

Original Article

Development and Evaluation of a Teaching Material using a Moral Dilemma Story

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It was necessary to evolve an instruction method to raise students' morality higher. Therefore, a moral dilemma story based on the theory of Lawrence Kohlberg's stages of moral development was introduced as the instruction method. The purpose of this study was to evaluate a newly developed teaching material using a moral dilemma story and to give suggestions to develop teaching materials. The story, called "Urgent email" was developed and the lessons were practiced in an elementary school, a secondary school and a university in 2008. As a result, it was clarified that the material was effective to raise their morality development stages higher for the fifth graders of elementary school who were positioned in relatively lower level beforehand. On the other hand, the material was less effective for the junior high school students and the university students, because many of them were positioned in relatively higher level beforehand. In addition, according to the result it was necessary to describe the context of the story roughly so that the judgment of the learners was based not on the description of the story but on their internal morality.

Key Words: Teaching Material, Moral Dilemma, Information Ethics, Reasoning

Introduction

It has been long since as a part of the negative effects of the information technology in society, bullying and slander by writing to the bulletin board on the Internet became a social problem. In order to cope with these problems, not only the Ministry of Education of Japan but also local boards of education, teachers at schools and researchers at universities started to progress the education of information ethics. The contents of the education of information ethics consist of "to grow the correct judgment and desirable attitudes in the information" and "to understand the methods of the risk aversion to live safely in the information society and to gain the knowledge and technology of security, awareness

of health" (Kickoff Guidebook for the Education of Information Ethics, 2007) [1]. Concerning to the related information safety, various materials had been provided (Center for Educational Computing, 2005) [2] (National Center for Teachers' Development, 2005) [3]. However, teaching materials to grow a former information ethics were not enough. In fact, authors Sasaki, et al. (2005) also created 20 pieces of teaching materials package for information ethics consisting of reading materials, scene paintings, and lesson plans [4]. The package could help teachers to teach students how to deal with the trouble that occurred when using the Internet and mobile phones. But they couldn't expand to the development of information ethics for students.

Purpose

The guidance on information ethics was introduced to the moral class under new national curriculum standards of elementary and junior high schools.

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This required us to develop teaching materials to cultivate information ethics to students. Therefore, we attempted to develop the reading materials to utilize in the moral class and to evaluate them through a practice in this study. In previous studies it clarified that the moral dilemma story was effective to raise morality through the practice in the moral lessons (Araki, 1988) [5]. Terashima et al. (2007) attempted to introduce the moral dilemma story into the education of information ethics [6]. However the difference of the effectiveness between students of elementary school, junior high school and university had not been discussed yet.

Although the reading materials on information ethics had appeared in several textbooks of morality, some of them had fallen into the methods of crisis prevention only. Under such circumstances, it was significant to develop the reading materials. The reason to develop reading materials was that the materials had been used most frequently in the moral class thus far and had been familiar to many teachers. In this study, we developed a moral dilemma story that incorporates social issues and evaluated through practice in class. The purpose of this study was to evaluate whether a newly developed moral dilemma story could raise their level of morality through practicing lessons in an elementary school, a secondary school and a university and to give suggestions to develop teaching materials.

Development of a teaching material

Moral Dilemma

The rationale morality cognitive development theory of Kohlberg was applied to develop the teaching material and evaluate it. According to the Kohlberg's morality cognitive development theory,

there are three levels to the morality of human beings as shown in Table 1. The level can be further divided into six stages of development. Then, they improve the morality along with each step.

In the lesson with moral dilemma, learners encountered the value conflict situation such as affection for one's family vs social justice that the learner's moral cognition would become imbalance at first. And then, they changed their consideration to adjust the status of this disharmony and intend to improve the morality level higher [8]. In this way, the instruction using the moral dilemma needed a value conflict situation. Therefore, we had to prepare a value conflict situation where a protagonist of the story encountered and started to feel discomfort while using mobile phone and Internet. As a value conflict situation, several problems of information technology such as email, bulletin board, chat, video chat, blog, social network services and so on were discussed. As a result, a topic of urgent email was selected because it would be appropriate to introduce the moral dilemma situation whether s/he should transfer the urgent email or not.

Fig. 1 showed the newly developed moral dilemma story titled "Urgent email". In the first half until the mark (a) a protagonist, Mayo told her family the weather forecast she knew in TV and her family appreciated it. This was the part which gave the readers an impression of the usefulness of transferring information. Next, in the part of mark (a) to (b) she received an urgent mail from her friend and got to be asked to transfer to the others. She worried whether she should transfer the urgent email or not. This was the part which gave the readers a dilemma between her intention to transfer the information to avoid the risk of the others under the urgent situation and her anxiety to cause fears of the

Table 1 Kohlberg's six stages: Adapted from Kohlberg (1976) [8]

Level	Stage
1 Pre-Conventional	1. Obedience and punishment orientation 2. Self-interest orientation
2 Conventional	3. Interpersonal accord and conformity 4. Authority and social-order maintaining orientation
3 Post-Conventional	5. Social contract orientation 6. Universal ethical principles

Mayo is a fifth grade student of Hinode elementary school. One day, after coming back home from school, she watched the weather forecast in TV. The forecaster said it would be raining this evening.
 Mayo thought, "We will be bothered by the rain this evening." Therefore she told her family that it would be raining this evening.
 Her older brother said, "I was just heading out. I'll bring an umbrella. Thank you, Mayo."
 Her mother said, "I'll take in the laundry earlier in this afternoon. Thank you for your information."
 As her family said thank you to her, she felt a little embarrassed and also felt honored.
 She was driven by an impulse to tell this thing to her friend and started e-mailing it. Then she found an unread email from her friend, Natsumi.

..... (a)

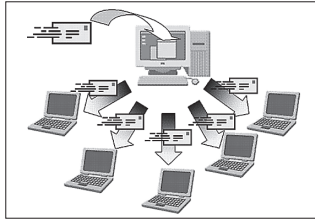
Title: Fw: Urgent email
 Hi ! Mayo,
 I've got a urgent email below.
 Send the mail to others asap
 >

A suspicious guy appeared around Hinode elementary school yesterday. The guy called out to a girl and seemed to want to pick her up in his car. It was said that 2 or 3 girls were called out by him until now. Fortunately no victims were reported. However, we cannot feel relieved. You must transmit this mail to the people including your friends and family around you as many as possible.

..... (b)

"This is so serious". Mayo was going to transfer this email in a hurry, but came to a stop. And she felt uneasy whether she should transfer it.

Transfer
 to send the email that reached one's e-mail address to other e-mail addresses intact as shown in figure



Transfer

Fig. 1 Teaching Material

others by her transferring the unreliable information. The aim of this dilemma was to notice the influence for the society and their roles by discussion, and raise their morality. Next, in the part of mark (b) to the end of the story, the function of email transfer was explained because there might be the learners who didn't know the email transfer. Fig. 1 was a story for elementary schools. Depending on the learners' age range, the age of the protagonist, the content of the urgent email and expression of the story would be adjusted. For example, Mayo would be changed to a junior high school student if the story is presented to junior high school students.

Evaluating Method

After reading the story in the first half of the lesson, the teacher enquires whether she should transfer the urgent email or not and its reason

(Reasoning 1). Then students are asked to discuss their reasoning in two groups. In the second half, after the discussion between both sides, the teacher enquires whether she should transfer the urgent email or not and its reason (Reasoning 2). After the lesson, description of students' reasoning has to be graded by using Kohlberg's six stages. Examples of the reasoning are prepared according to Kohlberg's six stages as shown in Table 2. Using Table 2, Reasoning 1 and Reasoning 2 are graded and compared. This difference is then used in order to evaluate a change in student's morality.

Experiment

Target: 24 elementary school students, 118 junior high school students, 69 university students, all of these schools are in Okayama-prefecture, Japan.

Table 2 Examples of Description

She should not transfer the urgent email	Stage	She should transfer the urgent email
Because teachers said the chain mail shouldn't be transferred. Because if she transferred the urgent email, she might be punished by law.	1	Because Natsumi told me to transfer it. Because if she didn't transfer the email, Natsumi would be angry at me.
Because if she transferred the urgent email, the others might complain to her. Because if she transferred the urgent email, the others might hate her.	2	Because if she didn't transfer the email, she would be hated by Natsumi. Because if others knew that information, she would be appreciated.
Because the transferring of the urgent mail might make the others embarrassed. Because the transferring of the urgent mail might lose her credibility.	3	Because Natsumi would be happy to know Mayo's transferring. Because if she didn't transfer the email, Natsumi would be disappointed. Because if she didn't transfer the email, the others might become victims of that crime.
Because transferring the chain mail would not be beneficial for the society. Because transferring the unreliable mail might plunge the society into panic. Because transferring the chain mail would corrupt the network.	4	Because as one of the society, she should provide the information. Because this kind of crime should not be permitted. Because the people in the society have right to know this information.
Because if she transferred the urgent email, the order of the society would be disturbed.	5	If she didn't transfer the email, she would suffer from a guilty conscience.

Period: June to July 2008

Objective: To judge considering the influence upon the society and his/her roll in the case of using email.

Practice: At first the teacher handed out the moral dilemma story and the students read it. After reading the story, the teacher questioned students whether she should transfer the urgent mail or not and requested them to write the reason on the sheets. Next, the teacher requested students who thought she should transfer it to raise their hands. And then, the teacher also requested students who thought she should not transfer it to raise their hand. Next, the teacher told them to change seats with students who thought she should transfer it to move to the right side of the classroom. The teacher also asked students who thought she should not transfer it to change seats to the left side. The teacher asked both sides to exchange opinions with each other. After the discussion, the teacher told them to go back to their own seats. And then the teacher questioned them whether she should transfer the urgent email or not and requested them to write the reason again. Next, the teacher requested students who changed their position to raise their hands, and asked them to present their reasons. Finally the teacher collected

the sheets on which the students wrote their reasons. At this point, the lesson was over.

Results

Using Table 2, Reasoning 1 and Reasoning 2 were graded as shown in Table 3 for the number of fifth grade students. The reasoning were also graded as shown in Table 4 for the number of first grade students in junior high school. The reasoning were also graded as shown in Table 5 for the number of freshmen university students. The rows showed the number of students who graded each stage in Reasoning 1 and the columns showed the number in Reasoning 2.

Concerning the fifth graders in elementary school, in Reasoning 1 there were 2 on Stage 1, 4 on Stage 2 and 14 on Stage 3. In Reasoning 2, the 2 students who were on Stage 1 remained on Stage 1. One of their descriptions said, "There is a rule that says to never transfer chainmail" in both reasoning. They were depended on the rule so that we graded them Stage 1. 2 of the 4 who were on Stage 2 were raised to Stage 3. 2 of the 14 who were on Stage 3 were raised to Stage 4. In total, 14 students (58%) raised

Table 3 Number of students of the fifth graders in elementary school

		Reasoning 2					
		Stage 1	Stage 2	Stage 3	Stage 4	Stsge 5	Total
Reasoning 1	Stage 1	2	0	0	0	0	2
	Stage 2	0	2	2	0	0	4
	Stage 3	0	0	2	12	0	14
	Stage 4	0	0	0	0	0	0
	Stsge 5	0	0	0	0	0	0
	Total	2	2	4	12	0	20

Table 4 Number of students of the first graders in junior high school

		Reasoning 2					
		Stage 1	Stage 2	Stage 3	Stage 4	Stsge 5	Total
Reasoning 1	Stage 1	0	0	0	0	0	0
	Stage 2	0	0	4	0	0	4
	Stage 3	0	0	5	11	0	16
	Stage 4	0	0	0	78	0	78
	Stsge 5	0	0	0	0	0	0
	Total	0	0	9	89	0	98

Table 5 Number of students of the freshmen in university

		Reasoning 2					
		Stage 1	Stage 2	Stage 3	Stage 4	Stsge 5	Total
Reasoning 1	Stage 1	0	0	0	0	0	0
	Stage 2	0	0	0	2	0	2
	Stage 3	0	0	0	0	0	0
	Stage 4	0	0	0	46	0	46
	Stsge 5	0	0	0	0	0	0
	Total	0	0	0	48	0	48

their morality level

Concerning the first graders in junior high school, in Reasoning 1, there were 4 on Stage 2, 16 on Stage 3 and 78 on Stage 4. In Reasoning 2, all 4 students who were on Stage 2 were raised to Stage 3. In addition, 11 students who were on Stage 3 were

raised to Stage 4. In total, 15 students (13%) raised their morality level. On the other hand, 78 students were graded Stage 4 in Reasoning 1. They were the majority and they remained on Stage 4 in Reasoning 2. Some of their descriptions were "Transferring the unreliable mail might plunge the society into panic."

and “The unreliable mail might make people feel embarrassed.” All of them didn’t change their reasons in both reasoning. Since they were considering the influence for the society, we graded them Stage 4.

Concerning the university freshmen, in Reasoning 1 there were 2 on Stage 2 and 46 on Stage 4. In Reasoning 2, the 2 students who were on Stage 2 were raised to Stage 4. In total, those 2 students (3%) raised their morality level. On the other hand, 46 students were graded Stage 4 in Reasoning 1. They were the majority and they remained on Stage 4 in Reasoning 2. Some of their descriptions were “We should never transfer the unreliable mail because it might panic the society.” and “The chainmail might become too much of burden upon the network.” All of them didn’t change the reasons in both reasoning. Since they were considering the influence for the society and the network, we graded them Stage 4.

Discussion

The students of the first graders in junior high school and the freshmen in university didn’t raise their morality so much. Because in Reasoning 1, 78 students (66%) of junior high school and 46 students (67%) were already positioned on Stage 4. We considered the reason that the junior high school students had learned how the transferring affect to the society and how to cope with the transferring email in the industrial arts lesson. And also students of the university had learned them in the information lesson when they were in senior high schools.

Therefore, the material was effective to raise their morality for the fifth graders of elementary school who were positioned in relatively lower level beforehand. On the other hand, the material was not so effective for the junior high school students and the university students, because many of them were positioned in relatively higher level beforehand. Otherwise, no one didn’t go up to Stage 5. We have to develop the material to raise the students morality to Stage 5.

On the other hand, there were several descriptions which we couldn’t grade using Table 2. There were 4 students (17%) of the fifth graders of elementary school saying “Because is doubtful email.” and “Because the sentence of the email is strange.” There were 20 students (17%) of the first graders of junior

high school saying “Because the sentence ‘2 or 3 girls were called out by him’ is strange.” and “Because ‘around Hinode elementary school’ is doubtful.”, “She had better call police.” There were 21 students (30%) of the freshmen of university saying “Because it is obvious that this mail is a chainmail from its contexts.” and “She should call police as soon as possible because picking a girl on his car is obviously crime.” We considered that they described the reason based not on their internal morality but on the contexts of the story. Therefore we can indicate that it is necessary to describe the context of the story roughly so that the judgment of the learners was based not on the description of the story but on their internal morality.

Conclusion

A moral dilemma story based on the theory of Lawrence Kohlberg’s stages of moral development was introduced as the instruction method. The story, called “Urgent email” was developed and the lessons were practiced in an elementary school, a secondary school and a university in 2008. As a result, it was clarified that the material was effective to raise their morality development stages higher for the fifth graders of elementary school who were positioned in relatively lower level beforehand. On the other hand, the material was not so effective for the junior high school students and the university students, because many of them were positioned in relatively higher level beforehand. In addition, according to the result it was necessary to describe the context of the story roughly so that the judgment of the learners was based not on the description of the story but on their internal morality.

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Accepted March 31, 2015.

