bags and read, and to enjoy a well needed rest.” In addition there was a space to host club meetings.

Traditionally, school libraries were established as a place where only intellectual activities took place. Currently, school libraries are used as both an intellectual and social spaces. This social space was not only for collaborative work but also for rest and recreation, which are important for the social and intellectual development of students’ lives. This supports Freeman’s (2005) statement that the library serves a significant social role. It can be concluded that this library is used for both academic and social reasons, which Seal (2014) mentioned as “an opportunity not only to meet, but exceed, the expectations of library users by fulfilling the IC’s ‘4 C philosophy’ of connectivity, collaboration, creation of knowledge, and community” (p. 12).

Perceived Impact of Space on Social Development of Students

The examples these students gave to illustrate that the library design improved their social development were: “We are able to engage in quiet and intelligent discussion in a quiet and safe environment”; “From my experience with group projects, we can all come together and discuss different opinions and research without discrimination along with the occasional fooling around”; and “When we have group work we get to bond while working together.” This report shows that this space is seen as a communication hub for students, which seems vital for them to build the interpersonal skills that are needed to develop friendships.

One student reported that “the comfort relaxes the mind, which in turns relaxes the body. Relaxed minds and bodies help people to develop socially positively by helping them feel less frustrated. This helps them to listen to their peers and appreciate what they are saying. This promotes better social relationships.” Another student mentioned that “the environment helps to create the circumstances for spending time with peers through working together on a piece of work or just to have a ‘chill’ session in the library.”

Cesari (2014) in commenting on supporting social development in libraries remarked that when libraries are being designed, consideration should be given for the social-development needs of adolescents. She explained that this means finding ways to encourage the development of close, personal relationships among peers by arranging academic spaces, especially libraries, to provide students with opportunities to form friendships during the school day. She suggested that this can be done by “creating conversation zones, as seen in this library that should feature soft lounge furniture placed in a grouping around a coffee table or footstools, or at the very least, contain tables that accommodate multiple seated students” (p. 46).

The teacher-librarian was also of the view that the design of the library seemed to have a positive impact on these students' social development. The reason this conclusion was drawn is that they and their peers frequently used the study rooms and the seminar rooms which offered collaborative spaces for club meetings and other social activities that provided free interaction among themselves and teachers. These students' responses confirmed the teacher-librarian's perception that the library design had a positive impact on their social development. They mentioned that they were able to have comfortable group meetings in a tranquil environment which encouraged interaction among peers. Also, the arrangement of the tables and chairs near to the computers facilitated group interaction even when assignments were being completed.

Conclusion

It can be concluded that the design of a high school library space is a vital element that should be considered when constructing or re-designing a school. This space can be a quiet haven for students as well as a buzzing environment depending on what they require at the point of need. According to the article, *Opening the Book* (n.d.), the designer needs to have an "understanding of the different ways students actively engage with learning both individually and socially" (para. 1). It is therefore suggested that the design should be based on the research of how students move through spaces . . . because physical factors of space and colour directly affect learning experiences. This is important because the design can include the type of facilities that can attract students to the library as well as provide the necessary spaces for the resources to be displayed attractively. Using the right design is extremely important because, as Grigsby (2010) alluded, "this building is typically the largest classroom in the school building and has the potential to be the school's community center" (p. 105). Altogether, the design, the resources and the facilities will improve and sustain students' cognitive ability and social development which will prepare them for life beyond high school.

These high school students who are exposed to well-designed libraries with the appropriate facilities and resources are likely to succeed academically. The creation of a library space where students converse without being silenced by a librarian has indeed played a positive role in these students' social development. These factors will likely prepare them to become citizens who are able to function well in society. Teachers and school administrators will value the library as an integral part of the teaching-learning experience and these students will realize that the library is essential to their learning.

Further Research

This study was restricted to one school library because this was the only library that was known to the researcher at that point in time that had a design that represented the modern features as described in various literature. The researcher is therefore recommending that further research be done to ascertain the:

1. Perception of the teachers towards the library design, facilities and resources;
 2. Knowledge of the Ministry of Education Youth and Information about the impact of school library design on students' educational and social behaviour.
 3. Perception of a representative sample of the school population on the school library.
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