

The School Library Roles in Information Services through Mainstreaming for Enhance 21st Century Learning Skills

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Abstract—Mainstreaming approach are education for all, there are no separation between regular students and special needs students, human rights, respect everyone, and recognition of differences. Encourage appreciation and create a new culture of diversity. Therefore, it is imperative to find a way or innovation to be able to developing skills in the 21st century learning skills and social world of those with special needs equally to others. This article aims to present the concept of mainstreaming in the 21st century. Library 4.0 with role promoting learning for all in the 21st century. Adaptation of librarians to keep pace with digital technology to promote learning and share responsibility for providing digital information services with technology. Participating in joint learning to foster learning in the 21st century, which must find a way and how to design innovation for all learner. And it can be used with everyone in a friendly way, so that students with special needs can be self-reliant and learned together with the normal students side by side. Library service provision is appropriate for mainstreaming and learning in the 21st century. It is important to push for equal education, quality, happiness, skills needed to exist in the 21st century.

Index Terms—School library roles, information services, mainstreaming, 21st century learning skills.

I. INTRODUCTION

The 21st century is the era of the new skills to development of learners as individuals, the quality person of the learning process. By teaching strategies and processes used to enhance learning in the 21st century. Teachers need to use information and information technology to be used in the event of instruction to enhance learning for students by integrated learning activities. [1], [2] But in the current state of education, education has provided students with special needs. And the characteristics of students with special needs to study with regular students are also diverse, such as students with vision impairment, students with hearing impairment, and students with learning disabilities, etc. [3] Therefore, the mainstreaming approach management for the learning and enhance 21st century learning skills, such as information literacy, media literacy and technology literacy. There are necessary to fit the students in this mainstreaming. A new way of learning and innovation of mainstreaming are needs that prepares all students for living and working in a complex information and digital technology environment. [4]

The school library in teaching and learning for all provides information and ideas that are fundamental to functional

successfully in today's complex information and social digital technology. [5] The school library equips students with 21st century learning skills, life-long learning skills, survival skills, and develops the imagination, enabling them to live as responsible citizens in 21st century era.

The roles and responsibilities of 21st century school librarians are vital partners in creating schools that offers information, media, technology, and resource to learning services. That enables students to learn through vast resource and multiple communication channels for all member of the school community to become critical thinker and effective users of information in all formats and media. [4], [5] Thus school librarians will take an active role in teaching information literacy skills, collaborating with teachers on lessons, assisting teachers with curriculum resources and integrating technology into the curriculum. As administrative role in managing all aspects of the school library, such as developing the collection of library resources and making them available to stakeholders (students, teachers, teacher assistance, instructional, administrators, parents, community members). In term of information specialist, school librarians will instruct others on evaluating and accessing information resources. [6]

Therefore, information services through mainstreaming to enhance 21st century learning skills for all learner effective school libraries increase student achievement in a variety of ways. In an era characterized by the proliferation of fake news and alternative facts, digital information literacy skills are more important. [7] In addition to skills for learners in the 21st century, both in the media and information technology, teamwork interaction between the regular students and special needs students. Affect the students to promote learning and lifestyle appropriately includes both of features work learning and moral to remain at full capacity to the international community following. According to human rights principles special needs students receive educational opportunities to promote a culture of learning that is comparable to that of a typical learner.

II. LIBRARY 4.0 IN THE 21ST CENTURY

In Thailand, Thailand 4.0 model is driven by innovation in the system to change at least in 3 dimensions as follows: (1) change from "commodity" to "innovative", (2) change from country driven by industry to go to technology driven, creativity and innovation, and (3) shift from focus to manufacturing sector to the service sector more emphasis. [8] Thailand 4.0 is a conceptual basis for education 4.0, which is the education that can create or develop students to innovate product. It is a product that reflects the new idea, the new

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system, and the new concrete action called the innovation. Even in the beginning, it is not innovative. But in the future will be able to develop the work itself. Students will be able to develop their skills and spirit of invention, pursuit and creativity in the age of innovation. The schools are constantly innovating by students, teachers, parents, the community, etc. [9] Libraries play a role in supporting school by innovation driven and participate in the preparation of learners to the 21st century learning, and keep up with disruptive technology. Encourage learners to learn how to learn from different learning resources with inquiry and multiple communication channels. Librarians assist teachers in preparing students for 21st century skills and school libraries are dynamic learning centers in information age schools. [4], [9]

Library 4.0 in Thailand is a challenge to adapt to Thailand 4.0 and education 4.0. The school library needs to understand the context of the school, management, create new services, which can support school goals, social and community development. The role of the librarian are learning support services, teaching support services, and innovation support services. [10] There for librarians must seek knowledge from open education resources that no cost, create a lesson or innovation to promote learning and skills in the 21st century. But what is the common school library today? Library's users are now declining. Physical appearance, building, services are not invited and contrast with lifestyle of today users. There is a gap between digital native and digital immigrants. Lack of skill for organization of knowledge or information but organization of containers of information. Generation Z and millennial are new users of library. [11] And may be special needs students are mainstreaming with regular students in a school. So school librarians typically work with stakeholders (students, teachers, teacher assistance, instructional, administrators, parents, community members) in a school library. The roles and responsibilities of 21st century school librarians have changed. The daily job of a school library media specialist tend to reflect the roles of teacher, teacher assistance, instructional partner, administrators, and information specialist. The 21st century learning skills role of school librarians expands to teaching students to have information literacy, media literacy and technology literacy for all students within their academic environment and as citizens of a democracy [6], [12].

III. MAINSTREAMING EDUCATION AND PROMOTE LEARNING IN THE 21ST CENTURY

The National Education Plan of Thailand places emphasis on equal, quality education, happiness, skills needed to live in the 21st century consistent of the 12th National Economic and Social Development Plan of Thailand (2017-2021). Strategies to strengthen and develop human capital are to prepare people in Thai society for life skills for the 21st century. Therefore, students must have the ability of information, media and technology to be able to use digital technology properly. The use of digital technology is imperative and the context has changed so much that it must be applied to everyday life and the learning of the learner in the digital age. At present, knowledge is stored digitally for

the benefit of retrieval. Digital is a very important factor in education. [13] Schools need to adapt to the changing with disruptive technology. Can use those technologies to maximize the benefits. And unlock access, use of technology for joint learning between regular and special needs learners. Mainstreaming approach must find a way, how to using universal design for everyone and available to everyone friendly by friendly design. It is important for students with special needs to be self-reliance. Can be learned together with the normal students side by side. The technology used in collaborative learning must be accessible to everyone fairly. Innovation is based on the values and principles of restoring and improving the quality of life.

Because digital technology has many styles to enhance learning, working and communicating on a daily basis. The tools used are networking, to create communities, collaborate, communicate, sharing learning, and disseminate information. So knowledge, understanding, integrating, creativity, and application information are importance for survival in the digital age. These era using digital tools and technology to perform various activities in the teaching and learning management as follows:

- 1) Video teaching materials, such as MOOC, Vidyad, Screencastify, and Soapbox.
- 2) Non-video instructional media, such as AR / VR, Kami, and Canvas.
- 3) Online activities or classroom activities using digital technology such as Kohoot, Avatar, Edpuzzle, Google Slide Interactive, Plickers, and PollEverywhere.
- 4) Social networking tools like Facebook, Line Group, and Google Hangout.
- 5) Teaching and learning support tools such as Unitag, Socrative, Zipgrade, Seesaw, and Prezi.

Therefore, innovative teaching technology in the digital age is the driving force for 21st century learning to survive in the digital age. To access information independently. Cost less and accessible to everyone. It is an alternative to digital technology for collaborative learning and learning in the 21st century.

Current students almost everyone has a smart phone. The smartphone can connect to the internet. The content of the course can be obtained from a smartphone. What institutions or instructors have to do? Take the learner into the digital world. Provide an environment of digital living by implementing digital technology. Whether interacting in the classroom via a smartphone, applications, active learning through cyber-activity. In order to conduct the activities of teaching and learning both regular learners and learners with special needs that are different, they can conduct appropriate activities together.

Developing learners to have 21st century learning skills is an important function of educational institutions to have the capabilities as following. [14]

- 1) Media literacy as critically read and creatively produce academic and professional communications in a range of media.
- 2) Information literacy as find, interpret evaluate, manage and share information.
- 3) Communications and collaboration as participate in digital networks for learning and research.

- 4) Digital scholarship as participate in emerging academic, professional and research practices that depend on digital systems.
- 5) Career & identity management as manage digital reputation and online identity.
- 6) Learning skills as study and learn effectively in technology environments, formal and informal.
- 7) ICT literacy as adopt, adapt and use digital devices, applications and services.

Survival skills in digital age are digital literacy to learning in the 21st century. Digital literacy is the ability to comprehend, evaluate, apply, create, and communicate information from diverse sources, and with using digital technology, there are 5 key skills as following. [15], [16]

- 1) Photo-Visual Literacy: The art of reading visual as learning to read from visuals. To use in reading visual communication and presented with pictures. The development of the digital environment comes from the presentation of the text as an image presentation. Use imagery to express ideas, such as data presentation with infographic, presentation charts, diagrams, etc.
- 2) Reproduction Literacy: The art of creative duplication. Interpretation by merging information from existing resources. To create new jobs by structuring to create new meanings. And artwork to deliver customizable audio and video.
- 3) Branching literacy: Hypermedia and non-linear thinking or multiple-domain thinking. To use the analysis, synthesis, and critical thinking in a hypermedia environment that can be used to explore the web in discrete-time learning.
- 4) Information literacy: The art of skepticism to always questioning information. To search for information as needed, evaluation of the information to be used and correct, including the application of information.
- 5) Socio-Emotional literacy: Proper use of technology to securely share the emotions of ethical communication, including the ability to avoid being lured and cyber-attacks.

The development of digital literacy for 21st century learning is a necessity. Because the tools used to learn are new communication tools and emerging technology. Life is a networking to create a community to work together. Share learning and disseminate information from digital format. Therefore, the promotion of learning are multiple literacies that vital to digital survival. Students can use digital tools and technology to perform various activities. There are important components for the learner are 1) information literacy, 2) media literacy, 3) Technology literacy, 4) communication, career and collaboration, and 5) multiple-domain thinking and create a new meaning.

But there is something to consider in the interesting matter. Innovations have been made as a tool that can both lock and unlock education. It depends on the user to choose between the two things, locked or unlocked. [17] For example, more accessible websites but cannot use of hearing impaired, blind or other special needs. Which in need should be technology or innovation for unlocking access to technology or innovation for all? However, the current conditions going on the internet, website, application in a mobile phone, digital

media, including digital technology. There are many variations, but do not take into account those with special needs. Equal access to technology will result in people with special needs, equal participation in society, and greater self-reliance.

Therefore, the provision of information, media and technology services to the learners in mainstreaming class is very important for successful. It is suitable for students with special needs and regular learners who can promote mutual learning in the 21st century.

IV. LIBRARY INFORMATION SERVICES FOR UNLOCKING MAINSTREAMING AND LEARNING IN THE 21ST CENTURY

Many students are already collaborative writes and content creators in the digital word. This world provides learners with unprecedented and powerful opportunities to develop multiple literacies. So, learners can develop deeper understandings of the global community. Making writing more meaningful and relevant to today's students means engaging them in this interactive online environment. The teacher-librarian designs multiple literacy experiences with teaching partners so that students have traditional literacy, information literacy, media literacy, visual literacy, cultural literacy, digital literacy, and critical literacy. Multiple literacy that students will: [18]

- 1) Pursue academic and personal reading and writing interest.
- 2) Examine ideas, information and interpretations critically and creatively.
- 3) Engage meaningfully with multiple kinds and levels of texts and multimedia in a resource rich environment.
- 4) Develop information literacy skills (e.g., analyze conflicting data and ideas through the inquiry process)
- 5) Utilize appropriate technologies to learn and communicate collaboratively.
- 6) Demonstrate respect for intellectual property and practice academic.

The instructional role of professional school librarian encompasses a wide diversity of teaching situation with individual students, disabilities students, small groups student with regular students and special needs students, and mainstreaming classes of students. The core activities of the instructional work of school librarian are literacy and reading promotion, information literacy (information skills, information competences, information fluency, media literacy, and transliteracy), inquiry-based learning (problem-based learning, critical thinking, and creative thinking), technology integration, and professional development for teachers. [5]

Building a mobile-friendly library app or website means that remaining relevant in the community and responding to user needs. A native mobile app for accessing library may seem like a need future as digital native, millennials and disability user. Here are 7 best practices to ensure library app or website are utilized by all users. [19], [20]

- 1) Have a vision: A vision defines library goal. It also guides and inspires decisions about library app or website.
- 2) Easy access to search: Search is the primary action of

user to takes on the library app or website. Make the search box prominent on the home page. Have one search box on a page. Provide a description or an example within the search box or search box area to set users' expectations. For a multi-tabbed search box, label tabs in plain language and default to discovery service.

- 3) Keep navigation simple: Too many navigation options may prevent users from accessing what they needs. Display five to six main navigation items at the most. Do not overwhelm users. Top-level navigation should represent high-level categories of content on app or website. Common top navigation items include: search, services, research, about us, help, my account. Validate navigation by conducting a paper card sort, or use free online tools.
- 4) Home page is a gate way: First impressions are critical. Home page is typically the most visited page, and where users begin their research. Do not clutter home page with too many options. Give users just enough detail to make the decision to explore. Items to display on home page are primary user actions (i.e., search), book a study room, location(s) & hours, library news & events, and contact us/ask - a – librarian.
- 5) Eliminate library jargon: Library jargon is one of the most reported issues identified in user testing. Unfamiliar terms are barriers to users fully utilizing library resources/services. Terms not understood by students are Boolean, catalog, HTML Full Text, EPUB, e-Book Full Text, database, trade publication.
- 6) Empower all users: Make the library app or website accessible. Students with disabilities are faced with frustration and helplessness. HTML page titles must be descriptive and link text must indicate intent or content. Image must have all-text or off-screen text. Audio/Video content must include captioning or transcripts. Application or website must be navigable by keyboard only. If screen display a carousel, do not set it to auto-play. Offer an option to stop. Validate app or website is usable for folks who are colorblind. Become familiar with screen reader and other assistive technologies used by students.
- 7) Conduct usability testing: Testing users informs decisions about the library app or website. It have evidence to make and defend decisions.

In the digital age, there are many digital media and technologies for networking, dissemination, sharing learning, social networking, discussion, and collaboration in work and learning together. Digital media and technology can be used to support mainstreaming learning in the 21st century. Library information services have important role in fostering 21st century learning in information, media and technology. Library can use open access technologies are available free of charge, such as open course, Massive Open Online Course-MOOC. Appropriate information services must be taken into account in support of the learning of all students. To develop knowledge, information, media and technology that are essential skills for 21st century learning.

V. CONCLUSION

Conducting mainstreaming is an education for all, human

rights provide students with special needs to gain educational opportunities. Equivalent to normal students in general, side by side. With consistent the national education plan of Thailand, the emphasis is on equal education, quality, happiness, skills needed to live in the 21st century, and digital development for the economy and society to create a quality society, equalize with digital technology. The promotion of learning in the 21st century is fundamental to survival skills in the digital age. There are an important element as information literacy, media literacy, technology, communication, career and collaboration, multiple-domain thinking and create a new meaning. Instructional learning management requires digital technology to support learning. To use as a medium for teaching and learning. Exchange activities communication and collaboration online, and digital tools to support interactive learning. Mainstreaming activities will be successful must be creative, boundless learning. There is no limit space for participants of mainstreaming to research. Have creative activities encourage diversity in the variety of learning processes available to both regular learners and special needs learners to promote learning in the 21st century.

REFERENCES

- [1] B. Trilling and C. Fadel, *21 ST Century Skills: Learning for Life in Our Times*, San Francisco: Jossey-Bass A Wiley Imprint, 2009.
- [2] T. Netwong, "Instructional creation media project based for mainstreaming of undergraduate students to enhance 21st century learning," *International Journal of e-Education, e-Business, e-Management and e-Learning*, vol.8, no.4, pp. 227-233, 2018.
- [3] T. Netwong. "Promotion reading project based learning to enhance reading habit and learning culture for inclusion students," *International Journal of Social Science and Humanity*, vol. 8, no. 1, pp. 14-19, 2018.
- [4] C. C. Kuhlthau. (June 2018). *Guided Inquiry: Learning in the 21st Century*. [Online]. Available <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.464.4579&rep=rep1&type=pdf>
- [5] IFLA, *IFLA School Library Guideline*, International Federation of Library Associations and Institutions, 2015.
- [6] M. Harper. (June 2018). *K-12 School Library Media Licensure*. [Online]. Available: <http://iasl-online.org/advocacy/islm/index.html>
- [7] S. Kaeophanuek, J. Na-Songkhla, and P. Nilsook. "How to enhance digital literacy skills among information sciences students," *International Journal of Information and Education Technology*, vol. 8, no. 4, pp. 292-297, 2018.
- [8] S. Maetsincee. (June 2017). *Sufficiency Economy Philosophy: The Development Paradigm for Thailand 4.0*. [Online]. Available: <http://www.facebook.com/Drsvitpage/post/14000852036315390>.
- [9] P. Silarat, *Education 4.0 is more than education*, College of Education Sciences, Dhurakit Pundit University, 2016.
- [10] R. Wittayawuttikul, "Libraries and librarians role in supporting university-driven policies in 4.0," in *Proc. 7th PUNINET National Conference*, January 11-12, 2017.
- [11] S. Yamnoon, "How librarians will help Thailand 4.0," in *Proc. Online Information & Education Conference 2017*, August 24, 2017.
- [12] EBSCO. (August 2017). *Advocacy and the 21st Century School Librarian: Challenges and Best Practices*. [Online]. Available: <https://www.ebsco.com/blog/article/advocacy-and-the-21st-century-school-librarian-challenges-and-best-practice>
- [13] S. Phosaard, "Grand challenges in digital university," *Suranaree J. Soc. Sci.*, vol. 10, no. 2, pp. 171-188, 2016.
- [14] JISC. (May 2018). *Quick Guide-Developing Students' Digital Literacy*. [Online]. Available: https://digitalcapability.jiscinvolve.org/wp/files/2014/09/JISC_REPO_RT_Digital_Literacies_280714_PRINT.pdf
- [15] Y. Eshet-Alkalai, "Digital literacy: A conceptual framework for survival skills in the digital era," *Journal of Educational Multimedia and Hypermedia*, vol. 13, no. 1, pp. 93-106, 2004.
- [16] M. Parameswari and S. Priya, "Survival skills in digital era," *An International Journal of Interdisciplinary Studies*, vol. special issue, no. 1, pp. 1-5, 2016.

- [17] M. Moonton, "Roundtable discussion," in *Proc. Report of the 1st International Conference on Special Education*, Special Education Bureau, Office of The Basic Education Commission, 2015.
- [18] Ontario School Library Association, *Together for Learning: School Libraries and the Emergence of the Learning Commons*, Government of Ontario's Ministry of Education, 2010.
- [19] EBSCO. (June 2017). *Becoming a Mobile-Friendly Library Website*. [Online]. Available: <https://www.ebsco.com/blog/article/becoming-a-mobile-friendly-library-website>
- [20] EBSCO. (December 2015). *7 Best Practices for Creating a User Friendly Library Website*. [Online]. Available: <https://www.ebsco.com/blog/article/7-best-practices-for-creating-a-user-friendly-library-website>



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