RATIONALIZING VIDEO GAME-BASED TEACHING TO STUDENTS’ CRITICAL READING SKILLS: A QUASI-EXPERIMENTAL STUDY

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Abstract:
Critical reading skills are vital thinking tools that students need to develop and master all throughout their education. Such reading skills require focus and attention to analytically and thoroughly evaluate texts for meaningful and purposeful experience. However, critical reading skills are not extensively developed since students nowadays are hooked into playing video games. This quasi-experimental study examined the pre-posttest results of two student groups that underwent (1) video game-based teaching and (2) conventional teaching using video game guides in the teaching of critical reading skills in the Mythology and Folklore course at Cebu Normal University. It aimed to investigate the role of video gaming in enhancing students’ critical reading skills. A survey questionnaire and pre-post test were used to collect data on students’ profile, pre-post test performances, pre-post test results improvement, and pre-post test mean-gain difference. Findings revealed a significant improvement in the pre-post test performances of both groups but these do not show any significant mean-gain difference. The results indicate that video game-based learning and conventional learning promote critical reading skills development among students. Video game-based teaching, as an alternative teaching strategy, provides interest and excitement in enhancing students’ critical reading skills.

Key Words: critical reading skills, video game-based teaching, conventional teaching, teaching strategy

Introduction
Critical reading skills are essentially needed in the 21st century. Despite this significance, many students still do not love to read, comprehend and analyze reading materials which in turn might risk the development of such higher order thinking skill. Many of the students are highly engaged in computer games. As observed, they put premium to it during their free time in school instead of the usual socialization with classmates and active engagement in learning activities, especially in reading. Kem (2005) found out in his study that it becomes a norm to students to choose gaming over academics. Such finding reveals how students commit their time playing video games even if it displaces school works. Deans and counselors reported that there is an increased connection between excessive and inappropriate use of computer, violations on rules, difficulties in academics, and problems in relationship (Orzack as cited in Kem, 2005). Other researchers found out that video games may displace after-school activities that have educational
value and may interfere with the development of reading and writing skills in some children (Weis & Cerankosky, 2010). Video gaming has exceedingly interrupted the development of critical reading skills since most learning tasks, like reading, are displaced.

Students who play video games have higher tendencies of acquiring attention problems which in turn may affect them in developing critical reading skills since the reading activity is deprived. The study of Egli and Myers (as cited in Dill, 2007) revealed that video gaming can lead to an uncontrollable behavior in spending money and time over games. As Durkin and Aisbett (1999) observed, during classes, kids in certain occasions space out to strategize ways so as to solve problems in the game. This means that students who play video games are only able to focus in doing the class tasks for only a short span of time since they are distracted with the thoughts of the video game. In this manner, students may not be able to accomplish the assigned reading tasks or if they can will just acquire minimal comprehension of the assigned reading material since their thoughts are partially divided because of the video game.

Video gaming can negligently make students cut classes. Garin (as cited in Groark, 2012) affirmed this in his study that playing video games ranks second among the common activities why students skip class garnering a total of 27 percent. Such problem may be due to the massive increase of video gaming mediums, one of these to be specific are the internet cafes. This was proven in Cortes, Alcalde and Camacho’s (2012) study that about 80% of Filipino Internet users engage in online gaming. This was evidently observed in the country since internet cafes most of the time; cater to students, individually or in groups, who play video games even during school hours. They do such activity because for them it is more fun and enjoyable to play especially with their peers, barkadas. They are more active in the gaming activity than school tasks like reading stories which may seem boring and strenuous to do.

Cortes et al. (2012) added that students whose peers are video gamers tend to engage in computer gaming than students with non-video gaming peers. This was proven by Garin’s findings (as cited in Groark, 2012) that 61% of students who skip classes find schooling as uninteresting and boring, and most students with chronic tendencies of skipping classes strongly do not like school environment. Students find their learning as less relevant to their ambition, most importantly, they feel detached from the educational institution. It was also noted in the study of Arum and Roksa (as cited in Corrigan, 2013) that only 7% of the 2,300 college freshmen they surveyed study and 51% preferred to spend their time in socializing and recreating. Researchers have conducted studies on issues why majority of the students (70%) believe they need not engage in reading task to succeed in school (Burchfield & Sappington; Hobson; Marshall; Self, as cited in Hobson, 2004). Kirby and Nist (as cited in Hobson, 2004) confirmed that most students do not read the assigned reading material “due to the fact that students quickly discovered that they do not need to read and study their texts in order to do well in class”.

Furthermore, it has been observed that most students in the institution he is currently teaching show high engagement rate in video gaming activities. This is for the reason that, before, during and after classes, students still do video gaming and talk about their video gaming experiences. This is a troubling concern since it is necessary for college education students to develop critical reading skills for they will become future teachers someday. Hence, this study is conducted to
investigate the role of video gaming on the critical reading skills of the third year college students of Cebu Normal University.

**Review of Literature**

Video games had been extensively studied for several years to look into its impact on learning. Positive research findings on the use of video games suggest that it can enhance memory and problem-solving skills (Chuang & Chen as cited in Cortes et al., 2012); promote problem solving and comprehension (Dubbels & O’Brien, 2011); assess memory, comprehension, textual differencing, recall of text, socio-cultural learning, and aesthetic modes of learning (Graham & Williams; Pride, Pride, Outman & Iddings; Curtner-Smith, as cited in Ulmer, Timothy, Bercaw, Gilbert, Holleman, & Hunting 2002); provide clear objectives with adaptable difficulty levels, active learning with practice and feedback, over-learning to gain mastery, extrinsic and intrinsic motivation, increasing difficulty across levels where past learning can be applied, close-to-optimal combination of massed versus distributed practice and learning that can be applied to different problems and contexts (Gentile & Gentile, as cited in Dill, 2007); serve as a medium of transmitting communication which has an array of effects depending on the specific content of the game (Dill, 2007); allow for real time 3D rendering, they can simulate physics and other physical processes in real time, they allow for instantaneous text, audio, and even video communication, and they support both user creation with digital tools, and the near instantaneous sharing of data (Squire, as cited in Squire, 2008); provide scaffolding and coaching specifically when it is needed (Foreman, 2004; Gee, 2005); improve your chances to pass the driving license tests; gaming is one, of several ways, to improve your language skills; playing games in the MMORPG-genre improve online communication and collaboration skills; and the improved computer skills that gaming gives can be of use in any digital context (Mozelius, as cited in Busch, 2014) and promote challenging but achievable tasks (Bedigian, 2007; Gee, 2005).

However, video games do have considerable negative points to take note of. Several studies have shown a relationship between poor school performance and too much time in video gaming (Anderson & Dill; Gentile et al.; Walsh, as cited in Hastings, 2009). This finding is supported by Brody (2007) as he warns young children on the displacement of physical activity and time spent on studies when one engages in video gaming.

Video games on learning and teaching have a rich collection of literature and these have been positively viewed as learning tools so that educators can further improve students’ holistic development. Though there have been some negative findings revealed in the aforementioned studies, it is imperative to further look into these results so that these may turn into positive outcomes.

With all the findings revealed on the impact of video games in learning and teaching, the researcher found a gap of knowledge which has not been studied in the past. This gap is the role of video games in enhancing critical reading skills. Hence, this study.
Methodology

White and Sabarwal (2014) proposed that quasi-experimental designs identify closely similar pre-intervention characteristics in the control and experimental groups. In this manner, the researcher made sure that the two groups consist of an equal number of video gamers and non-video gamers. Both groups, experimental and control, consists of 53 student respondents. To validate the classification of video gamers, the researcher had set a weekly 10-hour video gaming average. The respondents who were not able to qualify the weekly 10-hour video gaming average were classified as part of the non-video gaming group.

The researcher then conducted the pretest on Mythology and Folklore to both groups. The pretest was a 50-item test that aimed to measure the critical reading skills (i.e. analyzing characters, interpreting events, and inferencing meaning) of the target student groups. It had attained successful face and content validity; pilot testing; and achieved the Cronbach’s Alpha (α) of 0.731 reliability using Minitab Statistical Software.

After the pretest, the researcher processed the test results then immediately proceeded with the introduction of the two teaching programs using the respective researcher-made lesson guides, consisting of ten lesson guides for each group. The experimental group received the video game-based teaching as their intervention program. In this teaching program, the researcher utilized five Android video game apps as springboard to each of the lessons in the guide. The video game apps utilized in the study were Dragon Ball Z: Shin Budokai, Pokémon Red, Aladdin, Inotia 3, and Band of Monsters. Each video game was interchangeably used with the other, as based on the lesson guides, depending on the topic discussed in each class session. The average duration of the video gaming exposure was 30 minutes in every class session for the entire Midterm, equivalent to ten class sessions.

On the other hand, the control group underwent the conventional teaching. In this teaching program, the researcher utilized video game scripts of the five mentioned video games. The video game scripts in this program also served as a springboard to each of the lessons in the guide just like in the experimental group. The exposure time in the pre-reading activity on the video game scripts was 30 minutes in each class session.

However, the only key difference of the two types of teaching interventions was the “type of springboard used as the pre-reading activity in the study” – the utilization of video games and video game scripts. The strategies and techniques used in both teaching interventions were similar in general. Both teaching interventions utilized cooperative learning strategies, group presentations, comprehension check-ups, reflection writing, table presentation, symbol illustration, biopoem creation, gist strategy, story-events ladder, somebody wanted but so chart, role play presentations, guided instruction and discussion method.

After two months of teaching using the interventions, the 50-item standardized Mythology and Folklore posttest was conducted. The pretest and posttest results collected will be treated using Minitab Statistical Software to identify (1) the significant improvement of both groups after exposure to the respective interventions and (2) significant pre-post mean-gain difference in both groups.
Findings

The following discussions center on the significant improvements of the respondents’ mean after the exposure to the video game scripts and the video games in the teaching of Mythology and Folklore. This also compares the results of both exposures as presented in Table 1 and 2 accordingly.

Table 1. Significant Improvement of the Control Group After Exposure to the Video Game Scripts

<table>
<thead>
<tr>
<th>Critical Reading Skills</th>
<th>Total Items</th>
<th>Tests</th>
<th>Control Group</th>
<th></th>
<th>P-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Computed t-value</td>
<td></td>
</tr>
<tr>
<td>Analyzing Characters</td>
<td>15</td>
<td>Pretest</td>
<td>5.75</td>
<td>2.07</td>
<td>-4.69</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>7.42</td>
<td>2.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inferencing Meaning</td>
<td>15</td>
<td>Pretest</td>
<td>7.37</td>
<td>1.91</td>
<td>-5.00</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>9.15</td>
<td>2.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpreting Events</td>
<td>20</td>
<td>Pretest</td>
<td>6.69</td>
<td>2.17</td>
<td>-11.34</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>12.00</td>
<td>3.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totality</td>
<td>50</td>
<td>Pretest</td>
<td>19.83</td>
<td>3.72</td>
<td>-9.90</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>28.54</td>
<td>6.78</td>
<td></td>
<td></td>
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</table>

Shown in Table 1 highlights of this table are the pretest and posttest of the critical reading skills proficiency levels after exposure to the video game scripts. The overall paired T-Test reveals the total T-Value of -9.90 and P-Value of 0.000 that means there is a significant improvement after the exposure to the video game scripts. The findings reveal that video game scripts can be used as an alternative teaching strategy in improving students’ critical reading skills. Thus, it is deemed appropriate to say that critical reading skills can be improved if meaningful, engaging and challenging reading tasks, regardless of the materials used, are given focused for students to exceed their current state of critical thinking and reading competence.

Table 2. Significant Improvement of the Experimental Group After Exposure to the Video Games

<table>
<thead>
<tr>
<th>Critical Reading Skills</th>
<th>Total Items</th>
<th>Tests</th>
<th>Experimental Group</th>
<th></th>
<th>P-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Computed t-value</td>
<td></td>
</tr>
<tr>
<td>Analyzing Characters</td>
<td>15</td>
<td>Pretest</td>
<td>6.26</td>
<td>1.99</td>
<td>-3.14</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>7.22</td>
<td>2.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inferencing Meaning</td>
<td>15</td>
<td>Pretest</td>
<td>6.82</td>
<td>1.87</td>
<td>-9.06</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>9.56</td>
<td>1.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpreting Events</td>
<td>20</td>
<td>Pretest</td>
<td>6.78</td>
<td>1.86</td>
<td>-11.77</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>11.51</td>
<td>2.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totality</td>
<td>50</td>
<td>Pretest</td>
<td>19.87</td>
<td>3.94</td>
<td>-12.13</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>28.26</td>
<td>6.03</td>
<td></td>
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</table>

Table 2 shows the mean of the respondents in analyzing characters after their exposure to the video games in teaching Mythology and Folklore. The highlights of this table are the pretest and posttest of the critical reading skills proficiency levels after exposure to the video games. The overall paired T-Test reveals the total T-Value of -12.13 and P-Value of 0.000 that means there
is a significant improvement after the exposure to the video games. The findings reveal that video games can be used as an alternative teaching strategy in improving students’ critical reading skills.

After the statistical treatment of data, the hypothesis was rejected. There are significant improvements in the critical reading skills proficiency levels of both the control and experimental group from pretest to posttest after exposure to video game scripts and video games in the Mythology and Folklore course.

It is highlighted in the study that critical reading skills can be further improved using video games and video game scripts if these are positively reinforced through continual teaching and practice so as to promote habit formation. Same as the findings that video games reinforce habit strengthening through positive reinforcements (Braun & Giroux; Dill & Dill as cited in Dill, 2007). Furthermore, Muchsonah (2015) affirms this in the conclusion that a careful consideration of the kinds of the text should be made to allow critical thinking to happen in students’ practice (before, during, and after reading since he believes in his study that critical thinking and critical reading is in synergy with one another), and an instrument (meaningful and challenging learning tasks) to identify students’ critical thinking should be made available.

Table 3. Pretest & Posttest Difference between the Control & Experimental Group

<table>
<thead>
<tr>
<th>Critical Reading Skills</th>
<th>Total Items</th>
<th>Tests</th>
<th>Control Group</th>
<th>Experimental Group</th>
<th>Computed t-value</th>
<th>P-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mean</td>
<td>Mean Gain</td>
<td>Mean</td>
<td>Mean Gain</td>
<td></td>
</tr>
<tr>
<td>Analyzing Characters</td>
<td>15</td>
<td>Pretest</td>
<td>5.75</td>
<td>1.67</td>
<td>6.26</td>
<td>0.96</td>
<td>-1.51</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>7.42</td>
<td>7.22</td>
<td>9.15</td>
<td>4.73</td>
<td>-0.94</td>
</tr>
<tr>
<td>Inferencing Meaning</td>
<td>15</td>
<td>Pretest</td>
<td>7.37</td>
<td>5.32</td>
<td>6.82</td>
<td>4.73</td>
<td>-0.94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
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<td>9.56</td>
<td>9.67</td>
<td>4.73</td>
<td>-0.94</td>
</tr>
<tr>
<td>Interpreting Events</td>
<td>20</td>
<td>Pretest</td>
<td>6.69</td>
<td>1.79</td>
<td>6.78</td>
<td>2.75</td>
<td>2.04</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>12.00</td>
<td>11.51</td>
<td>11.51</td>
<td>11.51</td>
<td>2.04</td>
</tr>
<tr>
<td>Totality</td>
<td>50</td>
<td>Pretest</td>
<td>19.83</td>
<td>8.71</td>
<td>19.87</td>
<td>8.38</td>
<td>-0.29</td>
</tr>
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<td></td>
<td></td>
<td>Posttest</td>
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<td>28.26</td>
<td>28.54</td>
<td>28.26</td>
<td>-0.29</td>
</tr>
</tbody>
</table>

Table 3 shows the result after the respondents were being exposed from the video game scripts and video games in teaching critical reading skills in Mythology and Folklore. Generally, the two critical reading skills like analyzing characters and inferencing meaning show marginal differences in the mean gain results. This is revealed in the figures taken from table 10. In the analyzing characters, the mean gain results reveal that the control group achieved the mean gain of 1.67 whereas the experimental group achieved the mean gain of 0.96. Moreover, the computed T-Value is -1.51 and the P-Value is 0.135 which means that there is no significant difference in the analyzing characters proficiency level between the experimental group and the control group. On the other hand, the mean gain results of the inferencing meaning reveal that the control group achieved the mean gain of 5.32 whereas the experimental group achieved the mean gain of 6.82. Moreover, the computed T-Value is -0.94 and the P-Value is 0.349 which means that there is no significant difference in the inferencing meaning proficiency level between the experimental group and the control group. Such results imply that both video game and video game scripts can
be used as effective tools in teaching analyzing characters and inferencing meaning to students. Furthermore, it is observed that the materials that should be used in the critical reading tasks are highly relevant in today’s generation so that students will find interest in engaging with such tasks.

In the interpreting events, the mean gain results of both the experimental and control group show an overwhelming difference. The mean gain results reveal that the experimental group excelled over the control group since the former achieved the mean gain of 2.75 whereas the latter achieved 1.79. As observed, the mean gain result of the experimental group significantly doubled as compared to the control group. In addition, the computed T-Value is 2.04 and the P-Value is 0.044 which means that there is a significant difference in the interpreting events proficiency level between the experimental group and the control group. This implies that the student respondents find video games as an effective learning tool in promoting the development of interpreting events.

Furthermore, the total critical reading skills mean gain results reveal that the control group achieved the mean gain of 8.71 whereas the experimental group achieved the mean gain of 8.38. Moreover, the computed T-Value is -0.29 and the P-Value is 0.769 which means that there is no significant difference in the critical reading skills proficiency level between the experimental group and the control group. This means that the control and experimental group have the same level of improvement from pretest to posttest. The results indicate that both the video game scripts and video games could be used as strategies or tools in developing critical reading skills in students. Thus, the study highlighted that students’ interest is an integral role in developing critical reading skills.

Conclusion

Video gaming as an alternative teaching strategy provides interest and excitement in enhancing students’ critical reading skills. This concurs with the Connectivism theory of Siemens (2004) which states that all learning starts with a connection and this can only be done if the individual willingly decides to act on his current state of knowledge, be it in the form of skills, values, or knowledge. Thus, it is integral for teachers to maintain and guide learners in establishing enriched connections to ease the process of continual learning (Siemens, 2005) in order to achieve critical reading skills competence.

Suggestions and Recommendations

Based on the research finding and conclusion of the study, the following are some given suggestions and recommendations, (1) researchers and teachers must be given proper orientation, training, and funding with regards to teaching critical reading skills through video games in the English classroom, especially in literature, as it is proven to be effective; (2) both the video games and video game scripts may be utilized or adopted as an alternative teaching strategy in teaching critical reading skills; and (3) the proposed learning activities using video games in teaching critical reading skills in the Mythology and Folklore class can be tried out in the classroom.
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