

The 21st century skills of the school library —Keyword is "Why ?"—

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Abstract

Assessment and teaching of 21st century skills were defined by P. Griffin and B. McGaw. When we focus on various contents we can assume that school library could contribute as the leading role not to mention as the supporting one. Keyword is "Why ? " I've worked as a school-librarian for a long time, and have witnessed children's "Why ? " occur. Through my reference service with children, "Why ? " started to occur in me as well. To clarify my awareness or question I would like to propose a concrete idea of the 21st century skills of the school library.

Keywords: The 21st century skills, Intellectual curiosity, Reference service, School library.

Introduction

We recently hear the world trend term “21st century skills” in our society with the globalization. These skills represent the concept of the international association “ACT21s(The Assessment and Teaching of 21st Century Skills= 21st century skills effect measurement project) where education’s role in the 21st century as the knowledge-based society has been discussed.

OECD, University of Melbourne, Cisco, Intel and Microsoft configured the cognitional skills required in the 21st century as follows:1)thinking method - creativity and innovation, critical thinking, problem-solving, decision-making, learning, and metacognition (acknowledgement process knowledge); 2)working methods - information and communication technology literacy, 3)working tools – communication, collaboration ie. teamwork; and 4)social life – citizenship in the regional and international society, life and career design, individual and social responsibility (recognition and correspondence for culture). They say the evaluation should be made and recorded in detail so the learners can have their own emergent goals and move on to the next learning step rather than setting the final goal first and decide the process in reverse direction.

Nahomi Miyake and other scholars published the Japanese translation of theories by P.Griffin and B.McGaw of University of Melbourne from ATC21s where they expressed the need of education reform in Japan by adding Japanese scholars’ observation.

On the other hand, Tomoaki Matsuo presented in his book entitled “What are the 21st Century Skills?” the tips for designing the future education in Japan by introducing the characters and agenda of education reform movements in UK, Germany, USA, Canada, Australia, New Zealand, Singapore, Hong Kong and Korea which are working on the 21st century skills competency cultivation that is required in the global knowledge-based society.

Reading through those books, I cannot help feeling something touches my chord as a person who live in the world of library. That something tells me that “the libraries have roles in it” and “Now is the time”.

When we overview the previous studies in Japan, we find discussions on the influence and relationship that 21st century skills have in the education methods and evaluations. Toward the next

curriculum guidelines revision, Mizogami's active learning method is about to give a big impact to the education curriculum in Japan. We also find two main positions exist around the educational evaluation styles and argument occurs between them. One is a forward looking approach by Miyake, Shirouzu and Masukawa et al and the other is the reverse design theory by Nishioka et al. The former is a concurrent, embedded and transformative assessment and the latter is a final target based curriculum design assessment.

Kuwata, Inai et al argue the role of libraries in the education that aims for the 21st century skills mainly from the supporting viewpoint.

However, we cannot find arguments that claim libraries can take on proactive roles in the education that encourages 21st century skills acquisition.

Here I would like to discuss the libraries' potential roles in the education world of 21st century skills as specific as possible based on my hypothesis that they can take the main role.

1. *Taking children and students' intellectual curiosity as a clue*

1 Intellectual curiosity in primary education

Hiroshi Kawai argued on the basis of the interest theory of Dewey:

the interest, entity intends to become most his own, that is a request to try to form a self, mission of education is therefore the most natural interest in as a possibility lurking in the inner surface of the students by in order to expand, presenting the most suitable object to children developmental stages and propensity . . .

teacher to observe the interest of the students correctly, give the appropriate object to this. The first time interested in heading the way of the nature of the deployment, it is possible to realize his own likeness on their own power that "and he advocated the interest theory(Kawai 1987,p.267).

In primary education, when we focus on the intellectual curiosity of the children in the school library, their sheer intellectual curiosity and inner motivation level decrease as they grow older into the upper grade. While many fresh primary school children are blessed with pure intellectual curiosity with philosophical and fundamental "why?", it gets harder for them to maintain and develop those as they

grow older, and there I have a sense of crisis where “why?” spirits which represent the curiosity and interest toward unknown world get harder to find.

I see it is related to the lying problems ever since Takashi Ota argued there is a possibility of school library in the various creative intellectual process that must be deployed between the questions and the answers.

Kei Tanaka, a disciple of Masataro Sawayanagi and worked at Tohoku University and Kyoto University libraries, gave lectures at Kyoto University right after the WWII for the Kyoto Library School and School Library Intensive Course in 1948. He argued in his book that: ‘education at school is formal and compulsory and time is limited, while it is informal and voluntary and has practically no time limit in libraries’(Tanaka,1979,p.58).

In the preface Sawayanagi wrote:

the purpose of school education is complete when the graduates acquired the ability of using books freely as required in the society. It is sufficient when students have acquired the habit of reading books and the ability of understanding them. However the present school education mainly make the students to understand and remember what the school teach them. Even with good teachers, they manage to acquire limited knowledge in limited time. School education should focus on teaching students to utilize the libraries thoroughly. I wish all the educators would be aware of the effect which school education has in students’ lives(ibid,1979,pp.8-9).

Eikichi Kurasawa, referring to the content of unit learning, wrote: ‘the interest and curiosity are the consistent flows. They will overflow as journeys, firsthand learning, interviews, libraries and activities such as drama’(Kurasawa,1949,p.30).

Being free from the curriculum guidelines even at school, but not detached from school subjects either, school libraries are the space which can attend children’s intellectual curiosity. So I came to have my hypothesis that its cosmic character can be utilized in the educational activities.

2 Reference Service analysis

1 Investigative method

The Japanese Ministry of Education, in the time of the Chapter 5 overall learning, defines the inquiry learning in Japan as “through cross-cutting, comprehensive and inquiry learning, develop students’

own initiative discovery, learning, thinking and judgement and better problem-solving skills and abilities. Acquire the methods of learning and thinking, and proactive, creative and cooperative attitude in problem-solving and inquiry activities, and think about their own way of living.”

It has been long since the challenge started to make individuals find and acquire their own problem-solving method and ability through inquiry learning based on the past knowledge injection style method. The word “inquiry” originally means to search and quest for the nature of truth, says the Kojien dictionary. By the quest the problem is solved. Childrens’ intellectual curiosity in the primary education is the most pure appearance of quest for the true nature.

First we carefully explore how the intellectual curiosity manifestations are classified and analyzed and how they link to the inquiry learning by mainly analyzing the primary and junior high school students question data (including my library) which is cumulated by the Japan’s National Diet Library Collaborative Reference Database.

We use the reference data of the students to be surveyed from the general public (in a range with consideration for privacy and reference) on the National Diet Library Collaborative Reference on the database HP, narrowing the respondents category as “elementary and junior high school students”, to extract. And capture its features from there.

2 Investigation result

As we carried out the data analysis as explained above, 997 cases hit as of 23rd April 2016. Libraries from 111 elementary and junior high schools and 886 public.

The results fitted into NDC (Nippon Decimal Classification) classes as follows.

| Nippon Decimal Classification; NDC | Primary School&Junir Hight School | Hight School | adult |
|------------------------------------|-----------------------------------|--------------|-------|
| 0. exhaustive listing | 34 | 34 | 724 |
| 1. philosophy | 23 | 55 | 1266 |
| 2. history | 168 | 364 | 7543 |
| 3. social sciences | 165 | 153 | 4673 |
| 4. natural science | 202 | 94 | 1505 |
| 5. technology | 143 | 81 | 2118 |
| 6. industry | 99 | 43 | 1741 |
| 7. art | 96 | 82 | 2692 |
| 8. language | 23 | 33 | 599 |
| 9. literature | 43 | 112 | 2093 |

It is clear that elementary and junior high school students' popular classes are natural science, history and social science. When we look at senior high school students and adults, natural science class which is most popular among the elementary and junior high school students is less popular as they get older. It shows the age group that science's popularity declined. Naganuma argued:

About 20 years have passed since a "decline in students' positive attitude toward science" was first pointed out in the late 1980s. It is emphasized that this problem should be solved in terms of higher education and adults' scientific literacy, and that more attention should be paid to non-formal learning by researchers in order to solve this problem(Naganuma,2015,p.114).

National Institute of Science and Technology Policy analyzed the Super Science High School (SSH) project which was carried out for 13 years from 2002 to cultivate the next generation human resource for science and technology. Initially tried to have an overview and look into the development and transition, SSH schools shift and present the comprehensive perspective on an evidence basis. Then tried a subjective conscious variable validation and an objective statistic validation with science university enrollment result as an achievement indicator on two main SSH project purposes: one is a research development that doesn't depend on the curriculum guidelines; the other is scientific technology human resource nurture for the future innovation construction.

3 Feature that suggests from the international academic ability survey

International academic ability survey such as PISA of OECD and TIMSS showed that Japanese students have very low level interest, concern and motivation in science. PIAAC of OECD also showed that intellectual curiosity level of Japanese 20 years old is equal to the level of Swedish 65 years old.

PISA(OECD)2006

| | I like to read mathematics books. (%) | I like to read science books. (%) |
|--------------|---------------------------------------|-----------------------------------|
| JAPAN | 12.8 | 36 |
| OECD average | 30.8 | 50 |

TIMSS2007

| | More than 200books | | 26~100books | | 0~10books | |
|-----------------------|--------------------|----------------|--------------|----------------|--------------|----------------|
| | Children (%) | average points | Children (%) | average points | Children (%) | Average points |
| JAPAN | 7 | 577 | 38 | 556 | 14 | 511 |
| International average | 12 | 502 | 30 | 490 | 20 | 437 |

2. 21st century skills at school libraries

1 Never miss the manifestation of curiosity: Japanese omotenashi style reference service

From the result above, we can see the students' motivation for inquiry at the library which is hard to find in the classroom, the front line of school education. We see the opportunity of motivation trigger in the students' need. It is possible to nurture the interest, concern and motivation for the limitless search and quest starting with this need for knowing. And we think that can lead to a lifelong initiative learning motivation where problem-solving may not work out as in the textbooks.

There an important mission for the school library would be to guide and follow through children's "why?" by watch over for their problem-solving process, practice of "omotenashi".

To be specific it means the reference service with an intensive hospitality starting from the students' first word and with a follow up on their curiosity seed to grow. That is based on the trust which is only possible with the sufficient conversation when they visit the library when they have questions from the subject learning, cross-curricular, or personal situations. This indicates a proactive action of librarians that brings out students' unrecognized "hidden intellectual curiosity", activity that requires whole body and soul and differs from the passive service waiting for the reference application forms to be filled out. We can assume that the students whose "hidden intellectual curiosity" was brought out can develop metacognition ability where they can objectively know what they are interested in. They can also develop an information gathering method and literacy. They may acquire the ability for questioning, thinking, judging and problem-solving. 21st century skills cultivation aspects can be embedded there. Japanese expression "omonbaku" means a thoughtful and sensible action for the others. I think that is the ultimate attitude of professional librarians in the educational activity led by an "omotenashi" imaginative thoughts.

2 Utilizing school library portfolio

Children's naïve questions from the "hidden intellectual curiosity" can fade away naturally without being noticed. School libraries can pick up such questions and store them.

Giving the examples, in our elementary school library I came across with a child who was mumbling "I wonder when and how the borders (between countries) were set". Then I saw another saying "I hate injections. I wish there is a painless needle." The one I encountered during the cleaning period was saying "what is this dust made of?".

I think it is possible to pick up those little naïve questions as the intellectual curiosity seed and grow it into an essential question. The child who was interested in "the lines dividing countries" can grow up and work on a peaceful solution for the conflicts, the one with a wish for a "painless needle" can

invent a needle applying a mosquito principle, or the one who wanted to know the “material for the dust” can make a scientist researching on the earth dust in the future.

School library portfolio can file and cumulate those questions that could disappear and utilize them as clues for the future essential questions.

Portfolio, along with rubric is used as an educational evaluation tool, which is useful for assessment other than the exchange of questions and answers. That is used in the evaluation for the thinking and learning process as Ota referred to as “between the questions and the answers”. All aspects of 21st century skills are difficult to judge the ability level and they are between the questions and the answers. Children’s intellectual curiosity development process can be visually stored and shared in the library portfolio. So children can track back their curiosity history and grow their little questions into essential ones. Teachers can find out children’s interests outside the classroom and see their growing process that would be very beneficial when it is applied into the field of education.

3 Everyone can be searched on the earth "International School Library Collaborative Reference Database (multilingual interactive)"

21st century skills values the interactive communication. Bulletin board can be used in the learning situation for an intellectual curiosity exchange beyond national borders. Issues in the modern society are of global scale and we are required to resolve them in cooperation as global citizens. In the society where we need to resolve essential issues that human race is facing, I think finding clues and discussing resolutions by sharing data in the reference service would work.

In the digital age ICT is to be utilized. 21st century skills suggest “all of the people not only the elite are required to think for resolving the problems”. ICT is indispensable to realize for the cooperation.

4 The context of the librarian training course (school librarian, teacher librarians)

I have a suggestion to make from my present position. As I have practiced as a school librarian and taught library and information science in a university to train future librarians, I came to think my students can help out the challenges that I have mentioned above.

I am planning to involve them in my suggestions by bringing in the ideas in my lecture with them during the course. As they are in the digital native generation, they may become more aware of their future jobs while making good user friendly educational suggestions through chat and bulletin board planning. This is to suggest the possibility of practicing the active learning in the project based learning of higher education.

Conclusion

Here I looked at the present topic of education for developing the 21st century skills through a school library point of view, and argued what is possible to do for what and how.

First by analyzing the questions which were received at the public and school library, we found out the tendency of the interest on natural science among children's intellectual curiosity decreases as they grow older. It revealed Japanese students' scientific interest decrease. It shows Japanese children's weakness when trying to resolve essential authentic scientific problems with cooperation that 21st century skills suggests.

It is obvious that it is crucial to have a strategy to bring out children's hidden intellectual curiosity and maintain the level as they grow older. As we focus on Ota's argument "the time between the questions and answers is getting shorter", it argued that there is a necessity, the possibility of the school library that is in the diverse and creative process of intellectual work that must of course be deployed in the meantime between the "question" and "answer" , it appears Japanese society is not familiar with the natural science. When we keep having questions and looking for answers through our lives including scientific area or on matters that takes time to have an outcome, it will encourage maturity and development of our society. And that would lead us to become wise earth citizens with the 21st century skills.

School libraries are the institutions that support school education, providing data for the curriculum as an outside source and various others, where as they have potential to plan their own inquiry learning assignment.

The following are the common and frequent comments we have had in the Japan educational field: "how can we encourage and maintain children's motivation?"; "once children are given knowledge and being encouraged, they will take the initiatives to go on"; "what kind of approach and support is effective to bring out children's interest, concern and motivation?"; "how can we make children to learn proactively?" The above are the common agenda for education field.

However, children are naturally full of intellectual curiosity. What decreases "why?" "amazing" "want to know" feelings. When you focus on the reference topics with a conscious that "why?" manifest and disappear, we find something.

In order to maintain children's "why?", human resource (librarian, teacher librarian, or school librarian) is needed to take a notice on their manifesting and support immediately. With a sufficient follow up to maintain the seed of curiosity, 21st century will be different after the dynamic problem-solving experience.

I presented the areas that school library can help initiatives to help children to become wise citizens to cooperate with others in solving problems in the knowledge-based society that encourages 21st century skills.

In Japan "discussion point organization" for the next curriculum guidelines revision has been completed. Active learning is proposed there which will be deeply related to 21st century skills and

key competency in practice. I believe school library will be an indispensable main or support role in the learning process. Now is the time to move on to the new stage.

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My main research and professional topic is “school library in education” and “school library for lifelong learning”.