Visual Novel Based Education in English Literature: A Study on Student Engagement

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Abstract

The present study aims to determine the relationship between visual novels and student engagement in English literature. The visual novel development program Ren'Py was used to create a visual novel based on S. E. Hinton's classic novel *The Outsiders* (1967). The game was distributed to high school students, and data was collected using a pretest-post-test quasi-experimental design. A descriptive positive relationship was tentatively found; students who indicated having read the book as well as having played the visual novel reported having a refreshed or otherwise positive experience with the visual novel. Factors such as learning enjoyment; behaviour, effort, and persistence; and cognitive learning were identified as having been enhanced through interaction with the visual novel, which suggests an overall improvement in student engagement. The most valuable implication of devoting research to this topic is the advancement of teaching methods that can impact the way students read and think critically about texts. With greater evidence and a wider breadth of subject material covered in the future, it could be possible to transform how high school students interact with literature.

Keywords

Visual novel; student engagement; high school learning; English education; *The Outsiders*; S. E. Hinton.

Introduction

Around 20% of all students are disengaged in the classroom, leading to negative experiences shaping opinions towards course material (Angus et al., 2009, p. 7). Disengagement leads to outcomes such as "inattentiveness, lack of motivation, unresponsiveness, and lack of preparation," all of which hinder students' learning and ability to succeed in mastering class material (Angus et al., 2009, p. 7). In contrast, "engaged students are more likely to perform well on standardized tests and are less likely to drop out of school. The conditions that lead to student engagement . . . contribute to a safe, positive, and creative school climate" (Martin & Torres, 2016, p. 6). To combat the issue of engagement in the classroom, more innovative and interactive approaches to teaching should be adopted to benefit the many students disengaged by traditional classroom learning.

One such pedagogical method is using video games as a teaching tool. Generally, video games have been effective in increasing student engagement because "games have diverse features that attract children's interest such as graphics, music, visual effects, and interesting animations" and "interest is the main factor for engagement" (Evans et al., 2013, p. 100); however, little has been done to integrate video games into English education. Such integration may have a positive impact on student learning by allowing disengaged students to have more personal and participatory interaction with English literature**.**

In particular, the potential uses of visual novels in an English educational setting have been insufficiently studied. A visual novel is a type of video game that "articulates its narrative by means of extensive text conversations complemented by stationary generic backgrounds and dialogue boxes with character sprites" (Bashova & Pachovski, 2016, p. 3). How visual novels present their narrative elements potentially align with English literature curricula.

Since visual novels are specific types of video game that have been understudied in the context of education, this creates a basis for research into the impact of visual novels on student engagement. As such, the present study aims to examine if the American high school system's integration of visual novels into English literature education could positively impact engagement with course material.

Literature Review

Several previous studies highlight a gap in the integration of video games into English literature education and outline the need for further research on the topic. Annetta et al. (2009) concluded that "despite being more engaged in the instruction, students who played computer-based MEGA games did not demonstrate a greater understanding" than students who learned with traditional class activities (p. 80). The researchers also asserted that "it is possible that games in education

need to be more skills-based than wrapped around a rich story line" (Annetta et al., 2009, p. 80), which is in direct opposition to the present study. Similarly, Iten and Petko (2016) found "students' willingness to learn with serious games is related to expectations of usefulness and ease of use rather than enjoyment," suggesting that engagement is not always necessary for success in learning and curricula should focus on usefulness and ease of use (p. 162).

On the other hand, numerous studies support the integration of narrative games into education. Sichter (2016) considered the educational potential of game narratives by analysing opinions toward embodied narratives in video games and found that people disinterested by typical on-paper reading may find a digital, illustrated form of a story to be more intriguing. He concluded that "embodied narratives can be used in the composition classroom to help students develop their critical thinking" (2016, p. 1). Sichter's work contrasts with that of Iten and Petko (2016) by suggesting that a lack of engagement in traditional course material can be remedied with the integration of video games into the classroom, leading to an increase in student success.

Expanding upon the concept of game narratives being used to transform traditional education, Garneli et al. (2017) administered a math game with and without story elements to determine whether playing serious games (or games with a purpose besides entertainment) in the classroom influences performance. The researchers found "using serious games could be an effective tool for students who are not motivated by the traditional learning practice of working on paper" (Garneli et al., 2017, p. 855). These findings support the idea that more students would enjoy classroom activities and feel more engaged if the material were presented in a game format. Garneli et al. align with Sichter (2016) as both advocate for alternative learning methods, such as video games, to encourage greater student investment in narratives.

The aforementioned studies further align with O'Donnell (2015), who aimed to determine if students would demonstrate transferable literacy skills through reflective writing following a game-based learning activity. Students aged 12 to 14 played a Mars-simulation game and completed a creative writing project based on the game. It was found that "the results do support that the simulation has facilitated development in writing" (O'Donnell, 2015, p. 86). These results suggest video games are an effective teaching medium for improving literacy and can function as a text in the context of an English classroom, contrasting with the suggestion of Annetta et al. (2009) that story-based games may not facilitate greater understanding of course content.

Furthermore, de Castell et al. (2017) conducted a study of sixth grade students to determine to what extent they can learn about narrative structures from a commercial video game under various learning conditions. One pertinent result of the study is the finding that there

exists "a contradiction between the way we speak and think of a game as a 'set text,' and players' lived experiences of playing it, and playing with it" (de Castell et al., 2017, p. 2023). While the researchers did identify evidence of learning through play when the game was used for instruction, the authors acknowledge intrinsic differences in the reader or player's involvement with texts versus interactive narrative games. The study's focus on a commercial game created for entertainment suggests the need to investigate the impact of an educational visual novel game, designed for the classroom, on student engagement with the text. Overall, the lack of integration of games into English literature education has perhaps negatively impacted students who may benefit from a more innovative approach to teaching, creating the need for a study assessing the relationship between a visual novel and student engagement.

Research Question and Hypothesis

The present study aims to address the research question, "to what extent does the combination of video games and literature in a visual novel format improve the engagement of high school English students?" Based on the previously discussed research, it can be hypothesized that the use of a literature-based visual novel game for English education could be positively associated with student engagement.

Methods

Overview

A quasi-experimental design with a pre-test and post-test questionnaire was utilized for the present study.[1] Students from a South Florida high school played a visual novel based on the 1967 novel *The Outsiders* by S. E. Hinton. The usage of this novel is supported by middle school English teacher Gillespie (2006): "Although many good young adult novels are available, I keep returning to *The Outsiders* because its

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[1] "Quasi-experimental" is defined as experimental research in which only some control is held over the experiment, with the independent variable being manipulated, but participants are not randomly assigned to groups (Chiang et al., 2015). Because all the participants are from one school and are pre-sorted into grade levels, truly random assignment is not possible. Therefore, given the process of convenience sampling, true experimental research could not be completed. According to Salkind (2012), quasi-experimental research is the best choice for research aiming to establish a relationship, but not causation, between two variables without the use of a control group. For these reasons, quasi-experimental research was the best design to answer the proposed research question given that qualitative and quantitative data were collected to qualify engagement. A pre-test and post-test design was used to determine how playing the visual novel affected engagement in English literature. Interviews were not conducted due to time constraints. As such, quasi-experimental research allows for relevant data within monetary and locational constraints.

message is ageless. The story inspires adolescents to think about acceptance and rejection and the value of each individual" (p. 48). This timeless nature makes the novel a perfect fit for the evolution of experimental learning styles, such as the visual novel, as its themes remain pertinent to student experiences in the modern era.

Before playing the visual novel, participants answered a pre-test questionnaire about their attitudes towards traditional English classroom learning. After playing the game, participants answered questions on a post-test questionnaire about their experiences with the game and how it affected their attitudes towards English literature education.

Because all participants were reached through English classes, the sampling method was convenience sampling. Major limitations to convenience sampling are sampling bias and a lack of generalizability because the sample may not be representative of the population (Salkind, 2012). Despite these drawbacks, convenience sampling was the most time-effective and cost-effective method of sampling.

Ethical Considerations

An application was completed and sent to the school's Institutional Review Board (IRB) to ensure the study meets all ethical standards of confidentiality and protection from harm, and approval was obtained in November 2019. Participants were assigned participant numbers to ensure confidentiality standards were met. Consent forms were distributed to students through their English classes and were required to be signed by the student's parent or legal guardian.

Design and Instrument

For this quasi-experimental design, questionnaire data was collected using Google Forms because it is both free and accessible. The visual novel was administered on the computer. The amount of time it took to complete the study varied according to individual reading speeds.

Both pre-test and post-test questionnaires were distributed to determine the effect of the visual novel on engagement with English literature. Part one of the pre-test questionnaire collected demographic information. Participant numbers were collected to organize the questionnaires. Grade level was collected to ensure that participants were within the requirements of the study. English class level was collected to account for the difficulty of the class's effect on engagement. Gender was collected to account for the impact of gender on perceptions of traditional classroom learning and literature. Other factors, such as race, ethnicity, and class were not collected due to school policies to protect anonymity in the study. A question also asked if the student had ever read *The Outsiders* to account for the confounding variable of familiarity with the source material, which could skew opinions for or against the visual novel approach.

From there, the questionnaire employed a mix of open-ended questions and close-ended 5-point Likert scales ranging from strongly disagree (1) to strongly agree (5). Likert scales and open-ended questions were selected because they give a broader view of the participants' opinions. The questions pertaining to engagement on the questionnaire were adapted from Hart et al.'s "Student Engagement in Schools Questionnaire" (2012). This particular questionnaire was used because of its reputability and validity in the discipline of education. Found in Figure 4 of the Appendix, questions 1 through 4 on part two of the pre-test evaluated learning enjoyment; question 5 through 7 measured behaviour, effort, and persistence; and questions 8 through 12 assessed cognitive learning. The questions on Hart et al.'s questionnaire were adjusted for English education, but the core factors tested by the questions remain the same.

The post-test questionnaire (see Appendix, Figure 5) gauged the potential impact of a visual novel game on engagement. Questions 1 to 3 evaluated learning enjoyment; question 4 assessed behavioural factors; and questions 5 to 9 assessed cognitive learning. The factors accounted for by the post-test align with the pre-test factors in order to draw conclusions about the visual novel's impact on engagement. The post-test questionnaire was adapted from Bourgonjon et al.'s "Students' Perceptions About the Use of Video Games in the Classroom" (2010). This questionnaire was utilized because of the reputability and notability of Bourgonjon et al.'s work in the discipline of digital education.

The program Ren'Py was used to develop the visual novel of Hilton's *The Outsiders*. Ren'Py is a visual novel engine that "has the advantage to be adapted to any genre, from classical to contemporary literature" (Bashova & Pachovski, 2016, p. 9). Ren'Py was chosen over similar programs, such as Novelty and Visual Novel Maker, due to its user-friendly interface and reputability in the visual novel development community. In comparison to these other game engines, "Ren'Py presents itself as user friendly, customizable, and having the capacity for rapid, cost-effective iteration" (Consalvo & Staines, 2021, p. 776).

Subjects

The target sample size necessary to generalize results to the high school's overall population of 2200 determined via a sample size calculator was 150 students (Creative Research Systems, 2012). Data collection occurred during lunch periods throughout November and December 2019. The total sample size achieved was 26. The target sample size was unreached due to the inability to compensate participants for their time under school guidelines as well as scheduling restraints due to the setting of the study.

Figure 1, 2, and 3 show the collected data on student demographics. There was an uneven distribution of participants as all students were high school upperclassmen (grades 10–12) in college-level English

classes (AP, AICE, and Dual Enrolment). There were no freshmen respondents and no respondents belonging to regular or honours English classes. Additionally, most respondents were female.
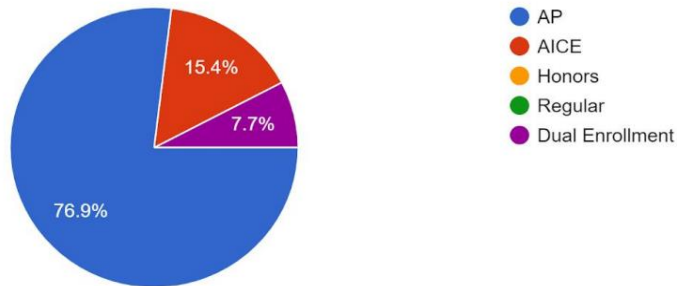
What level is your current English class?
26 responses
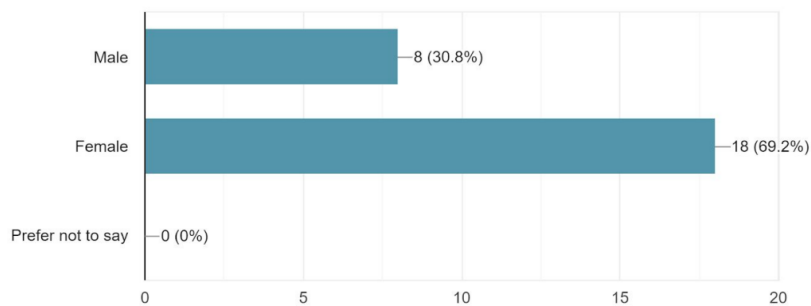

Figure 1. English class level.

Gender
26 responses

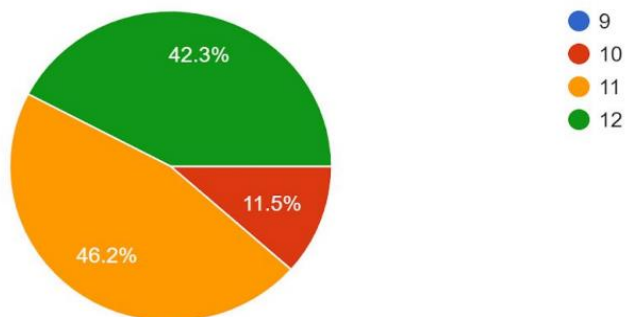Figure 2. Gender.

Grade Level
26 responses

Figure 3. Grade level.

Data Analysis

The researcher utilized Google Forms' autogenerated graphs to present the data. The mean of Likert scale questions was taken and grouped by variable. The short answer responses were placed in tables alongside the Likert scale questions to easily identify the relationship between the two methods of collecting data.

Only descriptive statistics were used in this study's analysis; inferential statistics were not used because the sample was not representative of the overall population. Moreover, the sample was both small and unbalanced as all students were in college-level courses, most were female, and most were upperclassmen. Since there was no control group and the sample was not representative of the population of the school, inferential statistics about the wider population were deemed inappropriate for the scope of the study.

Results

See Appendix Table 3 through 5 for a summary of the percentage of student answers in each category (1–5) of the Likert scale questions as well as the mean Likert scale responses. Table 3 presents the collected data from the learning enjoyment factor; Table 4 presents the behaviour, effort, and persistence factor; and Table 5 presents the cognitive learning factor.

Participants responded to the statement "Using a visual novel video game such as the one I have just played would improve my learning experiences in my English classes" on a Likert scale from 1 (strongly disagree) to 5 (strongly agree) with a mean score of 4.346; 50% of respondents answered 4 and 42.3% of respondents answered 5 (see Table 3 in the Appendix). The data suggests the majority of participants in the study believe that visual novels would improve their learning enjoyment, and by extension, their engagement levels.

Students who had experience with both the original novel and the visual novel were asked an additional question; responses are recorded in Table 1 below, which shows a quantitative summary of an open-ended question. The responses were manually analysed to identify themes across responses. Responses such as "I prefer the visual novel over the book" and "Compared to reading the real novel, I found the visual novel much better" were identified as the student explicitly preferring the visual novel. The response "Reading the novel itself felt better" was identified as an explicit preference for the book. However, since these categories were identified manually by a single researcher rather than using specific keywords, there is a chance of researcher bias in interpreting the responses. In future studies with a greater number of responses, categories should be derived algorithmically to avoid any biases in interpretation. The raw answers and category scores are included in the Appendix (see Figure 6).

PostQ9: How do you feel that your experience playing the visual novel compared to your experience reading the novel?	Percent of respondents
Explicitly prefers visual novel	44.4
Explicitly prefers book	11.1
Visual novel provided clearer understanding	33.3
Refreshed experience	22.2
Visual novel influenced mental images	22.2
Positive experience with visual novel	77.78
Negative experience with visual novel	11.11
Neutral experience with visual novel	11.11

Table 1. *The Outsiders* comparison of book and visual novel (quantitative).

One of the most pertinent results of the present study is how the respondents compared experiencing the story through the visual novel versus the book. Respondents familiar with the novel *The Outsiders* were asked to compare their experiences reading the novel to their experiences playing the game (see Table 1). 44.4% of those who engaged both media explicitly reported preferring the visual novel to the book; 77.78% indicated having a positive experience with the visual novel.

One participant wrote: "I also felt more immersed . . . like I was watching everything happen in front of me instead of just reading words on a page." This evidence is limited because of caveats that are intrinsic in self-reported data, such as the Social Desirability Bias (SDB) and the Halo Error.[2] The results, overall, suggest that even if visual novels are not explicitly preferred over novels, students believe visual novels can create a positive literary experience in their own right. The interactive nature and visual cues provided by visual novels appear capable of helping students to visualize the events and themes of novels in different ways, increasing engagement and retention.

Table 2 summarizes the answers to the post-test question 4 which asked students to select all that apply regarding visual novels. Most notably, 80.8% of respondents believed that visual novels allow students to better understand literature. These findings suggest that

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[2] The Social Desirability Bias is "the desire to edit a response before communicating it to a researcher, in order to make the responder look good" (Gonyea, 2005, p. 82). The Halo Effect is "the tendency to give consistent evaluations across a set of specific items based on a general perception of the subject. In the presence of the halo, responders tend to ignore specific criteria or characteristics that add variance to responses within a particular set of questions" (Gonyea, 2005, p. 83).

students may benefit from a greater understanding of course content as a result of the introduction of visual novels into the classroom.

PostQ4: I believe visual novels allow students to...	Percent of respondents
Experience the novel in a more visual way	100.0
Better understand literature	80.8
Motivate students in class	73.1
None of the above	0

Table 2. Post-test response on engagement.

Discussion

The original hypothesis posited that the use of visual novels for English education is positively associated with engagement. Due to limitations in the design of the study, it cannot be concluded that the two are positively associated to a statistically significant degree. However, it can be concluded that students desire visual novels to be incorporated into their English classes, and they perceive visual novels as beneficial to their learning. More experimentation and study must be done to quantify the extent of engagement is increased in response to visual novels.

Implications

The evidence from the present study aligns with the results of Coller and Shernoff (2009), who found that engineering "students experience higher intellectual intensity, intrinsic motivation, and overall student engagement when completing homework" in a video game format (p. 315). Similarly, Hamari et al. (2016) concluded that "educational video games can engage [high school physics] students in a learning activity, as demonstrated by heightening levels of engagement (concentration, interest, and enjoyment)" (p. 175). The findings of Hamari et al. and Coller and Shernoff suggest that educational games engage students in STEM, and the present study extends this view to English literature. Students' descriptions of their experiences with the visual novel suggest visual novels could heighten student engagement with course content.

In the present study, when asked if using a visual novel would improve their experiences in their English classes, 50% of respondents answered 4 and 42.3% of respondents answered 5 on a Likert scale, suggesting that visual novels may serve as a viable alternative pedagogic technique for students (see Table 3 in the Appendix). With future research, the discipline can work towards verifying these results and increasing student engagement.

The present study also collected opinions on the use of visual novels in the classroom. One participant wrote that "The person thinks of it less

like work and more like a game, making them more motivated and more immersed" while another stated that "The game allowed [them] to more easily visualize the setting which in turn caused [them] to enjoy reading the book more and also understand better." Students perceive themselves as more engaged due to the immersion provided by the visual novel. However, researcher bias in the interpretation of written responses must be considered. Within limitation, it can be concluded that students find the visual novel more immersive and enjoyable, which is subject to further analysis in future research that employs a larger sample size and keyword-searching algorithms for written responses.

Participants also responded to the statement "I was satisfied with the content of the game" on a Likert scale with a mean response of 4.538 (see Table 5). The respondents believe the content of the visual novel serves as a substitute for traditional classroom learning and agreed that visual novels would improve their understanding of the novel, providing evidence for an increase in the cognitive learning aspect of engagement.

Backlund and Hendrix (2013) conducted a meta-analysis and found that "if they are not always superior to other types of learning material, the evidence that serious games can be effective learning materials in their own right is quite strong" (p. 7). The present study provides further insight on these conclusions, as 88.5% of the respondents strongly agreed with the statement "I try hard to do well in English class," implying that they may already be engaged with their current English class's teaching style. Even before exposure to the visual novel, students reported prior effort and persistence in their English classes. However, there is a glaring limitation: all participants were in advanced English classes taken in high school for college credit (AP, AICE, and dual enrolment). In the high school where the study was conducted, "honours" and "regular" classes are lower in GPA weighting and difficulty. This unbalanced sample size with no regular or honours English class respondents inhibits the generalizability of the results collected. Future studies should distribute visual novels to different class levels and employ the use of control groups.

While visual novels might be perceived by students to improve engagement, traditional ways of teaching may be equally as or more effective. A true comparison between visual novel learning and traditional learning is unable to be made due to the lack of a control group in the present study. We can only conclude that students perceive themselves to be better able to visualize the settings and events of the works of literature being taught. Further research must be done to draw firm conclusions on whether visual novels are positively associated with engagement, even if they do not triumph over other methods of teaching.

Limitations

There is a multitude of confounding variables and limitations to the present study. Because the sample size was not adequate according to the sample size calculator and represented an uneven balance of gender, grade level, and course level, the sample size is not representative of the population. Therefore, though most participants believe visual novels are engaging, these responses might not reflect the opinions of the student body at large. The results cannot be extrapolated to the wider community due to the uneven demographic distributions. Since inferential statistics were not used and the sample was not representative of the population, conclusions were unable to be made concerning gender, grade level, or class level.

Additionally, the questionnaire may have been framed in a way that sways respondents' opinions towards a certain response. Though all questions were peer-edited and reviewed by the IRB, the potential for framing bias limits the extent of the conclusions drawn. Further studies must be conducted with questions that are rigorously tested to eliminate framing biases.

Similarly, the answers to the open-ended questions were analysed manually to identify themes. Due to the small number of responses, manual analysis was chosen over a keyword searching algorithm. Future studies with larger sample sizes should implement more sophisticated techniques or forego the usage of open-ended questions if no concrete method of analysis is feasible.

The limitations of the present study restrict the extent to which it can be asserted that the incorporation of visual novels in the classroom is associated with engagement. As such, it can only be concluded that students believe visual novels could improve their experiences in their English classrooms. Though these limitations could not be mitigated during the research process, the findings of the present study can still serve as a basis for future research on visual novels in relation to pedagogy.

Future Directions

The present study suggests that students desire visual novels to be incorporated in their English classes and perceive visual novels as beneficial to their learning, but more experimentation must be done. To understand the nuances of implementing visual novels into English literature education, the education discipline must conduct further research that analyses teacher and parent opinions as well as data from the classroom. The most valuable implication of devoting research to this topic would be the improvement of teaching methods which can impact the way students think critically about texts. With greater evidence and a wider breadth of subject material covered in the future, it could be possible to transform how high school students interact with literature. In addition to correcting for the errors of the present study,

further studies could assess the impacts on student engagement of different types of video games beyond the visual novel as well as alternative digital learning strategies, such as online courses with multimedia content.

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Appendix

Pretest Questionnaire

Required

1. Participant Number *

_____

2. Grade Level *
Mark only one oval.

◯ 9
◯ 10
◯ 11
◯ 12

3. What level is your current English class? *
Mark only one oval.

◯ AP
◯ AICE
◯ Honors
◯ Regular
◯ Dual Enrollment
◯ Other: _____

4. Gender *
Check all that apply.

☐ Male
☐ Female
☐ Prefer not to say
☐ Other: _____

5. Have you ever read the novel "The Outsiders" by S.E. Hinton? *
Mark only one oval.

◯ Yes
◯ No

6. 1. I am very interested in literature. *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

7. 2. Expand upon your answer to question 1. Why do you feel this way about literature?

_____
_____
_____
_____
_____

8. 3. I think that the activities we do in English class are interesting. *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

9. 4. Expand upon your answer to question 3. Why do you feel this way about your English classroom activities?

_____
_____
_____
_____

10. 5. I try hard to do well in English class. *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

11. 6. When I'm in class, I participate and pay attention in class activities. *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

12. **7. When I'm in English class, my mind wanders.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

13. **8. When I read for English class, I try to understand the material better by relating it to things I already know and my own experiences.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

14. **9. When learning things for school, I often try to associate them with what I learnt in other classes about the same or similar things.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

15. **10. When reading literature, I try to combine different pieces of information from course material in new ways.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

16. **11. I have a difficult time understanding the texts I read in my English class.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

17. **12. Describe your feelings towards your current English class as a whole.** *

_____

_____

Figure 4. Pretest questionnaire.

Post-test Questionnaire
Please answer the questions below based on your experience with the sample visual novel you have just played.

* Required

1. **Participant Number** *

_____

2. **1. Using a visual novel video game such as the one I have just played would improve my learning experiences in my English classes.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

3. **2. Using a game would be distracting in the classroom.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

4. **3. A game such as the one played would help me better understand the novels we read in class.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

5. **4. I believe visual novels allow students to...** *
Check all that apply.

☐ experience the novel in a visual way
☐ better understand literature
☐ motivate students in class
☐ none of the above

6. **Explain or expand upon your answer to question 4.** *

_____
_____
_____
_____

7. **5. If you had the choice, would you choose to follow courses in which video games are used? Why or why not?** *

_____
_____
_____
_____

8. **6. I am enthusiastic about using video games in the classroom.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

9. **7. I like playing video games.** *
Mark only one oval.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

0. **8. How satisfied were you with the content of the game?** *
Mark only one oval.

	1	2	3	4	5	
Dissatisfied	○	○	○	○	○	Satisfied

1. **9. Only answer this question if you answered "Yes" to having read the Outsiders before in Part 1. How do you feel that your experience playing the visual novel compared to your experience reading the novel?**

_____

Figure 5. Posttest questionnaire.

Only answer this question if you answered "Yes" to having read the Outsiders before in Part 1. How do you feel that your experience playing the visual novel compared to your experience reading the novel?	Explicitly prefers visual novel	Explicitly prefers book	Visual novel provided clearer understanding	Refreshed experience	Visual novel influenced mental images
Total respondents who answered X	4	1	3	2	2
% of respondents who answered X	44.4%	11.1%	33.3%	22.2%	22.2%
3. I prefer the visual novel over the book; when I read the book, I wasn't very interested in the content and could not remember the information.	1				
4. Compared to reading the real novel, I found the visual novel much better because it made me more invested in the story and have me a clear view of what's going on.	1		1		
7. I had a completely refreshed experience and it was quite enjoyable.				1	
8. Instead of imagining my own view of the characters through descriptions, the visual novel provided its own illustration					1
10. I read the book a while ago so it was a nice refresher of the storyline. Also it was cool to see it play out in front of me, similar to how I'd imagined it when reading it.				1	
11. I feel like the visual novel accurately represented the events in the book and with the aid of visuals, I understood the events more.			1		
12. The visual novel helped prevent my mind from straying from the game at hand and get distracted compared to when I initially read the book; the game helped keep me engaged in the story.	1				
16. The setting of the scene was much more clear to me. When I read the book, I completely forgot where the scene took place, but here I could see that it was at a drive in theater. I also felt more immersed in what was happening too, it almost felt like I was watching everything happen in front of me instead of just reading words on a page. The music also helped me focus on the words since it blocked out any distractions.	1		1		
20. Reading the novel itself felt better, since I prefer to imagine the characters rather than having them shown to me.		1			1

Figure 6. Open-ended responses and category scores corresponding to Table 1 in the main text. Responses 3, 4, 7, 10, 11, 12, 16 were evaluated as a "positive" experience, response 8 was "neutral," and response 20 was "negative."

Factor: Learning Enjoyment	Percentage of Student Responses Rated 1 (Strongly Disagree) to 5 (Strongly Agree)					Mean Response
	1	2	3	4	5	
PreQ1: I am very interested in literature.	3.8	7.7	23.1	38.5	26.9	3.769
PreQ2: I think that the activities we do in English class are interesting	0	15.4	26.9	46.2	11.5	3.538
PostQ1: Using a visual novel video game such as the one I have just played would improve my learning experiences in my English classes.	0	0	7.7	50	42.3	4.346
PostQ2: Using a game would be distracting in the classroom.	15.4	50	26.9	7.7	0	2.269

Table 3. Student responses for learning enjoyment (factor).

Factor: Behavior, Effort, and Persistence	Percentage of Student Responses Rated 1 (Strongly Disagree) to 5 (Strongly Agree)					Mean Response
	1	2	3	4	5	
PreQ5: I try hard to do well in English class.	0	3.8	0	7.7	88.5	4.808
PreQ6: When I'm in class, I participate and pay attention in class activities	0	0	0	26.9	73.1	4.731
PreQ7: When I'm in English class, my mind wanders.	0	42.3	19.2	30.8	7.7	3.038

Table 4. Student responses for behavior, effort, and persistence (factor).

Factor: Cognitive Learning	Percentage of Student Responses Rated 1 (Strongly Disagree) to 5 (Strongly Agree)					Mean Response
	1	2	3	4	5	
PreQ9: When learning things for school, I often try to associate them with what I learnt in other classes about the same or similar things.	0	3.8	3.8	61.5	30.8	4.192
PreQ10: When reading literature, I try to combine different pieces of information from course material in new ways.	0	15.4	34.6	23.1	26.9	3.615
PostQ6: I am enthusiastic about using video games in the classroom.	0	0	26.9	42.3	30.8	4.038
PostQ8: I was satisfied with the content of the game.	0	0	11.5	23.1	65.4	4.538

Table 5. Student responses for cognitive learning (factor).