Reflecting on Arts Education with Information Communication Technologies in Finland and China: Policy Analysis and Digital Literacy Analysis of Arts Teachers’ Use of ICTs

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Abstract:

This doctoral study aims principally to reflect and investigate Finnish and Chinese education with information and communication technologies (ICTs) especially at the fields of arts and culture. Finland has a reputation as one of the top education and research systems in the world and is also highly recognized in arts, design and ICT use in education. China has been reforming the education system especially in the areas of ICT, media and arts, as the educational informatization process has been an important part of education reforms during last ten years.

Digital culture and online resources link individuals with similar interests and make possible modes of learning and communicating that differ from conventional schooling. The increasing use of digital technologies in everyday life has generated the need for renewing perspectives and approaches in the development of education and pedagogical methods and models in both countries. This study has some resemblance to comparative studies, but the viewpoint is more a matter of reflecting than comparing. A theoretical literature review has been done for each paper. Document analyses and interviews are the main data collection methods in this dissertation. The empirical case study method has been used as well to investigate the teachers’ digital literacy in both one Finnish kindergarten and one Chinese kindergarten. Documentary analysis is the main methodology in the reflection and analysis of government policy and strategy.

In this dissertation, I reported and analysed the Finnish and Chinese ICT education
policies and strategies, and designed a study to compare Finnish and Chinese kindergarten teachers’ digital literacy in teaching. I also studied Chinese arts teachers’ digital literacy and the usage of ICT in secondary schools. Beside those aspects, I have also investigated Google Art Project and Finna as cultural online resources and pondered the pedagogical functions of arts and cultural-heritage education within online art galleries and museums.

Both countries promote informatization and digitalization processes in education. The informatization of Chinese education focuses on the progress towards an information society, and the effective use of ICTs. However, in Finland, digitalization emphasizes transformation to a new media ecology, which covers digital business, digital culture and media. Government’s ICT policies and strategies are important factors in teachers using digital technology and media in education. But simply incorporating more technology into teaching and learning does not go far enough in ensuring that children and young people are equipped to deal with the future and social change. In this study, the differences between arts teachers’ digital literacy in Finland and China were reflected, and mainly considered with one factor, which affects it – the respective governments’ policy and strategies. It is important to realize that these two aspects, state policies and strategies and teachers’ digital literacy, are not independent but interrelated. The focus and accent of government’s strategies have a notable effect on education reform. This study suggests some recommendations for policy makers for future education reform from the point of view of informatization and digitalization.

Keyword: digital literacy, arts education, media education, Finland, China
**Acknowledgements**

Before my doctoral studies at the Department of Teacher Education, University of Helsinki, I studied Information Systems at the University of Sheffield, UK. My master’s thesis is on user satisfaction with the Google Art Project. From then on, media and art and culture education have become my main research fields. I have found that information systems and other information and communication technologies (ICTs) can support education effectively. Arts education is more subjective, and even more dependent on technology. ICT development has driven great innovations and reforms in art equipment. Therefore, arts teachers should have a comparatively high level of digital literacy.

That is why I chose Media Education Research Group at Department of Teacher Education, University of Helsinki. My sincere thanks go to my supervisor Docent and our centre’s director, Heikki Kynäslahti, for his expertise and helpfulness. It is my honour to be his student at the Media Education Research Group. In addition, I wish to thank my other supervisor, Docent Sara Sintonen, for encouraging my research and for allowing me to grow as a research scientist. Their supervision has ensured that this doctoral study is sound and scientifically conducted.

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Beijing, 13.04.2017

Pei Zhao
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1. Introduction

Governments and companies have greatly increased investment in the use of information communication technologies (ICTs) in learning. ICTs are regarded as important teaching and learning resources. In 2010, Google Inc. began building their Google Art Project (since 2013, Google Cultural Institute). Google Art Project is a free online database, which gives Internet browsers the opportunity to view art pieces from all over the world in a gallery-style collection (Digitalmeetsculture, 2016). The purpose of my research is to investigate arts education with ICTs from Finland to China, from two perspectives—policy and strategies analysis, and arts teachers’ digital literacy.

In 2012, I had the honour to start my doctoral research at Opettajankoulutuslaitos (Department of Teacher Education) at the University of Helsinki, supervised by Heikki Kynäslahti and Sara Sintonen. Media education and arts education was the subject of my master’s thesis on Google Art Project in 2011. Even though my background is not education research, I acquired educational theory on educational informatics during my studies at the University of Sheffield. For my PhD research I chose the Department of Teacher Education, University of Helsinki because this department has a strong theoretical basis and good research achievements in media education research. It is a privilege to be a PhD student to study the core of Finnish education from different research directions.

Peppler (2013) regarded ICTs as new opportunities for internet-driven arts learners in the digital age. Dramatic changes were occurring not only in the tools and modes of arts participation, but also in artistic practices, processes and products. He found that digital technologies have transformed how and what young people create. Facing these changes and challenges, policy makers, educators and researchers have focused on how to use these technological challenges to support current arts teaching and learning. Ito et al. (2010), for their part, have argued that communities of youths are widely distributed, connected by social networking platforms such as YouTube and Facebook. Because shifting technology trends move at a substantially faster rate than
curricular changes, ethnographic research consistently shows that youths gain most of their knowledge and competencies in and through new ICTs outside of schools. Black (2008), moreover, described how online resources link individuals with similar interests and make possible modes of learning and communicating that differ from conventional schooling.

The Chinese government released its plan for education development and reform in 2010, naming it the “National Outline for Medium and Long-term Education Reform and Development (2010-2020)”. Within this reform, educational informatization is an important part of reforms for these ten years. The process of informatization is different in different educational fields, and arts education is no exception.

Finland has an excellent record in arts education and media education. Finnish ICT application scores highly in world rankings. The Finnish state spares no effort to popularize ICTs in education, including arts education. This is reflected not only in its policies and strategies, but also in the Finna, which has digitalized Finnish masterpieces in museums, art galleries and libraries. The online art gallery Google Art Project is a pioneer in online arts education and learning. This thesis involves the comparing the learning functions of Finna and the Google Art Projects.

Finland and China, the top-ranked countries in the PISA education assessment, both emphasize education development. China in particular has been developing and reforming its education system, and it is valuable to study in detail arts education with ICT in Finland and China.

My research is in media educational research but it would be most accurate to say that it is concerned with an educational perspective on media education. My research is based on two theoretical frameworks: media education and arts education. Media education approached from the point of view of educational science (e.g. Kynäslahti 2001) in which media is regarded both as content and a means for educational actions. In many countries, arts education has an important part in the school curriculum, and it plays an essential role in improving the quality of education (The United Nations Educational, Scientific and Cultural Organization (UNESCO), 2006). Nevanen,
Juvonen & Ruismäki (2014) found that arts education projects motivated children and aroused their interest in thinking, problem-solving, practising and learning, and at the same time it strengthened their abilities in listening, goal-oriented work, evaluating others’ work, and receiving feedback. Therefore, it is of scientific value to investigate arts education from a media education perspective.

In general, this study investigated Chinese and Finnish media education, especially arts education with ICTs, from two perspectives: policies and teachers’ digital literacies. It brings new understanding to the interaction of media education and arts education in China and Finland.

Methodologically, my study is qualitative in nature, and is based mainly on an inductive approach. This study has some resemblance to comparative studies (Bray, Adamson, & Mason, 2014), but the viewpoint in my research is more a matter of reflecting than comparing. The study investigates the current situations of arts education with ICTs in Finland and China from the viewpoint of policy analysis and teachers’ digital literacy analysis. In this approach, rather than directly comparing or contrasting Finland with China, the two countries are seen to reflect each other.

This research has investigated the Chinese and Finnish policies and strategies on arts education with ICTs, and arts teachers’ digital literacy in China and Finland. From social and educational perspectives, digital literacy has been regarded as a challenge for teachers’ education, because it is a matter of learning as social practice (Ollson & Edman-Stålbrant, 2008). In 2013, Kupiainen pointed out that media and digital literacies could be understood as social practices, and they are a matter of not only knowing how to encode and decode texts but also applying this knowledge for specific purposes in different social contexts. It is of great significance to investigate digital literacy from social and educational perspectives. Media literacy, information literacy and digital literacy are the three most significant concepts that focus on a critical approach towards media messages (Koltay, 2011). Kupiainen (2013), for example, stated that digital literacy refers to cognitive-thinking during digital information use. Digital literacy has reflected and shaped peoples’ new media message sending-and-receiving, and cognitive-thinking during digital information
utilization in many fields. Education is no exception. Therefore, my doctoral study has investigated arts teachers’ digital literacy from these two parts.

2. Aim, Data and Methods

The aim of this study is to investigate arts education with ICT in Finland and China. This study addressed several research objectives aimed at arts education with ICTs in Finland and China:

- Media education policies and strategies in Finland and China; (Chapters 3 and 4)
- Arts education with ICTs in Finland and China; (Chapters 5, 6 and 7)
- Arts teachers’ digital literacy in Finland and China. (Chapter 8)

Based on the literature reviews and definition analysis of media literacy, digital literacy, ICT literacy and computer literacy, in this study, digital literacy should include three skill areas: accessing, managing, integrating and evaluating information; constructing new knowledge; and communicating with others, regardless of the different kind of ICTs.

The data include the Finnish and Chinese states’ policies and strategies in education and education with ICT, and Finnish and Chinese arts teachers’ digital literacy. In the data collection and analysis methods, this study has concentrated on the policies and strategies from formal records, informal communications and personal papers. A qualitative content analysis was employed to analyse these data. As consistent with participatory and emancipatory models, the semi-structured interview data collection has been regarded as a valuable data collection method in digital literacy research of arts education. Gillham (2000) stated that face-to-face interviewing may be appropriate where depth of meaning is important and the research is primarily focused on gaining insight and understanding. Banfield (2004) concluded that collaborative qualities of research data have occurred, while maintaining a belief in their validity in revealing knowledge not only about the research data but also about the social world within which the research interviews took place. Interviews were analysed using qualitative content analysis. Hsieh & Shannon (2005) stated that qualitative content analysis is a widely used qualitative research tool. As early as 1990, Allen and Reser
pointed out that qualitative content analysis has been used fruitfully in a wide variety of research applications in information and library science. The interviews in these studies were audio-taped and transcribed. The transcripts served as the primary sources of data for the qualitative content analysis.

The following Table 1 presents Finnish and Chinese art teachers’ digital literacy based on interview data:

Table 1. Final Dataset of Kindergarten Art Teachers’ interview (Zhao & Li, 2015)

<table>
<thead>
<tr>
<th></th>
<th>Finland</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use of hardware</strong></td>
<td>Kindergarten has one computer, no projector. Four children (in four groups) at a time could participate in the discussion.</td>
<td>One computer for an online class, and one projector. The Chinese message and its English translation is posted to the children in the Finnish kindergarten.</td>
</tr>
<tr>
<td><strong>Use of basic computer skills</strong></td>
<td>The computer is connected online. The blog is opened and all the pictures online shown.</td>
<td>The blog is opened and all the pictures are shown to the children using a projector.</td>
</tr>
<tr>
<td><strong>Picture reading</strong></td>
<td>The children look at the pictures by themselves and join in discussion together about the</td>
<td>The children look at the pictures by themselves and join in a group discussion together.</td>
</tr>
</tbody>
</table>
Table 1 shows us that both the Finnish and the Chinese arts teachers’ digital literacies could support this project. The Chinese art teacher preferred to help the children’s group discussion by showing digital images, whereas the Finnish teacher actively joined in the children’s discussion. We also found that in this international and intercultural project, language software and hardware were required to support the teachers and children in the two countries.

### 3. Education informatization in China and education digitalization in Finland

The informatization of Chinese education focuses on the progress towards an information society, and ICTs. However, in Finland, digitalization emphasizes transformation to a new media ecology, which covers digital business, digital culture
Reflecting on Arts Education with Information Communication Technologies in Finland and China

and media. The term “media ecology” was first introduced by Neil Postman in 1968. Strate (1999) defined it as the study of media environments, the idea that technology and techniques, modes of information and codes of communication play a leading role in human affairs; and Krotz & Hepp (2012) argued that research needs to study developments associated with media in media-rich contexts such as family and school.

Burniske (2008) pointed out that in the digital age, literacy should be multiple, including traditional print literacy, technology literacy, information literacy, critical literacy, visual literacy and media literacy. In Finland, Niemi, Multisilta, Lipponen, & Vivitsou (2014) found that the increasing use of digital technologies in education has generated the need for fresh perspectives and approaches in the development of pedagogical methods and models. Using digitalization technology in education has become an important part of the research on education with ICTs. Digital literacy in particular has attracted increasing attention from educators and educational researchers. According to Niemi (2014), the Finnish state has ICTs and other digital learning materials which are utilized in a wide range of subjects and in boundary-crossing learning. ICTs also provide support in collaborative working skills, and help students in their learning pathways.

Both the Finnish and Chinese states have promoted arts education for some time. But while China is still on the path of educational informatization, Finland has already established its information society and has begun to consider the next step, digitalization. Therefore, the Finnish policies and strategies on arts education with ICTs provide useful experience, and we should examine them critically. Some educators have started to research digital literacy, a comparatively new subject in Finland and China. Before developing policies and strategies, it is valuable to investigate people’s attitudes and the factors that affect them. My research has carried out in Finland and China, providing a good starting point for other researchers.

4. Education with ICTs in Finland and in China

In the information age, Finnish education has been closely linked to ICTs. Sahlberg
Pei Zhao (2010) stated that the success of Finland (the “Finnish Miracle”) owes much to its teachers and education as well as being the result of technology-intensive economic development in Finland. The “Finnish Miracle” has benefited from vigorous support from Finnish Information Society strategies and the wide use of ICTs.

From 1994 to 1999, the Ministry of Education in Finland has launched two significant plans for Information Society and Information Education. ICTs were not used in primary schools until these two plans were put into force. A more recent plan, the “Information society programme for education, training and research 2004-2006” (Finnish Ministry of Education, 2004), includes primary, secondary and tertiary education. Atjonen & Li (2006) stated that the targets of this programme include:

- Developing all citizens’ information society knowledge and skills;
- Enabling education institutions to use ICT in a versatile way in their activities;
- Establishing ICT-based procedures in education, training and research;
- Promoting social innovation through the use of ICT.

Following from these three plans, people’s ICT skills and ICT industry in Finland have reached a new high level. Some researchers have studied the success of the ICT industry in Finland. Zheng and Zhu (2007) found that the Finnish ICT industry has enjoyed success around the world for the following reasons:

- Government and companies paying more attention to innovation
- Highly educated people as the core source of ICT industry
- ICT industry policies to promote rapid development
- A clean and pleasant living environment attracting talent from around the world
- An efficient and honest government guaranteeing the execution of policies.

In Finland, the high coverage of ICT courses and the number of libraries and civic organizations provide a good environment for people to acquire ICT skills. In the last decades, the Finnish government has greatly supported ICT as an integrated tool for teaching and learning, but there are still some problems. Niemi (2014) stated that in the 1990s, Finland was one of the world’s leading information societies, and the government supported the educational use of ICT. She also points out that “with the new millennium, the first wave of ICT projects came to an end, and a Society for
Information Technology and Teacher Education (SITE) 2006 study found that financial investments for the educational use of ICT had not been in line with high expectations” (Niemi, 2014, p. 13). Hakkarainen (2000) studied students’ ICT skills in Finland, and found that the low intensity of ICT usage happened on account of separate computer classrooms. He recommended that computers be brought into classrooms in order to facilitate intensive and pedagogically meaningful use of ICT.

In these five or six years, international and national reviews gave a strategic impulse to launch new ICT programmes in Finland. Some Finnish educators and researchers found effective ways to promote new technology and practices in schools. Niemi, Kynäslahti & Vahtivuori-Hänninen (2013) found the following six main characteristics of successful integration:

- ICT is included in strategic planning, as part of school culture
- Teaching and learning methods facilitate participation and lead to empowerment
- Flexible curricula
- High investments in communication
- Optimal leadership and management
- Strong capacity and commitment among the teaching staff.

It was found that education with ICT in Finland has already had decades of development, that the investments in educational use of ICT have reached a good level and brought good results, and that in some Finnish schools, teachers have used new pedagogical models and practices with excellent technological infrastructures. Vahtivuori-Hänninen & Kynäslahti (2012) pointed out that ICT cannot simply be an additional element in teaching and learning but must be fully integrated into the everyday rhythm of schools.

Since China implemented its “reform and opening up” policy in December 1978, the overall economic environment has improved, and education has experienced great development. ICTs are increasingly popular in teaching and learning.

Achieving a high quality of teaching and learning with ICTs is challenging. The reasons include the inadequate capabilities of teachers and students, and courses being
too general and not practical. Some of these questions should be answered from the perspectives of policy, belief, software and hardware. In 2010, the researchers Vanderlinde, Braak, and Tondeur at the University of Ghent published a study on the influence of pedagogical belief and ICT policy on teachers in Chinese primary schools. It showed that teachers’ belief and ICT policy are important factors in teachers using ICTs in education.

5. Policy and strategy in arts education with ICTs

5.1 Policy and strategy in arts education with ICTs in Finland

Finland’s arts curriculum is mainly organized as separate subjects and includes the following subjects (names given in English, Finnish and Swedish):

- Visual arts – kuvataide – bildkonst
- Music – musiikki – musik
- Crafts – käsityö – slöjd

(Education, Audiovisual & Culture Executive Agency, 2007)

Other arts are taught as part of other compulsory subjects: dance is included in the physical education curriculum, and drama in mother tongue and literature courses.

ICTs can be an important tool during arts education, indeed in Finland, the national core curriculum expects schools to make use of ICT. In practice, the use of ICT in arts instruction varies from school to school and even within schools depending on the teacher, the physical facilities, and so on.

The utilization of ICT in teaching and learning is one of the focus areas in development funding in Finland. In 2009, projects and initiatives in the general education sector were funded to the tune of 3.9 million euros. Among them were initiatives for using ICT within the arts curriculum.

The Finnish government has increased investment in using ICTs in arts education.
Finnish policies reflect the fact that Finns think highly of arts education in basic education and ICTs’ role in arts education. Anniina Lundvall (2013) from the Finnish Society on Media Education stated that in early childhood education, media education is focused on developing a child’s capacity to live within the media culture and the understanding of the child’s own relationship with ICTs, taking into account the age and developmental stage of the child. In basic education, the aim is to express oneself comprehensively and responsibly and interpret the communications of others; develop one’s information management skills and compare and utilize the information one gathers; critically view the content conveyed by the ICTs and ponder the ethical and aesthetic values related to the content; produce and convey messages and use the ICTs in a purposeful manner, and utilize the communication and ICTs in the gathering and conveying of information and in different interactive situations (Lundvall, 2013).

Finland is regarded as a model country when it comes to education. In 2008, the Ministry of Transport and Communications, the Ministry of Education and the Finnish National Board of Education started a project to utilize ICT in teaching and studies. They also listed the vocational schooling and apprenticeship training of early childhood teachers:

Table 2. A Guide to Media Education Themes in Finland (Lundvall, 2013, p. 11)

<table>
<thead>
<tr>
<th>Age</th>
<th>Upper Secondary School</th>
<th>Vocational Schooling and Apprenticeship Training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The subject teacher can choose the appropriate tools and content of media education. Elective courses may include, for instance, photography and...</td>
<td>The teacher can utilize media education content and tools in teaching.</td>
</tr>
<tr>
<td>Age Range</td>
<td>Education Level</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>13-16</td>
<td>Secondary Basic Education</td>
<td>The subject teacher can select the appropriate tools and content of media education. The school can provide, for example, an elective media course.</td>
</tr>
<tr>
<td>7-12</td>
<td>Primary Basic Education</td>
<td>The class teacher can select media education tools and content suitable for the class working methods. The students can be offered, for example, after-school media club activities.</td>
</tr>
<tr>
<td>0-7</td>
<td>Early Childhood Education and Care</td>
<td>Media education is carried out via conversation and as a form of play.</td>
</tr>
</tbody>
</table>
As the table indicates, at the different education stages, the themes of media education in Finland are different. In early childhood, media education is carried out through conversation and play, but at the higher levels, media education is regarded as content and as a learning tool.

5.2 Policy and strategy in arts education with ICTs in China

China’s government promotes the informatization of education. The definition of informatization is the process of development from the industrial society to the information society. The Chinese Ministry of Education (2010) stated that “informatization of government administration over education shall be promoted, so as to accumulate basic data, grasp the overall situation, intensify dynamic monitoring, and raise administrative efficiency” accordingly (2010, p. 49). Educational administrative resources of all kinds and at all levels will be integrated, and a state public education administrative service platform will be built to provide scientific reference for overall policy decisions, to offer general education information for the public, and steadily raise the modernization level of education administration.

China’s government states that education informatization should be a part of the state strategy for comprehensive informatization. It is required that by 2020, all schools in urban and rural areas should be covered by a nationwide online educational service network, so as to promote modernization of teaching contents, pedagogy and methodology. Secondly, the application of ICTs will be popularized among the entire population. Lastly, in China, requirements will be stipulated for basic school data management to hasten the informatization and standardization of running schools.

In China, integrating ICTs in arts education has taken place for several years. Zhao & Xu (2010) described the two stages of education with ICT in China. Firstly, from 1986 to 2000, ICT hardware, such as computers and printers, were ordered by schools and teachers. Secondly, from 2000 until the present, the effectiveness of ICTs in education has improved considerably, and teachers’ competence with ICTs has been strengthened. China’s government has issued several policies and strategies in arts education with ICTs. Zhao, Kynäslahti & Sintonen (2014) discussed the ‘Basic Plan
of China Arts Education in School’ (1989-2000) released by China’s National Education Commission (1989). The plan promoted the development of arts education in China, and included an emphasis on regulation construction and administration. However, arts education in China was still weak in 2000. Thus, the Chinese government created the Plan of School Arts Education Development in China (2001-2010). This regulation aimed to: 1) promote quality-oriented education, 2) increase the number of teachers, and 3) develop arts education in rural schools.

In conclusion, arts education with ICT in Finland and China has been regarded as one of the main areas of development since 2000. However, as there are differences between culture and development in Finland and China, the policy and strategies have some differences.

6. Arts Education with ICTs

In today’s knowledge-based society, ICT is a greatly valued education tool (Tondeur, Sang, & Voogt, 2012). Marner (2013) pointed out that arts education is more frequently used in schools, in comparison with all other subjects, according to his interviews with a teacher and pupils. The media-ecological concept in his study’s theoretical framework is situated within the structures of media and its uses for communicative purposes. In his study, the teacher argues that the pupils do not look for ideas on the Internet; instead, they already have an idea that they wish to give shape to.

ICTs are not the only open resources and teaching or learning tools, and changes have been made to teaching-learning parties and teacher/student models. Exter, Rowe, Boyd & Lloyd (2012) found that the use of Web 2.0 tools in collaborative e-learning should be closely related to curriculum intent and pedagogical requirements, care must be taken to provide clear guidance on both expected student activity and learning expecctions, and there is a clear need to develop, support and encourage strong interaction between both teachers and students, and amongst the students themselves.
Kalantzis & Cope (2010) stated that a revolution, which is being fueled in part by new information and communication technologies, is occurring. Pictures, music, speech and writing together occupy a prominent place in the multimedia culture (Facer, Furlong, Furlong, & Sutherland, 2003). The communication and tools of pictures, music, speech and writing have been totally different. Many research topics are emerging, such as how students and teachers communicate and how they use learning and teaching tools.

ICTs have been widely used in education, and communication and tools play an important role. Wood (2004) confirmed these observations and refers to informants who think that the execution and technical aspects have become so easy with ICTs that the focus has shifted to the message and the ideas. Peppler (2013) investigated diverse arts education fields in digital media, like visual arts, comics and manga, digital photography, and dance, and found that the new art forms make it possible for young people to share their work, receive immediate feedback from peer groups, and gain access to experts who can help them hone their craft.

Google Inc. released the Google Art Project on February 1st 2011 to enable users to access 17 famous art galleries. The Google Art Project is the subject of my master’s thesis, and I found that users would like to use such ICTs to study the masterpieces made available. By 2013, the Google Art Project had been updated and expanded, with 151 museums around the world joining it. The Google Culture Institute integrated the Google Art Project and many other new exhibits online on October 10, 2012. Google regards the Google Culture Institute as an initiative to make important cultural material available and accessible to everyone and to digitally preserve it to educate and inspire future generations.

As early as 2004, Sutherland, Armstrong, Barnes, Brawn, Breeze, Matthewman, Olivero, Taylor, Triggs, Wishart and John stated that policy makers and practitioners often ignore general perspectives about teaching and learning which should be central to all learning. However, based on research concerning the development of teaching digital art media in school, the situation seems more reasonable. Some educators found that there are problems with teachers using digital ICTs. For example, in our
interviews with eight Chinese arts teachers (article IV), most of them use ICTs during their teaching at a basic level, which is required by the government and schools. Therefore, policy makers and practitioners should consider the teaching and learning perspectives in the real world.

According to the study John (2005), from the University of Plymouth, 37 participants across six subject areas (maths, sciences, English, music, modern foreign languages and geography) were interviewed. Music teachers were more positive about the potential of new technologies to challenge both the performance and compositional base of the subject. ICT amounted to a “democratizing tool” in that it allowed children with little traditional cultural capital in music to express their musicality with devices that connected them to their own particular experiences.

Research by Phelps and Maddison (2008) interviewed 14 secondary visual arts teachers’ values, attitudes, and beliefs in using ICTs in their visual arts teaching. They also discussed five key issues:

- Do teachers perceive dissonance between ICT and visual arts itself? (While no teachers explicitly expressed beliefs that digital work was at odds with their beliefs and values regarding visual arts itself, there were evident tensions for a number of the teachers interviewed, even those who actively embraced ICT themselves.)

- Do teachers believe it is important to integrate ICT in their teaching? (Only six felt that ICT was a necessary, mandatory, fundamental or unavoidable part of contemporary art teaching, while five teachers expressed the opinion that ICT was not essential.)

- What role does ICT play in the secondary visual arts classroom? (The majority of the teachers highlighted the benefits of ICT in accessing, organizing and presenting information.)

- What issues do teachers experience when integrating ICT? (Every teacher interviewed identified resources, support or funding constraints as barriers to ICT use in the art classroom)

- How do teachers approach their own ICT learning? (The professional development and learning approaches being employed by visual arts teachers in
relation to ICT, and their values and attitudes to this learning, were a particular interest in this study.)

Since 2013, governments and companies have paid more attention to digital art and culture. The BBC YourPaintings project, for example, seeks to uncover the British nation’s art collection, and the FINNA project from Finland provides direct access to digital content and information about Finnish archives, libraries and museums.

7. Music and Visual Art Education with ICT in Finland and China

According to Finnish educational policies and practice, arts education with ICT in Finland has developed well. Kairavuori & Sintonen (2012) pointed out that the transformation from singing to music was driven by a wider shift in society: urbanization, advances in modern technology and sound production, and the proliferation of popular music, among other things.

A comprehensive arts education provides a rich and engaging curriculum that develops pupils' abilities to think, reason and understand the world and its cultures. The creative skills children develop through the arts carry them toward new ideas, new experiences and new challenges, as well as offering personal satisfaction (Bolujide 2016).

The role of ICT in art teaching is of great importance. The reasons are: firstly, the global nature of the Internet enables any young artist to use the medium to create an online portfolio that the entire world can access; secondly, arts teachers should be able to inspire students to create attractive and well-designed web pages – something in short supply in education at present (Callow, 2001). Many researches and scholars have shown that students in arts education can be enriched by using ICTs. Ward (2009), for example, showed that music students were more inventive and motivated when they were given the opportunity to use ICT in their creative work. Based on a questionnaire, Bolujide (2016) indicated that in the visual art classroom, the importance of ICT in fine arts teaching and learning increases the interest in creativity among students.
7.1 Music education with ICTs in Finland and China

Music education with ICTs in Finland has a long history, and Finnish music educators and researchers have investigated new methods of music education. In 1996, Ruismäki pointed out that blogs, wikis, podcasts and different research and teaching networks would be an important part of the future teaching environment. Kauppinen (2010) stated that music education methods should be supported by ICT skills. In addition, it was agreed that music technology education ought to develop the student as a musician and creative actor (Ruippo, 2010, p. 7-8). ICT is currently an important tool in music education development in Finland. Firstly, in Finnish schools, one starting point in music education is praxial music education philosophy. Music education should be based on research, and new ways of teaching and learning musical skills and knowledge should guide its practice (Juvonen, Ruismäki, & Lehtonen, 2012). Wu (2010) found that many researchers have shown that ICT has the potential to provide music education with a practical approach to curriculum implementation, and produce more successful teaching and learning of music. Secondly, Väkevä (2012) found that informal learning of classical music took place in connection with digital musicianship and ICT-based music learning.

The World Wide Web offers a significant amount of material suitable for music teaching and learning. Salavuo (2006) discovered that websites and networks including a user’s own music and discussions about music are like modern folk high schools or working people’s free-time houses. Peer-to-peer networks, like the Finnish net community, GarageBand.com, and PurVolume.com (Ruismäki & Juvonen, 2008) are able to get learners’ own music heard all over the world. The Internet and websites contribute to pupils’ musical achievements outside school. Ruismäki and Juvonen (2008) pointed out that a music teacher can help pupils act in these environments by offering them the necessary skills, but can also teach a critical attitude to information from the Internet.

Some Finnish music educators found the Internet environment to be a resource for music problem-solving. The Internet environment has become a kind of communal
notebook which pupils can exploit in music problem-solving. They can also build and visualize knowledge continuously, creating new information suitable for them (Ruismäki & Jurvonen 2008).

China has a good music education system. However, it faces new challenges. Xie, and Leung (2011) pointed out that in China, a turning point for music education was the promulgation of the National Music Curriculum Standard for Full-time School Compulsory Education (Experiment) and The National Music Curriculum Standard for Senior High School (Experiment), which provide a full school music education system for China comprising compulsory music courses at primary and secondary levels, in addition to elective music courses at the senior high school. Music education in Mainland China has been facing a reform with the help of information technology.

Chinese educators and researchers have widely discussed the effects that ICTs have had on music education, including educational and pedagogical content, methodology, models and thinking. Zhang (2010) concluded that the functions of information technology, digital media and networks in music education are: giving students more experience and feelings, improving music learning positivity, and innovations. Wang (2008) stated that the music education model in the digital media has these factors: student-centred education and development; teachers regarded as proposing questions and projects, encouraging students to listen to music, play music, sing, compose, research and solve questions. Compared to traditional Chinese music education, Wang also pointed out that in the music education models in the ICTs, “music dominant” knowledge and skills have been replaced by “music stealth” knowledge and skills, and music competence training; music education by memory to music feeling; music education by experience and practice; and the focus on music education has shifted from results to music process and design. Music education can take place regardless of the place and time. In 2011, Jiaxing Xie from the China Conservatory of Music explained the digital music education trends in mainland China: e-learning has changed the focus of music education from teaching to learning. She analysed the new situation as involving inexhaustible (network and database) music information resources, with virtually unlimited access. ICTs deliver the convenience of imitation learning, and flexible human-machine dialogue. New styles
of music and new musical expression are developing along with long-distance and interactive music making. According to Xie (2011), in mainland China, teachers in music education have been transformed from being providers to guides – music teachers are not only making music, but also guiding students to incorporate music into their daily lives. Music teaching is getting closer to the essence of music, including listening, humming, singing, and practising.

Chinese traditional music education, however, follows a teacher-centred education model. Li (2006) stated that in China, music education has a strong traditional bias. Teachers tend to care more about how they should teach, rather than how their students should learn. Too much emphasis is placed on teaching results and not enough on the teaching process. They want their students to sing well, but pay little attention to improving their comprehensive music literacy. Finnish music education, on the other hand, follows a student-centred education model. Kairavuori & Sintonen (2012) stated that music action in the classroom typically reflects modern music culture, allowing the students’ point of view and a very open and up-to-date perspective on music in general. In China, policy makers and educators have realized that ICTs are important tools in music education, and in this situation, music teachers’ roles have changed. Digital literacies have received much attention in the Nordic countries, and it is against this backdrop that I investigate the digital literacies of music teachers in Finland and China.

7.2 Visual arts education with ICTs in Finland and China

Visual arts education, another important part of arts education, has been deeply influenced by ICTs. As early as 1985, ICT has been used to enhance visual thinking, learning, teaching, studying, creating, and performing in Finnish art education (Paatela-Nieminen, 2005). In Finland, the Finnish National Board of Education (2004) introduced four core contents for visual arts: visual expression and thinking; artistic knowledge and culture expertise; environmental aesthetics, architecture, and design; and the media and visual communication. ICTs play an important role in visual arts education in Finland, providing:
Fundamentals of visual narration: from story to picture, close-up and overview, combining image and text (p. 235)

Illustration, comic strips, advertising images, photography, video, and the digital image (p.235)

Critical study and investigation of visual communication in television, computer games, files, comic strips, and advertising (p.235).

Besides the Finnish state, educators and educational researchers in Finland attach great importance to visual arts education with ICT. Kairavuori & Sintonen (2012) found that in the future of arts education, with the progress of digital technologies and especially interactive media, art will need to be seen more as a social skill. In a word, they hoped that the basis of the information and knowledge society will be found in human, social and creative capital. Currently, in Finland, ICTs have been multifacetedly intergrated into art education with real, mixed, virtual and augmented realities in ways, like augmented reality making photography alive; filming with iPad.

In China, ICTs have been used to build a kind of opening classroom, enrich the content of teaching, and communicate effectively. However, even though ICTs have been used in China in visual arts education, teachers’ teaching methods remain quite traditional on account of the wayteachers treat these new resources. Wei (2013) pointed out that the traditional Chinese visual arts education model is “apprenticeship”. The goal of using ICTs in visual arts education, however, is to optimize the teaching-learning process. Therefore, regardless of traditional or modern visual arts education models, if visual arts teachers could use ICTs to make this teaching-learning as perfect and effective as possible, that would lead to informatization in visual arts education in China. As the main party in the visual art teaching-learning process, teachers’ behaviours are crucial. Digital literacy involves the interest, attitude and ability of individuals to use digital technology and communication tools appropriately to access, manage, integrate, analyse and evaluate information, construct new knowledge, and create and communicate with others (Premier’s Technology Council, 2010). Digital literacy is developed through teachers’ behaviours and thoughts during their teaching with digital media. At different stages in visual arts education in China, visual arts teachers should treat ICTs differently, as,
for example, in one kindergarten, where Zhao (2014) showed that voices, pictures and videos can stimulate interest and increase the thirst for knowledge in visual arts learning.

8. Teachers’ digital literacy

The impact of ICTs on literacy teaching and learning is immense because of the close connection between literacy and technology (Bruce, 2003). Compared to traditional literacy, literacy in the digital era is re-conceptualized as multiple literacies that include traditional print literacy, technology literacy, information literacy, critical literacy, visual literacy, media literacy and others (Burniske, 2008).

Traditionally, learning environments have tended to be teacher-centred, and print-focused, where students are at the receiving end of knowledge delivery, are frequently engaged in isolated work, and receive limited sensory stimulation. However, according to Ge, Ruan and Lu (2012), the emphasis is now on collaborative work, information exchange, active exploration and inquiry-based learning.

The British Educational Communications Technology Agency (2003) listed the teacher-level barriers to the updating of ICT:

- lack of time — for both formal training and self-directed exploration and for preparing ICT resources for lessons;
- lack of self-confidence in using ICT;
- negative past experiences with ICT;
- fear of embarrassment in front of pupils and colleagues, loss of status and effective degrading of professional skills;
- classroom management difficulties when using ICT, especially where pupil-to-computer ratios are poor (Cox, Preston & Cox, 1999);
- lack of the knowledge necessary to enable teachers to resolve technical problems when they occur (Vanfossen, 1999);
- lack of personal change management skills (Cox, Preston & Cox, 1999);
- perception that technology does not enhance learning (Preston, Cox & Cox, 2000; Yuen & Ma, 2002);
- lack of motivation to change long-standing pedagogical practices (Snoeyink & Ertmer, 2001);
- perception of computers as complicated and difficult to use (Cox, Preston & Cox, 1999);

Since curriculum policy documents provide arguments for introducing ICT in the school setting, schools expect that graduates from teacher education programmes have reasonable knowledge of how to use ICT (Montgomerie & Irvine, 2001); however, this expectation is not always met. Donnison (2009) pointed out that simply incorporating more technology into teaching and learning does not go far enough in ensuring that graduating teacher education students are equipped to deal with the future and with social change.

In a case study on Chinese secondary preservice teachers, Zhou, Zhang & Li (2011) found that the research participants (Chinese teachers) were not well prepared to use technology in teaching. They had similar perspectives regarding the use of technology in teaching, and their suggestions were similar to what has been discussed in other countries regarding the way in which technology should be integrated into teacher education. They also pointed out that in the technology-centralized and teacher education-distributed environment, solutions to these questions involve more complexity compared to teacher education programmes in other countries. Therefore, in my research, I examined Finnish and Chinese arts teachers’ digital literacy in their teaching.

Teachers’ digital literacy and critical thinking in ICTs in teaching and learning is very important in their education, which would also affect students’ communication, information gathering and analysis. Batane (2004) stated that both pre- and in-service teachers need to be specifically trained in order to integrate ICT into their teaching. Kay (2006) identified ten types of operation for technology incorporation, including delivering a single technology course, offering mini-workshops and integrating technology with all courses.
Literacy has had a long development with such learning tools as books, media, computers and digital media. In the digital era, many countries attach great importance to digital literacy. Erstad (2004) stated that in Norway the national curriculum considers digital literacy to be as important as reading, writing and numeracy.

Hobbs and Morre (2013) summarized the history of literacy in the list below:

Table 3. Literacy Changes (Hobbs & Morre, 2013, p. 18)

<table>
<thead>
<tr>
<th>Rhetoric</th>
<th>Speaking and listening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Literacy</td>
<td>Reading and writing</td>
</tr>
<tr>
<td>Visual Literacy</td>
<td>Image design, interpretation, and creative composition</td>
</tr>
<tr>
<td>Information Literacy</td>
<td>Information access, retrieval, evaluation, and usage</td>
</tr>
<tr>
<td>Media Literacy</td>
<td>Analyzing messages from media and popular culture and composing with technology tools</td>
</tr>
<tr>
<td>Critical Literacy</td>
<td>Recognizing and resisting power relationships in messages and information</td>
</tr>
<tr>
<td>Computer Literacy</td>
<td>Understanding and using computer technologies effectively</td>
</tr>
<tr>
<td>News Literacy</td>
<td>Understanding and evaluating news and current events</td>
</tr>
<tr>
<td>Digital Literacy</td>
<td>Being a socially responsible user of the Internet and social media</td>
</tr>
</tbody>
</table>

Digital literacy is a relatively new field with a short history, especially with the development of ICT. Buckingham (2006) defined digital literacy based on its history and content. Dating back at least to the 1980s, computer literacy was relevant to computer skills and the inherent value of learning with computers. He points out that to stop there is to confine digital literacy to a form of instrumental or functional literacy, and when considering media education, teachers should recognize and
respect the knowledge students already about these media, and also the limitations of that knowledge. Finally, he argues that it is crucial to extend media literacy to digital texts.

In the educational research field, there are some studies about digital literacy. In the report of the Developing Digital Literacies Programme of Joint Information Systems Committee (JISC), Williams, Spiret, McCrindle and Dimitriadi (2012) defined digital literacy as those capabilities that fit an individual for living, learning and working. Literacy in the digital era is a complex set of various skills. Hobbs (2010) defined digital and media literacy as a constellation of life skills that are necessary for full participation in a media-saturated, information-rich society. These life skills include the ability to:

- Make responsible choices and access information by locating and sharing materials and comprehending information and ideas;
- Analyze messages in a variety of forms by identifying the author, purpose and point of view, and evaluating the quality and credibility of the content;
- Create content in a variety of forms, making use of language, images, sound, and new digital tools and technologies;
- Take social action by working individually and collaboratively to share knowledge and solve problems in the family, workplace and community.

(Hobbs 2010, p. vii-viii)

In 2008, Martin defined digital literacy as the awareness, attitude and ability of individuals to use digital tools and facilities appropriately to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others. This is done in the context of specific life situations to enable constructive social action, and to reflect upon this process.

In 2013, Kupiainen published *Media and Digital Literacies in Secondary School*. In this book, he mainly investigated the influence of new media and complementary studies on young people’s use and practices of digital technology. He found that digital literacy refers to the users’ attitude and experiences using digital media and
communications in a special area, following the Aspen Institute definition of four actions in digital literacy: accessing, analysing, evaluating and producing (Hobbs, 2010). In Finland, the current curriculum aims for everybody to have and use media skills in a critical and creative way (Kotilainen & Kupiainen, 2014).

The aim of digital literacy research is to address the complex and emerging social practices problems in the digital and media age. Jenkins, Purushotma, Weigel, Clinton and Robison (2006) concluded that there are three main challenges facing youth, who can simply acquire digital skills on their own without adult intervention or supervision. The three challenges are:

- access to new ICTs and the opportunities for participation they represent (participation gap);
- actively reflecting on their media experiences and thus articulating what they learn from their participation (transparency problem);
- developing the ethical norms needed to cope with a complex and diverse social environment online (ethics challenge).

In order to address these three challenges, we should rethink and investigate young people’s digital literacy and skills. It is necessary and important to study the digital literacy of youth and children. Digital literacy is essential for elementary educators to help strengthen children’s self-expression and advocacy, reasoning, critical thinking and communication skills. It is skills like these that will encourage lifelong learning and creativity in their future.

9. Discussion

In this discussion section, the results of the research are used to reflect upon the education digitalization processes in Finland and in China. Finland and China, as the top-ranked nations in the PISA assessments by OECD, are representatives of eastern and western education models. It is valuable to assess these two countries in many education fields. Finland is one of the Nordic countries that are known as world leaders in the area of ICT in education. China, by contrast, has made her new education reform more recently. Informatization is one of the goals of Chinese
educational reform. Thus it is of value to investigate the effects of educational
digitalization in Finland and educational informatization in China. Information
communication technologies are one kind of teaching resource, especially in arts
education, which mainly depends on tools and communication. Therefore, in my
doctoral research, I investigate educational digitalization and informatization in arts
education from the perspectives of policies, strategies and teachers’ digital literacy.

To build a framework and background to the discussion I have above discussed
policies and strategies to do with digital literacy. The results of the research give a
picture of arts education with ICTs in both Finland and China. In chapter 3, I described
the outlines of the study on educational informatization in China and educational
digitalization in Finland. In chapter 4, I reviewed the background on education with
ICTs, and in chapter 5, policy and strategy in arts education with ICTs in Finland and
China were described. The focus of chapter 6 was arts education with ICTs, and in
chapter 7 I specifically studied music and visual arts education with ICTs in Finland
and China. Finally, teachers’ digital literacy was discussed in chapter 8.

My research on the role and significance of digitalization in arts education was based
on questions raised in my previous studies.

Considering the credibility and authenticity of this recent research, validity, reliability
and ethical issues were discussed in detail in the original publications. The issues
focused on were state policies and strategies in media education and arts education
with ICTs in Finland and China, as well as arts teachers’ digital literacy with ICTs in
their teaching in Finland and China. I also studied Finna to understand the Finnish
current arts ICTs.

There are several factors affecting arts education with ICTs, and it is a complex matter
to investigate them. This thesis gave one viewpoint for understanding arts education
with ICTs from the perspective of state policy and strategies and art teachers’ digital
literacy. The conceptual analysis of the utility of arts education with ICTs in Finland
and China has been greatly affected by arts teachers’ digital literacy and state policies
and strategies on it. These policies and strategies have mainly determined the
hardware and software supports to schools, and the goals of teachers and students in using ICT in arts education. Therefore, during teaching, arts teachers’ digital literacy immediately influences these teachers’ behaviours in using ICT.

It is crucial to realize that these two aspects, state policies and strategies and arts teachers’ digital literacy, are not independent but are interrelated, and both of them are the main factors in the development of arts education with ICTs. State policies and strategies have required teachers’ teaching with ICTs. Teachers’ digital literacy has been affected in a complex way by state hardware and software supports, and by teachers’ behavioural requirements.

In this doctoral thesis, I found that in the state policy and strategies, Finland and China’s governments have their own developments on arts education with ICTs. However, as they are at different development stages, Finland and China have different levels of development requirements. Finland is well known for its information society and media education, and this would recommend Finland as a model for China’s policy makers in arts education with ICTs.

Besides the different culture background and development, Finnish and Chinese arts teachers’ digital literacies are different. Chinese arts teachers were found to have a comparatively low level of digital literacy. I found that in China, arts teachers’ digital literacy has been deeply affected by state policy and strategy and support, schools’ requirements and support, and the affect of behaviour and age on teachers’ personalities.

With the development of digital media and tools in education, the digital literacy of teachers and students has attracted more and more attention from Finnish media education researchers and experts. Kupiainen (2013), for example, has investigated the media and digital literacy in a Finnish secondary school, while Burniske (2008) has investigated literacy in the digital age. My doctoral research focuses on arts teachers’ digital literacy in Finland and China. Specifically, it includes policies and strategies analysis, an analysis of a kindergarten using online teaching and analysis of Finnish and Chinese arts teachers’ digital literacy, and finally an analysis of Chinese
arts teachers’ digital literacy. The academic value of my doctoral study may be summarized thus: firstly, I conclude that the Chinese government could learn from the arts education with ICTs policies and strategies of the Finnish government. Secondly, I have demonstrated how an online arts teaching-and-learning model can be used to investigate the real situation of teachers’ interaction and their digital literacy. Finally, with the sample from China, evidence is provided of Chinese arts teachers’ digital literacy.

The possibilities of new technological resources, the growing use of the Internet, online and mobile learning and new digital practices in learning have raised discussion about education with ICTs. This study has mainly focused on arts education with ICTs in Finland and China. This research views the policies and strategies of arts education with ICTs in both Finland to China, and also investigates teachers’ digital literacy in both countries. Moreover, it supports and recommends understanding more about education with ICTs, especially in arts education, both in Finland and China, including cooperation between them in the future.

This doctoral study does have some limitations and restrictions. The policies and strategies analysis, for example, now needs to be looked at in the light of such recent documents as the Finnish government’s new Curriculum in English (2016), and the Chinese government’s “Chinese Outline of Informatization Development” (2016). In the kindergarten case study (article III), Professor Li has stated that it is necessary to investigate the arts education with ICT again, and compare first- and second-time results. However, the Finnish art teacher who participated in this research is now doing research, so this will not be possible. Finally, when investigating arts teachers’ digital literacy (see article I), I initially planned to do a questionnaire for at least 50 arts teachers. However, as the sample size was only around 10, I changed my data collection method to a semi-structured interview. In my future research I would like to use further questionnaire data or big data to investigate teachers’ digital literacy. Another direction is to expand my research dimensions. Arts education with ICTs does not only take place in kindergartens or schools, but also at universities and in society at large, and this wider perspective needs to be considered as well.
Arts education affects children and students’ creativity and innovations, and ICTs have been regarded as an important and up-to-date teaching-and-learning tool. Arts teachers need to use ICTs creatively during their teaching. This study argues that China could improve the policies and strategies of its arts education with ICTs policies as well as its arts teachers’ digital literacy. More specifically:

- The Chinese government could introduce more specific policies to guide media education in different areas (e.g. arts education) and at different educational stages (e.g. early childhood education);

- The average Chinese arts teachers’ digital skills should be improved. This is not just a matter of following the requirements from the government and the schools, but of changing arts teachers’ attitudes to arts education with ICTs, especially among older teachers.

In the future, more research will be needed to investigate the role of students and schools in the digital learning environment. The role of digital media and Internet development, especially big-data technologies, should also be investigated. In general, a wider view of the role of digital learning environments needs to be considered.

Original Articles

I Article

II Article
III Article

IV Article

V Article

VI Article

During my doctoral study I have published six articles. At the beginning, I have investigated the Chinese and Finnish governments’ policies and strategies on media education, arts education with ICTs, and early childhood education. These studies helped me to gain a greater understanding of media education and arts education with ICTs policies and strategies in Finland and China. In the literature review sections, I have presented education with ICTs in Finland and China (chapter 4), policy and
strategy in arts education with ICTs (chapter 5), and arts education with ICTs (chapter 6). In addition, I have published one article about the Google Art Project and Finna, in order to understand the current Finnish national arts platform (chapter 1).

Sections on digital literacies of music and visual art teachers are covered in chapter 7 and 8. In chapter 7 I discuss music education and visual art education with ICTs. In chapter 8 I have investigated teachers’ digital literacy. The research findings of these two articles are given in Table 1 and Figure 1. The articles are described in more detail below:

In article I, co-written with Dr. Kynäslahti and Dr. Sintonen, I designed the interview questions. From December 2013 to April 2014, I interviewed eight arts teachers in Chinese Junior High and High Schools using the qualitative content analysis method. This article presents the result of digital literacy of arts teachers in China. Article II is based on my master’s research. Here my supervisors introduced me to Finna a digital service combining material from Finnish archives, libraries and museums. The article is concerned with the educational application of this Finnish arts platform to understand the current situation of Finnish arts education with ICTs. In article III study, under the supervision of Dr. Kynäslahti, I investigated Chinese and Finnish arts teachers’ digital literacy in a case study. I contacted Chinese and Finnish arts teachers and a Chinese early childhood education expert, Professor Xiaojun Li. Dr. Sintonen, an expert in the field of media education in early childhood education, helped me to form the theoretical framework for the research and gave me recommendations for books in the field. With the cooperation of Professor Li, I asked children in a Chinese and a Finnish kindergarten to participate in a blog-based drawing class, the two classes engaging in-group discussions about the drawings produced. Finally, I interviewed the two arts teachers of these classes on their digital literacy in this case. This study was an important opportunity for me to do a study by myself. Article III illustrated the differences of digital literacies of arts teachers in Finland and China.

In order to understand the current situation of arts education with ICTs in Finland and in China, in article IV I investigated the policies and strategies on arts education with ICTs in both countries. I discussed this plan with my supervisors, who found it a
suitable area of investigation. They supervised me on how to collect and analyse the data, and I wrote the article independently. Article V was designed together in several group discussions; we found it valuable to have a comprehensive view of media education and media literacy in China and Finland. Dr. Sintonen and Dr. Kynäslahti supervised me on the perspective of policies and strategies in China and Finland, and I analysed relevant documents. I wrote this article independently. In article VI, we planned to understand the background policies and strategies of early childhood education in Finland and China, especially arts education with ICTs in early childhood education. I mainly wrote this paper based on analysis of documents.

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