2015

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Recommended Citation
Dent, V., & Goodman, G. (2015). The Rural Library's Role in Ugandan Secondary Students' Reading Habits. *IFLA Journal*, 41(1), 53-62. https://doi.org/10.1177/0340035215571114

Article

IFLA

International Federation of Library Associations and Institutions
2015, Vol. 41(1) 53–62

DOI: 10.1177/0340035215571114
ifla.sagepub.com
SAGE

The rural library's role in Ugandan secondary students' reading habits

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Abstract

This study explores reading and library factors related to secondary school student academic outcomes in rural areas in Uganda. This mixed methods study utilized quantitative data collected as part of a more extensive project to explore six student factors in relation to students' school, library, and home environments. The Kitengesa Community Library in Uganda (www.kitengesalibrary.org) served as the site for this study. The factors explored for this study include reading frequency, library use frequency, library access, overall grade average, and presence and type of reading materials in the home. Results indicated that both reading frequency and certain types of reading materials read for recreational purposes are correlated with higher overall grade average. Reading frequency was positively correlated with student overall grade average for all students.

Keywords

Academic achievement, community libraries, factors, impact, Kitengesa Community Library, rural village libraries, secondary students' reading

Introduction

There exists a complex matrix of challenges related to education in Africa, including classrooms with few scholastic resources and teachers with no access to supplemental reading materials (Kevane and Sissao, 2004; World Bank, 2008), poverty, lack of access to healthcare, terrible living conditions, unstable civic and democratic environments, and lack of financial resources (Okidi and Mugambe, 2002). This study explores four reading and library factors that might be related to secondary school student academic outcomes in rural areas in Uganda, where only 18% of girls and 20% of boys are enrolled in secondary school (Ugandan Bureau of Statistics, 2009) and the secondary school pupil: teacher ratio is 18:1 (Ugandan Bureau of Statistics, 2009). The mixed methods study utilized quantitative data collected as part of a more extensive project to explore four student factors in relation to students' school, library, and home environments. The Kitengesa Community Library in Uganda (www.kitengesalibrary.org) served as site for the study. The factors being explored for this study were selected because they provide a snapshot of secondary school students' lives in this environment across critical domains.

Literature review

The rural village library

Rural village or community libraries have existed in Africa for many years and have been documented by researchers such as Alemna (1995), Mostert (1998), Rosenberg (1993), Stilwell (1989, 1991), and Sturges and Neill (1998). These small, one-room libraries operate in areas without electricity, paved roads or running water, and they serve rural communities that have no other access to reading materials. The development of these libraries grew out of the need to compensate for certain deficiencies of the traditional public library in Africa. Stilwell (1989: 264) writes, "the needs of the colonized were subservient,

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if considered at all." The author goes on to carefully cite instances in South Africa whereby the colonizers attempted to prevent Africans from utilizing the public libraries. At present, the public library in Africa suffers from profound underfunding and out-of-date collections (Stilwell, 1989). Furthermore, these libraries are often located in the urban centers, as is the case in Uganda, whereas 88% of the population live in rural areas (UNICEF, 2011). For these reasons, the public library is not used by a majority of the population. The rural village library, where one exists, is often the only alternative means of providing reading and information materials for rural peoples. In many areas, these rural village libraries also serve as school libraries because there are no other such local resources. In the case of the Kitengesa Community Library, having access to resources locally allows residents to engage in both recreational and academic use of the library closer to home.

Kitengesa – the site for this study – is a rural village in southeastern Uganda. It is a small community, and up until 2004 there was no running water or electricity. To date such utilities are still limited to a few households. Masaka is the closest town, located about eight miles away. The library was named Kitengesa by its founders, who wanted it to share a name with the school, Kitengesa Comprehensive Secondary School which is just next door. The Kitengesa Community Library is not an official school library, but it fills that role in the village and surrounding areas. The library can seat about 100 users in three separate rooms. The current collection is 3074 books, and the library also subscribes to a variety of daily newspapers. There are currently more than 1300 members recorded in the library's membership database, and some 31,722 visits to the library were recorded as of Fall 2013. Membership is free for students and teachers who work at the nearby Kitengesa Comprehensive Secondary School, and community members are asked to pay $1.00 per year in order to check out books. The library is maintained by a small staff, which includes three librarians and seven library scholars – students who work at the library in exchange for school fees or other educational expenses. Funding for the library comes exclusively from individual donations and grants – no government support is provided for the library. The Kitengesa Community Library is only one example of a working rural community and school library. Recently, Uganda has experienced growth in the development of other rural village and community libraries. The Uganda Community Libraries Association (UgCLA) was founded in 2007 with only 14 libraries. As of December 2011, there were 67 community/rural libraries scattered across the country of Uganda (Parry, 2011), and more than 120 as of September 2014. Some of these libraries were in existence before the founding of UgCLA, but not many. Most were founded as a result and with the support of UgCLA (Parry, 2011). There are also rural village libraries in west Africa, South Africa, and a number of other African countries. The increase in the sheer number of these libraries provides strong presumptive evidence of their perceived need.

The impact of the library on academic achievement

Benefits of school and other types of libraries have been explored vigorously in the West, in many cases, by exploring relationships between standardized test results and student library use (Fisher et al., 2001; Oberg 1999; Pharr 2002; Todd and Kuhlthau 2004; Williams et al., 2001; Yoo 1998). These studies examined the correlation between library use and student performance, and surveyed a range of students, from elementary age to high school, as scholars attempted to examine in depth the relationship between school library use and academic achievement (Oberg, 2001: 11). "Using student performance on standardized tests as a means of measuring student achievement, Lance successfully correlated quality school library media programs with increased school performance on standardized tests" (Small et al., 2009). These and other studies "have clearly established the relationship" between test scores and libraries (Small et al., 2009). Krashen (1995) found that the ratio of school library books per student was a solid predictor of student performance on fourth grade reading tests. Whitmire (2001) constructed a study to investigate library services and the educational outcomes of students. The methodology examined a series of dependent variables, including grade point average, and independent variables, including library use frequency. There have been no extensive studies on the relationship between rural village libraries and academic achievement in sub-Saharan Africa; however, Bristow (1992: 75) provides anecdotal evidence that access to books and other reading material as part of the curriculum in certain African countries enhances student learning. In addition, a small study conducted in Uganda by a library studies Bachelor's degree student at a university in Kampala examined a local school and the impact of the library on student performance (Lutaaya, 1999). The study found that a significantly higher percentage of students with a school library passed their "O" levels than the percentage of students without access to such a library ("O" levels are examinations taken by

secondary education students at the approximate equivalent of Grade 11). In 1998, 77% of students at the school with the library passed their "O" levels, compared with 60% of students without the library. The author found similar results for 1995 (63% compared with 10%), 1996 (81% compared with 21%) and 1997 (68% compared with 35%). The author goes on to conclude that the library had some degree of impact on student performance. The library in this study was not a rural village library, which is an important distinction. Despite this, the results from the study can still reveal something about the impact of having access to a library in the African context.

Reading frequency and academic achievement

The literature on frequency of book reading and early literacy skill development for young children is robust, but the literature on reading frequency and the relation to grades for secondary school students much less so. Bus et al. (1995) suggest that reading frequency can be used to predict the strength of literacy development in children. Wigfield et al. (2004) explored reading frequency in relation to student motivation and found that secondary school students who were inspired to read by non-classroom or extracurricular activities read more. This context is highly relevant for the Kitengesa Community Library, which places a great deal of emphasis on leisure reading (Parry, 2008). McQuillan and Au (2001: 225) suggest that the "amount of reading done both in and out of school" can explain differences in students' academic achievement. More relevant to this study, the authors suggest that it is the combination of easy access to printed reading material and reading frequency that predict academic outcomes. Easy access to reading materials may play a role in motivating students to read more. Morrow (1992) found that students who had access to both a physical space to read and to reading materials dramatically increased their reading frequency. Other studies support this notion and demonstrate connections between motivation, reading frequency, and academic outcomes (Baker, 1999; Neuman and Roskos, 1993; Rucker, 1982). Reading frequency is classified by some researchers as being part of a constellation of "literate behaviors" (Neuman and Roskos, 1993) that include reading interactions with parents, teachers, and peers in a variety of settings, including the home, school, and the library. Other studies have explored the links among exposure to printed material, reading frequency and reading achievement by implementing an author-recognition measure (McQuillan and Au, 2001). Students who recognize more authors from a checklist are assumed to have read more, thus increasing their familiarity with these authors (West et al., 1993). Ramos (1997) found that students who were taken to the library more often read more. In their study, McQuillan and Au (2001) were careful to address possible confounding variables such as reading ability. Students who are better readers, they suggest, are likely to read more, so the exploration of print access on reading frequency was assessed independently of this factor.

Presence and type of reading material in the home and academic achievement

The presence of reading materials in the home may vary by factors such as geographical location and educational level of adults or parents in the home. While it is atypical to find rural homes replete with reading materials, urban homes may have more reading materials available. During their study, Dent and Yannotta (2005) found that very few families in Kitengesa who were surveyed had reading materials in the home. The exception was the presence of religious texts such as the Bible or Koran. Student responses to the same question, "Do you have reading materials in your home?" supported the finding that many homes did indeed have religious materials (Dent and Yannotta, 2005). Door-to-door visits to village homes revealed that although many homes did indeed have religious texts, very few household members could actually read those materials (Dent and Yannotta, 2005). In their Uganda-based study, Muwanga et al. (2007) found that 82% of students surveyed in the capital city of Kampala reported having non-text book reading materials (NTBRMs) in their homes, while only 37% of students in the rural area of Iganga had NTBRMs in the home. The study also found that there was a correlation between parents' education and the amount of NTBRMs in the homes. The authors suggest that reading culture development is influenced heavily by the home environment, and the presence of NTBRMs is especially important. In a study of primary school reading achievement in 12 African countries, Hungi and Thuku (2010) found that the average number of books in the home was an important predictor of reading scores:

> In Lesotho, Mauritius, and Seychelles, pupils who had more books at home were likely to achieve better in reading compared with pupils who had hardly any books at home. Books at home is an indicator of reading culture of the family but it is also related to pupil SES because more educated parents are likely to have more

> books at home than less educated parents. (Hungi and Thuku, 2010: 96)

In another study, researchers found that "the number of books owned by the students in this study was significantly correlated with both reading frequency and reading achievement" (McQuillan and Au, 2001: 243). On the other hand, print materials found in the homes of students from lower socioeconomic status (SES) areas were reported as being of little interest to the students themselves (McQuillan and Au, 2001).

Research questions

The research questions and associated hypotheses were explored by comparing two groups of students – one group with library access and one group without. There are four main factors explored by the research questions, defined as follows. Reading frequency is described as the average number of reading hours per week during the previous school year, and library use frequency is described as the average number of library visits per week over the course of the previous school year. Library access is described as whether a student has access to a village library or not. Students' overall grade average (OGA) refers to the average of mid- and end-term grades across all school subjects for the previous school year. The presence of printed materials in the home refers to whether or not students have reading materials in the home, and the type of reading materials reflects the categories of printed materials in the home (religious, newspapers, etc.). Reading materials might be religious materials (such as the Koran or the Bible), pamphlets, newspapers, magazines, and books of any sort. The research questions were as follows:

- RQ1: What is the relationship between students' rural village library access and overall grade average (OGA)?
- RQ2: Is students' reading frequency (i.e. the average number of reading hours per week over the course of the previous school year) correlated with higher OGA regardless of library access?
- RQ3: Does the presence of printed materials in the home predict the OGA of students, regardless of library access?
- RQ4: Does the reading of specific printed materials in the home for recreational purposes predict the OGA of students, regardless of library access?

Method

Participants

The data for this study were initially collected in 2005 as part of a larger study by Dent (2006), which specifically explored library impact on student outcomes. The convenience sample for the study consisted of a total of 87 students from two secondary schools in the greater Masaka region of rural Uganda; 45 students (ages 13–17) from the Masaka School and 42 students (ages 13–17) from the Kitengesa Secondary School. A convenience sample was used since this is the library and the schools to which the researcher had access, and the construction of this sample was in keeping with minimum sample sizes for a given population as described by Bartlett et al. (2001). Inclusion criteria for the students in the library group included access to and use of the Kitengesa Community Library and status as a student at the Kitengesa Comprehensive Secondary School. For the non-library group, inclusion criteria included status as a student at the Masaka School, and no reported access to a library. The students attending both schools hail from similar socioeconomic and environmental backgrounds. Socioeconomic background was assessed primarily by looking at certain student and family factors within the educational framework (Aikens and Barbarin, 2008). The headmasters at each school independently confirmed their school fees were set according to the ability of most parents to pay. The school fees were the same at both schools. The headmasters also confirmed the percentage of parents each year who were unable to pay these fees, which might also be an indicator of comparable SES in both areas. The students without library access are approximately eight miles from Kitengesa, making it unlikely that the Masaka students use the Kitengesa Library. The villages were matched on demographic variables for the study. A team of research assistants in Uganda helped the researchers to recruit the participants, and also served as translators during the data gathering. Institutional Review Board (IRB) approval for the study was granted by Hunter College in New York City.

Measures

Data for this study were gathered from a 24-question questionnaire, handwritten library logs, student grade logs (which contain the students' grade averages), and the library's local circulation database. The questionnaire provided information about frequency of library visits, reasons for library visits, the number of books checked out, and general reading habits. For the students without access to the library, the same questions

about reading habits were asked, but there were no questions related to library use.

Procedure

Subjects for the proposed study were recruited from both school sites by the researcher with the aid of the headmasters at both schools, and with the assistance of the Kitengesa librarian. Discussions with each headmaster were initiated formally by hand-delivered introductory letter in advance of the researcher's visit, then by in-person visits to introduce and explain the study. Copies of the appropriate IRB documentation and consent forms for the student participants were provided to each headmaster, and the complete protocol was explained. Consent forms for parents were sent home with the students and returned to the each school's headmaster. Class rosters for each grade (S1–S4) for the previous year were collected separately at each school. Using the rosters, all students in each grade were randomly assigned a number using random number generation. Approximately 10 to 11 students from all four grades at each school were then randomly selected to participate in the study, also based on random number generation. At the Masaka School, the questionnaire was administered to the participants during lunch recess, in an unoccupied classroom. At Kitengesa Comprehensive Secondary School, the questionnaire was administered to the participants during lunch recess, in the library. The questionnaire took approximately 45 minutes to one hour to administer. The questions for the questionnaire were read aloud to students in both English and in Luganda (by a translator), and students were asked to indicate their responses in English. The students also had the questionnaire in front of them while the questions were read aloud to them.

Data analysis

The quantitative data were entered into SPSS, a statistical software program, for analysis. The specific statistical analyses consisted of a Mann Whitney U test to explore the hypothesis related to library access and OGA, and a Pearson correlation to test the hypothesis related the questions about reading frequency and impact on students' OGA. A Pearson correlation was also used to explore the presence and type of printed materials in the home, as well as the reading of these materials.

Results

Library access and OGA

The research question was: What is the relationship between students' rural village library access and overall grade average (OGA)? One initial assumption of this study was that students who have access to and use a rural village library would have higher OGAs than students who do not. This assumption was supported by previous studies conducted by researchers (Bristow, 1992; Lutaaya, 1999), which provided anecdotal evidence that access to books and other reading material as part of the curriculum in certain African countries enhanced student learning. An independent-samples t-test comparing means of the overall average grades for library users ($n = 42$; $M = 43$; $SD = 17.5$) and non-library users ($n = 45$; $M = 47$; $SD = 15.6$) revealed no significant difference between the groups ($p = .27$). For library users, the highest OGA was 74 and the lowest, 4. For non-users, the highest OGA was 78 and the lowest, 15. Because no significant differences between the two groups on OGA were found, subsequent stratified analyses were conducted with the two groups combined.

Reading frequency and OGA

The research question was: Is students' reading frequency (i.e. the average number of reading hours per week over the course of the previous school year) correlated with higher OGA regardless of library access? Findings revealed a significant Pearson correlation between reading frequency and OGA of all students in the sample ($r = .31$, $n = 87$, $p = .003$).

Presence of printed materials in the home and OGA

The research question was: Does the presence of printed materials in the home predict the OGA of students, regardless of library access? A Pearson correlation revealed that simply having reading materials at home was not found to be correlated with OGA for the students ($r = .001$, $n = 87$, $p = .996$).

Reading of specific printed materials in the home for recreational purposes and OGA

The research question was: Does the reading of specific printed materials in the home for recreational purposes predict the OGA of students, regardless of library access? Findings indicated that the reading of the Bible during recreational time (not for school purposes) was positively correlated with the overall class average of all students in the sample ($r = .31$, $n = 87$, $p = .003$).

Discussion

Library access and OGA

The most striking difference between the studies conducted by Bristow (1992) and Lutaaya (1999) and the current study is the dependent impact variable (overall class average), which may provide one way to explain the null findings. Each of those studies used standardized tests as a way to explore academic achievement, providing a level of certainty and stability in terms of exam content. The literature indicates that standardized test scores are a reliable way to measure academic impact (Fisher et al., 2001; Oberg, 1999; Pharr, 2002; Todd and Kuhlthau, 2004; Williams et al., 2001; Yoo, 1998). The current study did not have access to standardized test scores, and instead used the summed averages of subject tests created by the teachers themselves. The tests at the two schools were different. The only way to guarantee that the overall class average was comparable across schools would be if the exams had been same. The level of difficulty of the tests should also be considered, although this factor is largely unknown. Teachers at the Kitengesa Comprehensive Secondary School are frequent users of the library, and during focus groups and interviews conducted by Dent and Yannotta (2005) and Dent (2006), they explained that they use library materials to help prepare their subject exams. The access to library materials may in fact allow teachers to create more comprehensive – but also more difficult – exams; whereas teachers at Masaka School who have no access to library materials may produce tests that are not as difficult. As a result, student test scores at Kitengesa may be adversely impacted because their subject tests are more difficult. Additional research to explore this idea would then make use of a mediational model test the library's impact – the effect on academic achievement of the students may actually be mediated by the teachers' use of the library. The teachers' use of the library as a variable was not addressed in this study, but may very well be significant in a number of ways.

The library's collection and the connection to frequency of library use may also be relevant. Access to books has already been demonstrated as important in terms of reading; however, Smith et al. (1997) state that students need access not only to books but also to a wide variety of titles as well. This is because without a highly diverse collection, students quickly lose interest in reading the same types of materials over and over (although this might not apply globally to all students at Kitengesa). The Kitengesa Community Library collection has grown significantly since the library's inception; however, at the point when the data for the current study were gathered, the collection was far less diverse and much smaller. It could therefore be the case that this lack of diversity early on had a nonsignificant impact on student use of the library.

Reading frequency and OGA

Ninety-seven percent of library users and all of nonusers reported that they read for five hours per week or more. Of both users and nonusers 55% read for 10 hours per week or more. The average number of hours spent reading per week for library users was 10.4 hours, for nonusers, it was 10.5 hours.

More reading was associated with higher grade averages for all students. This finding is supported by the literature (Bus et al., 1995; Dent, 2006; Small and Snyder, 2010; Wigfield et al., 2004). Although this finding is not solely related to libraries, in Kitengesa, the library provides reading materials for the students and is thus assumed to play a role. These findings are also indicative of the fact that students who do not have access to reading materials via a library are also reading, which is having an impact on their OGA. Krashen (2004) suggests that reading of all types is crucial to student learning. Reading, suggests Krashen, develops critical thinking skills, improves test scores in a variety of subject areas, and improves student writing, grammar and spelling. Krashen (2004) also suggests that reading activities should be both structured and free and voluntary, and that these efforts work best "when students truly have choice, when the program is consistent and continued, and when teachers are also reading when students are reading" (p. 4). Students need to be able to read for extended periods of time – this immersion stimulates their interest and leads to even more reading (Krashen, 1996). In addition, Krashen (2004) suggests that increased collaborations between teacher and librarian, increased collection size and diversity, and the infusion of additional funding may all be important factors in terms of increasing reading frequency of students.

Presence of printed materials in the home and OGA

A Pearson correlation revealed that simply having reading materials at home was not found to be predictive of overall class average for the students ($r = .001$, $n = 87$, $p = - 996$). In the current study, 94% of all students surveyed reported that they had printed materials at home. In their 2010 study, Hungi and Thuku (2010) found that presence of books in the home did have a positive impact on student achievement in three out of 12 countries. The researchers surmised

that this factor was related to both student socioeconomic status and parental education.

Reading of specific printed materials in the home for recreational purposes and OGA

In the current study, several types of printed material were explored in terms of their impact on the overall grade average of the students, including books, the Bible, the Koran, pamphlets, newspapers, and magazines. Of the library users 57% and of nonusers 46% reported that they had a Bible at home. Religious literacy (Openjuru and Lyster, 2007) has been described as one of many literacies in Uganda, and there is certainly emphasis on the reading of religious material. What is not clear is why certain religious content proved statistically significant over other types of materials like non-religious books. The finding could be due to the fact that many students reported having the Bible at home and perhaps have been exposed to this reading material for much longer than any other type of reading material. Students who attend church may be reading the Bible or other religious materials within contexts outside of the classroom and library, thus their overall reading frequency might be increased. Students also indicated that they read the Bible in their spare time which might mean increased reading frequency. Bibles may be freely distributed unlike other types of reading materials, thus access to these materials might be a factor. Muwanga et al. (2007) suggest that the presence of NTBRMs can impact student achievement, and Ellis and ter Harr (2004) suggest that religious literacy has a profound impact on the minds and thoughts of African peoples; thus, students may be predisposed to reading religious materials in order to understand more about the world around them through a religious lens. According to Ellis and ter Harr (2004), the Bible and the Koran are held in high regard by many and are connected to a larger institutional framework, thus these are print materials that may rise above the general skepticism that other types of printed matter may be subject to in Uganda.

Limitations

There are several limitations that may have impacted the study's outcomes. The student OGA data were not from standardized tests; thus, parity could not be established. As a result, it is difficult to sort out the impact of this non-standardization on the students' test performance and the degree to which this affected the calculation of the OGA. Future research might collect more recent data and explore changes over time in the areas being studied. For instance, recent OGA and library use data could always be compared to the baseline OGA and library use data collected for this study for a more complete analysis of the topic.

Another limitation was the type and scope of variables used. The current study explored only student-level factors. This made sense in light of the fact that the study focused on students; however, a more robust study may have included library-level variables such as number of librarians, size of collection, and opening hours. This type of exploration is in keeping with library impact studies conducted by Lance et al. (1993). Hungi and Thuku (2010) looked comprehensively at school, student, and teacher-level factors for a more robust exploration of academic impact. The lack of a random sample from which the participating schools were chosen was also a limitation. While the student participants were randomly selected and randomly assigned, the schools themselves were selected based on convenience due to their availability to the researcher. Convenience sampling can be useful when random sampling is not possible (Marshall, 1996), but care should be taken to express the limitations of such a sample when presenting the study. There may be several confounding or unexplored variables that were invisible to and unexamined by the researcher that impacted the outcome. English proficiency may be one such variable. It was not considered as part of this study, but may impact students' academic performance for both users and non-users.

Conclusion and recommendations

This study explored several factors related to student academic achievement, with the rural village library as the backdrop. The findings suggest that reading frequency and certain types of reading materials read for recreational purposes are both correlated with higher overall student grade averages. Reading frequency was positively correlated with student OGA for all students. In Kitengesa, the library should therefore continue to support more student reading, in part by expanding the collection's size and diversity. The study has demonstrated that not all materials read for recreational purposes impact student academic achievement, but that reading of the Bible is statistically correlated with higher OGA. As mentioned above, the reasons for the significant finding might have to do with access and exposure to this type of reading material, motivation to read this type of religious material because of the importance of religion in the culture, exposure to religious influences in everyday life as well as the widespread suspicion of the veracity of nonreligious print materials.

Increasing access to a variety of religious reading materials might introduce more students to the library.

Future research will expand the scope of the work done so far by assessing different user groups. A longitudinal analysis of library impact beginning with preschoolers and following such a cohort into the high school years is currently underway. In addition, the researchers are also evaluating the effectiveness of a library-sponsored literacy-promoting intervention (in this case, an intervention called the Storytelling/Story-Acting (STSA) activity) by conducting randomized controlled trials that relies on random assignment to demonstrate causality. These efforts will eventually coalesce into a cohesive formulation of the many facets of library impact.

In the village of Kitengesa, the rural village library serves as part of the learning environment for students. The rural village library movement continues to grow, and finding ways to increase the positive impact of these libraries on student academic outcomes should be explored. The findings themselves can serve to refine the framework for future research in these areas, and also provide the impetus to re-examine previous research on similar topics. Rural village libraries do not operate in a vacuum, and the current study has shown us that factors well beyond the library's control may be partially moderating (positively or negatively) the library's influence in this regard. Accordingly, one recommendation might be to work on certain factors that have been shown to increase positive library impact on student OGA, including the diversification of library collections and curricular collaborations with teachers (Krashen, 1995; Oberg, 2001). In many ways, the Kitengesa Community Library has already taken on these tasks through local programming targeting specific student groups (like girls and pre-school children) and collection building. These lessons are key for newly minted rural village libraries.

This study is primarily about secondary students, who are the fastest growing population in Uganda (Population Reference Bureau, 2011). It is hoped that this study can inform and support the further exploration of factors that may enhance student outcomes, including the establishment and growth of the rural village library and related programs in Africa.

Acknowledgements

The authors wish to thank Lauren Yannotta, Chantal Watler, Dan Ahimbisibwe, Professor Kate Parry, Emmanuel Mawanda, Godfrey Kateregga, Judith Nassaka, and Lei Pe Xi for their help with this research project.

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