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## Engaging Adolescent Readers: Flipped Learning at an Urban High School

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### ABSTRACT

This study examines the efficacy of the flipped learning model within a secondary English classroom at a large, urban high school in the Southeastern United States. To understand the effectiveness of the flipped learning model, the primary author conducted an action research study designed to answer the following research question: will students see more growth than their peers in reading comprehension because of the flipped learning model? Over the course of a month-long instructional unit, students in two eleventh grade English classes encountered instruction via the flipped learning model or from a more traditional approach before being tested on their reading comprehension. Those students taking part in flipped learning scored higher than their peers who received instruction from a more traditional approach. Although modest, these findings suggest that the flipped learning model is effective at promoting reading comprehension.

**Keywords:** flipped learning; pedagogy; instructional strategies; instructional design

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## Introduction

Lacking prior knowledge and requisite skills, many students enter high school years behind their peers regarding reading comprehension (Shanahan & Shanahan, 2008; Teale, Paciga, & Hoffman, 2007). According to the 2015 administration of the National Assessment of Educational Progress, the difference between the average reading score in fourth grade in 2013 (222) did not yield statistically significant results when compared with the average reading score of fourth graders in 2015 (223). More troubling, the average reading scores of eighth graders was lower in 2015 (265) than in 2013 (268) (National Center for Education Statistics, 2015).

This issue is particularly disturbing as this continues the trend of more and more high literacy jobs entering the US economy just as NAEP results suggest that the number of students prepared for post-secondary opportunities actually shrinks during adolescence (Shanahan & Shanahan, 2008). Urban teachers, particularly those who teach mostly children of color, are not immune to this vexing problem. Results from NAEP show that the average score of black students since 1992 has decreased by seven points (or two standard deviations) (Koretz, 2017). Results also show that the average scores of Hispanics were “essentially unchanged” (Koretz, 2017).

Due to this lack of progress, secondary English teachers in the urban context are left wondering how they can improve their students’ reading levels while simultaneously preparing students for district and state standardized testing. Should urban English teachers abandon district curriculum maps? Should they only use instructional-level texts? Should they set up differentiated learning centers? Alternatively, should they teach the curriculum provided by the district? Furthermore, should they teach district curriculum even if it induces frustration and learned helplessness in the students?

One possible solution for the secondary English

classroom is the flipped classroom. In Bishop and Verleger’s (2013) survey of the research on flipped learning, they define the flipped model as “inverting the classroom [meaning] that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa (p. 4).” What Bishop and Verleger meant is that educators create videos or podcasts of their lectures, have students listen or watch these lectures at home, and then set-up higher-level learning activities inside of the classroom. The foundation of this research is in Bloom’s seminal research on differentiating educational objectives to establish higher-order thinking in the classroom (Bloom, et al., 1956). The basic premise is that students should engage in more foundational, lower-level thinking at home and participate in the high-level cognitive processes at school in the presence of an expert other—the classroom teacher (Bergmann & Sams, 2014).

This model is already in use across the country. The motives behind this implementation include the desires to differentiate their classrooms and allow students to pace themselves while working through rigorous curricula (Ash, 2012; Fulton, 2012; Morgan, 2014; Sams & Bergmann, 2013). Although the implementation of flipping learning occurs both nationally and internationally, there is still a lack of empirical evidence that such learning improves long-term student achievement (Goodwin & Miller, 2013; Butzler, 2014). However, several studies do indicate success in the short-term. For example, a Minnesota study (Fulton, 2012) highlighted the success of an entire math department after implementing the flipped model. This group saw Calculus proficiencies rise 9.8%, Pre-Calculus proficiencies rise 6.1%, and Accelerated Algebra II proficiencies rise 5.1%. Also, mastery scores on the Minnesota Comprehensive Assessment increased from 65.6% to 73.8% in one year (Fulton, 2012). Another Michigan study saw the failure rate of their ninth-grade math course decrease 31% after implementing the flipped learning model (Morgan, 2014).

If the tenets of the flipped learning environment—differentiated instruction and a self-paced curriculum—translate to urban, secondary English classrooms, then perhaps secondary English teachers should allow students to read instructional-level texts independently in class. By doing so, they can struggle with the text in the presence of the teacher instead of struggling with the text at home. As noted above, this type of differentiated instruction has the potential to offer students increased access to texts by altering the process by which students make sense of the material and the products they create to demonstrate mastery (Ryan, Cooper & Tauer, 2013).

With these considerations in mind, we sought to answer the following research question: Will urban high school students see more growth than their peers in reading comprehension because of the flipped learning model? We hypothesized that there would be a difference in reading comprehension between the two groups despite the study's short timeframe.

### **Materials & Methods**

We compared the performance of 23 high school students (12 females and 11 male) at a Title I high school in the Southeastern United States. The students were members of two class periods of eleventh grade English; the class sections were selected for the study due to their poor performance on the Qualitative Reading Inventory IV (Leslie & Caldwell, 2006) administered at the beginning of the academic year. While the sample is not random, and likely lacks generalizability, the two class sections are demographically representative of the population of students attending a Title I, urban high school in the United States (Kober & Usher, 2012).

Data collection came from the Qualitative Reading Inventory IV (Leslie & Caldwell, 2006). The lead researcher used the Qualitative Reading Inventory IV to assess student comprehension (see Appendix A and B for full contents). A level seven (seventh grade reading level) passage assessed reading

comprehension of the students. This passage reflected the average reading level of each class' QRI-IV results from the beginning of the academic year.

The study took place in an eleventh grade English classroom over the course of a four-week unit. Based on their class period, students comprised either the comparison group or the experimental group. The experimental group participated in the flipped learning experience, reading their novel during the school day. The comparison group participated in a more traditional novel unit, reading most of the book at home and engaging in standards-based activities during class time. The dependent variable in the study was reading comprehension. The independent variable was the different types of reading instruction received.

The lead researcher introduced the students in the experimental group to their flipped literature project on day one of the project. On day two, students in the experimental group selected their novels and the lead researcher administered a reading comprehension test to students in the experimental group and the comparison group. Next, the lead researcher began the unit of instruction on day six of the project. The unit for the participants in the experimental group lasted four weeks. Each week had a similar structure. On Monday, the lead researcher introduced the standard(s) for the week using the gradual release model. On Tuesday, Wednesday, and Thursday, students spent approximately thirty-five minutes of each class period reading their novels. The first 10 minutes were spent completing daily grammar practice, and in the last five minutes of class, students completed an exit ticket. On Friday, students engaged in standardized test preparation as per school requirements.

Students in the comparison group all read the same novel. During the control group's four-week unit, students read much of the novel on their own at home while participating in standards-based classroom activities during

class time. The control group also participated in school-mandated test preparation each Friday. On day 30 of the project, the lead researcher distributed a post-test. Again, students took a reading comprehension test. Also, the lead researcher gave each student participating in the experimental group a brief survey assessing their overall experience in the flipped classroom. After scoring the pre-test and the post-test, the lead researcher compared the data to accept or reject the hypothesis. Finally, the lead researcher condensed the data into the results section.

## Results & Discussion

Table 1 (Appendix C) shows the results of the reading comprehension pre-test and post-test for the comparison group. Of the 23 students identified, nine were in the comparison group, and 14 were in the experimental group. Of the comparison group, three students reported higher comprehension scores. Of those reporting higher scores all three were female. Four students in the comparison group saw their scores drop. Of those reporting lower scores two were female, and two were male. Two male participants maintained the same score on the pre-test and post-test. The maximum score on the pre-test and post-test was a 10. The minimum score was a zero. The average reading comprehension score for the comparison group on the pre-test was 5.3 points. The average score on the post-test decreased slightly to 5.2 points. A dependent t-test revealed that there was no significant difference between the pre- and post-test outcomes ( $t = -.38(df = 8)$ ,  $p > .05$ ).

Table 2 (Appendix D) shows the results of the experimental group on the same reading pre-test and post-test. Of the 14 students in the experimental group, nine students reported higher scores. Of those nine students reporting higher scores, five were female, and four were male. In the experimental group, three students reported lower scores. Two were female, and one was male. Two scores remained the same throughout the study. Of those who scores remained the same, one was male, and one was

female. The average score on the pre-test in the experimental group was 4.14 points; the average score on the post-test was 5.79 points. In all, the average test score increased on the post-test by 1.65 points. A within-groups t-test produced a significant difference between pre- and post-test results for this group ( $t = 2.45(df = 13)$ ,  $p < .05$ ). Comparing traditional vs. flipped classrooms on pre- and post-tests using independent t-tests did not disclose any differences on either test. This difference may be due to the small sample sizes involved, or the heterogeneity of variances observed between the groups  $F_{max} = 3.41$ , which is not homogeneous. There are several viable reasons to suspect the flipped classroom model would prove instructionally beneficial for students' reading comprehension. First, students engaged in the flipped classroom model read their novels every day under teacher supervision. If the students had a question or needed assistance while reading, they could immediately ask an expert—one of their instructors. Another factor that could boost comprehension is that students engaged in the flipped classroom model were able to exercise a higher degree of autonomy in text selection as compared to their peers in the traditional classroom model. Providing autonomy could lead to a higher quality learning experience (Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L., 2004), higher perceived confidence on the post-test, and a greater sense of self-efficacy for students who were in the flipped classroom (Guay, Boggiano, & Vallerand, 2001; Williams & Deci, 1998).

Despite the brevity of this study, post-test results for the flipped classroom indicated an average increase of 1.65 points, as compared to the traditional classroom of a small reduction in comprehension of -.22. However, these positive findings are critically flawed by variability and the limited group size. Despite the improvement in scores in the flipped classroom model, there was an attendant increase in the variability of scores within this group compared to the traditional

classroom model. This variability, combined with the difference in group sizes (9 vs. 14), likely eliminates the possibility of practically positive findings. To check the influence of a non-normal group distribution on the results, a Mann-Whitney U-test was also run but did not reveal significant results.

This action research project has several limitations worth noting. This study took place over the course of approximately twenty-five school days. While this is a typical length for a learning unit in high school, the results do not indicate that it would be worthwhile for a teacher to flip their classroom for the entire school year. In addition, this study did not look at the relationship between the flipped learning model and student achievement as measured by state standardized testing. Therefore, this study cannot suggest that the flipped learning model will lead to higher levels of student achievement in reading. Compromising factors in this study may be small sample sizes and lack of random selection and assignment of students to groups. The results likely produce no generalizations at present.

Another possible limitation to this action research is the lack of classrooms analyzed. This study only investigates the success of flipped learning in one classroom with one instructor, allowing for potential instructor bias. It is possible that the lead researcher's classroom culture and his teaching style could have positively or negatively contributed to the study's results as several studies have noted the significance of the learning environment on flipped learning's research outcomes (Butzler, 2014; Kettle, 2013). Student perceptions of their teacher and their perceptions of the learning environment also play a role, meaning that only analyzing students from one school could limit the transfer of these findings to other contexts (Baeten, et al., 2010).

There is a need for more research on the flipped learning model in secondary English classrooms. More specifically, there is a need for more empirical, quantitative research as much of

the research performed thus far has been qualitative. Further, these studies would do well to critically examine the influence of students' socioeconomic status and its interaction with the flipped learning model. Because this model upends the typical rhythm of a schoolwork-homework cycle, it would be worthwhile to investigate the effects of non-school factors on student achievement. Overall, the flipped classroom model is in its beginning stages and deserves additional scrutiny to discover whether or not it is a viable instructional method in increasing reading comprehension and student achievement in secondary English classrooms.

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## Appendix

### Item A: Qualitative Reading Inventory Pre-Test Passage and Questions

#### Malcom X

It was because of my letters that I happened to stumble upon to acquire some kind of homemade education.

I became increasingly frustrated at not being able to express what I wanted to convey in letters that I wrote, especially those to Mr. Elijah Muhammed. In the street, I had been the most articulate hustler out there. I had commanded attention when I said something. But now, trying to write simple English, I not only wasn't articulate, I wasn't even functional. How would I sound writing in slang, the way I would say it, something such as, "Look daddy, let me pull your coat about a cat, Elijah Muhammed."

Many who today hear me somewhere in person, or on television, or those who read something I've said, will think I went to school far beyond the eighth grade. This impression is due entirely to my prison studies.

It had really begun back in the Charlestown Prison, when Bimbi first made me feel envy of his stock of knowledge. Bimbi had always taken charge of any conversation he was in, and I had tried to emulate him. But every book I picked up had a few sentences which didn't contain anywhere from one to nearly all of the words that might as well have been in Chinese. When I just skipped those words, of course, I really ended up with little idea of what the book said. So I had come to the Norfolk Prison Colony still going through only book-reading motions. Pretty soon, I would have quit even these motions, unless I had received the motivation that I did.

I saw that the best thing I could do was get hold of a dictionary to study, to learn some words. I was lucky enough to reason also that I should try to improve my penmanship. It was sad. I couldn't even write in a straight line. It was both ideas together that moved me to request a dictionary along with some pencils from the Norfolk Prison Colony school. I spent two days just riffling uncertainty through the dictionary's pages. I'd never realized so many words existed! I didn't know *which* I needed to learn. Finally, just to start some kind of action, I began copying.

In my slow, painstaking ragged handwriting, I copied into my tablet everything printed on that first page, down to the punctuation marks.

I believe it took me a day. Then, aloud, I read back to myself everything I'd written in the tablet. Over and over, aloud, to myself, I read my own handwriting.

I woke up the next morning, thinking about those words, immensely proud to realize that not only had I written so much at one time but I'd written words that I never knew were in the world. Moreover, with a little effort, I also could remember what many of these words meant. I reviewed the

words whose meanings I didn't remember. Funny thing, from the dictionary first page right now, that "aardvark" springs to my mind. The dictionary had a picture of it, a long-tailed, long-eared, burrowing African mammal, which lives off termites caught by sticking out its tongues as an ant eater does for ants.

I was so fascinated that I went on. I copied the dictionary's next page. And the same experience came when I studied that. With every succeeding page, I also learned of people and places and events from history. Actually, the dictionary is like a miniature encyclopedia. Finally, the dictionary's A section had filled a whole tablet – and I went on to the B's. That was the way I started copying what eventually became the entire dictionary. It went a lot faster after so much practice helped me to pick up handwriting speed. Between what I wrote in my tablet, and writing letters, during the rest of my time in prison I would guess I wrote a million words.

I suppose it was inevitable that as my word-base broadened, I could for the first time pick up a book and read and now begin to understand what the book was saying. Anyone who has read a great deal can imagine the new world that opened. Let me tell you something: from then until I left that prison, in every free moment I had, if I was not reading in the library, I was reading on my bunk. You couldn't have gotten me out of books with a wedge. Between Mr. Muhammed's teachings, my correspondence, my visitors, usually Ella and Regiwald, and my reading of books, months passed without me even thinking about being imprisoned. In fact, up to then, I never had been so truly free in my life.

### **Reading Comprehension Questions for "Malcom X"**

1. What was this selection mostly about?
2. How did Malcom X describe his early writing abilities?
3. Why did Malcom X decide he should learn to write better?
4. Before he went to prison, what was the highest grade of formal schooling that Malcom X had completed?
5. Before Malcom X improved his reading skills, what did he do when he was reading and came to words that he didn't know?
6. How did Malcom X begin his informal, prison-based education?
7. What evidence do we have that Malcom X was highly motivated to improve his vocabulary?
8. In addition to the meanings of many words, what else improved as Malcom X copied the dictionary?
9. What kept Malcom X motivated to continue his study of the dictionary?
10. Why did Malcom X say, "I had never been so truly free in my life" even though he was in prison at the time?



## Item B: Qualitative Reading Inventory Post-Test Passage and Questions

### Biddy Mason

Sometimes it seemed they would never stop traveling. First there had been the long trip to Utah. All day Biddy had walked along behind the wagons, tending the cattle. For months they walked, getting farther and farther from Mississippi. It was a hard trip, especially for her children. But what could Biddy do? She was born a slave. She was a slave today. Her master told her to walk across the plains and she did it.

They had stayed in Utah only one year. Then word came of a new settlement in Southern California. Robert Smith decided to go. Again the wagons were packed. Again they began the long day of walking.

Biddy had plenty of time for thinking along the way. What she mostly thought about was freedom. As a child she had never known a black person who wasn't a slave. Oh, she heard about them, about the ones who escaped to the North. But it was so hard to imagine!

Then came the trip west. Things were different here. She had seen families, *black families*, traveling west with their own wagons! Just think of it! They planned to find their own land, start their own farms, or find work in the towns. Biddy had thought about them for days.

Biddy looked down at her bare feet. They were tired and sore and covered with dust. "These feet walked every mile from Mississippi," she thought. "And they remembered every step. They have walked for Mr. Smith and his family. They have walked after his crops and his wagons and his cattle. But someday these feet are going to walk for me. Someday these feet will walk me to freedom. I'm sure of it."

A few days later, the tired travelers arrived at San Bernardino, California. It was a lovely place. It was their new home.

There were many reasons to enjoy living in California in 1852. The climate was pleasant. The land was good. The air was fresh and warm. Cities were booming. Everywhere there was a sense of promise and excitement.

The most important thing for Biddy was the promise of freedom. She had heard people talking. The new state of California did not permit slavery, they said. By law, all people here were free. Biddy looked again at her dusty traveling feet. "Soon," she said to herself, "soon."

Three years passed. Life was pretty good, but Mr. Smith had loved traveling. Even this beautiful settlement could not hold him. He decided to move again, this time to Texas. The wagons were loaded and made ready to go.

Biddy knew she had to act. As soon as the wagons left San Bernardino, she began looking for an opportunity. She found one. Somehow she sent a word to the sheriff in Los Angeles. He

stopped the wagons before they left California.

"I hear you have slaves in your party," said the sheriff. "I suppose you know that's against the law. Is it true?" Biddy came forward. In all her life this was the first time she had ever spoken to a white sheriff. Still her voice was strong. "It is true," she said. "Mr. Smith is taking us to Texas and we don't want to go."

That statement led to the most important slavery trial in Southern California. Biddy spoke to the judge, and her words were strong and clear: "I want to stay in California. I want to be free."

The judge sided with Biddy. He scolded Mr. Smith for breaking the law. He gave all the slaves their freedom.

Biddy gathered up her children and said, "We are moving once more, but it won't be very far. We are going to Los Angeles, and this time," she said looking at her tired feet, "I am walking for me!"

She started her new life by taking as her full name Biddy Mason. She went to work as a nurse and a housekeeper. Before long she had saved enough money to buy a house. Soon she bought other property too. Biddy Mason was a good businesswoman. She became one of the wealthiest blacks in Los Angeles.

She shared that wealth with others. She gave land to build schools and hospitals and nursing homes. She supported the education of black children and helped people in need. Biddy Mason had come a long way from that slave's cabin in Mississippi. She still remembered the walking. And she made sure she helped others along their way.

### **Reading Comprehension Questions for "Biddy Mason"**

1. What was this selection mostly about?
2. What did Biddy think about while she was walking from state to state?
3. What did Biddy see on the trip west that was different from anything she had ever seen before?
4. What was special about California in the 1850s?
5. Why did Biddy need to act quickly when Mr. Smith decided to move to Texas?
6. What two events happened when the Los Angeles sheriff stopped Mr. Smith's wagons?
7. What was the outcome of the trial?
8. What did Biddy mean when she told her children that they were going to Los Angeles but that this time her feet were walking with her?
9. Give two examples of Biddy's behavior that indicate that she was a courageous person.
10. Why do you think the author chose to write a biography of Biddy Mason?

**Item C: Table 1***Comparison Group Results*

<b>Participant</b>	<b>Pre-Test Score</b>	<b>Post-Test Score</b>	<b>+/-</b>
1	6	6	Even
2	5	7	+2
3	7	4	-3
4	7	7	Even
5	7	5	-2
6	4	3	-1
7	7	6	-1
8	2	4	+2
9	4	5	+1
<b>Average</b>	<b>5.3</b>	<b>5.2</b>	<b>-.1</b>

**Item D: Table 2***Experimental Group Results*

<b>Participant</b>	<b>Pre-Test Score</b>	<b>Post-Test Score</b>	<b>+/-</b>
1	6	9	+3
2	1	6	+5
3	3	5	+2
4	7	7	Even
5	9	6	-3
6	4	3	-1
7	3	3	Even
8	2	4	+2
9	5	6	+1
10	0	3	+3
11	5	9	+4
12	3	2	-1
13	4	10	+6
14	6	8	+2
<b>Average</b>	<b>4.14</b>	<b>5.79</b>	<b>+1.65</b>