
Title	Envisioning the school library of the future: A 21st century framework
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Singapore

OER5/16 LCE Building a Reading Culture:
A Nation-wide Study of Reading and School
Libraries in Singapore Secondary Schools

Envisioning the School Library of the Future: A 21st Century Framework

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PROJECT WEBSITE

<https://www.readingculturesg.org>

OTHER REPORTS

Report 1 - Report on the Reading Habits of Singapore Teenagers

Summary

The school library is the untapped potential for amplifying equitable 21st century learning and more knowledge is required to understand how school libraries continue to be relevant and vital for 21st century learning. A review of the literature (between 2005 and 2015) was conducted on the role of school libraries for 21st century learning as preparation for the Building a Reading Culture study and resulted in the 21st Century School Library Framework to guide our work on school libraries. The five key roles of a 21st century school library are to support reading, research, collaboration, studying and doing. The report details how a future-ready school library can support these different ways of learning.

This report updates the literature review with project findings and current research from 2016 to 2018. For more details about the study, please refer to our project website (<https://www.readingculturesg.org/>).

Introduction: School Libraries for Future Reading and Learning

21st Century School Libraries Framework

A new way to conceptualise and organise school library spaces.

IN this global, multicultural world of the Fourth Industrial Revolution (Schwab, 2017), the shift towards disruptive technologies and artificial intelligence means that students today need ever higher levels of literacy to engage in 21st century consumption and work. There is also greater need for students to become independent learners who are able to negotiate and manage almost unlimited access to information in their everyday lives. Students need to become lifelong learners who continuously expand their reading repertoires to learn new things for living, work and participation in the larger community (Kirsch et al., 2001).

This report explains how the school library can be a central space for ensuring equitable and effective access to reading and learning in this global, technological age. ⁱ

A review of the literature from 2005 to 2015 was conducted to explore the features of a future-ready school library. The review was conducted as part of the Building a Reading Culture study. The review resulted in the 21st Century School Library Framework, which encapsulates the key functions of a future-ready school library.

The five key roles of a 21st century

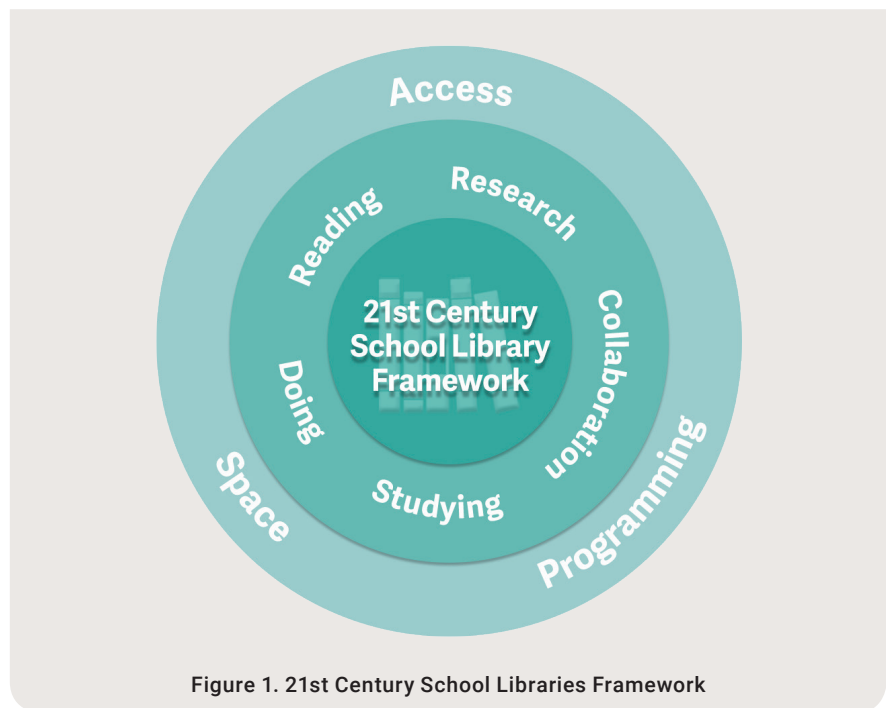


Figure 1. 21st Century School Libraries Framework

school library are to support reading, research, collaboration, studying and doing. The report details how a future-ready school library can support these different ways of learning. These are represented in the inner circle of Figure 1.

The outer circle in Figure 1 explains how schools can evaluate access to resources, school library programming and space in order to determine if their school libraries are ready to support student learning in the areas of reading, research, collaboration, studying and doing.

The framework, which has been utilised in our research across 19 secondary schoolsⁱⁱ, has proven to be a useful guide for rethinking library design and organization. In

consultancy work with schools, the framework has been found useful for gathering data to assess the current state of individual libraries and to guide the direction, design and programming of school libraries. Common library evaluation tools of surveys, interviews and observations can also be guided by the framework to evaluate and plan towards more effective school libraries to support student reading and learning.

The rest of the report provides an overview of the different aims of the 21st century school library and how teacher-librarians working in schools can work with the school to encourage future-ready learning.

The School Library as Reading Space

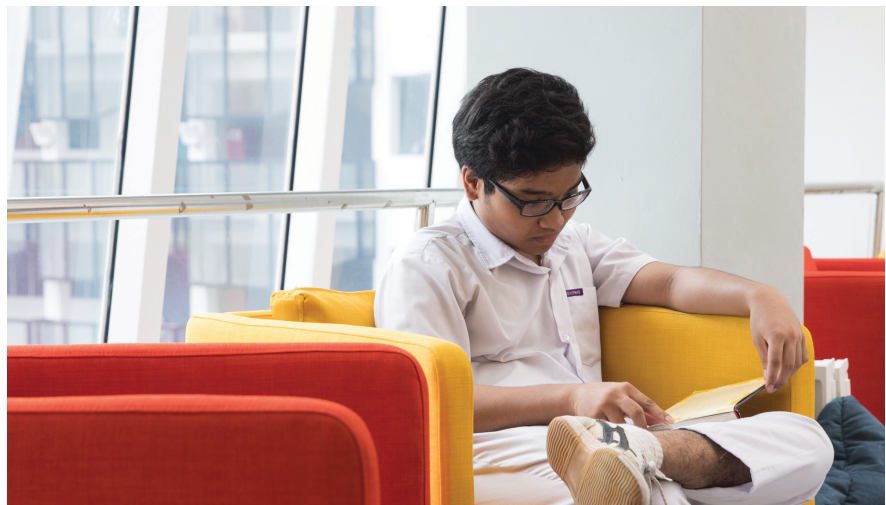
Reading has never been more important than it is now.

THE findings from the Programme for International Student Assessment (PISA) suggest that engaged reading is vital for 21st century learning (OECD, 2010). Students who are motivated to read are more likely to engage in independent reading, and thus learn more about language and the world through their reading (Cunningham & Stanovich, 1998; Krashen, 2004).

Students who are intrinsically motivated are more likely to read (Wigfield and Guthrie, 1997), and students are motivated to read when they have access to good quality and diversity of reading materials (Ivey and Broaddus, 2001).

School libraries encourage reading motivation by providing a wide variety of books for students to choose from. Reading materials include comics (Adkins and Brendler, 2015), popular literature (Constantino, 2008), and books to engage students in critical reading (Friese, 2008). In a digital, networked age, new technologies such as ebooks and tablets should be considered in developing the school library's reading resources.

Non-fiction as well as fiction should also be seen as sources of pleasure (Alexander & Jarman, 2018). Moreover, it is important to consider how the non-fiction collection can contribute to students' access to reading materials for learning. The book collection should also support teachers' curriculum work (Chadwick, 2016).



FURNISHING MATTERS: Comfortable reading spaces can encourage students to linger at the library and read for extended periods of time.

Reading as a social activity

Students enjoy socialising around books (Ivey, 2014) and effective libraries organise programmes to allow students greater opportunities to interact around books. Students with greater exposure to books, whether through teacher, peer or online recommendations, have more opportunities to find books that are of interest to them and enjoy reading (Loh and Sun, 2018).

At the level of programming, the aim would be to create a vibrant social life around books and reading. Teacher-librarians can conduct reading-related activities such as book clubs and author visits to encourage student reading (Getrost and Lance, 2014).

Summer reading programmes, including online reading programmes, can be designed to level the reading gap for students from lower socioeconomic status (Makatche and Oberlin, 2011; Lu and Gordon, 2007).

The teacher-librarian can work with teachers to curate books for struggling readers, plan bridging programmes, and even serve as a co-reading

instructor (Parrott and Keith, 2015). By working with struggling readers on both competence and motivation, teacher-librarians and teachers can help them develop reading proficiency and cultivate interest.

Students are motivated to read when they have access to good quality and diversity of reading materials.

Teacher-librarians can also help raise teachers' consciousness of reading by conducting workshops for teachers that feature high-interest books for teens and collaborate with teachers to plan, implement and evaluate reading lessons (Gordon and Messenger, 2012). They can support subject teachers by providing reading materials, research aid and curriculum support. For example, Wejrowski and McRae (2013) suggest that biology students can read Jurassic Park and Spanish students read books with a Mexican theme.

Book displays can also be curated according to subject themes. In this way, students learn that reading is a skill to be mastered across different subjects and necessary for lifelong learning.

Designing reading spaces

In terms of design and organisation, simple ideas such as the presence of more armchairs or beanbags can encourage students to linger at the library to read (Loh, 2016a). Taking a leaf from retail, attractive and current book displays and display of readers' blurbs are ways to entice students to pick up books. Displaying books with the covers front-facing rather than spine in may take up more space but can encourage greater interest in selecting these titles (Loh et al., 2017).

The ease with which students can locate books contributes to students' access to books. Students who perceive the arrival of new and relevant books are more likely to visit the library. Purposefully selected book displays can appeal to students' different interests and proficiency.

Attractive and current book displays and display of readers' blurbs are ways to entice students to pick up books.

Many school libraries across the world are using partial or full genrefication to make books more visible to students. Genrefication is when books are displayed by genre rather than using the traditional Dewey Decimal system. Studies on genrefication have shown that the change in display method leads to increased browsing

and borrowing (Butcher, 2013).

Also, school libraries may also move their books outside the space of the library (e.g., through mobile carts in the cafeteria) to encourage disengaged students who might not naturally step into the library to borrow books.

The School Library as Research Space

Research dispositions are critical skills students need to learn.

In line with constructivist principles of learning, schools are moving towards inquiry-based learning which encourage students to engage in independent problem-solving. Students have access to an exponential amount of information on the internet in this digital, networked age, and must learn how to process this information in a useful, critical and ethical way. Learning to conduct their own research, whether for school or independent work is a necessary

21st century skill.

Unlike classrooms, the school library is an informal space for students to independently manage their own work.

Being able to conduct their own research (whether online or through print) allows students to become independent learners able to ask important questions and to follow through on their inquiry (DelGuidice, 2015). Students also develop social skills as they collaborate with others in the process of inquiry.

When considering the role of the school library as a research space, schools can ask if they have sufficient resources for students to conduct research in schools. Discussing the concept of the library as a research commons, Buchanan (2012) notes the importance of repurposing space into areas that support research and congregating materials in areas where they can be easily accessed by students.

Access to online databases (whether subscribed by the school or through partnership with public



THE FUTURE IS RESEARCH: School libraries need to ensure that sufficient resources are allocated for students to research effectively.

libraries or university libraries) can extend students' resources for comprehensive research. Students will require technological support in the form of computers or WiFi access.ⁱⁱⁱ

Instruction for research

Besides access to resources, students need instruction to guide their research. With school libraries evolving into cybraries that provide electronic portals to students wishing to access information, it is even more crucial for teacher-librarians to teach students information literacy and research skills (Kapitze, 2001). The teacher-librarian can help students make sense of the glut of information available on the web, teach them how to negotiate the web and to evaluate the usefulness and relevance of articles.

Teacher-librarians can work with teachers to encourage dispositions of openness, collaboration, intrinsic motivation, problem-posing and perseverance necessary to promote the spirit of inquiry (Jones, Flohr, and Martin, 2015).

Teacher-librarians can cooperate with teachers to curate online resources and develop curriculum to facilitate student learning about research and doing research (Morris 2005). For example, a primary school teacher worked with the school media specialist to design an inquiry-based Science unit, moving away from technology instruction to technology integration, where the teacher focused on the content matter while the media specialist focused on technology integration in the research process (Murray 2015).

At middle or high school level, the teacher-librarian can curate online

resources for research and guide students' independent research writing by introducing tools such as citation generators (e.g., EasyBib or Knightcite) and plagiarism checkers (e.g., Grademark and Peermark) (DelGuidice, 2015). Having visual guides conveniently placed at strategic points in the library can guide students towards using these resources in their research.

With school libraries evolving into cybraries ... it is even more crucial for teacher-librarians to teach students information literacy skills.

Regular workshops on information literacy and research skills, whether once-off or sustained, can also support the student's research capacity. For example, in her work on guided inquiry, Kuhlthau (2010) notes that student engagement and learning increase when librarians focused with classroom teachers on inquiry lessons and proposed a model of the Information Search Process (ISP) to help teacher-librarians guide their students in the inquiry process.

School profile matters

The kind of space and resource considerations required for a school library depends on the profile of the school. In a school where students have limited access, the presence of sufficient computer stations within the library and a teacher-librarian able to help will be vital to ensuring students' access to research capacities.

In Neuman & Celano's (2012) study, they noted the impact of differential home access to computers and new literacies. Middle-class children with home access to computers learn to access online information with ease in contrast to their less well-to-do counterparts who have limited access. As such, school libraries serving a greater number of students in need should ensure access to computers.

However, access to computers does not mean equal use of computers. (Notten & Beck, 2017). Warschauer (2007) points out that "competence in traditional literacies is often a gateway to successful entry into the world of new literacies". Citing the research of Attewell and Winston, he points out that middle-class children use technology in sophisticated ways (e.g., fourth graders reading political speeches and setting up online polls) while poor and working class children tend to use technology as a crutch to avoid texts (e.g., surfing the web for pictures and advertisements rather than sustained reading).

Providing students with access to computers and mentors to help them learn skills for managing knowledge and technology is a way to help them develop the expertise for acquiring "information capital" (Neuman and Celano, 2012a), to know how to deepen their knowledge in particular fields to help them create more knowledge.

The School Library as Collaborative Space

The school library will play a more important role in collaborative learning.

LEARNING is recognised as a social process (Thomas and Brown, 2011), and the library as a learning space needs to take into account physical and online spaces that encourage social learning (Bilandzic, 2016). In a school library with an emphasis on collaboration and networking, silence is not compulsory and “noisy” corners could be provided for discussion (Howard, 2015).

The collaborative library space should accommodate collaboration, meetings, peer discussion and informal social hangouts. Library design facilitating such spaces may include removing bookshelves to expand space for social activities, provision of discussion areas and docking stations for wireless notebook computers allowing greater flexibility and mobility (Sinclair, 2007).

In our research on school libraries, we have found that design of library space should ensure that the form supports the targeted function. For example, soundproofing is important for discussion rooms. The availability of technology, both physical and online (such as whiteboards and laptops) should be taken into account at the planning stage (see Loh & Wan, Report 3, forthcoming).

Cleveland et al. (2018) notes that school design (and correspondingly library design) should be purposeful, taking into account the observed and anticipated needs of each school. Mobile and flexible furniture, while



COLLABORATION WORKS: Exposure to greater opportunities for collaborative learning allows more meaningful learning.

useful for some contexts, may not be appropriate for other contexts.

(Fuller and Byerly, 2014).ⁱⁱⁱ

Online collaboration

Collaboration does not just take place in physical spaces but also in online places and outside school hours (Friese, 2008). The school library can also encourage online collaboration and co-creation of knowledge through social media and online tools. The library of the future should consider how collaboration can be done onsite and off-site.

Students, familiar with social networking sites engage in learning through these social networks, for example, through blogging, participating in collaborative projects, submitting creative works, and creating polls and quizzes (Todd, 2008).

Furthermore, school libraries can engage in curating encounters for students. Connections can be made between communities and students. For example, connections can be made with public libraries to harness available networks and resources the school cannot otherwise provide

Teacher-librarians can help provide resources, materials and spaces to encourage student collaboration and networking, both within and outside school and across different modes.

Design of library space should ensure that the form supports the target function.

Collaboration can inspire better learning among students

Exposing students to project work and other collaborative projects can encourage them to engage in collaborative learning to extend individual understandings and teach students how to work with each other and lead in group situations (Harada, Kirio, and Yamamoto, 2008).

Research has shown that students come to school equipped with different skills and competencies in research and collaboration (Warshauer, 2007),

and using culturally relevant materials and place-based pedagogies through collaborative learning can bridge students' academic learning (Comber, 2016).

The presence of laptops is no guarantee of collaboration or research. Students may use the laptops for collaborative learning and project work or for the more technical work of typing essays (Loh, 2016b). Thus, providing curriculum guidance and instruction for laptop use is vital.

The School Library as Study Space

The school library remains an important place for independent study. Having enough space inside libraries is critical.

IN Cengage Learning's survey on the use of the college library space, Strang (2015) reported that a majority of the students (77% of the 3,000 students surveyed) used the library for independent study, indicating that the school library remains an important place students go to in order to focus on their work.

Keeping the school library open and available for studying is an important role of the school library.

Another study of college students' library usage supported the importance of the library as study space, and further highlighted the importance of managing library space

and resources to ensure that there was sufficient space for study prior to and during examination periods (Applegate, 2009).

While much of the research on the library as a study space is located in college literature, the need to create a safe space for studying is applicable to primary and high schools. Our research showed that Singapore students used the school library for quiet study as well as group study.

Furniture matters

Kinds of furniture useful for study may differ by age. It was observed in a study at one secondary school that secondary school students do not mind studying together (Mak & Loh, 2018). While lower primary school students did not really study in school libraries, upper primary students began to use the library more for studying (Choo & Loh, 2018).

Some examples of how the school library can support studying include the following: One high school in Germany ensured the library basement was equipped with carrels for studying. An international middle

school in Singapore divided the huge library into a silent space (for studying) and noisy space (for collaboration). A Singapore government school bought assessment books, provided Physics worksheets for students to revise their work in the library and extended library hours for students closer to examination periods.

Availability is critical

Keeping the school library open and available for studying is an important role of the school library. Students from poorer homes may lack conducive study environments and having a safe space to study is an important contributing factor to academic achievement. Longer studying hours (Lance, Rodney, and Hamilton-Pennell, 2000), more carrels (Applegate, 2009) and flexible furniture that can be used for studying during examination periods and other purposes at other times are considerations for designing the school library.

Providing instruction on study skills may also be another way schools can help students who may not have the resources or guidance to develop good study habits (Jato, Ogunniyi,



STUDYING AS CORE: Students often view and use the library as a safe space to study in. Space must be made available for students to study.

and Olubiyo, 2014). In the Building a Reading Culture study, it was found that library opening hours, school administration prioritising the use of library space for library purposes (as opposed to colonising it for conducting meetings or examinations), providing study materials and resources, availability of teacher consultations are some ways school libraries try to help students focus on their studies. Provision of study clubs and classes are other ways that the library can support student studying.

Schools should provide safe learning spaces for students within schools. By locating the space within the school library, students are immersed in an environment where study is seen as one of the essential components of learning. Students can also expand their understanding of study as one of many ways of learning and have easy reference to books as part of the study process.

The School Library as “Doing” Space

As physical spaces, school libraries can also play host to a variety of hands-on activities to augment their learning experiences.

IN LINE with the concept of the library as a space to encourage lifelong learning, there is a movement towards the library as an activity space for learning new ideas and skills.

Although not confined to makerspaces, the makerspaces trend is an example of how school libraries can actively host spaces for “doing” things, in line with the library’s mission to encourage



PLACE FOR ACTIVITIES: As physical spaces, school libraries can play host to a variety of activities that inspire lifelong learning.

learning (Loertscher, Preddy, and Derry, 2013; Canino-Fluit, 2014).

The Makerspace example

Makerspaces are dedicated learning environments that provide the tools, training and support, and network for experimentation with making things (Makerspace 2013). While often associated with the presence of technology such as 3-D printing, making includes traditional crafts such as woodwork and papercraft.

The essential role of an educational makerspace is to allow students a space to problem solve and dream, to tinker and create solutions to individual or community issues. Through the process of questioning, researching and experimenting to resolve problems identified in making, students have the opportunity to engage in self-directed inquiry. They exercise their creativity through the process of making and collaborate with other students, using social networks to complete a task.

Creating a “doing” space means allowing students to get messy and noisy. Depending on the nature of the makerspace, the necessary

technology (from pen and paper to sewing machines and DIY tools to 3-D printers and computers for animation) and manpower (e.g., hobbyists and technologists) should be made available to help students with “doing” (Canino-Fluit, 2014; Loertscher, Preddy & Derry, 2013). Issues important to consider in makerspaces include considering gender access, encouraging STEAM, and broadening students’ access to books and research that can support “exploration, discovery, creativity, innovation, and learning” (Abram, 2015, 10).

Beyond makerspaces, the concept of doing suggests that the library can be an activity space for students to engage in learning.

Makerspaces can draw students who are not typically attracted into the school library through its focus

on active and hands on learning. By situating makerspaces in the library, schools also make the connection between learning, reading and research – students learn that reading and research are necessary to the process of better design and creation.

Beyond makerspaces

Beyond makerspaces, the concept of doing suggests that the library can be an activity space for students to engage in learning. In the Building a Reading Culture study, we have observed various ways that schools effectively brought doing into school libraries. One of our research schools used the library for calligraphy workshops, movie screenings, student talent performances and hosted invited talks. The library was designed in such a way that these activities could be conducted without interfering with the normal routine and usage of the library.

In smaller spaces or schools where makerspaces may not be a priority or already located outside the library, libraries can consider how to create a learning hub through various activities. In the Singapore context where schools may have particular niches or focus on various types of applied learning, it may be possible to conduct activities or create spaces to support the school's niche.

For example, a school with a focus on coding could set up coding corners in the library for student access to independent coding. Providing instructions for coding and curating books and materials can support student explorations and deepen student learning.

Conclusion



What next for the future?

Hochman (2016), in her study of New York school libraries, notes that nostalgia can limit our vision of the future for libraries and librarians. Moving forward requires a vision of a future-ready school library that will prepare students for 21st century learning.

The 21st Century School Library Framework attempts to provide a concrete resource for schools looking to rethink the role of their school libraries for future-ready learning. It also serves as a guide for evidence-based practice (Hay & Foley, 2009; Todd, 2015; Todd, 2006) for policymakers, librarians and teachers to improve current library practices.

Endnotes

ⁱ Research in the U.S. has shown that the presence of school libraries can be correlated to a school's academic achievement (Lance, 2002; Lance, Rodney, and Hamilton-Pennell, 2000; Lance and Hofshire, 2012; Stelf-Mabry and Radlick, 2018). Effective school libraries can thus have a transformational impact on students' learning in schools (Todd and Kuhlthau, 2005a, 2005b).

ⁱⁱ The framework was used to guide the evaluation of six libraries in a full-year study (OER5/16 LCE Building a Reading Culture), provide recommendations to 13 schools, and evaluate the physical spaces of seven of the 13 schools (SUG5/17 LCE School Library Perspectives study).

ⁱⁱⁱ Post-research, one of the research schools collaborated with the National Library Board to make available e-resources from NLB and from the school. This is a potential area to develop the research capacity of schools and students by providing one click access to public and school resources.

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