RPG Active Learning Software to Evaluate the Literacy of Children

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Abstract

Children like Role Playing games (RPG). When they enjoy communicating with characters on the Game in English activity class, they are not aware of taking diagnostic tests in English. This paper introduces how well the active learning software contributes to evaluate children's literacy. The RPG server on the intranet has already been developed under this research project. The RPG active learning game diagnostic tests have been carried out on the first, the second and the fifth graders of an elementary school in Kobe, and the second graders in Himeji, Japan. The story of the RPG develops as a cosmic fantasy. The hero of the story is Newton. He came to the earth by accident. To live on the earth he needs several things so he goes shopping with children. Can they choose what Newton wants? They have to choose the right one from eight items for each request. Statistics shows how many children clicked for the answers and how well they choose items comparing each grade.

For this research we asked children five inquires and also free descriptions of comments on the Game. Each question has 4 multiple choices. The fifth graders have experienced about thirty school-hour English lessons prior to the test. On the other hand, the first and the second graders have only 2 school-hour English lessons prior to the test. You can see how much all the pupils enjoy the computer RPG world, and how well they understand the content of the story without noticing that they are taking the listening comprehension test at the same time.

It is amazing to find how children guess their answers by a bit of cues such as Japanized foreign words, pictures and the sounds of the RPG software. The result of their achievement shows the competence of their English skills including the amount of their vocabulary, listening comprehension, penetration and insight. We are confident if children can play and learn by this PRG software which suit their developmental stages, their competence of English acquisition will expand greatly.

1. Introduction

Children enjoyed Role Playing Games (RPG) on the interactive white board . The story-based evaluation system with iPods is successful in English Activities at Minooka Elementary School and Hiromine elementary school, public elementary schools in Japan. When they enjoy communicating with characters on the Game in English activity class, they are not aware of taking diagnostic tests in English. This paper introduces how well the active learning software contributes to understand the different language, and how well and spontaneously not only children themselves but also teachers evaluate the abilities the Literacy for children easily and spontaneously. The reflection sheets children wrote indicate that they enjoyed and understood the story, tried to respond the main character's request with the iPods. However, they never notice this RPG Active Learning Software is a diagnostic test to evaluate English competence or 'language' literacy of first language and different languages, but they feel they enjoyed the communication with the main character "Newton," who moved to the earth from a certain planet, and shopping for him.

The RPG active learning software on Microsoft Power Points and the system between iPods and the system server on the intranet have already been developed under this research project (Kanazawa and Fukuchi, 2015 ICERI, 2014 ICT). The RPG active learning game diagnostic tests have been carried out on the first graders, the second graders and the fifth graders of elementary schools in Kobe and Himeji, Japan. Children also answer five inquiries of the learners' attitude in class . They answer each question out of 4 multiple choices. They evaluated their own attitudes on the four alternatives. At the same time the system server on the intranet evaluate children's activities and recorded the results of the RPG game.

Some remarks from the students show how well the learners understand the story of the RPG world. You could see how much the students enjoy the RPG and how well the system works at elementary schools. This paper clarify the students' ability to understand a foreign language.

The research data has been recorded and analyzed by the system server on the intranet immediately and automatically

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2 RPG Active Learning Software to evaluate the Literacy of children
2.1 The questionnaire result

When children enjoy communicating with a main character Newton on the Role Playing Games (RPG), they are not aware of taking diagnostic tests in English. They just enjoyed the story and shopping. Therefore the questionnaire result shows how well they understand the story contents on this software. The RPG and the test have been carried out by 27 first graders in September 2016, 28 second graders in June 2016, 38 fifth graders in September 2015 at Mino-oka elementary school. The students answer each question out of 4 multiple choices. Children evaluated their attitude with four stages. Each number shows the higher, the better (Graph1).
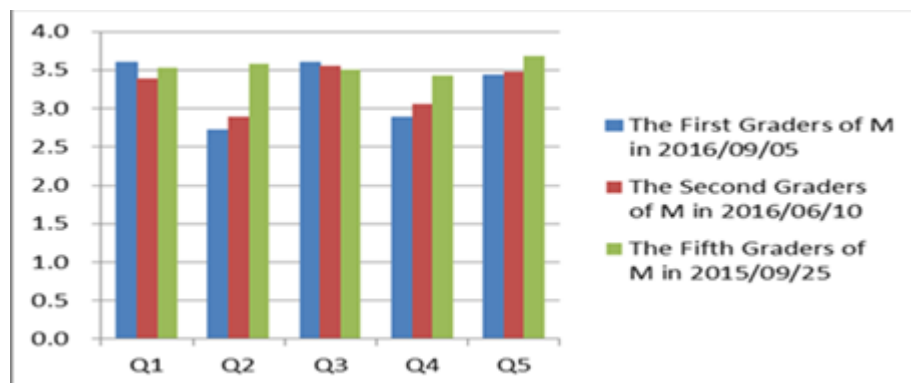
The first graders
1. Did you enjoy the story? (3.6/4.0 average point)
2. How well did you buy for Newton? (2.7 /4.0 average point)
3. Did you enjoy shopping? (3.6/4.0 average point)
4. Using iPod, did you answer what you were asked about? (2.9/4.0 average point)
5. Do you like computer games? (3.4/4.0 average point)
The second graders
1. Did you enjoy the story? (3.4 /4.0 average point)
2. How well did you buy for Newton? (2.9/4.0 average point)
3. Did you enjoy shopping? (3.6/4.0 average point)
4. Using iPod, did you answer what you were asked about? (3.1/4.0 average point)
5. Do you like computer games? (3.5/4.0 average point)
The fifth graders
1. Did you enjoy the story? (3.5/4.0 average point)
2. How well did you buy for Newton? (3.6/4.0 average point)
3. Did you enjoy shopping? (3.5/4.0 average point)
4. Using iPod, did you answer what you were asked about? (3.4/4.0 average point)
5. Do you like computer games? (3.7/4.0 average point)

Graph1: Results of Students Reflections

The survey, Table1 shows that 95% of the fifth graders, 86% of second graders, and 100%of the first graders affirmatively answer the question, "Did you enjoy the story？". It shows they understand the story contents on this software well. 95% of the fifth graders, 92% of the second graders and 92% of the first graders enjoy shopping, and they affirmatively answer the question3 "Did you enjoy shopping？". However, the data shows the first graders don't feel their shopping successful, while they actually enjoy shopping on the RPG world. When the question 2, "How well did you buy for Newton?" is asked to the fifth graders and the second graders, 95% of the fifth and 82% of the second graders affirmatively respond, however, only 64% of the first graders affirmatively respond. When the main character, "Newton," checks out what he wanted at the end of the game, the children see their own results and know whether the goods they have clicked are correct or not. The data of question4 "Using iPod, did you answer what you were asked about?" shows that 92% of the fifth graders feel they could use iPods and answer the question, however, 40% of the first graders and 25% of the second graders do not feel shopping using iPods went well. It indicates they could evaluate them

actively and exactly. Moreover, some remarks "I could not choose some correct answers, but the game was a lot of fun" show they evaluate them objectively.

Table1: Results of Students Reflections

		The First Graders of M in2016 (n=27)		The Second Graders of M in 2016 (n=28)		The Fifth Graders of M in 2015 (n=38)	
		Affirmative	Negative	Affirmative	Negative	Affirmative	Negative
Q 1	1. Did you enjoy the story ?	100%	0%	86%	14%	95%	5%
Q 2	2. How well did you buy for Newton?	64%	36%	82%	18%	95%	5%
Q 3	3. Did you enjoy shopping ?	92%	8%	92%	8%	95%	5%
Q 4	4. Using iPod, did you answer what you were asked about?	60%	40%	75%	25%	92%	8%
Q 5	5. Do you like computer games?	88%	12%	82%	18%	89%	11%

2.2 Results of students' correct answers recorded by the system server on the intranet immediately and automatically

The story of the RPG develops as a cosmic fantasy. The hero of the story, Newton came to the earth by accident. To live on the earth he needs several things so he goes shopping with children. Can they choose what Newton wants? Results were recorded by the system server on the intranet immediately and automatically.

The first graders of Mino-oka elementary school have only two school hour English lessons, the second graders of Hiromine elementary school have no experience, and the fifth graders have about thirty school hour lessons prior to the test. How much is there a difference of the competence between the grades?

This is the first time for all graders to play in the RPG world using iPods. Ratio of the respondents was high in the first graders(82%), the second graders (83%) and higher in the fifth graders(92%). This means the first graders and the second graders got used to clicking iPods immediately. The fifth graders become much familiar with using iPods on just only the first example question.

However, the correct answer rate of the first graders (28%) and the second graders (33%) was much lower than the fifth graders (81%). Furthermore, the result of the fifth graders who answered correctly among those who clicked iPod (88%) was much higher than the result of the first graders (37%) and the second graders (40%). This might depend on a difference of the quantity of English learning. The fifth graders do not know all the words, and the first graders and the second graders know only the words spoken in Japanese. The results might be affected the difference in the number of vocabulary they know(Ratio of correct answer and of respondents).

The data indicates, how well they understand the contents of story and English. How exactly they chose the right one from eight items for each request. Statistics shows how many children clicked for the answers and how well they choose items comparing each grade.

Table2: Ratio of correct answer and of respondents

		1	2	3	4	5	6	7	8	9	10	
		Exercise A blue cap	A blue pencil-case	A pair of yellow shoes	a pair of long socks with purple lines	a dinosaur with a long neck	an orange cup with flowers	a black and red bag with a white cat	a black T-shirt with flowers	a white umbrella with red hearts	a big pink cotton candy	Total Average (2 - 10)
The 1st Graders of Mino-oka (n=27)	Ratio of the correct answer	0%	33%	30%	11%	26%	48%	33%	30%	7%	37%	28%
	Ratio of the respondents	4%	41%	70%	52%	96%	100%	96%	96%	89%	100%	82%
	Ratio of children who answered correctly among the children who clicked iPod	0%	82%	42%	21%	27%	48%	35%	31%	8%	37%	37%
The 2nd Graders of Hiromine (n=28)	Ratio of the correct answer	0%	50%	39%	18%	11%	32%	46%	61%	7%	29%	33%
	Ratio of the respondents	96%	61%	86%	71%	68%	100%	96%	86%	75%	100%	83%
	Ratio of children who answered correctly among the children who clicked iPod	0%	82%	46%	25%	16%	32%	48%	71%	10%	29%	40%
The 5th graders of Mino-oka (n=38)	Ratio of the correct answer	38%	84%	84%	86%	78%	84%	84%	95%	46%	89%	81%
	Ratio of the respondents	38%	95%	92%	92%	86%	95%	89%	97%	89%	97%	92%
	Ratio of children who answered correctly among the children who clicked iPod	100%	89%	91%	94%	94%	89%	94%	97%	52%	92%	88%

3. Conclusion
Consequences and Analyses
3.1 The analysis of questionnaires
(1) Using theRPG and iPods, all graders (100% of the first graders, 86% of the second graders and 95% of the fifth graders) answer that the story was interesting. As the grade goes up, the experience of using video   games and iPod goes up. Although some of them have a little experience, most of the pupils want to touch and play on iPods.
(2) Pupils do not regard these teaching materials as diagnostic test but as an enjoyable game. Therefore, some comments say, "There were some difficult points, but the story was interesting so I could enjoy the RPG.

3.2 The analysis of the ratio of the correct answers
(1) The sound, the pictures and animation of RPG make children focus towards the story and the development of the story more than English itself. They try to concentrate on the story even if they do not catch English and do not understand the content exactly.
(2) Children try to guess the context of the story with help of the sound and the sight. They try to respond to what Newton wants and click the item out of eight. In other words they regard English as a whole language and try to understand even if they do not comprehend each word and sentence precisely.
(3) The table of the graph shows the simpler syntax the sentence structures are, the easier to comprehend as you see in Q02 "a blue pencil case". It can be said in Q06 and Q08. In those sentences we see some Japanized words which children can guess the meaning for example, cup, pencil case, flower, and T-shirt as nouns and blue, pink, orange as adjectives. On the contrary, umbrella, hearts (pronunciation is different from Japanese), neck, lines, cotton candy as nouns are difficult to understand as well as long, a pair of, purple, white, and red as adjectives. These cases show that when children get any cues out of some vocabulary which they are familiar, they try to figure out the meaning of the whole context.

(4) Comparing the level of the comprehension competence by each grade, it is obvious that as a grade goes up, the competence increases (total average: the first graders 28%, the second graders 33%, the fifth graders 81%). This result infers that the RPG software is sufficient enough to judge the level of competence of literacy. And also as the grade goes up, the length of the studying English increases. Here we can see the good effect of English education in public elementary school.

Moreover, as a grade goes up, their competence of literacy in their mother language develops. We can guess this fact has much influence on the second language or the foreign language. (Cummins,1984)

3.3 Summary

Children learn the most from playing. The RPG software seems to draw a great interest of children to the story and lead them to the English world unconsciously. When they choose the answers, it is just a game for them. However, by this choice the competence of literacy is judged by teachers and also by themselves after all.

The demand for this kind of RPG software which brings much fun for children to learn will get bigger in a near future.

References

[1] FUKUCHI, KANAZAWA, 2014*" Survey data clip A Child and Education" CLIP0005B, Benesse Educational Research "Development of Simultaneous Conversation Evaluation Program with Electronic Whiteboard in Public Elementary School English Activities in Japan"*

[2] KANAZAWA, FUKUCHI, 2015 *"Instrumental Motivation in English Activities at a Japanese Public Elementary School"*

[3] Jim. Cummins, Danesi, Marcel, K.Nakajima, 1984, *"Heritage Languages" Akashi-shoten*