What Good is Digital Storytelling? The Case of Cognitive Reading Responses between Two Readers

Rofiza Aboo Bakar, and Hanani Ahmad Zubir

Abstract**—**Even at the university level, there are students who have difficulty in understanding expository texts. Digital storytelling is claimed as being influential in enhancing reading comprehension. However, little is known about students' reading responses that lead to comprehension. Thus, this study aimed to explore students' cognitive reading responses that emerged by developing digital storytelling. Reader response theory was used as the theoretical framework. Qualitative research methods were applied. A purposive sample of an above-average and a below-average readers was selected. Findings indicated that both readers had responded well by activating their background knowledge, establishing purpose for reading, identifying main ideas, summarizing and drawing inferences although the below-average reader was not as adept as the above-average reader in these cognitive elements. Thus, digital storytelling is seen as having potential to be integrated in the English reading class since it can help readers of different proficiency levels to utilize their cognitive abilities.

Keywords**—** Above-average reader, below-average reader, digital storytelling, reading responses.

I. Introduction

EVEN at the university level, there are students who face difficulty in utilizing cognitive elements in reading such as understanding, extracting and organizing main ideas, and drawing inferences from their assigned expository texts (De Simone, 2007) [1]. This is especially true among below-average readers (Nation & Angell, 2006) [2].

At Universiti Teknologi MARA (UiTM) in Malaysia, the main concern is to enable students to understand English expository texts. Having academic excellence inevitably depends profoundly on comprehension of these texts (Guthrie, Wigfield, & Klauda, 2012) [3]. Yet, it was found that the engineering students were the least proficient students in English in a UiTM where this study was carried out. They scored the lowest in the reading component which tested their ability in understanding two expository texts and came last after other faculties like Pharmacy, Health Sciences, and Hotel Management, in terms of the A, B, C and F grades (Academy of Language Studies, UiTM Penang Branch Campus, 2009) [4]. The questions for reading generally tested students' ability in identifying main ideas, making inferences and making interpretations. Their poor results may give an indication that the majority of them may have not employed the cognitive elements in reading well.

Students' reading comprehension can be improved, and there has been an extensive literature on digital storytelling which claims its influence in enhancing reading comprehension of students (Malin, 2010) [5]. However, digital storytelling is still in its infancy in the educational setting (Thesen & Kara-Soteriou, 2011) [6] and to date, little is known about the reading responses that students have made that allow them to achieve good comprehension. Reading responses are interpretations, feelings and the thinking students associate with during or after a reading event and these responses can lead to reading comprehension (Rosenblatt, 2006) [7]. She suggested that there is a need for study of different readers' responses and their relationships with the cognitive elements in reading since the same reading texts may yield different meanings to different readers.

Thus, the aim of this study was to investigate the reading responses in relation to cognitive elements of an above-average reader and a below-average reader of diploma engineering students in a UiTM. These responses would be investigated through the development of their digital stories.

II. Review Of Literature

A. Digital Storytelling as a Means of Learning

Digital storytelling is an art of telling stories or presenting main ideas in the visual form incorporating multimedia tools like graphic, images, still photographs, audio and animation (Robin, 2008) [8]. In this study, digital storytelling referred to the creation of a story containing textual contents, images and songs based on the understanding of expository texts in the multimedia form. A significant reason for digital storytelling to be considered as a means of learning is because it addresses the cognitive elements. According to Mayer's (2002) [9] cognitive theory of multimedia learning, learners have both verbal and visual information processing systems. Textual information and auditory are processed in the verbal system, whereas images are processed in the visual system.

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Digital storytelling may be a useful learning tool because it can address learning through both cognitive systems.

B. Previous Studies on Digital Storytelling

Malin (2010) [5] used the readily available digital stories with her high school students to understand literature works and found that these digital stories benefitted remedial readers more than the typical and advanced readers. Digital storytelling has also been used with undergraduates in subjects such as finance (Bryant & Harris, 2011) [10], medical education (Sandars, Murray & Pellow, 2008) [11] and geography (Wakefield & France, 2011) [12] in which students produced their own digital stories. These studies found that digital storytelling motivated the students to be interested in lecture topics, to analyze, synthesize, recollect details and understand academic concepts.

However, the literature reviewed has not examined closely the students' reading responses in relation to cognitive elements in reading expository texts. In particular, none has studied closely the reading responses of the above average and below average readers among engineering students. Since there is the dearth of research on this, this study aimed to investigate the reading responses that above and below-average readers in diploma engineering exhibited through their digital stories based on their comprehension of expository texts. Then a case could be made whether digital storytelling is suitable to engineering undergraduates in their English language class.

C. The Differences between Above-average and Below-average Readers

Hirsch's (2003) [13] and van den Broek and Kremer (2000) [14] explained that above-average readers are already proficient in reading and can use their associated background knowledge to enhance comprehension and allow their mind to make connections between previously and newly learnt reading articles; whereas, for the below-average readers, they only integrate their background knowledge with the literal word meanings of the reading article, emphasize more on the less relevant knowledge, and take more time to build their understanding and find relevant information. Summarizing is more difficult among below-average readers than above-average readers because the former are not aware that the purpose of summarizing is to condense important ideas, and they fail to identify the important information that should be included (Winograd, 1983) [15]. Another process critical to reading success is drawing inferences. Rapp, van den Broek, McMaster, Kendeou, and Espin (2007) [16] stated that although below-average readers in general made lesser inferences than above-average readers, improving readers' inference-making ability may make them have better comprehension. Thus, it could be said that above-average readers seem to exercise the cognitive elements more effectively and appropriately than below-average readers.

III. Theoretical Framework: Rosenblatt's Reader-Response Theory

Reading responses are multiple activities like personal life experiences, feelings, associations, images, memories, frustrations and expectations that are related to cognitive and affective elements because no reader approaches a reading text as an inexperienced person (Rosenblatt, 2006) [7]. Each person brings with him memories, attitudes, personalities, desires, hopes and experiences to any reading text. This affects the reader's reading and his responses to the reading text.

Rosenblatt (2006) [7] explained that when a reader responds to or interprets a reading text, the comprehension is influenced by the particular stance the reader adopts when reading. She categorized two different stances that work in a continuum: efferent and aesthetic. These stances are influenced by the cognitive and affective elements. When a reader takes the efferent stance, he pays more attention to the cognitive, the factual, the analytic, the logical and the referential aspects of meaning. When a reader takes the aesthetic stance, he pays more attention to the affective, the sensuous and the emotive aspects of meaning. The focus is on the reader's lived-through experience of reading. She said that although many readings may fall near the extremes, many others may fall near the centre of the continuum. Since reading is complex, the same text may be read either efferently or aesthetically, and it may yield different meanings to different readers. This is an interesting phenomenon to be researched about because readers' responses and comprehension are always influenced by their selective attitude and purpose which are influenced by the cognitive and affective elements (Rosenblatt, 2006) [7].

IV. Methodology

This study, carried out in 2013, employed a qualitative case study research design (Creswell, 2007; Merriam, 2009) [17], [18]. It sought to investigate the reading responses in relation to cognitive elements that the above-average and below-average readers portray in their digital stories. The selection of respondents was based on two criteria. The first criterion was that respondents were the opposite of typical or average students (Maxwell, 2005) [19]. Since the engineering diploma students were reported by the participating university's Academy of Language Studies to be the least proficient in the English for Academic Purposes course in comparison to students from other faculties, a group of thirty-five engineering students were chosen to participate in this study. However, only the above-average and below-average readers identified through a reading placement test were selected to be studied closely as they were the opposite of the average readers that normally represent the average students. The second criteria proposed by Maxwell (2005) [19] in purposeful selection of sampling is establishing comparisons between individuals. Henceforth, in this study, the above-average and below-average readers were both chosen so as to provide clarity about their similarities and differences in the reading responses as portrayed in their digital stories. Their consent to

participate in the study was sought. Both respondents were nineteen year-old, Malay males.

The placement test used was the university's October 2009 official English for Academic Purposes final exam for the reading component. It was categorized as a criterion-referenced standardized test because it compelled each student's score to be compared to a cutoff score set by the test authors as suggested by Wolf (1993) (as cited in Caldwell, 2002) [20]. The test markers were expected to follow all directions for scoring without adapting or changing any of the procedures set. The total mark for the reading test component was set at twenty and the mean grade equivalent reading scores for the total population sitting for the paper was 11.3 marks (Academy of Language Studies, UiTM Penang, 2009) [4]. Block (1986) [21]and Paris and Myers (1981) [22] defined good or above-average readers as those with reading comprehension test scores were at or above the mean score for the total population, and poor or below-average readers as those with reading comprehension test scores below the mean score for the total population. In this study, the above-average reader scored 17 marks in the placement test, whereas the below-average reader scored 8 marks.

Data were drawn from observational field notes, readers' documents, interview transcripts and respondents' digital stories in three weeks of the digital storytelling project. There were three two-hour classes in each week. Prior to the project, all the students were introduced to digital storytelling, the significance of the seven elements of digital storytelling in developing a digital story, the Windows Movie Maker tutorial (a software needed to develop a digital story), and some hands-on practice on Windows Movie Maker.

The title of the digital story was 'Plastic surgery: The reasons, the risks and a lesson learned'. The respondents and their classmates were given two expository texts on plastic surgery (UiTM's April 2009 official English for Academic Purposes final exam for the reading component) from which they could find ideas for their digital stories. They could also search for other reading texts to help them develop their digital stories.

In this study, the process of finding themes included comparing one unit of data from one method to the next data from multiple methods, and recurring regularities in the data were looked for. This process was proposed by Merriam (2009) [18]. For example, the respondents' entries in their student journals were checked against what was observed in class and what was told in the interviews. From this process, a set of themes was inductively derived that depicted the nature of reading responses as portrayed by the respondents in their digital stories. These themes were also informed by the understanding of the Reader-Response Theory by Rosenblatt (2006) [7] and the cognitive elements in reading. The themes that captured the reading responses of the respondents in this study were as follows: activating background knowledge, establishing purpose for reading, identifying main ideas, summarizing and drawing inferences.

V. Results

Case study one: Fatah

An above-average reader, Fatah (pseudonym), was nineteen years old and had scored 17 marks in the placement test taken on the 20th of June, 2013. He also scored As for all the English paper for the Malaysian Certificate of Education, and the UiTM Semesters I and II English papers. He was selected for case study in order to understand what reading responses in relation to cognitive elements an above-average reader would produce while developing a digital story.

Fatah's reading responses in relation to cognitive element: 1) Activating background knowledge

After being asked to develop a digital story on plastic surgery, Fatah wrote in his reading log that plastic surgery was connected to "Michael Jackson" alongside with "Botox, implants, … K-Pop public figure" (Fatah's Reading Log, July 4, 2013). During a class observation, when asked by the English lecturer what students could relate with plastic surgery, Fatah answered loudly, *"The Korean pop stars go for plastic surgery,"* (Class Observation, July 4, 2013) and his answer was received by laughter and agreeable comments from the whole class. However, Fatah did not insert any Michael Jackson's or Korean artists' pictures in his digital story except for Julia Robert's comment against plastic surgery (Fatah's Digital Story, Slide 27). Next, Fatah acquainted plastic surgery with "several side effects" (Fatah's Reading Log, July 4, 2013). In his digital story, he showed three photos of a Korean model whose obsession with beauty turned to be disastrous because of a failed plastic surgery (Fatah's Digital Story, Slide 28).

2) Establishing purpose for reading, identifying main ideas, summarizing and drawing inferences

Fatah's reading logs were filled with the correct summaries of the main ideas extracted from the reading articles given in class. Fatah's main ideas were taken from the journal articles he searched for from the internet because he trusted them more. He explained, "They come from research. (There are) the references in the journal articles. The others didn't have that, so I trust them," (Fatah's Interview Transcript, August 21, 2013). He included (i) the reasons for plastic surgery as "confused sexuality", "morbid perfectionism" and "body dysmorphic disorder" (Fatah's Digital Story, Slides 11 – 13); (ii) the risks of plastic surgery as "serious post-surgery health conditions" and "psychological risks" (Fatah's Digital Story, Slides 16 – 19); (iii) and a lesson to learn as "Before you get yourself into thinking about a plastic surgery, think twice, one mistake and your life is ruined" (Fatah's Digital Story, Slide 28).

Case study two: Amirul

A below-average reader, Amirul (pseudonym), was nineteen years old and had scored 8 marks in the placement test taken on the 20th of June, 2013. He scored B in his English paper for the Malaysian Certificate of Education, B- for the UiTM Semester I English paper, and C+ for the UiTM Semester II English paper . He was always the earliest to arrive to class and while waiting for the lecturer and others to arrive, he would diligently be working on his assignments. He paid

attention to the explanation given by the lecturer and after that preferred doing his work quietly and rarely asked questions or moved around, unlike Fatah who was active going round socializing and learning with others. He was selected for case study in order to understand what reading responses in relation to cognitive elements a below-average reader would produce while developing a digital story.

Amirul's reading responses in relation to cognitive element:
1) Activating background knowledge

Amirul related in his student journal how his imagination automatically went to a Korean-pop group named 'Girls' Generation' and their beauty when he heard about plastic surgery, "When I heard about plastic surgery, I think about one group ... from Korea, ... the people are so beautiful, but ... that is all a fake," (Amirul's Student Journal, July 16, 2013). His obsession of wanting to show that their beauty was bogus led him to show eighteen pictures of these singers before and after they underwent plastic surgery in his digital story (Amirul's Digital Story: Slides 10 – 18). Amirul also carefully showed in his digital story how Michael Jackson had transformed from someone with a flat nose to someone with a pointed nose, and from someone who was 'black' to 'white' (Amirul's Digital Story: Slides 32 – 44). Next, Amirul associated plastic surgery with "many bad effects" (Amirul's Student Journal, July 4, 2013) and "many risks ... especially when you are old," (Amirul's Reading Log, July 4, 2013). Thus, in his digital story, he inserted a few photos of artists who had worse looks than before undergoing plastic surgery like Rose McGowan's eye droop and Donatella Versace's unnatural lips (Amirul's Digital Story, Slides 25 – 27).

2) Establishing purpose for reading, identifying main ideas, summarizing and drawing inferences

Amirul could only identify the main points in one of the given reading articles and not in the other (Amirul's Reading Log, July 4, 2013). He openly admitted in his student journal that it was "difficult for me to find answers" (Amirul's Student Journal, July 2, 2013). Although his reading logs were filled with answers, he could only perfectly identify the risks but not the reasons of plastic surgery. Out of his curiosity about the fake beauty of some Korean pop stars, he read about these stars and the cosmetic plastic surgery they underwent in the internet articles (Amirul's Interview Transcript, August, 28, 2013). Thus, he drew an inference that the reason these artists underwent plastic surgery was because "... they should look pretty to impress their fans and it is their source of income" (Amirul's Digital Story, Slide 21). However, this response could be accepted because Amirul's response to the reason people undergo plastic surgery was "to look pretty", and it was equivalent to Fatah's "morbid perfectionism". For the risks of plastic surgery, Amirul included them as "... complications ranging from unattractive or unnatural final result to scarring or even death", "bad nose job" and "eye-droop" (Amirul's Digital Story, Slide 23, 26 & 27). He also wrote "... I choose natural beauty than plastic surgery because everybody in this world are (is) unique. We have our own natural beauty and we should realize it" (Amirul's Digital Story, Slide 39) as his 'lesson to be learned'.

VI. Discussion

The findings of this study showed that there were similarity and difference between the above-average and below-average readers in their responses in relation to cognitive elements. The similarity was that both had made inferences that were influenced by their background knowledge and purpose in reading. The difference, though, was that the above-average reader was better at employing his cognitive abilities. Just like in other previous research, the above-average reader in this study was found better at utilizing his background knowledge, identifying main ideas and summarizing than the below-average reader. They could also be different because of the reading stances they chose. The former preferred a more efferent stance, paying more attention to the cognitive and factual aspects of meaning. The latter preferred a more aesthetic stance by paying more attention to the affective and emotive aspects of meaning. Both of the readers' responses about the plastic surgery topic were connected to their background knowledge of famous artists who had undergone plastic surgery and the general risks that usually resulted after the surgery. However, for the above-average reader, this type of background knowledge was used to only elicit his attention, and later to help him effectively connect it to the important information presented in the reading texts. For the below-average reader, this background knowledge had led him to emphasize more on some famous artists who had undergone plastic surgery although the information about these artists were not as pertinent as other important information presented in the reading texts. This finding was in line with Hirsch (2003) [13] and van den Broek and Kremer (2000) [14] who supported the idea that above-average readers are more effective than below-average readers in using background knowledge.

Based on the findings, both readers were aware that the purpose of developing their digital stories was to show the main ideas on reasons and risks of plastic surgery, and what lesson could be learnt. However, the above-average reader in this study were found to successfully identify and summarize all the main ideas either from the reading texts supplied by the lecturer or from other searched texts. This was not the case with the below-average reader. He could only find very minimal correct information from the supplied reading texts. It could be concluded that the below-average reader was not as adept as the above-average reader in finding information. This finding was in agreement with van den Broek and Kremer's (2000) [14] study. However, it was noticed that although the below-average reader was not able to comprehend fully the supplied reading articles, he compensated that little understanding with other website reading articles whose information and sub-sections are clear, concise, straightforward and have easier vocabulary. This finding supported van den Broek & Kremer's (2000) [18] explanation that below-average readers find 'user-friendly texts' to reduce the demands on their cognitive capacities as these texts are not distracting. Inevitably, the below-average reader was found to successfully find relevant information and make logical connections among the content found in the reading articles,

and subsequently wrote them in his digital stories.

VII. Conclusion

The findings of this study showed that the above-average and below-average readers' reading responses in relation to cognitive elements had been portrayed well through the development of digital storytelling. This could suggest that digital storytelling in the English reading class be implemented since it is proven to help readers of different abilities to utilize their background knowledge, set the purpose of reading, identify and summarize all the main ideas, and make inferences. Generally, the above-average reader can handle expository texts but the below-average-reader need more help in tackling expository texts. Their strengths in cognitive elements in reading could be appreciated, but weaknesses could be identified and addressed accordingly. The findings from this report could also provide the initial guidance to language educators about comprehension strategies instructions that they can integrate into their interventions. Conclusively, the underlying message that is formed is that with digital storytelling, language educators can persuade students to think about what they want to learn prior to reading, think about what they already know, think about the author's purpose, ask questions, link previous and new knowledge, summarize and make inferences. Next, the findings of the study also suggest that students could be encouraged to read more outside of their reading classes and prepared to take control of their own learning.

However, based on the findings of this study, much more remained to be administered in this area of research. Repeating this study with a larger sample size with new respondents from other faculties besides engineering would provide an extra dimension to the existing findings. As a result, a better understanding of reading responses in relation to cognitive elements could be formed, and that language educators would be able to provide better guidelines to train readers to comprehend better.

One significant aspect of this study was the ability of digital storytelling in helping students, be them above-average or less-average readers, to embrace comprehension through their reading responses. The challenge now is to convince the educational policy makers, in UiTM specifically and other universities in general, to integrate digital storytelling in the educational process.

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