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Effect of Copy Machines in a School Library on Students' Inquiry-based Learning

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In the current knowledge-based society, it is necessary to let children know the worth of non-digitized media. This study examines the effect of copy machines on junior high school students' learning of research methods and clarifies the use of a copy machine in a school library with reference to the Copyright Act of Japan. It also surveys the treatment of copying in Copyright Acts from other countries and compares them with Japan. The findings highlight that Japan is the only country that limits copying in the school library; the Japanese Copyright Act has not yet caught up with current well-developed information technology and therefore warrants revision. The introduction of a copy machine also decreased Internet use and increased use of books. However, the cost of the machine and teachers having to comply with students' copying requests are some problems associated with copy machine usage.

Keywords: Copyright act, Copy machine, Information literacy, Inquiry-based learning, School library

Introduction

In Japan, free copy machine use in library settings is considered inappropriate, even if users are students, teachers, school staffs, graduates, and parents/guardians. Furthermore, a librarian cannot offer to copy library materials to comply with users requests without first obtaining permission. Accordingly, most Japanese elementary and junior high school libraries have not installed them (Yamaguchi, 2005).

The 21st century is called a knowledge-based society. It is because knowledge, information, and technology become important especially as a base of the society in all areas, such as politics, economy, and culture. A knowledge-based society leads also to international competition involving knowledge and talented people (Ministry of Education, Culture, Sports, Science and Technology in Japan, 2005). In such an era, we have to raise an ability among people that they collect required information themselves out of huge information, and can carry out decision-making and action into their children.

In the PISA 2015 definition, reading literacy is understanding, using, reflecting on and engaging with written texts, in order to achieve one's goals, develop one's knowledge and potential, and participate in society (OECD, 2016a). The OECD PISA 2015 Survey underlines that, in the context of massive information flows and rapid change, everyone now needs to be able to "think like a scientist": to be able to weigh evidence and come to a conclusion; to understand that scientific "truth" may change over time, as new discoveries are made, and as humans develop a greater understanding of natural forces and of technology's capacities and limitations (OECD, 2016b).

The Partnership for 21st Century Learning (P21) provides the following definition: today we live in a technology and media-suffused environment with the following things: 1) access to an abundance of information, 2) rapid changes in technology tools, and 3) the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to create, evaluate, and effectively utilize information, media, and technology (P21, 2007).

Conversely, ERI-Net that surveyed the 21st century type skill in Asia Pacific Region has reported that each country is trying to find ways to educate a student's ability. In addition, ERI-Net defines Media and information literacy as one of the transversal competencies as follows: Ability to obtain and analyze information through information and communication technology (ICT), ability to critically evaluate information and media content, ethical use of ICT (ERI-Net, 2016).

The Ministry of Education, Culture, Sports, Science and Technology of Japan conducted an information literacy survey using the computer target elementary and junior high school students from October, 2013 to January, 2014. This has analyzed and understood students' information literacy for the purpose of an improvement and fullness of instruction. Elementary school and junior high school students' problem is finding out and associating specific information according to the purpose from multiple web pages. They can read the organized information. In particular, elementary school students' problems are arranging and construing information and disseminating information according to a recipient's situation. Junior high school students' problems are arranging and construing the information on multiple web pages, and making information dissemination according to a recipient's situation. They can organize and construe the information indicated by the list.

This result shows that the ability to read information has a problem. In addition, sources of information are not only web sites. Non-native English-speaking countries of Asia also have several sources of information that are not digitized. All information cannot be obtained on a website. We need to let children know the worth of media that is not digitized as well. Therefore, we set up the hypothesis whether the existence of a copy machine changed a student's learning activities.

In Japan, inquiry-based learning is gaining importance increasingly. The purpose is to educate the nature and ability that judges in person and can solve a problem. It is required for a student who lives in the next generation. In a high school, the name change to classical-literature inquiry, mathematical inquiry, and Japanese history inquiry is planned traditional subject, and consciousness attachment of tackling learning in inquiry also in each subject comes to be made strongly (Ministry of Education, Culture, Sports, Science and Technology, 2016). Inquiry is an approach to learning whereby students find and use a variety of information sources and ideas to increase their understanding of a problem, topic, or issue. It requires more from them than simply answering questions or getting the right answer. It espouses investigation, exploration, search, quest, research, pursuit, and study (Kuhlthau, Maniotes, & Caspari, 2007).

The Period for Integrated Studies is a Japanese curriculum. It enables students to think independently about their lives through cross-synthetic and inquiry studies. It also fosters in them the qualities and abilities required to identify tasks, learn and think independently, make proactive decisions, and solve problems efficiently (Ministry of Education, Culture, Sports, Science and Technology in Japan, 2009). In simple words, the curriculum requires students to engage in inquiry-based learning and therefore all students need to participate in it. The learning sequence, including setting a problem, collecting information, arranging and analyzing it, and reporting it intelligibly to others, is appropriate for developing students' information literacy. In advancing the Period for Integrated Study, Kurokami (1999) outlines three important factors. First, we have to ensure that children can partake in independent activity. Second, through the curriculum or the learning methods used in class, we have to convert this activity into learning. Third, it is necessary to find ways to improve students' learning environment. In a curriculum's design phase, the constitution of the learning environment determines the success or failure of integrated learning.

The present study examines (1) the comparison of each country's copyright act concerning copying and (2) the effects of a copy machine in school libraries. Individuals can use copies of library materials if they are teaching or studying in a class that requires such material and the use of these copies is restricted to the class (JLA, 2006). Tsuji (2015) proved the average rate of increase in the number of visitors to a library that had installed a copy machine and indicated that the level was higher for this library than for those that had not installed copy machines. Thus, installing a copy machine in the university library increased the number of visitors.

In this way, the existence of a copy machine is enough to affect the number of visitors to the library. Thus, the presence of copiers affects the number of visitors to the library. However, no studies have investigated the impact of copying machines in school libraries on student activities. Also, there is no research that compares with overseas copyright while focusing on copy machines in school libraries.

In this study, we clarify the use of a copy machine in a school library with reference to the Copyright Act of Japan. Moreover, we survey the treatment of copying in Copyright Acts from other countries and compare them with Japan. We also investigate the effect of a copy machine on student's learning of research methods and the associated problems. It is important to argue about the treatment of the copy as it also affects the number of visitors to the library.

The Copyright Act of Japan Concerning Copying in a School Library

Section 31 of the Copyright Act of Japan does not aim at profit. However, if material is to be copied for survey and research, some parts of the work can be provided for copying per person. However, a school library is not covered under this section, and the librarian of a school library cannot offer copies of possession data without first obtaining permission. However, only Section 35 of the Copyright Act accepts that individuals teaching or studying in a class that requires the reproduction of specific material for the express purpose of being used in that class can make and use copies. Thus, the free use of a copy machine is considered unsuitable in Japan (JLA, 2006). Therefore, most school libraries do not install copy machines for users (Yamaguchi, 2005).

We believe that Sugimoto et al. (2008) strongly desire the extension of Section 31 of the Copyright Act to accommodate the school context because, at present, it is being sent by a channel in which contents differ and it is necessary to provide appropriate education. This education emphasizes the capability to clarify information demand, perform search and acquisition of active information, compare and examine, and connect to opinion formation and information dissemination. Elementary and secondary education courses provide this foundation to students and serve as a pillar for character development, thus enabling independence and collaboration in lifelong learning.

Moreover, photography of a work is also a copy according to the Copyright Act. However, if a work is photographed for individual use, it is free from Section 30 of the Copyright Act. Since Section 30 of the Copyright Act does not specify requirements for the private use of duplicate places or data, the reproduction of library materials is interpreted to indicate that no problem will result from the writing constitution (Copyright Research and Information Centre, CRIC, 2016). Therefore, in a school library, if a teacher or a student photographs a work to use it in class, it will not be problematic with respect to the Copyright Act. However, a school library considers this to be problematic in regards to a student's information collection morals. Thus, in almost all cases, photographing a work using a camera will be excluded from educational consideration. If such permission is granted, some students may also assume that they can photograph books in a bookstore as well. Authors are concerned regarding this possibility.

International Copyright Acts Concerning Copying in a School Library

In this study, we surveyed the Copyright Acts of South Korea, China, the U.K., and the United States.

South Korea

Section 31 of the South Korea Copyright Act discusses the issue of duplication and transmission in the institution defined by presidential order, including libraries. The following library varieties are covered under the Act: national main library, public library, university library, school library, and special library. Libraries aiming at profit are excluded. The following requirements must be met for obtaining permission to copy library material (Kyoung-Hee Joung, 2013): (1) The relevant data to be copied must be on a library shelf (and should not be carried in from outside); (2) Material should only be copied for nonprofit purposes, such as surveying and research; (3) A user needs to request a copy; (4) Only the item in which the relevant data required is present can be released for copying; (5) The copy must comprise parts of books and other library sources; (6) Only one copy per person is permitted; and (7) Offering the copy of a digitized source is not permitted.

China

Section 22 of the China Copyright Act maintains that translation or a small number of copies of library materials are admitted for research or survey purposes. Regardless of where the copy is requested, it may be permitted only if the purpose is research or survey. However, what comprises a "small number" of copies is not clearly defined. Huang Guobin (2011) has also highlighted that the Act does not provide a clear definition of a library and thus it is necessary to supplement clear and detailed regulations and improve the China Copyright Act.

U.K.

Research and private study is indicated as follows in Section 29 of the U.K. Copyright Act. Fair dealing with a literary, dramatic, musical, or artistic work for non-commercial research purposes does not infringe on copyright laws if it is accompanied by sufficient acknowledgement. This differs from Japanese copyright law as it allows a clear statement

of the source. Sections referring to education (Sections 32 to 36) are also included and this is another difference from Japanese copyright law.

Section 36, entitled "Copying and use of extracts of works by educational establishments," comprises the following points: (1) Copyright is not infringed by copying extracts of a relevant work by or on behalf of an educational establishment, provided that (a) the copy is made for non-commercial instructional purposes and (b) the copy is accompanied by a sufficient acknowledgement; (2) Copyright is not infringed by a copy of an extract made under subsection (1) when it is communicated by or on behalf of the educational establishment to its pupils or staff for non-commercial instructional purposes; (3) Subsection (2) only applies to a communication received outside the premises of the establishment if that communication is made through a secure electronic network accessible only to the establishment's pupils and staff. In Section 43, "library" is defined as referring to publicly accessible libraries or those that are a part of educational establishments. In the U.K., a school library is considered a library.

When copying is for educational purposes, it is permitted regardless of where the material is being copied. However, according to the guidelines of U.K.'s School Library Association, the fair dealings on the Copyright Act are as follows: you can copy a work for non-commercial research purposes; the use must be "fair," (for printed works an article from a magazine or a book chapter would usually be considered "fair," but there are no hard and fast rules); and any individual, whether staff or student, can make a copy for their own research purposes. In some schools, the librarian takes on the role of copyright gate keeper. According to the law, copyrighted materials for educational purposes can be used to a limited extent without requiring a license or the owner's permission (School Library Association, 2013). Copying for survey and research purposes is accepted in the U.K. However, a gray area regarding the resolution of the question of the survey and research range also exists. Any individual student or member of staff may make a copy of a work under fair dealings for his/her personal use; however, the limits of "fair" are undefined (School Library Association, 2013).

U.S.

Sections 107–112 of the U.S. Copyright Act describe "Limitations on exclusive rights." According to Section 107, "the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright." There are four fair use factors: "(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work." Moreover, the Quantities of Media Recommended for Borrowing under the Fair Use Guidelines for Educational Multimedia clearly define the quantity. For example, the text to be copied must comprise no more than 10 percent or 1,000 words, and, for a poem, less than 250 words or 3 lines.

Simpson (2010) has pointed out that, considering print copying, the copy machine is probably the biggest danger in the school. Teachers are continuously making multiple copies of various materials, even when they may not have the authority to do so. But print guidelines specifically mention how much and how many times a particular item may be copied; furthermore, they also mention which items can never be copied. However, these guidelines are not very well known to most teachers and administrators. If one were to conduct an audit of the copies made at the copy machine in a given week of the school's second semester (or possibly even the second marking period), one would find that the vast majority of the copies being made infringed upon copyright law. Guidelines are far more rigid than the fair use factors discussed above, are not binding under the law, and represent minimal rather than maximal amounts (Simpson, 2010). Although copyright laws clearly mention the regulation of copying, actual methods that can be used for such regulation are unclear and many gray areas still exist.

Research Design & Methods

We surveyed the state of copy in Japanese copyright laws and those of a representative country. With respect to the school library, only Japan exercised more severe control over regulating copying for private use. Furthermore, we surveyed the effect of copying on learning in a live class.

At Tokyo's Tamagawa Academy, we implemented an inquiry-based learning program for the ninth grade that was conducted over a period of 70 hours in Integrated Studies under comprehensive learning (two units) (Noborimoto, Goto, Ito, Kasai, & Horita, 2016). The learning program began with setting a problem and studying the methods of collecting and selecting information, developing a logical view, understanding the quotation regarding copyright and

references, and making a presentation. Each student submitted a paper that was more than 3,000 Japanese characters (about 1,500 English words).

During the 2014 school year, the learning program did not use a copy machine and students made handwritten copies or summaries of the important parts of books. We then proposed two hypotheses. We hypothesized that, since making handwritten copies is time consuming, students will inquire into a larger amount of data if time can be saved using a copy machine. In research learning, we directed students who relied on using the Internet for their research toward well-balanced information gathering that employs other media formats. We then installed a copy machine and implemented the same learning program in the 2015 school year. To adhere to the Copyright Act, students were allowed to copy freely only after a teacher had judged the relevance of a student's request for copying.

We computed the average of the number of media used when a student performed information retrieval in both school years (Table 1). In 2014 and 2015, 62 and 65 students, respectively, were considered for the study. In each year, we allowed students to gather nine or more pieces of information using three or more types of media with the aim of imparting the characteristics of the various media.

Table 1

Average Media Used by Students in 2014, 2015 (SD)

	Book	Magazine	Paper	DB	Web	Interview	Movie	Total
2014	2.53 (2.01)	1.63 (3.42)	0.74 (1.09)	1.55 (1.80)	5.05 (2.59)	0.05 (.28)	0.02 (.13)	11.56 (5.23)
2015	3.48 (1.79)	0.54 (1.10)	0.17 (.45)	2.32 (1.51)	3.2 (2.34)	0.03 (.17)	0.00 (.00)	9.8 (1.5)
2015−2014	+0.94	−1.09	−0.57	+0.77	−1.85	−0.02	−0.02	−1.73

Results

As a result of this survey, (1) the number of average volumes of the book utilized by students rose from 2.53 to 3.48. Furthermore, use of online databases also increased from 1.55 to 2.32. Use of websites simultaneously decreased from 5.05 to 3.2. However, the total number of references also decreased from 11.56 to 9.8. This can consider that books and an online database take time to read compared to a website. This result corresponded with our learning purpose, which was to change the consciousness of students who tended to rely on conducting research using websites. We wanted such students to refer to other media as well. On the other hand, various problems were faced. We had to ensure that the copies made agreed with the purpose of the class and that the teacher also worked as a copy staff person. If copying was not regulated, then we had to assume that copies were made only for the purposes of a class. Thus, it will be assumed that the responsible teacher's checking levels decreased. Moreover, expenses associated with buying and maintaining a copy machine had to be incurred.

From further study results, (2) a comparison of the copyright laws of Asian countries (Japan, South Korea, and China) and those of the U.K. and the U. S. revealed that the laws of the latter countries were more detailed. Copyright acts have not yet caught up with today's era of well-developed information technology in all countries and therefore revision is desirable. Management of copying differs in Japanese school libraries as we can copy only material related to a class. Japan is the only country with such a rule.

We found that when students used the copy machine for research learning, their use of the Internet for researching decreased, along with the deviation of media used by them. This is because students began using books for research instead. In a knowledge-based society, information is steadily increasing and thus we conclude that permitting the use of a copy machine in a school library, under certain settings, will prove beneficial.

Discussion

In Japan, it is inappropriate to use a copy machine in a school library, even if the only users are school staff, students, graduates, or parents/guardians. In this research, we surveyed the treatment of copying with respect to the copyright acts of Japan, South Korea, China, the U.K., and the U. S. The comparison indicates that only Japan forbids the use

of copy machines in a school library. Moreover, it was observed that the area of copyright includes several gray areas that make countries anxious.

Butler (2011) notes that print as a medium of communication has been around for literally thousands of years. In the past, tomb encryptions, illuminated manuscripts, and codices were considered print forms. Today, books, newspapers, magazines, poetry, play scripts, cartoons, and recipes, along with many others, are considered print items. In addition, inventions such as computers, iPads, and handheld digital devices like Kindles and Nooks, and even cell phones with text message functions, have brought the print format into the digital world. Do issues of copyright form a part of this new level of print? The answer to this question will have to be a definite yes, although these new media options may make copyright appear even more confusing than before (Butler, 2011). The Copyright Act has not caught up with our contemporary era, specifically with respect to digital copyright rules.

According to School Library Association (2013), the idea of copyright is fundamental to the development of education. Authors, composers, sculptors, painters, and others who create new works are provided protection so they can benefit in terms of royalties or other fees. Our position in society, our education, professional development, personal growth, or personal ideas, are a result of our being able to read the works of other people and, consequently, developing and building on these.

This circle (Figure 1) is essential for human development and attempts to break or distort it will result in serious consequences for education and democracy as a whole (School Library Association, 2013). Copyright laws must be revised for the Copyright Circle (School Library Association, 2013) to exist smoothly. In education, we have to make students aware of copyright and ways to utilize a work while appreciating the author.

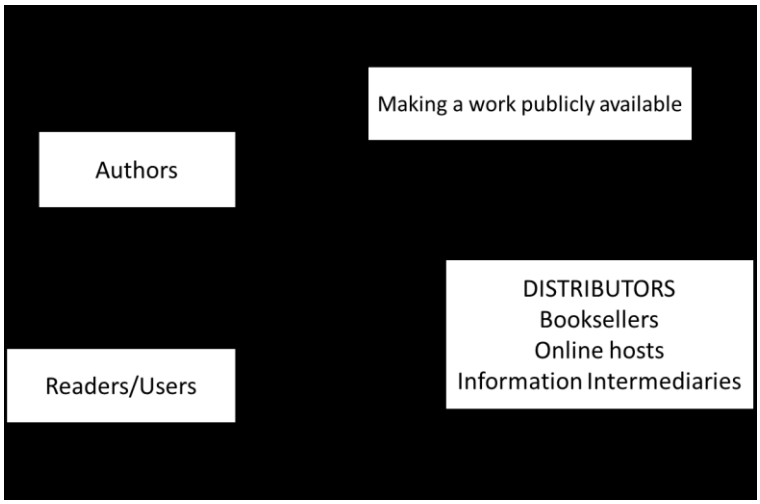

Figure 1. The copyright circle (SLA, 2013)

Furthermore, this research considered the effect of a copy machine on learning, that is, the method through which junior high school students retrieve information from various media. We obtained three results through this survey: (1) If a copy machine is used, researching on the Internet and deviation in media decreases while researching through books increases; (2) Since a student cannot used a copy machine due to the Copyright Act, teachers face the problem of becoming copying staff; and (3) Purchasing and maintaining a copy machine involves a substantial expense.

We currently live in a digital network society based on knowledge and information. In order to allow students to utilize library materials effectively while protecting the rights of copyright, we believe that it is necessary to reexamine the state of the copyright in a school library. Kurokami (1999) has indicated that it is necessary to develop a curriculum and learning environment that realizes an association with the Period for Integrated Studies. Since a student's learning activities change when he/she can make copies in a school library setting, we suggest that installation of a copy machine be considered. However, problems may be faced in the way elementary and junior high school students handle copy machines. As mischief on the students' part is generally intentional, the problem of making the extensive use of copy machines available remains. Furthermore, the issue of cost with respect to the machine also needs to be addressed.

Since this research surveys only one school, there is a limit to generalization. In the future, we would like to compare the situation of the introduction of copy machines in more school libraries and to further generalize the research. We

would like the comparative survey with overseas copyright in this research to lead to a proposal for a new direction in copyrights on copy machines in Japanese school libraries.

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