S. L. Wong et al. (Eds.) (2010). Proceedings of the 18th International Conference on Computers in Education. Putrajaya, Malaysia: Asia-Pacific Society for Computers in Education.

A Report on Investigation of Digital Literacies among Child, Teacher, University Student

Wakio OYANAGI [a]*, Toshiaki HONDA [b]
[a] *School of Professional Development in Education, Nara University of Education, Japan*
[b] *Faculty of Education, Ibaraki University, Japan*
*oyanagi@nara-edu.ac.jp

Abstract: This report is on basic research that tests an approach to information ethics education from the perspective of digital media. From a previous study on digital literacy, I composed a questionnaire on media usage behavior and awareness (involving such things that are seen as important), targeting junior high school students, in-service teachers and university students (student teachers), and analyzed the results. I will describe from the results, the approaches to information ethics education (the current educational approach, with diverse and extensive information, and an approach in which commonalities and perspectives are slightly altered), based on the commonalities and differences between the three parties.

Keywords: Digital literacy, information ethics, in-service education, teacher training, language activities

Introduction

As living and media environments are changing, child literacy is changing. The literacy acquired at school and the literacy that children are using from the influence of media etc. out of school are intricately entangled, and the influence of this is beginning to show in the literacy education of schools. Under these circumstances, teachers are also turning to literacy acquired out of school and beginning to examine the content and method of considering the acquisition of literacy required at school [4].
Various surveys on media usage behavior, studies related to awareness, views, thoughts, perception, traits etc. have already been conducted at the school, teacher training and in-service training levels[1] [7] [8] [9], related to these changes in media environment and changes in children, school and family[6]; the countermeasures have also been investigated [2] [3].

1. Purpose and Objectives

Thus in this report, in order to have a more detailed picture of the similarities and differences in media usage behavior of junior high students, in-service teachers and university students aspiring to become teachers, I decided to analyze the results of a study conducted with the same questionnaire [5] and validate the content of the previous studies above, while making reference to these previous studies. In other words, to gain a more clear understanding of the situation through an actual investigation by asking if ‘student teachers and in-service teachers are experiencing a situation where they can understand the children’s digital literacy.’ The objective was to identify if student teachers and in-service teachers ‘are in a situation where they understand that the literacy acquired at school and the

influence of media out of school, and its literacy are intricately entangled, and that its influence on literacy at school is beginning to show'.

2. Method

A questionnaire survey was conducted with the cooperation of one junior high school (255 boys, 247 girls – a total of 502; for details, refer to Table 1. An inventory survey was conducted at the school in November 2009 with a 93% response rate, as many students were absent due to influenza at the time of the survey.), 88 third-year student teachers at a national teacher training university (45 male, 43 female; 20–22 years of age; the survey was conducted in June 2009 at a lecture for third-year students at the same university aspiring to obtain elementary or junior high school teaching licences; responses were collected from a collection box once completed with a 55% response rate), and the cooperation of 324 in-service teachers at elementary and junior high schools in Prefecture A (115 male, 209 female; for details, refer to Table 2. The survey was conducted during a refresher training course (common compulsory subject) for all teaching staff; responses were collected after the training with a 99% response rate) with a questionnaire.

Table 1: Students at junior high school

	Y1	Y2	Y3	Total
Boys	98	69	88	255
Girls	83	77	87	247
Total	181	146	175	502

Table 2: In-service Teachers

	30 years	40years	50years	Total
Male	17	32	66	115
Female	40	59	110	209
Total	57	91	176	324

3. Results

The results were consistent with other studies: (1) The rate of mobile phone ownership among junior high school students increased with year level, with more girls than boys having one (especially Year 3 students); (2) Girls begin to use their mobile phones earlier than boys, from late elementary school; (3) Girls use their mobiles phones more times a day than boys do, which increases with year level; (4) Girls feel mobile phones to be more necessary than boys do, which also increases with year level etc. Further, girls in all year levels placed 'the importance of a mobile phone' slightly higher than boys did, with third-year junior high school girls clearly placing quite a high importance on it.

On the other hand, 70–80% of school students responded that they had never encountered the problem of information ethics in online communication. However, if we look at the ownership ratio, we cannot say that these encounters seldom occur; we can see that girls actually often experience them. As expected with higher ownership and usage, girls also had more methods for avoiding these encounters, and they were able to relate in their own way what methods they were using. Further, while there was not much overall demand for learning how to communicate more effectively, when considered with the rate of ownership, the demand was high. Responses to why learning more was necessary showed a mixture of concern for avoidance of danger and for effective usage, with responses such as 'information on dangerous sites', 'what to do if in trouble (what to do if someone writes something strange; what to do if you discover someone writing something strange; what to do if you get a strange request etc.)', 'effective use of the net' and 'information on useful sites'. Further, as shown in the results above, the need for learning about net usage was greater than the need for learning about communication. In fact, from the space on the questionnaire provided for a qualitative response on methods taken in online communication, we can see that people are trying to communicate without misunderstanding. In their interaction, they are 'using a choice of words that match the other

party' and 'using pictorial symbols to avoid misunderstanding', and getting their information from 'friends' and 'magazines and TV'.

Further, expanding slightly, in terms of media used most often, internet usage was high among both girls and boys in all year levels; mobile phone usage was higher among girls, as mentioned above, especially in girls in third-year junior high. More boys used game consoles; however, the usage declined by third year of junior high school, with a tendency to moving on to music players etc. Overall, there was not much usage reported of social networking tools using Web 2.0 technology, such as SNS or blogging; however, there was a trend for this to increase temporarily in the second year and then tapering off again. There was a tendency for blog usage among girls (see Table 3).

Table 3 (multi answer)

	SNS	blog	net shopping	game	collect info	ticket buy	writing
Y1 Boys	6%	9%	10%	34%	38%	4%	5%
Y1 Girls	5%	18%	6%	37%	40%	6%	7%
Y1	6%	13%	8%	36%	39%	5%	7%
Y2 Boys	14%	9%	9%	32%	32%	7%	6%
Y2 Girls	19%	21%	19%	35%	45%	12%	8%
Y2	17%	15%	14%	34%	39%	10%	7%
Y3 Boys	10%	9%	8%	24%	40%	2%	9%
Y3 Girls	8%	28%	9%	13%	52%	7%	14%
Y3	9%	18%	9%	18%	46%	5%	11%
Boys	10%	9%	9%	30%	37%	4%	7%
Girls	11%	22%	11%	28%	46%	8%	10%
Total	8%	7%	7%	18%	22%	5%	6%
	e-mail	music download	video player	graphics	pic edit	video edit	others
Y1 Boys	9%	38%	34%	2%	6%	10%	5%
Y1 Girls	16%	25%	37%	6%	4%	4%	5%
Y1	12%	32%	36%	4%	5%	7%	5%
Y2 Boys	12%	33%	35%	3%	7%	12%	1%
Y2 Girls	26%	48%	53%	3%	8%	6%	8%
Y2	19%	41%	45%	3%	8%	9%	5%
Y3 Boys	14%	49%	33%	2%	3%	7%	5%
Y3 Girls	29%	28%	34%	2%	5%	2%	1%
Y3	21%	38%	34%	2%	4%	5%	3%
Boys	11%	40%	34%	2%	5%	9%	4%
Girls	23%	33%	41%	4%	5%	4%	4%
Total	9%	23%	20%	4%	6%	8%	5%

Next, let us now look at the media usage behavior of student teachers and in-service teachers.

Table 4 Purpose of use of computer and Internet by preservice (multi answer)

SNS	Chat	net shopping	game	collect info	ticket buy	writing	e-mail
51%	2%	34%	26%	70%	11%	63%	36%
music download	video player	graphics	pic edit	video edit	blog	others	
39%	42%	9%	9%	8%	11%	1%	

Table 5 (multi answer)

	SNS	Chat	net shopping	game	collect info	ticket buy	writing	e-mail
male 30 years	18%	6%	24%	12%	88%	12%	59%	41%
female 30years	10%	3%	38%	5%	74%	15%	62%	28%
Total 30yeas	12%	4%	33%	7%	77%	14%	60%	32%
male 40 years	13%	3%	22%	9%	94%	19%	84%	66%
female 40years	12%	5%	22%	7%	69%	16%	47%	36%
Total 40yeas	12%	4%	22%	8%	77%	16%	59%	46%
male 50 years	8%	5%	33%	9%	76%	23%	76%	50%
female 50years	5%	0%	21%	8%	79%	17%	69%	22%
Total 50yeas	6%	2%	26%	9%	77%	19%	71%	32%
Total male	10%	4%	29%	10%	83%	20%	76%	53%
Total female	8%	2%	24%	7%	74%	16%	60%	27%
Total	9%	3%	26%	8%	77%	17%	66%	36%
	music download	video player	Graphics	picture edit	video edit	blog	others	
male 30 years	12%	24%	6%	24%	24%	12%	0%	
female 30years	10%	18%	5%	23%	5%	18%	3%	
Total 30yeas	11%	19%	5%	23%	11%	16%	2%	
male 40 years	16%	28%	6%	19%	13%	3%	0%	
female 40years	5%	10%	2%	28%	3%	2%	7%	
Total 40yeas	9%	16%	3%	24%	7%	2%	4%	
male 50 years	8%	20%	3%	26%	11%	5%	12%	
female 50years	6%	14%	4%	33%	3%	0%	5%	
Total 50yeas	6%	16%	3%	30%	6%	2%	7%	
Total male	10%	23%	4%	23%	13%	5%	7%	
Total female	6%	13%	3%	29%	3%	4%	5%	
Total	8%	17%	4%	27%	7%	4%	6%	

Among student teachers, usage

began earlier in females, with a later start with an increase in age. Both student teachers and in-service teachers showed a high interest in learning about the features and methods of online communication, regardless of age or gender, and showed an awareness of this. Furthermore, everyone showed a particularly high need to understand children's online communication and the importance of learning the actual situation, with similar figures.
Again, expanding slightly, in terms of the media used most often, internet and mobile phone usage was high among both student teachers and in-service teachers, followed by music players for student teachers and digital cameras for in-service teachers. Student teachers used computers for collecting information, writing documents and SNS, mobile phones for telephoning, email, taking photos, using the internet and SNS(see Table 4, Table 5). As expected, email is clearly being done increasingly by mobile phones than by computers.

4. Discussions

As seen among the junior high school students in the survey, the use of media (mobile phones etc.) is definitely increasing among children. Further, it is evident that they are starting to use social tools such as SNS, blogging and profiles. It is also clear that users want to learn about useful sites, usage of online social tools, information about mobile danger and what to do when in trouble, rather than learning about various ways to communicate online. However, as the results have shown, we were able to verify to what extent student teachers took part in using social tools etc., but it was clear that in-service teachers had little experience using these.
From the above, while it is natural for there to be differences in media usage behavior between junior high students, student teachers and in-service teachers in individual variability, usage times and frequency, as far as the usage of mobile phones and media is concerned, there is not a great difference in modern usage experience, other than the use of social tools such as SNS, profiles and blogging. However, the difference between junior high students and in-service teachers is certainly their use of social tools such as SNS, profiles and blogging; if we are considering information ethics education and digital literacy education, this is clearly one key for the future.
On the other hand, from their qualitative responses, student teachers are now using social tools such as SNS, profiles and blogging in their own way, but they say that they are not confident in providing guidance on online communication and are anxious on how to interact with children.
Further, it was understood that many students faced great barriers when communicating by email etc., collecting information on the internet and using social tools. Even if they have had classes at university that used web page creation, bulletin board systems or information sharing software, they cannot connect that in their minds with social tools; it seems they cannot connect what they learnt (or are learning) with the target of their educational activities.
On the other hand, even if methods for usage and creation are being taught at university, no time is being given to activities to teach how to use this as a target towards education, or even if it has been taught, it seems that more measures are needed to make students aware of it.

5. Future Issues

In the above changing situation (Investigation results), teachers are also focusing on literacy acquired by children outside the classroom, considering the acquisition of literacy required at school, and they are beginning to examine the methods and their contents.
However, until now the initiatives for digital literacy in teacher training and in-service training have first focused on tool literacy, requiring the acquisition of literacy for its usage and operation. Next, in the areas of subject teaching and representational literacy, attention has been given to educational and training activities, and the focus has begun turning towards how to effectively use ICT in subject teaching. Recently, training by expressiveness or standing in the place of the producer has also been trialed through critical analysis of information and multimode representational activities. However, with the arrival of Web 2.0, there have been changes in communication such as using the web, 'participation', 'collaboration', 'emergence', 'integration' and 'growth', and the need has also begun for changes in the accompanying literacy (New Literacy: see Figure1).
Through a survey on the actual state of junior high school children and looking at the situation outlined above, students teachers and in-service teachers can understand the facts about children's digital literacy. In this report, we have attempted to clarify through the same questionnaire whether or not they currently have the experience to guide them. From what became clear through the survey above, if consideration is given to information ethics education in teacher training and in-service training in the future, it will be necessary to widely connect it with digital literacy and consider it when the perspective of New Literacy is related to these issues.

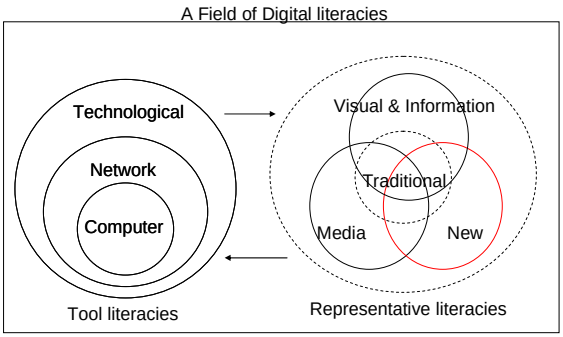

Figure1. Map of Digital Literacies

References

[1] Etoh, A., Imada, K., Suzuki, M.,and Nakamoto, K.(2009). A Study of Improvement in Education Programs for Developing Information Literacy in Teacher-Training Courses (2) : Influences of Compulsory Information Education in High School. *Bunkyo University Annual Report of The Faculty of Education*. Vol.43, 149- 160.

[2] Gotoh, Y.,(2008). Comparative Study of Preconception to Media Among Elementary School, Secondary School and University. *Japan Journal of Educational Technology*. 32(Suppl.), 61-64.

[3] Kobayashi,K. and Fujimura,Y. (2009). Analysis and consideration of questionnaire survey on image of media. *Research Report of JSET Conferences*. 09(1), 315-322.

[4] Oyanagi,W. (2008). A research on methodology about integrating adolescent: media interaction out of school into classroom lesson. *Japanese Journal of Educational Media Research*. 15(1), 29-40.

[5] Oyanagi,W. (2010). An Investigation on Actual Conditions of Children's and Teacher's Digital Literacy. *Nara University of Education Bulletin of Center for Educational Research and Development* No.19 .229-237.

[6] Sugimoto,K., Horita,T. and Ishihara,K. (2009). Investigation about student's actual condition of using mobile phone intended for students, parents and their homeroom teachers (2). *Research Report of JSET Conferences*. 09(1), 1-8.

[7] Tai,S. and Ahama, S. (2007). A Study on the Relation between Teachers' Experience of the Operation of Information Apparatus and Their Consciousness about It (Information Education). Yamaguchi *University Bulletin of the Integrated Center for Education Research and Training*. 23, 191-197

[8] Tuji,Y., Hada, Y. and Nishimori, T. (2007). Survey on the use of media by university students: result of preliminary survey. *Research Report of JSET Conferences*. 07(1), 109-116.

[9] Yokoyama,T. (2009) Tryout of School Based Systematic Information Morality Education : A Case Study at Junior High School through Cooperation of the Students, The Teachers, and The Guardians. Japan Society of Educational In formation, Journal of Educational Information . 25(2), 23-29.