DEVELOPMENT OF A DIAGNOSTIC SYSTEM FOR INFORMATION ETHICS EDUCATION

Shingo Shiota*, Kyohei Sakai** and Keita Kobayashi***
*Faculty of Education, Shizuoka University, Shizuoka Prefecture, Japan
**Graduate School of Education, Shizuoka University, Shizuoka Prefecture, Japan
***Urawa Lutheran School, Saitama Prefecture, Japan

ABSTRACT

This paper presents a new diagnostic system for information ethics education. In order to educate children about information ethics, it is necessary to know the stage at which they currently are in terms of their knowledge of the same. Some actual condition surveys have been conducted by the Cabinet Office and the National Police Agency to gauge the extent of this knowledge; however, such large-scale actual condition surveys are unable to reflect the true extent for each school. But if teachers were to conduct these surveys in their schools themselves, it would be an added burden for them since they already have immense workload.

We have developed, tested, and evaluated an easy-to-use system that can enable teachers to ascertain the level of education in information ethics among children at their school.

KEYWORDS

Information ethics education, Actual condition, Diagnostic system, Evaluation

1. INTRODUCTION

These days, many young people tend to cause as well as get into trouble over the Internet. Consequently, the Central Education Council Report (2008) declared that information ethics education must be imparted in every school.

In order to educate children about information ethics, it is necessary to know the stage at which they currently are in terms of their knowledge of the same. Some actual condition surveys have been carried out by the Cabinet Office and the National Police Agency to gauge the extent of this knowledge. Nevertheless, such large-scale actual condition surveys do not necessarily reflect the true extent of awareness among children at each school. This is problematic because if teachers were to conduct their own surveys, it would be an added burden for them since they already have immense workload.

In order to address this problem, we have developed a new diagnostic system for information ethics education. We have tested and evaluated it as well. It has the potential to enable teachers to easily determine the level of awareness of information ethics among children at their school.

This system is guided by the "5 strands of information ethics education" as suggested by the Ministry of Education. These are: ethics in information society, understanding and complying with the law, wisdom for security, information security, and constructing a public network society. The main purpose is to assess children's knowledge of information ethics and to evaluate the extent of Internet usage. For this, children are made to electronically answer a set of questions over the Internet. This can be done by the students using their own tablets or the schools' computer facilities. The system, then, immediately sends these results to their teachers who can study these and accordingly plan their lessons.

In total, there are 25 questions with four possible answers to choose from. These include seven questions about how frequently children use the Internet and six additional questions on morality, security, and law. The questions on frequency of usage entail a total of 10 points and the rest a total of 30 points. (See Figure 1).

Figure 1. A screenshot of the questionnaire

2. DEVELOPMENT

Teachers receive three types of feedback from the children's answers on the diagnostic system. These are the following:

　1. A count of the number of questions answered correctly by the child.

　2. A comparison of the students' responses from the teachers' own class with those of the students from other classes, across grades, as well as in comparison to the national average. (See Figure 2)

　3. Identification of the children who require being educated about information ethics. (See Figure 3)

　The system also marks the scores of the children's knowledge of information ethics and the status of internet usage by them in order to enable teachers to support their needs as smoothly as possible.
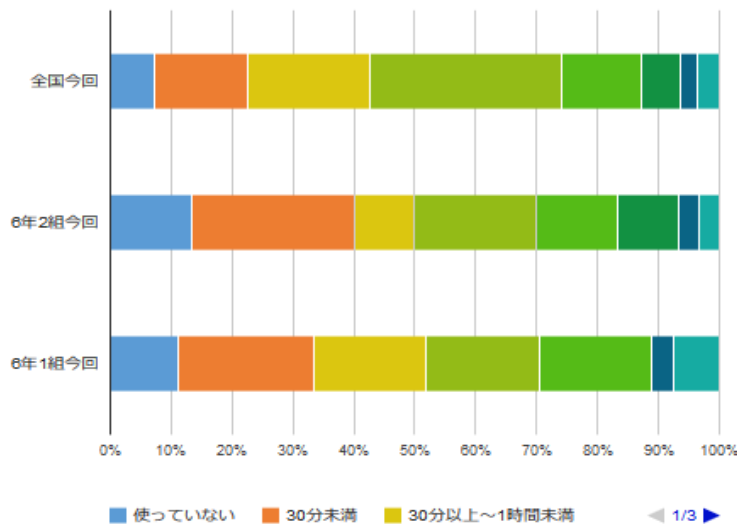

Figure 2. A screenshot of the results of the actual condition (Comparison)

Description of Figure 3:
Vertical axis: status of Internet usage. (Filtering, rules, usage etc.)
Horizontal axis: the responses from the questionnaire.
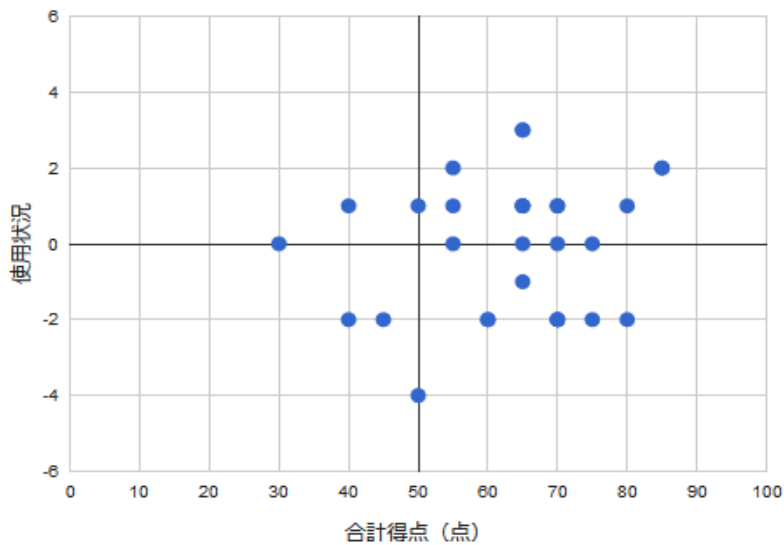Children in the third quadrant of the figure need to be supported.

Figure 3. Screenshot of Distribution

3. TEST AND EVALUATION

We tested the diagnostic system with 60 students from the sixth grade and 29 from the eighth grade.

The results show that the eighth graders scored higher points in "Knowledge" of information ethics than the sixth grade. That made it sure that the evaluation in "Knowledge" was adequate. (See Table 1)

Table 1. School type score of each category (SD)

	Total	Net Morality	Security	Low	Situation
Elementary School	62.54 (13.35)	22.28 (5.22)	20.96 (7.10)	13.86 (6.28)	5.43 (3.28)
Junior High School	68.62 (10.98)	25.34 (4.72)	22.76 (5.66)	14.66 (5.56)	5.86 (3.72)

In addition, we also interviewed the teachers of these students. They found value in receiving information about the level of awareness among the children of their class.

We are working on further improving the system by increasing the numbers of trials, evaluating them more precisely, interviewing teachers etc.

REFERENCES

Saito & Nagayuki, 2013. Research on Evaluation and Direction of Awareness Education Policy Based on Actual Usage of Internet of Youth, 2013-CE-120(7), Japan, pp.1–10