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Gaining Teachers' Insights: School Library Access and Its Significance on Science and Mathematics Education

***L Mdodana-Zide[1]**
[1]Department of Curriculum Studies and Higher Education, University of the Free State, Qwaqwa Campus, South Africa

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ABSTRACT

Access to libraries significantly enhances Science and Mathematics education, offering diverse pathways for learners to engage with concepts using media and digital literacy skills. However, the contribution of school libraries to these subjects remains unexplored despite attention to learners and Science, Technology, Engineering and Mathematics education. This study examined insights from Science and Mathematics teachers regarding the role of library resources, such as books, research materials, and interactive tools, in supporting students' comprehension, critical thinking, and problem-solving skills in these subjects. Employing a qualitative approach within an interpretive paradigm, the research used a multiple-case study design. Data collection involved questionnaires administered to 12 teachers from six purposefully selected schools. Findings indicated that school library access positively impacts student engagement in Science and Mathematics education as resources facilitate better understanding and application of concepts, encourage independent exploration, nurture inquiry-based learning, act as bridges in the integration of subjects, mitigate resource disparities, and provide teacher professional development. The study concludes by not only advocating a heightened prominence on library access in schools but also positions the teachers as key elements in channeling learners toward the use of these invaluable informative hubs to shape the landscape of Science and Mathematics education. Thus, the study opens the door for a paradigm shift toward the optimization of library access for all learners to harness the unrealized potential within the pages and digital interfaces of school libraries by illuminating the transformational significance of libraries in Science and Mathematics.

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INTRODUCTION

The significance of Science and Mathematics in the education domain cannot be overstated. These are subjects that are viewed as foundations for critical and analytical thinking as well as the amelioration of technology. The European Commission (2022) reported that knowledge of Science and Mathematics is essential in this fast-moving and ever-changing world. In today's world, it is crucial for everyone to possess scientific thinking skills, the ability to analyze information, and an understanding of how the natural world and human creations are interconnected (European Commission, 2022). Being able to critically think is considered an essential component or one of the significant learning outcomes for learners in the field of Science and Mathematics (Fadillah et al., 2022; Jatmiko et al., 2018; Sunarti et al., 2023; Widodo,

2022). In the 21st century, critical thinking is an imperative skill that learners need to possess which requires much practice and is one of the 6C skills, "critical thinking, creativity, character, citizenship, collaboration, and communication", needed for one to succeed in various spheres of life (Aouaf et al., 2023; Bean & Melzer, 2021; Evimalinda et al., 2022; Lai, 2011; Maneen, 2016; Nganga, 2019; Polat & Aydin, 2020).

It is most critical to consider that, as Science and Mathematics boundaries continue to grow, they intersect with practically every aspect of modern life. According to the Royal Society (2014), the relevance of Science and Mathematics education has evolved beyond classroom instruction into a compass that guides the world across the uncharted waters of a fast-evolving planet. As various aspects of life change at breakneck speed, students with a strong foundation in Mathematics and Science are equipped not only to adapt but to lead and drive innovation. Currently, when technological marvels emerge daily and the boundaries of human knowledge expand at an exponential rate, it is critical to ask ourselves how we can prepare the next generation to navigate and contribute to this ever-changing landscape.

At the heart of education, including Science and Mathematics education, lies a dynamic interplay between knowledge acquisition and skills development. Nevertheless, Science and Mathematics are some of the disciplines that learners struggle with (Sunarti et al., 2023A; Zia, 2017; Zulfa & Rosyidah, 2020). With much focus on Science, Technology, Engineering and Mathematics education and learner underperformance therein, one of the challenges in Science and Mathematics education (Rameli & Kosnin, 2016), is intricately woven into this narrative of acquiring Science and Mathematics knowledge and skills, is the often-overlooked role of libraries (Baek, 2013; Subramaniam, 2015) in enhancing learners' performance in these subjects. The role libraries generally play in knowledge acquisition can never be overemphasized or underestimated. The libraries, as reservoirs of knowledge that are stored in various sources and accessible in various ways, serve as gateways to a world of information that surpasses conventional classroom teaching. Libraries offer a fertile environment for learners to explore and enhance their comprehension through a variety of information sources, revealing insights across different contexts that conventional teaching approaches might miss (Olajide et al., 2023). As Azubogu (2020) established, the library functions as a laboratory for learning, an immensely treasurable teaching resource, and a space for the enjoyment of various forms of media where learners learn how to explore.

Providing schools with libraries is essential to address and equalize the inequalities and disproportions in the schooling sector (Mojapelo, 2018). From the conception of the idea of libraries, libraries have been the cornerstone of much-required information for knowledge to inform and sustain the past, the present, and the future from generation to generation, preserving customs and legacies (Itsekor & Nwokeoma, 2017). The Scottish Government (2018), in its quest for thriving and vibrant libraries, attests that school library services that are effectively structured with materials have a positive impact on learners, families, and the community at large.

With the rapid development of information today, the library is not only a general information center but a place where teachers can access information to improve their effectiveness in the classroom by supplementing the content learned in class for improved learners' learning attainment (Mondal, 2021). Murphy et al. (2023) acknowledge the effects of a collaboration between teachers and librarians as an effective pedagogy to develop inquiry-based learning, as libraries are hubs where minds are developed and are central to educational advancement (Beneyat-Dulagan & Cabonero, 2023). Literature reiterates the importance of inquiry-based learning, especially at the primary school level, as it provides stimulation for learners' inquisitive minds – in the study of Science and Mathematics, libraries provide the means for learners to explore (Setiani, 2023). As such, libraries foster a culture of reading by using storytelling and poetry for all learners, regardless of age or ability which stimulates a good education starting in literateness, mathematics, and motorized and attentiveness skills for improved attainment (The Scottish Government, 2018). Hart and Nassimbeni (2016) agreed that

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libraries renew and elevate the intellectual capabilities of people as individuals, in communities, and as a nation at large. Libraries facilitate the intellectual development of children by providing books and other information sources that play a critical role in their educational and social development (Dukper et al., 2018). It has often been attested how libraries have for centuries served as a significant trend in education and rightly so, as schools and other educational institutions cannot be sustained without them.

However, the profound impact that a library's resources can have on shaping young minds in the realm of Science and Mathematics is often overlooked. Yet, learners need to master communication skills in the fields of Science and Mathematics Education (Kusuma & Susantini, 2022; Kusuma et al., 2020). This study, therefore, from the insight of Science and Mathematics teachers, explored the nexus between library access and Science and Mathematics education. The study envisioned illuminating the multifaceted impact of library access in fostering a deeper understanding of these core subjects. Through this exploration, the study was meant to uncover the symbiotic relationship between having access to effective library use and enhanced Science and Mathematics education. Hence, the study was set on gaining teachers' insights on school library access and its significance in Science and Mathematics education.

THEORETICAL FRAMEWORK

The theoretical framework used in this study was Todd and Kuhlthau's Model of the School Library as a Dynamic Agent of Learning (Todd & Kuhlthau, 2005). Various literature and scholars have researched and presented findings while some created models or theories on the concept of libraries as resources that contribute to improved learning and overall improvement in academic performance. This study aimed to gain insights from Science and Mathematics teachers on the significance of library access to Mathematics and Science education teaching and learning and students' performance. To create a path and direction for formulating and consolidating the findings, the study used Todd and Kuhlthau's (2005) Model of the School Library as a Dynamic Agent of Learning as a lens (see Figure 1).

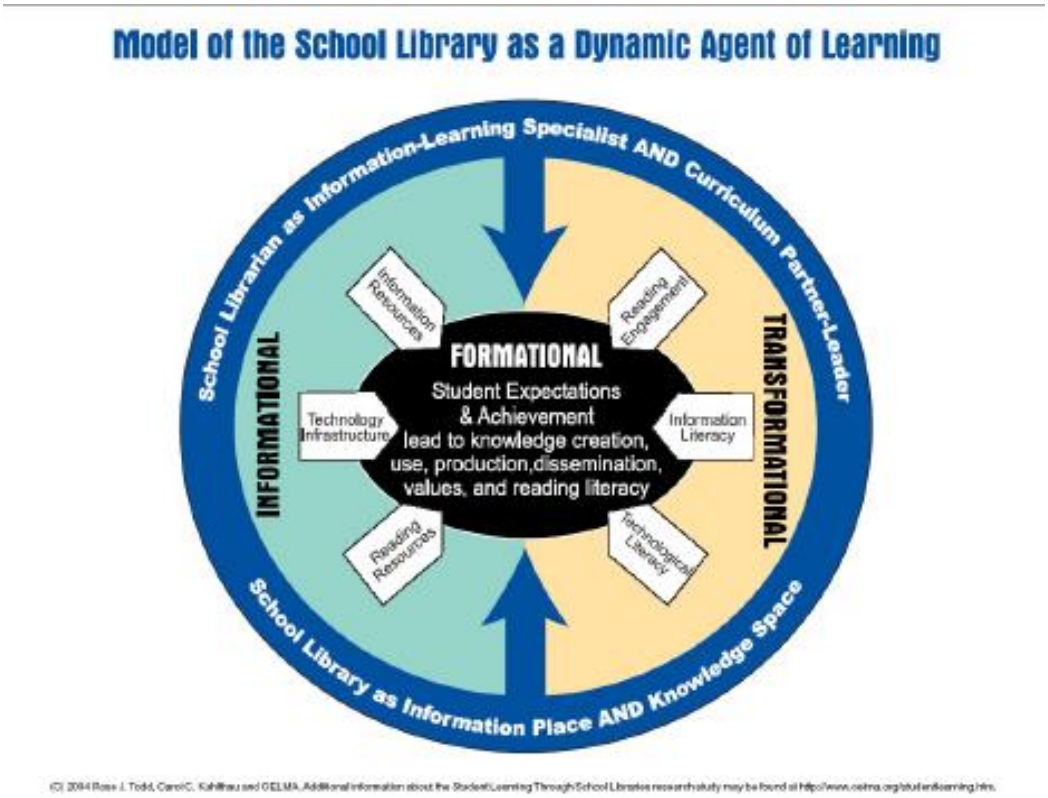


Figure 1. Four aspects of student ability Todd and Kuhlthau's Model of the School Library as a Dynamic Agent of Learning (Todd & Kuhlthau, 2005)

According to Todd and Kuhlthau (2005), the "informational, transformational, and formational elements of school libraries" are interrelated and collaborate in integrated ways to ensure students learn. This integration characterizes the school library as an active agent of learning. The notion of an agent is a significant concept as it denotes being operative, engaged, and acting for others. Todd and Kuhlthau (2005) elaborate that the understanding that a library's primary (and passive) focus is on providing and exchanging information is eliminated when it is valued and framed as an agent of learning rather than an agency of information. Effective school libraries serve as educative facilitators, encouraging students to actively perform meaningful search processes; through exploration, conceptualization, and centralization of their searches, by providing a supportive environment (personal, physical, and instructional) to succeed in their learning. In their findings, Todd and Kuhlthau (2005) established that students appraised instruction that enabled them to perform better and explore the world of ideas in depth, and various scholars have acknowledged that such instruction positively affects their grades (O'Brien et al., 2023).

Todd and Kuhlthau (2005) studied libraries with personnel assistance such as librarians, and as the researchers articulate, central to the work of libraries is the school librarian's role as an information learning specialist who collaborates with teachers in the classroom to create learning opportunities for students. Furthermore, the development of higher-order thinking, depth of knowledge and understanding; the capacity for meaningful conversation; the recognition of knowledge as problematic; and reading literacy based on language, grammar, and technical vocabulary are all major benefits of this shared pedagogical dimension. Findings from the study also displayed little value in library instruction that is not contextualized by particular curriculum material and mandatory learning assignments, and that wasn't directly and unambiguously connected to the objective of successfully and efficiently finishing their research. Interventions, like the yearly library tour, the Internet's dos and don'ts, or computer usage guidelines, were found to be meaningless unless they made it evident how they would assist students in meeting their goals, especially finishing their learning successfully. Students in Todd and Kuhlthau's (2005) study valued:

- "The supportive availability of expert assistance, personal assistance, and sometimes technical rescue by the school librarian."
- "The friendly, positive manner and the opportunity to build a learning relationship with the school librarian, where there was ongoing feedback, guidance, and personal attention."
- "The school library is a safe place to discover ideas, where they can question the world of ideas, explore conflicting ideas (knowledge as problematic), and make accidental and planned discoveries."

The scholars accentuated that effective school libraries provide significant opportunities for students to learn and achieve. "When effective school libraries are in place, students do learn, and 13,000 students cannot be wrong" (Todd & Kuhlthau, 2005). The model was relevant to the project's trajectory of the significance of school library access to Science and Mathematics education. According to Todd and Kuhlthau (2005), the three elements, "informational, transformational, and formational" of the school library work together as tools that promote knowledge production.

RESEARCH METHOD

The study was conducted in a South African context in one of the rural Education Districts in the Eastern Cape province. The schools sampled are part of a school library establishment collaborative research project between a group of university staff, education district officials, and the schools. The paper forms part of this bigger project with various expertise from various scholars in different fields. The approach used in the study was to engage the teachers in

sharing their insights on the relation and significance of school libraries to Science and Mathematics education in their natural context.

Research Approach

This study employed a qualitative research approach, which involves gathering and analyzing non-numerical data to comprehensively interpret social phenomena within their natural context (Ugwu & Eze, 2023). Through qualitative research, a deep engagement was established to gain a nuanced understanding of Science and Mathematics teachers' insights. The teachers shared their insights, opinions, perspectives, and experiences from their school environment, shedding light on the role of library resources and their impact on Science and Mathematics education (Cropley, 2019). Sharing knowledge from their familiar and natural environments allowed the participants to delve deeper into their various understandings of the phenomenon being studied (Aspers & Corte, 2019).

Data Collection Tool and Procedure

For this research study, a data collection tool was designed to gather comprehensive insights from educators. The tool was administered through a Google questionnaire, with a combination of closed-ended and open-ended questions to gather and ensure a robust exploration of participants' insights. The questionnaires were administrated through Google Forms. The Google form questionnaire was made accessible to the Science and Mathematics teachers through a link and participation in filling in the Google form was voluntary (Young, 2015). However, because the sampled participants were teachers working in rural schools, it was challenging for some of them to fill in the Google forms digitally due to network challenges. Other participants preferred responding to the questionnaire orally and they recorded their responses. Participants were informed that participating in the research was voluntary and that the information collected would be treated as confidential and would only be used for academic purposes (Creswell, 2020).

Data Analysis

The study employed content analysis to analyze the data from the participants. It is imperative to ensure that an effective analysis is applied in qualitative research as it plays an important role, especially in educational studies (Shava et al., 2021). During the analysis of the data, the researchers engaged with the data, allowing newfound understandings to develop and narrowing the data into manageable themes (Shava et al., 2021). Five themes emerged from the teachers' insights as presented in the section for findings below.

Sampling Procedure

Participants and settings

Purposive sampling was used to select 12 Mathematics and Science teachers from six schools that have established libraries in a rural Eastern Cape district in South Africa. Adopting purposive sampling assisted the researchers in choosing only participants that satisfied the purpose of the study (Obilor, 2023). The schools that were sampled were three primary schools and three secondary schools. From each school, two teachers were selected, with grades ranging from 1–3 and grades 4– 6 at the primary level and grades 8–12 at the secondary level. The teachers sampled were Mathematics, Natural Sciences, Life Skills (incorporates science and environmental studies), and Physical Sciences teachers, depending on the grade taught. One secondary school sampled was a technical secondary school offering Engineering, Graphics and Design, and Technical Sciences.

Case Descriptions

Table 1 below presents the biographical profiles of the participants sampled in the study. Pseudonyms Teacher 1 to Teacher 12, abbreviated as T1 to T12, were used to protect the

identity of the participants. The participants were teachers teaching various subjects and grades ranging from grade 2 to grade 12. The participants were selected from six schools, three primary and three secondary schools that were sampled for this study. The participants differed in years of experience, with the lowest years of experience being two and the highest years of experience being 31. The years of experience in teaching the subjects sampled for this study also ranged from two to 21 years.

Table 1. Biographical data of participants

Name of Participant	Grade Taught	Subjects Taught	Years of Experience in Teaching	Years of Experience in Teaching the Subject
T1	3	Maths and Life Skills	31	7
T2	6	Maths and Natural Sciences	14	14
T3	3	Maths and Life Skills	2	2
T4	6	Maths and Natural Sciences	4	4
T5	2	Maths and Life Skills	17	17
T6	4 and 5	Maths and Natural Sciences	21	21
T7	10–12	EGD and Technical Science	15	15
T8	8 and 9	Maths and Natural Sciences	15	15
T9	10 and 12	Physical Sciences	7	7
T10	11 and 12	Maths	22	22
T11	10–12	Mathematics and Physical Sciences	9	9
T12	10–12	Mathematics and Physical Sciences	12	12

RESULTS AND DISCUSSION

Results

Teachers' insights on library access and its significance on Science and Mathematics Education

The findings from the data analyzed indicated that the participants shared a positive view on how access to libraries is significant in Science and Mathematics education. The participants' insights showed various ways in which access to libraries played a role in Science and Mathematics education, such as its positive impact on student engagement, encouragement of independent exploration and research, nurturing of inquiry-based learning, acting as a bridge in the integration of knowledge within various subjects, acting as a mediator on resource disparities, and providing equal opportunities for students to excel in Science and Mathematics. The findings are detailed under the various themes identified in the following sub-sections below.

Learner engagement

The extracts from the participants' questionnaire exhibited that access to the school library improves learners' engagement in the instructional activities of Science and Mathematics. The teachers expressed that school library access encourages focused and fast-thinking minds, and develops learner's listening and reading skills. The library, as the data specified, provides learners with various resources that encourage them to engage effectively while promoting team spirit among the learners in their learning activities. An extract from T3 indicated as follows:

Yes, our learners develop thinking skills, listening skills, reading, and writing skills. They become fast thinkers and their brains are collected. They use different resources, use practical

objects when they visit the library to do some work, which makes them the best readers and writers.

T4 elaborated as follows:
Since we got the library, learners have shown great interest in learning Maths, because even if you give them work to do, for example, shapes, they know intobana (that) what the teacher is talking about can be found in the library because there are concrete materials in the library such as charts. It's easy for them to see that this is the shape of a pentagon because there are posters and other different resources in the library.

T8 further expressed as follows:
Ohh, the access to a library in our school assists the learners a lot and us as teachers. As a Natural Sciences teacher, for example, in the library, there are posters such as human body systems, which we learn about. With the shortage of books that learners must share, the posters in the library help the learners see and relate the theory as they see in the posters for example that blood in the nervous system circulates this way, etc. It assists with bonding students so that they can ask for help from others. For example, I group learners sometimes when learning, so at times I group them and vary them according to their intelligence and send them to the library to search for information. What I have discovered is that access to the library assists in creating a bond between them, different as they are, they can ask and assist each other.

Learner independent inquiry-based exploration
The findings established that library access assists in improving learners' critical thinking as it allows for inquiry-based exploration beyond the classroom content. A library, as the participants alleged, assists teaching and learning by connecting theory to the practicality of the content taught and learned. T1 had this to share:
Yes, I can see the thinking of learners is improved. In teaching, we talk a lot, but when there should be problem-solving, you must explain. When you are talking about these things theoretically, the library most of the time shows them concrete material and they start thinking deeply which makes them inquisitive, especially planets and earth round, but they need to see them, the library provides that which makes it easy to understand.

T1 expounded as follows:
Definitely so. Kids are in nature curious, they always ask questions, how, when, what, how did it come to this, and why are we saying the buildings outside are standing still because of the air pressure that is less outside than inside? The libraries create such enthusiasm for them to know more about any content you have delivered as a teacher. It stimulates their thinking skills. The library wins them to know more independently as an individual and think beyond while they are in primary, and in that way, it creates a springboard for them when they progress to higher classes. Take the ear section, for example, who knows if any of the kids will want to be ear doctors in the future, extra resources such as the library assist in taking learners further in critical thinking and thinking beyond.

T3 further shared that:
The variety of resources found in the library, though it still needs to be equipped more, with computers and more books, for example, assist in making learners interested, and inquisitive, because they are learning more by doing instead of listening.

T6 stated as follows:
They bring a very unique resource to the children. Even something you have not taught them in class. I have this group of special kids in class, they usually finish up quickly anything that we are doing in class more than the others even before me at times, what we normally do is send them to the library, give them more tasks, and they bring new other ways of doing something, for example, another way of calculating a sum and they would tell you that what you told them is wrong.

Bridges subject integration

The findings revealed that libraries serve as bridges that connect subjects and therefore promote integration. The teachers specified that from the various resources found in the library, learners can connect what is learned in one subject to another. The excerpts below established the following:

Libraries assist in …. what do we call this thing, I just forgot the word we normally use..., subject integration. In Maths, we have a chapter that teaches about time zones, and that time zone, for you to be able to teach Mathematically to them, you must go a little bit into Geography on the movement of the earth, how it rotates, lines of longitude and the differentiation of hours. Having a well-equipped library helps in integrating the knowledge of these two subjects and giving a more meaningful understanding to the learners. Mathematics and Science are obvious because they always go together. (T12)

Our library is still limited. But with the few resources we have in the library, with assistance from a robotics program we also have, it really assists with the integration of knowledge from different subjects. There is a software that we have that is also installed in our personal computers called the stretch, that assists the learners in creating conversational stories, and in doing so, learners also get to understand minutes, because a person is given certain minutes to talk, etc. (T6)

Mitigates resource disparities

The results suggested that library access assists in mitigating the lack of resources teachers experience in schools. The resources available in the libraries such as charts and additional textbooks and other resources – although they are not enough and still need to be enhanced as the participants alleged – assist in providing learners with added information that is not available in the classroom level as highlighted below:

First of all, we do not have enough textbooks, for example in Mathematics. The visuals that are provided in the library are very useful in showing the learners some of the geometric figures for example, which we cannot show them. Instead of drawing the geometric figures, they can see them in the charts available at the library. (T11)

The library has textbooks, there are books they can read for enjoyment, dictionaries for further understanding, and there are resources available in the library that are not available in the classroom, learners can use the library in their leisure time, maybe in the afternoon, it is flexible enough to be used according to the learner's individual needs. (T7)

It is a very powerful tool, especially in our village where there is no access to the internet, with our learners not exposed much to technology, limited textbooks, and sometimes we are limited in the classroom, it is very difficult to teach, it helps in providing with more information for us teachers. In the library, they have different options of other textbooks that explain better certain concepts they may not have understood and therefore stimulate their independent thinking. (T11)

Teacher professional development

As the findings revealed from the participants' insights, the libraries can be tools for the professional development of the teachers. As noted by the participants, the libraries do not only assist the learners but also help the teachers with planning lessons as they can gather more information to simplify and enhance the content of a subject. T12's extracts are expressed as follows:

It doesn't help only the learners, it helps us as teachers, you know we lack resources, we need the library to gather more information. And ke (so), we have network challenges, and we therefore go to the library to get Wi-Fi and gather the information we may need.

T3 established the following:
If you look around the walls of the library, there are charts and posters. When I sit there and plan as a Maths teacher to prepare a lesson, I see that I can use this part for the introduction, this is the material I will use in Grade 8 and use it as an introduction in Grade 10. It helps us sequence our teaching. For example, there is Analytical geometry, etc. The description is not enough, learners need to identify, with the beautiful colorful charts that are not black and white from the textbook, the library helps. Some of us are not artistic you know.

T6 corresponded when sharing that:
It helps, there are things that when I prepare for learners to understand, I check at the library for material that can assist in deeper understanding. Although it is not enough, what we have we use, to help shape the lesson, when learners do not understand, we have visual pictures, the periodic table for example, the process of photosynthesis, and take learners to the library. It is very helpful, let alone that ours still needs more resources. In chemistry for example, in Grade 12, we teach things one cannot see, for example, a molecule, and we do not have microscopes, the library has colorful pictures that assist with visuals on such concepts. Learners enjoy going to the library to study and get more information from the material available.

T11 shared as follows:
Yes, our school library impacts positively my teaching because it is a place where I empower myself as a teacher as I have access to different textbooks. It has facilitated my way of understanding of some concepts and topics.

As featured by the participants in the data collected, libraries play a significant role in the teaching and learning of Science and Mathematics. As the teachers attested, Science and Mathematics education is influenced positively by libraries in various ways such as enhanced learner engagement, improved learner-independent inquiry-based exploration, bridging subject integration, mitigating the shortage of resources, and development of teachers professionally.

Discussion

The research study found that access to school libraries plays a significant role in the teaching and learning of Science and Mathematics. The data revealed that school library access increased learner engagement in the subjects as the library exposed learners to a variety of resources which in return assisted in developing their interest in Mathematics and Science activities. As such, the data established that the learners became excited and interested when assisting each other which promoted teamwork. Todd and Kuhlthau (2005) concur that libraries are instructional agents that support student engagement as they search and explore knowledge while providing them with a supportive environment (personal, physical, and instructional) to be successful in their learning. Various scholars have argued that libraries offer a rich atmosphere for learners to discover and augment their conceptions through a variety of information sources and contexts which conventional teaching may miss (Olajide et al., 2023).

The findings of the study established how the libraries assist learners to engage in learning activities independently and therefore give learners an opportunity to develop inquiry-based exploration and critical thinking skills. Such skills are imperative in Science and Mathematics teaching and learning and as such, libraries are one of the important catalysts that stimulate such skills. Todd and Kuhlthau (2005) established that when functional libraries are in place, students engage in learning, and the scholars believe that the 13,000 students investigated in their study cannot be wrong. Learners appreciate the friendly, positive environment libraries offer, combined with an opportunity to build a learning relationship with the school librarian, with ongoing feedback, guidance, support, and personal attention. As such, libraries, as the Scottish Government (2018) alluded, are hubs for literateness, mathematics, and motorized and attentiveness skills through the variety of resources they provide such as poetry and storytelling to mention a few.

Furthermore, the study found that library access contributes immensely to the integration of Science, Mathematics, and other subjects offered in the various grades. The integration and interaction between subjects are promoted in teaching and learning as they connect and intertwine the knowledge gained by learners for application in various related contexts. Libraries act as reservoirs of informational, transformational, and formational fundamentals that provide interdependent tools promoting knowledge construction (Todd & Kuhlthau, 2005). By offering books and other information resources that are essential for children's educational and social development, libraries help foster their intellectual development (Dukper et al., 2018).

The findings further suggested that having access to libraries can help teachers who are struggling with a lack of resources in the classroom. The findings specified that even though the school library resources available in the schools are insufficient and still need to be improved, the resources that are available help students by giving them access to additional knowledge that is not accessible in the classroom. As Mojapelo (2018) established, to address and eliminate the disparities and inequalities in the educational system, it is crucial to equip schools with libraries.

Based on the insights shared by participants in the questionnaires, the study found that libraries play a crucial role in supporting the professional development of teachers. For teachers, the libraries are viewed as valuable tools, as according to the participants, they assist teachers with lesson planning and attaining extra knowledge to improve and streamline a subject's content. Mondal (2021) concurs that with information developing at a fast pace these days, libraries are centers where such information can be found for teachers to supplement their teaching for effective learning in the classroom to enhance learner performance. The library's ability to provide professional development for teachers further proves the shared dimension of pedagogy found by Todd and Kuhlthau (2005) in the role of libraries, maximizing learning outcomes in terms of depth of knowledge and depth of understanding. Therefore, schools and other educational institutions need libraries to be sustainable.

CONCLUSION

The study found that school library access positively impacts student engagement in Science and Mathematics education as resources facilitate better understanding and application of concepts, encourage independent exploration, nurture inquiry-based learning, act as bridges in the integration of subjects, mitigate resource disparities, and provide teachers with professional development. The study concludes by not only advocating an increased emphasis on library access in schools but also positioning the teachers as key elements in channeling learners towards the use of these invaluable informative hubs to shape the landscape of Science and Mathematics education. Thus, the study opens the door for a paradigm shift toward the optimization of library access for all learners to harness the unrealized potential within the pages and digital interfaces of school libraries by illuminating the transformational significance of libraries in Science and Mathematics. The study population was limited to 12 teachers, from only six rural schools in one district where libraries were established, and therefore, conducting the study on a bigger scale, including other schools within or outside of the district jurisdiction, with already existing libraries would be beneficial for future research. Furthermore, the role that libraries play in the professional development of Science and Mathematics teachers and other teachers within schools needs to be explored.

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Author (s):

*Lulama Mdodana-Zide (Corresponding Author)
Department of Curriculum Studies and Higher Education,
University of the Free State, Qwaqwa Campus, South Africa
Email: mdodanazideL@ufs.ac.za