

Arts integration: Effects on student comprehension and engagement

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Abstract: Arts integration has the potential to increase students' class engagement, reading engagement, and reading comprehension. However, little attention has been paid to the effects of arts integration with middle school students or inclusion students. This study aims to address this gap in the literature, and identify a potentially effective teaching method to an older population of students.

Introduction and Justification

"A picture is worth a thousand words" is a common saying, but could it really be true? Could pictures help students form words, or understand words, or become better communicators? That is the premise of arts integration frameworks. This framework has been used to turn around low-achieving schools such as the Chicago schools that formed Chicago Arts Partnerships in Education (Walker et al., 2011). Arts integration has the potential to improve students' achievement, higher-order thinking skills, and engagement with the material (Poldberg, 2013; Robinson, 2013).

My students are in an inclusion classroom, and it is my responsibility to not only make the material accessible and interesting to all students, but also ensure that they will learn the material. Much of the research on arts integration has been conducted in elementary schools, including those with English language learners or students with limited English proficiency. Less work has focused on older students, let alone older students who have disabilities. Arts integration could be a viable teaching strategy for increasing the literacy achievement of these students, in similar ways that the younger students are engaged. However, research is needed to explore the benefits of arts integration for these populations (Robinson, 2013).

Literature Review

Scholars have generally found that arts integration practices in schools lead to higher student achievement (Gullat, 2008; Moss et al., 2018). Although there is not a general consensus among researchers regarding the *type* of arts integration that is most effective, there is evidence that students benefit when teachers incorporate drama and visual arts in the classroom. For example, Baker (2013) found that drama was effective in increasing students' vocabulary, verbal reasoning, and memory. Another study that supports drama integration is a meta-analysis of 44 studies, Robinson (2013) found positive effects of drama integration and evidence to support the integration of visual arts and dance. The integration of visual arts has been found to reduce

achievement gaps and improve the reading achievement and motivation of disadvantaged students (Poldberg, 2013; Robinson, 2013).

Most of the research is focused around the arts' effect on achievement on standardized tests. In reading, the arts have been shown to improve students' achievement, vocabulary, and writing (Snyder et al., 2014; Bowen & Kisida, 2019; Catteral et al., 2012; Burger & Winner, 2000; Carney et al., 2016). In a study by Snyder et al. (2014), seventh grade students made statistically significant gains in reading under the arts integrated lesson plans. Bowen and Kisida (2019) found that the arts curriculum provided by Houston's Art Access Initiative led to improvements in students writing. In an analysis of four longitudinal studies, Catteral et al. (2012) reported that extensive arts exposure also led to better writing scores. This gives a strong basis for the effects of arts integration on students' achievement. In two meta-analyses, Burger and Winner (2000) found that students' motivation and reading achievement generally improves when arts are integrated with reading instruction. In one study, students exposed to arts-integrated lessons learned vocabulary at a rate two times faster than students not in arts integrated lessons (Carney et al, 2016). Arts integration is associated with increase in vocabulary development, reading achievement , and student motivation.

Previous research provides the most support for drama-integrated lessons. Inoa et al. (2014) found that theatre integration led to gains in mean literacy proficiency rates. Using drama to teach reading can improve students' reading achievement and literacy. In a study by Martinez et. al (1998), students in theatre-integrated classes improved at least one grade level in reading, with some even improving two grade levels. Walker (2011) found that theatre-based learning strategies led to statistically significant increases in language arts performance that extended even into the following year. This could inform literacy instruction; drama integration has shown to be an effective way to increase outcomes.

Another benefit of arts integrated curriculum is that it can increase students' critical thinking and creativity. Gullat (2008) suggested that co-equal arts integration (integration that uses art both to teach students and as assessment) can lead to the incorporation of constructing meaning and problem-solving in the classroom. Cunningham et al. (2014) reported that teachers in their study observed an increase in their students' ability to use critical thinking skills after exposure to arts integration. In another study, students reported that they were also more likely to plan effectively after participating in arts-integrated lessons (Pruitt et al. 2013). Burton et al. (2000) found that there is a statistically significant association between arts teaching and creativity. Demoss and Morris (2002) found that, when interviewed, students indicated that arts integration had made them lifelong learners. Arts integration not only helps students academically in terms of achievement, but can build students' thinking and planning skills, preparing them for higher levels of learning.

Finally, arts integration helps students stay engaged and take ownership of their own learning. Walker et al. (2011) found that students in arts integrated schools missed school less, and teachers were more likely to report that they were engaged in class. In a different study, teachers reported that at-risk students were more engaged in their arts units (Mason et al., 2008).

Students have also noted that they gained more from their arts-based lessons than the regular non-arts units (Demoss & Morris, 2002). In one theatre-based classroom, students even engaged in unassigned extension activities after their arts-based units (Martinez et. al. 1998). Gordon (2017) noted that students are also able to channel their own experiences in the theatre-integrated lessons. Burton et. al (2000) also found that evidence of increased student persistence in class activities and students' sense of ownership in their work.

The purpose of this study is to examine the effect of an arts-integrated project on students' reading comprehension and engagement in the classroom. Arts integration uses arts as a medium for learning, and student expression in the classroom. The arts integrated project will be assigned and implemented in the classroom in an effort to increase student engagement and reading comprehension. The research questions that guided this study were as follows:

1. What is the effect of an arts-integrated project on students' reading comprehension of a selected text?
2. What is the effect of an arts-integrated project on students' engagement with the text?
3. What is the effect of an arts-integrated project on students' class engagement?

Methods

Participants

The sample was a convenience sample drawn from an 8th grade inclusion English class from a school in Southern Maryland. It is composed of 74 students across three classes, 23 of whom have Individualized Education Plans (IEP). There is additional staff for student support, including a special education teacher for all classes, and additional paraeducators in one of the classes.

Data Collection

Students read the short story "The Lady, or the Tiger?" out loud in class before completing a pretest of their comprehension of the story. The students also completed a short survey with Likert-type items and open-ended questions regarding their engagement in class and with the text (Appendix A). They then worked on a project in which they crafted an argument about how the ambiguous story really ended, using some kind of art form (Appendix B). Students had 90 minutes of class time to work on their projects and turn them in. When the project was completed, the students took the comprehension test and the survey again, so that the results could be compared.

Table 1:

Research Questions and Data Sources

Data source 1	Data source 2
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1. What is the effect of an arts-based project on students' comprehension of a text?	Comprehension assessment (pretest and posttest)	Open-ended item (post-intervention)
2. What is the effect of an arts-integrated project on class engagement?	Likert-type scale of class engagement (pre-intervention and post-intervention)	Open-ended item (post-intervention)
3. What is the effect of an arts-integrated project on student engagement with the text?	Likert-type scale of engagement with the text (pre-intervention and post-intervention)	Open-ended item (post-intervention)

Analysis

The results from the comprehension quiz were scored, and a one-tailed t test was used to compare the differences between the scores. Changes in class engagement and students' engagement with the text were analyzed using two-tailed t tests. All effect sizes were calculated using Cohen's d . The last question of the comprehension test was coded and compared for quality of students' analysis of the text.

Validity Concerns

The affective surveys were anonymous, and every response was given in the coding. The tests were administered through Schoology in a multiple-choice format. Multiple choice tests do not accurately measure student comprehension as they rely on knowledge recognition rather than recall. In this study, the use of the multiple-choice test is effective because of time limitations and it provides quantitative data that is measurable across all students in a standard way. The structure of the project did not involve instructing the students on the content of the text. The students read the story, and then they completed the quiz, the survey, and then the project. The project was structured this way in order to ensure that what is measured in the data is the effectiveness of the project.

Results

Question	Pretest	Post test	Difference	P-value
1	0.585	0.714	0.1296	0.665

2	0.512	0.571	0.0598	0.318
3	0.756	0.952	0.1964	0.022
4	0.585	0.714	0.1296	0.317
5	0.683	0.619	-0.0642	0.623

Out of the 74 students across all of the classes, 41 students completed the pretest, and 21 completed the pre quiz, project, and post quiz. The average score for the pre quiz across all 41 participants was 62% on the multiple choice section. On the post test, the mean score increased to 71% for the multiple-choice section. This increase was not statistically significant for this measure (p value: .109). For the pre-test responses on the open-ended question “which does the princess point to and why?” The two most common answers involved the “right door” with 10 responses, and “tiger” with 11 responses. The text explicitly states that the princess gestures towards the door on the right, but it does not state whether the lady or the tiger is behind that door. Based on these responses, the students that did pick a side, sided with the tiger. As evident from their written responses, the main reason that the students picked the tiger was because the princess was “jealous” of the lady behind the door (4 responses). Students who picked the door with the lady behind it (7 responses) often stated their reason was so that the accused man did not get killed (4 responses). Out of the 21 post test responses, 9 students responded that the door opened was the one with the tiger behind it, 5 of whom changed their answer from the pre-test. Many students stayed the same course with their answer to the door on the right (9 responses). 13 students stated the same or similar answers on their pre and post test responses, and 8 students changed their mind. The reasons that students gave for their responses were similar to the pretest, 5 students stated “jealous” for one of their reasons, and 3 said that the woman did not want to see the man eaten.

Most of the multiple choice questions showed a modest improvement from the pretest to the post test, however, in all but one case the difference was not statistically significant. Question three: “What is on the other side of the doors?” showed a statistically significant increase by almost 20 percent.

Figure 1. Affective Survey Results

Survey Question	Pre survey	Post survey	Difference	T-test
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On a scale of 1-4, how much did you enjoy the story, "The Lady, or the Tiger?"	2.47	2.75	0.28	0.4483984417
How likely are you to read more after reading "The Lady, or the Tiger?"	2.529	2.33	-0.199	0.6592219944
How much do you enjoy reading in general? (1-4)	2	1.83	-0.17	0.6504918962
I feel engaged in class (Likert scale: Always, Often, Sometimes, Rarely, Never)	3.647	3.58	-0.067	0.8761575018
How much do you enjoy class assignments? (1-4)	2.529	2.5	-0.029	0.9368638081

In regards to students' feelings of engagement in class and with the text, 17 students participated in the first survey, and 12 completed both surveys. This was an anonymous survey, so there is no way to know if individual students changed their minds or remained stable. The test shows very slight decreases in their answers for all but one question, but the difference is not significant. The results for whether the students enjoyed the story, felt like they read more, and enjoyed reading were stable across both pre and post test, with no significant changes. Students responses for class and assignment engagement were also stable across both tests, with no significant differences in the average result. When asked if the students enjoyed the project, 66% of respondents said that they enjoyed the project. One of these students said "I liked being able to express creativity." Students that expressed neutrality composed 16% of results, as well as students who disliked the project. One student who did not like the project said that "Nobody really likes doing assignments. Nothing can make them super enjoyable."

Discussion of results:

Research question 1: The effect of arts-integrated projects on students' student comprehension is unclear. Based on their ability to answer multiple-choice questions according to the pre and post quiz, there is no significant indicator that the project increased or decreased their understanding of the story. However, it should be noted that after the project, nine students thought critically enough about the story to change their answer from pretest to post test. These students made new assumptions about the story after completing the project, which may indicate that the project encouraged their critical thinking skills.

The third question on their multiple choice test did show significant improvement in the testing. This question asks students to identify what is on the other side of each door. The answer can actually be found in the title of the story (one side has a tiger, and one side has a lady). The results from this question alone cannot indicate a better understanding of the story because the argument they are answering in their project is what is behind the door the man opens. This means that knowing what is behind the door is a prerequisite for completing the project; one that could have been gathered solely through explaining the project. Because of the nature of the question, no true answers can be gleaned from the difference between pretest and post test.

Research question 2: What is the effect of an arts integrated project on class engagement? The influence of the project on class engagement is also inconclusive. Among the 12 students who completed the pre and post affective surveys, the results were stable from the pretest and posttest. The students overall reported a neutral response to the question about whether or not they enjoyed class. Without knowing who completed both surveys, there is no way to track if individual students changed their answer in different ways either.

Research Question 3: The effect of students' engagement with the text is also hard to measure in this study. The survey items for this question were also stable across both pre and posttests, without a significant increase or decrease in the responses. The students did respond that they enjoyed the project, which involved heavy interaction with the text. This could be an indicator that they enjoyed interacting with the text.

Conclusions and Implications

In this study, I attempted to measure the effect of arts-integration as a project, and its ability to elicit thoughtful interpretation from students and increase their ability to make interpretive arguments about a story. All of the results were inconclusive. This could be due to uneven survey participation for the affective survey, or due to the small sample size and limited power.

The reason for this could be that the arts integration that is measured in major studies is co-equal (used as a means to teach and a means of assessment). Gullat (2008) suggests this type of arts integration can lead to constructing meaning in the classroom. This study only uses arts for the assessment portion of the lesson, by itself, with no support from a lesson. Findings from

previous studies, such as Robinson (2013) and Baker (2013) suggest that drama can increase students' vocabulary and verbal reasoning; drama could be one way to incorporate art into the lesson preceding the project implemented in this study.

Walker et al. (2011) and Demoss and Morris (2002) found that arts integration helps students stay engaged and take ownership of their learning, but in the present study students' class engagement and reading engagement did not improve to a great degree. This could be due to the isolated nature of the project, or the quick turnaround from the assignment of the project, to when it was due. Students did not have time to make plans for their projects, and they had not received projects of similar nature in the school year before this project. However, the students did get a sense that they enjoyed the project, and one even stated that they enjoyed being creative, so this does suggest that further arts integration may result in increased class engagement.

Effective arts integration involves not only using the art as a medium for expression and assessment, but as a tool for teaching and learning. Bowen and Kisidia (2019) looked at the effects of arts integration in Houston's Art Access Initiative, a city-wide integration of arts in the schools and exposure of students to art, over time, these exposures led to an increase in writing ability, but that did not happen with the students in this study. Another key factor is time.

Although there were some indications that students' reading comprehension changed, there are few definitive findings in the present study. The survey results suggest that the students enjoyed arts integration, and it could be a sign that students would be receptive to arts integrated activities in future lessons. However, the percentage of students who took the survey was small and may not have been representative of students across the classes.

Limitations

This study only took place in four days of instruction. This did not provide sufficient time to conduct reading activities and discussions with the story that the students read. Most of the time spent in this study was giving students time to construct their project, but because this was done in an online environment, the normal amount of collaboration between students and teachers was nonexistent. This study also dealt with a very small sample size of students who participated in the project all the way through. Another possible limitation is that students who did not participate in the study may not have done so because they were told that the study had no effect on their grade. As such, data from these students may have been meaningfully different from that from the students in the sample.

Implications

Arts integration requires a lot of time to spend with students using the art to teach, and then teaching students how to use the art in an assessment. The studies support co-equal integration, and this study shows that, without co-equal integration, the arts really do not seem to make a difference.

In future research, time needs to be spent on planning lessons that involve the arts and then implementing them before using standards-based measures of achievement. More structured research still needs to be done with older students and students with disabilities to see if the effects of arts integration can be valuable for these students as well.

Although this study did not find clear answers to whether using arts integration as a form of assessment led to better understanding, it did allow for the examination of the practice with older students and students with disabilities. Students in this study showed an interest in the arts, and they made projects that were reflective of their thought processes and expressed their opinions. This study has piqued their interest of what's possible with the arts, and hopefully this is just the beginning of meaningful arts-integration in higher grade levels.

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Appendix A

Questionnaire: Engagement in Class and with the Text

Pre and Post Affective Survey questions:

1. On a scale of 1-4, how much did you enjoy the story, "The Lady, or the Tiger?"
2. How likely are you to read more short stories after reading, "The Lady and the Tiger?"
(scale 1-4)
3. How much do you enjoy reading in general? (scale 1-4)
4. I feel engaged in class (Always, Often, Sometimes, Rarely, Never)
5. How much do you enjoy class assignments? (scale 1-4)

Post-intervention survey open-ended item: What did you like/ not like about the Lady and the Tiger project? Explain.

Appendix B

"The Lady, or the Tiger?" Comprehension Quiz

1. Describe the king (one word)
 - a. Semi-barbaric
2. How are the accused tried in the kingdom? (By trial by jury, by chance)
 - a. By chance
3. What is on the other side of each door?
 - a. Either a tiger or a Lady
4. Why does the accused have to stand trial?
 - a. Because he is in a relationship with the princess
5. What does the princess think of the lady?
 - a. She is jealous of the lady and the attention she pays the accused man
6. Which door did the princess point to and why?

- a. (This is open ended, judged for how the student uses the text to justify their answer to the story's ambiguous ending.

Appendix C

"The Lady or the Tiger" Project Description and Rubric

"The Lady or the Tiger" creative/collaborative project

This is an argumentative-exploratory project.

You are going to take a stance on the ending of "The Lady or the Tiger?"

We need you to show in some artistic way, *why* you think that your version of the ending is the *correct* interpretation of the story.

There are 2 questions:

1) Which door does the lady point to?

2) Does the man choose the door she chooses?

How you show that, is up to you. That is the exploratory part. You may work alone or in groups of up to 3. You will have to present your project and your argument.

While you are allowed the freedom to choose how you want to present your argument, here are some options!

- Do a dramatic reenactment of the scene
- Do a monologue from the Princess' perspective
- Draw the scene
- Write an extended ending to the story

