研究ノート

小学校における日本の情報教育とフィンランドのメディア教育に関する比較研究

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Comparative study of information education in Japan and media education in Finland in elementary schools

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In this study we explored how ICT is positioned in the curricula in Japan and Finland in elementary schools. We overviewed the education systems and the development of ‘information education (IE)’ in Japan and ‘media education (ME)’ in Finland and compared the curricula based on four research questions: (1) when are IE and ME taught, (2) what are those objectives, (3) what are the contents, and (4) how many lesson hours are distributed. According to the comparison, we found that the two countries have many features in common. In particular, IE and ME are taught in cross-curricular settings, pupil-centred learning activities (also known as constructivist activities) are emphasized in objectives, teachers basically determine the instructional contents, and specific lesson hours are not distributed to IE nor ME.

Keywords: Information education, media education, elementary school, Japan, Finland

キーワード：情報教育，メディア教育，小学校，日本，フィンランド

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1. Introduction

In line with the development of an information society, information and communication technology has become an important part of policy agendas, with profound implications for education (OECD, 2005). Related to the wording of 'ICT', Pelgrum and Anderson (2001) distinguished among the terms 'technology', 'information technology (IT)' and 'information and communication technology (ICT)' as follows:

> *'...educational communities increasingly have used the term 'technology' to refer to 'information technology' (IT) or to 'computers'. This trend stems from the growing integration of computers with communications, video and audio technologies. Audio and video communications are rapidly becoming digital in form, which gives the computer a new, expanded role as a controller and manipulator of audio and video, as well as text and numeric data. Although many people refer to information technology (IT) as 'technology', many European countries refer to it as 'information and communication technology' (ICT)'*
> (Pelgrum and Anderson, 2001: 1)

This paper uses the term 'information and communication technology (ICT)'.
In terms of ICT use in education, a series of Second Information Technology in Education Studies (SITES) was conducted by the International Association for the Evaluation of Educational Achievement (IEA) to explore the status of ICT use in primary, secondary and upper secondary schools in participating countries (Pelgrum and Anderson, 2001; Kozma, 2003; Law *et al*. 2008; Anderson and Plomp, 2009; Carstens and Pelgrum, 2009; Voogt and Plomp, 2010). This series of studies showed that ICT has become increasingly widespread in pedagogical practices in the classroom. The second study of SITES indicated that technology was being used to support significant changes in classroom teaching and learning, but it also found that technology-supported innovations had a limited impact on the curriculum (IEA, online: SITES Module 2: Innovative Practices). Several years have now passed since the SITES were conducted. How, then, have OECD countries positioned ICT in its curriculum? In this paper we focus on two countries, Japan and Finland.

2. Literature review: education systems in Japan and Finland

Although there is a gap in population between the two countries (127.52 million in Japan[1)] and 5.4 million in Finland[2)]), they have many features in common. They are both affiliated with the Organization for Economic Co-operation and Development (OECD), have similar GDP per capita[3)] and are in the upper rankings of several international comparative surveys, such as the Programme for International Student Assessment (PISA)[4)], the Trends in International Mathematics and Science Study (TIMSS)[5)] and the Global Competitiveness Index (GCI)[6)].

2.1 Japan

2.1.1 Education system

In Japan, compulsory education starts at age six and continues from elementary to lower secondary school for nine years. Tuition fees are not charged at public elementary, lower secondary and upper secondary schools. The various types of educational institutions in Japan consist of the following levels:

- *Kindergartens (Yochien)*
  …Kindergartens cater for children aged 3, 4 and 5, and provide them with one- to three-year courses.
- *Elementary Schools (Shogakko)*
  All the children who have attained the age of 6 are required to attend elementary school for six years….
- *Lower Secondary Schools (Chugakko)*
  All the children who have completed elementary school are required to study in lower secondary school for three years until the end of the school year in which they reach the age of 15….
- *Upper Secondary Schools (Koto-gakko)*
  Those who have completed nine-year compulsory education in elementary and lower secondary school may go on to upper secondary school. Students must normally take entrance examinations to enter upper secondary school.
  In addition to full-day courses, there are also part-time and correspondence courses….
- *Secondary Schools (Chuto-kyoiku-gakko)*
  In April 1999, a new type of six-year secondary education school, called

"Secondary School" was introduced into our school system. Secondary schools combine lower and upper secondary school education in order to provide lower secondary education and upper secondary general and specialized education through 6 years….

- *Schools for Special Needs Education etc. (Tokubetsu-Shien-gakko)*
  Special Needs Educations are schools for children with comparatively severe disabilities and aim at giving education suited to their individual educational needs. Those schools comprise four levels of departments, namely, kindergarten, elementary, lower secondary and upper secondary departments….
- *Institutions of Higher Education*
  Institutions of higher education in Japan include universities, junior colleges and colleges of technology. In addition, specialized training colleges offering postsecondary courses … may be regarded as one type of higher education institution.
- *Specialized Training Colleges (Senshu-gakko) and Miscellaneous Schools (Kakushu-gakko)*
  …[T]here are educational institutions known as "specialized training colleges" and "miscellaneous schools", which offer a variety of practical vocational and technical education programs in response to diverse demands of people in a changing society. The great majority of these schools are privately controlled….
  Source: Ministry of Education, Culture, Sports, Science and Technology (hereinafter MEXT), online: Education: Principles Guide Japan's Educational System

Expenditure for all levels of public education as a percentage of GDP was 3.6%, which was the third lowest among the 36 surveyed economies in the OECD Factbook 2013[7].

2.1.2 Development of 'information education'

In Japan, 'information education' (*joho kyoiku*, hereinafter IE) is defined as 'education to cultivate information literacy' (MEXT, 2011: 6). In developing children's information literacy, it is important to consider the following three points: (i) practical ability to utilize information, (ii) scientific understanding of information and (iii) a willing attitude towards participating in the information society (MEXT,

2011: 9). Television played an important role in the history of IE. The National Association of Broadcasting and Education Research (*Zenkoku Housou Kyoiku Kenkyukai Renmei*) was established in the 1950s, and broadcasting and TV programs gradually came to be used for educational purposes (Suzuki, 2008). Furthermore, a discussion about how to make use of information in instruction occurred in the 1980s, which was related to the approaching information society (Suzuki, 2008). In the 1990s and beyond, the Ministry of Education (at the time) and public organizations performed a consistent set of initiatives. The Computer Education Center began the '100-schools Networking Project' in 1994, which then evolved into 'The New 100-schools Networking Project' (Shimizu, 2001). Subsequently, an 'e-Japan Strategy' was launched in 2001 to create a 'knowledge-emergent society' (Prime Minister of Japan and His Cabinet, 2001 online: e-Japan Strategy). One of the actions the government took as part of this strategy was the 'digitization of education', which facilitated internet access in elementary and lower and upper secondary schools and to promote information technology (IT)-driven education (Prime Minister of Japan and His Cabinet, 2001 online: e-Japan Strategy). Regarding teacher training in the area of integrating ICT into education, the ministry has provided in-service teacher courses on computer use for over 20 years (as of 2001), as well as in-service computer coordinator training courses since 1993 (Shimizu, 2001). Since 2000, all pre-service teachers were required to take two units of ICT and at least one unit of 'Methods for Technology Education' (Shimizu, 2001).

2.2 Finland

2.2.1 Education system

In Finland, education is free at all levels, from pre-primary to higher education (Ministry of Education and Culture (hereinafter OKM), online: Education policy in Finland). Compulsory education starts from the year that a child turns seven. During the year before a child begins compulsory schooling, he or she may attend a pre-primary school (OKM, online: Pre-primary education in Finland). The Finnish education system consists of the following levels:

- *nine-year basic education (comprehensive school) for the whole age group (ages seven through fifteen), preceded by one year of optional pre-primary education*
- *upper secondary education, comprising general education and vocational*

education and training (vocational qualifications and further and specialist qualifications)

- *higher education, provided by universities and polytechnics*

Source: OKM, online: Education System in Finland (words underlined added)

Expenditure for all levels of public education as a percentage of GDP was 6.3%, which was the fifth highest among the 36 surveyed economies in the OECD Factbook 2013[7].

2.2.2 Development of 'media education'

While Japan has proceeded with implementing IE throughout its educational system, Finland has been working to promote 'media education' (*mediakasvatus*, hereinafter ME). In the Finnish context, ME is defined as 'work performed by educators in supporting the learning of children, youth and adults involving different media (Finnish Society on Media Education, 2008: 6)'. Finnish ME developed in a distinctive way on the basis of various concepts, such as popular liberal education (instruction in journalism and film) between the 1950s and 1960s and communication and audio-visual education (instruction in TV, mass media and the audio-visual culture) between the 1970s and 1980s (Kupiainen, *et al*., 2008). After the 1990s, the advent of information technology represented a turning point for communication education, which changed its form to ME (Kupiainen, *et al*., 2008). Finnish ME covers the areas of media literacy, media production, expressions of media and critical thinking by learning about media through media. Along with the development of ME, educators have taken measures to integrate ICT into instruction, with an eye towards the 'information society'. During the 1990s, Finnish schools and educational institutions were equipped with computers and connected to information networks with support from the state (Kankaanranta, 2009). National strategies have been created to develop Finland as an information society. The Information Strategy for Research and Education for Years 2000–2004 (launched in 1999) significantly promoted the use of ICT in education and research and the Information Society Program for Education, Training, and Research for Years 2004–2006 (2004) aimed to boost further the development of the information society in the education, training and research sectors (Kankaanranta, 2009). One distinctive characteristic of Finland is that it has included the use of ICT in schools in its master plan for societal development

(Ottestad, 2010).

3. Research questions

This study explores the status of ICT in the curricula in Japan and Finland. Therefore, we compare two educational approaches, IE in Japan and ME in Finland in elementary schools. Research questions are:

(1) When are IE and ME taught?
(2) What are those objectives?
(3) What are the contents?
(4) How many lesson hours are distributed?

4. Methods

We present a comparison of the curricula of IE in Japan and ME in Finland by making a table. The corresponding descriptions of IE and ME are obtained from the documents listed below.

- Japan: Course of Study for elementary school (MEXT, online: New official curriculum guidelines for primary school ‘Zest for living’).
  Chapter 1 General Provisions
  Chapter 5 Period for Integrated Studies
- Finland: National Core Curriculum for Basic Education 2004 (Finnish National Board of Education (hereinafter OPH), online: National Core Curriculum for Basic Education 2004).
  Part II 7.1 Integration and cross-curricular themes (pp. 36–38)
  Appendix Chapter 3: Distribution of lesson hours in basic education (p. 298)

5. Comparison of the curricula

Table 1 summarizes IE and ME according to the four research questions mentioned above.

Table 1. Descriptions of IE and ME in the Two Countries

	IE in Japan	ME in Finland
When it is taught	In a cross-curricular school subject called ‘the Period for Integrated Studies’, in which students learn in a broad context.	Cross-curricular theme called ‘Media Skills and Communication’, which is conducted in conjunction with various teaching and learning activities.
Objectives	Each school should provide learning activities so that students ・ become familiar with information devices such as computers and information and communications networks ・ acquire basic operation skills, such as typing letters on a computer keyboard and information ethics ・ are able to appropriately use information devices. Each school should ・ use other teaching materials and aids properly, such as audio-visual materials and teaching and learning devices. (Chapter 1 p. 6)	‘The goals … are to improve skills in expression and interaction, to advance understanding of the media’s position and importance and to improve skills in using the media. With respect to communication skills, emphasis is given to participatory, interactive and community communication. The students are to practise media skills as both producers and recipients of messages. (p. 37)’ ‘The students will learn to ・ express themselves in a versatile, responsible way and to interpret communication by others ・ develop their information management skills and to compare, choose and utilize acquired information ・ take a critical stance towards contents conveyed by the media and to ponder the related values of ethics and aesthetics in communication ・ produce and transmit messages and use the media properly ・ use media and communication tools in information acquisition and transmission and in various interactive situations. (pp. 37–38)’

Contents	‘When carrying out learning related to information, learning activities should be conducted that allow the students to collect, organize and send information and to consider the influence of information on everyday life and society by working towards solving problems and inquiry activities. (Chapter 5 p. 3)’	• ‘expression of one’s own thoughts and feelings, various languages of expression and their use in different situations • Analysis and interpretation of the content and purpose of messages, change in the communication environment and multimedia communication • The media’s role and influence in society and the relationship between reality and the world depicted by the media • Data security, freedom of speech and critiquing sources • Tools of communications technology, their diversified use and internet ethics (p. 38)’
Distribution of lesson hours	From third to sixth grade, 70 school hours are allocated to the Period for Integrated Studies each year.	‘…subjects related to information technology may be taught as optional subjects. (p. 298)’

Source: Course of Study for elementary school (MEXT, online: New official curriculum guidelines for primary school ‘Zest for living’), National Core Curriculum for Basic Education 2004 (OPH, online: National Core Curriculum for Basic Education 2004).

5.1 When are IE and ME taught?

Both IE and ME are taught in cross-curricular settings. The Japanese Course of Study promotes IE as a cross-curricular subject in which the learning activities are conducted according to the circumstances of each school. IE is one of the four exemplified themes that comprise this subject, along with international understanding, the environment and welfare/health. In Finnish basic education, ME has been integrated into a cross-curricular theme called ‘Media Skills and Communication’, which is ‘to be included in the core and optional subject’ (p. 36). In terms of cross-curricular feature, Kupiainen *et al.* emphasize in a discussion on ME in Finland that ‘…[t]he implementation of media education as an all-pervasive subject, however,

has been heavily dependent on the activity of individual teachers' (Kupiainen *et al*., 2008: 17). This, which is also the case with IE in Japan, would influence the implementation of IE and ME.

5.2 What are those objectives?

In both countries, pupil-centred learning activities, that is, 'constructivist activities' (IEA, online: SITES Module 2: Innovative Practices), are emphasized, in which students learn through practice at their individual pace rather than in a didactic manner. As a difference, IE aims to teach students the operational skills for information devices, while ME aims to teach media skills and communication.

5.3 What are the contents?

In terms of contents, '[e]ach school should determine its own content for the Period for Integrated Studies (Chapter 5 p. 1)' in Japan. Likewise, in Finland '[t]he schools and teachers themselves decide on the material and textbooks used. The same applies to the use of ICT' (OKM, online: Basic education in Finland). Thus, the teachers basically determine the instructional contents in IE and ME. It is presumed that allowing teachers to use their own discretion in implementing IE and ME may lead to differences in the contents as well as the degree of attainment of IE or ME in each classroom.

5.4 How many lesson hours are distributed?

Specific lesson hours are not distributed to IE nor ME. In the case of IE, 70 school hours are distributed to the Period for Integrated Studies each year from third to sixth grade, however, this does not guarantee the actual implementation of IE in each school. In the case of ME, specific lesson hours are not distributed to the cross-curricular theme. The Finnish National Core Curriculum states that 'subjects related to information technology may be taught as optional subjects' (OPH, 2004: 298). This may lead to differences of the degree of attainment of IE or ME in each classroom. This is an important issue, which should be studied further.

6. Conclusion

In this paper we compared two educational approaches, IE in Japan and ME in Finland in elementary schools. Curricula in the two countries were surveyed based on four research

questions, (1) when are IE and ME taught, (2) what are those objectives, (3) what are the contents, and (4) how many lesson hours are distributed. According to the comparison, we found that the two countries have many features in common. In particular, IE and ME are taught in cross-curricular settings, pupil-centred learning activities (also known as constructivist activities) are emphasized in objectives, teachers basically determine the instructional contents, and specific lesson hours are not distributed to IE nor ME.

In a future study, we should also explore the research questions listed below:

- How are IE and ME actually implemented in each classroom?
- How do teachers establish instructional goals related to IE and ME?
- How do teachers evaluate students' learning outcomes?

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Notes

1) Total population in Japan in 2012 was 127.52 million (Ministry of Internal Affairs and Communication, Japan, 2013: online).
2) Finland's population figure was 5,445,883 at the end of September 2013 (Statistics Finland, 2013: online).
3) According to the World Bank, GDP per capita (current US$) in the period 2008–2013 was 46,179 in Finland and 46,720 in Japan, respectively (The World Bank: online).
4) Finland was one of the highest-performing OECD countries in PISA 2009 (3rd overall, 2nd among the OECD countries). Japan was ranked 8th (5th among the OECD countries) (OECD, 2010: 8).
5) In TIMSS 2011, the mathematics achievement of students in the fourth and eighth grades and the science achievement of students in the fourth and eighth grades were surveyed. Japan was fifth (fourth grade) and fifth (eighth grade) in mathematics, fourth (fourth grade) and fourth (eighth grade) in science. Finland was eighth (fourth grade) and eighth (eighth grade) in mathematics, third (fourth grade) and fifth (eighth grade) in science (IEA, 2012a; 2012b: online).
6) According to the Global Competitiveness Report 2012–2013 summarized by the World Economic Forum, Finland is one of the most innovative countries in Europe

(ranked 3rd) and Japan entered the top 10 (ranked 10th). In one of the pillars, 'health and primary education', Finland was ranked 1st and Japan was ranked 10th among the 144 economies (Schwab, 2012: 13).

7) Public and private expenditure on education for all levels as a percentage of GDP are 6.3% and 0.1% in Finland and 3.6% and 1.7% in Japan, respectively (OECD, 2013: 195).

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