

**Evaluating the Effectiveness of a Hybrid Developmental Reading Course
at One Urban Community College: A Quasi-Experimental Comparative Study**

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Abstract

Based on the response for the need to engage students in developmental reading, the purpose of this study was to examine whether a hybrid method of instruction has an impact on student reading achievement. To measure reading achievement, quantitative data in the form of student grades on end of the semester exit exams was collected. Data was analysed using dependent-samples paired *t*-test and the results indicated a significant impact on reading achievement: $t=.360$, $p=0.011$. Future research is needed to determine the impact of the hybrid method of instruction on developmental reading students in differing socioeconomic backgrounds and geographic locations.

Bronx Community College, which is in New York City, has an enrollment of approximately 11,500 students. According to the 2015 Bronx Community College's Profiles and Demographics, of this 11,500 enrolled, 39% are non-English speaking students and the majority are enrolled in developmental courses, such as reading, writing, and mathematics. On a broader basis, Reyes, Rodriguez, and Kaplan (2014) report that in 2012 there were approximately 224,300 English

Language Learners (ELL) enrolled in the New York State School System. Further, Reyes et al., (2014) also assert that these ELL students are speaking primarily another language other than English and are socioeconomically and culturally diverse. Hernen (2015) contended that developmental reading students are also first-time college students attending classes aside from their full-time jobs.

According to Reyes et al. (2014) and Hernen (2015), the ELL population is usually placed into developmental courses due to the lack of cultural understanding, inability to read or speak English and the need to provide for their families, which deters them from completing college coursework. In these developmental courses, students are taught basic skills such as vocabulary, paragraph writing, and problem solving. Agbatogun (2014) emphasized the need of properly instructing a population of students who have external factors that may hinder their success. Just like Reyes et al. (2014), Agbatogun (2014) also contended that students who are not prepared for college will likely fall behind academically, eventually leading to the college developmental courses, and further, drop out of school.

Dole, Bloom, and Kowalske (2016) and Hernen (2016) stated that the developmental student will find it difficult to complete tasks, which results in withdrawing from the course and eventually dropping out of school. Developmental reading student barriers are a common theme in the literature and the research emphasizes that it is affecting the student's academics over their non-developmental counterparts. In fact, in Hodara's preliminary research, Jaggars and Hodara (2011) underemphasized the role a student's first language or background plays as a mediating factor in the eventual placement in CUNY's community college developmental program.

Hernen (2016) found that when instructional strategies were focused on the developmental learner, progress was seen in the work produced in the college developmental reading course. Specifically, Hernen (2016) focused her research on effective learning strategies that would better support the developmental student and found that success was being made in the course rather than concentrating on exit exams. Levin and Garcia (2018) noted that finding instructional methods that meet the needs of developmental reading students will increase their retention rate and enhance their critical thinking skills in college level courses.

Montero et al. (2014) further examined instructional methods in developmental reading and suggested that finding strategies that will meet the needs of the learner will better develop skills needed for college level courses. Jaggars and Hodara (2011) asserted that developmental reading does not work, and students do not benefit from it. However, Hernen (2016), Levin and Garcia (2018) and Montero et al. (2014) would disagree, contending that the success of developmental reading should be focused on how well the student does after developmental courses, and if they are successful in other courses.

Best practices in developmental reading

Education is a revolving door; each year there are new advances in technology that allow us to support both our 21st century learners and ELLs who have migrated over the past few years to this country. What Crooks et al. (2011), Jaggars and Hodara (2011), and Estrada et al. (2005) failed to provide are strategies of best practices to make learning beneficial to our developmental reading population. Nemeth and Simon (2013) examined the positive affects technology had on the developmental students in the classroom. Further, Nemeth and Simon (2013) articulated how technology can improve the way instruction is practiced in a classroom that is heavily populated with ELLs. O'Hara, Pritchard, Huang, and Pella (2013) found that technology provided audio and

visuals that aided the ELL student in developing literacy skills and making a connection with the American culture.

Montero et al. (2014), Williams (2012), Conley (2010), and Olson and Land (2007) would all agree that ELLs benefit from a critical literacy model and when emerged in a college reading program and not an accelerated college program. Further, Montero et al. (2014), Nemeth and Simon (2013), O'Hara et al. (2013), Williams (2012), Levin and Garcia (2018) and Olson and Land (2007) support the idea that effective instructional strategies are pertinent in the successful development of the student in reading. Attewell, Lavin, Domina, and Levey (2006) contended that 52% of students enrolled in a developmental course were from families of low economic backgrounds. However, among this percentage, ELL students were not calculated, which potentially could affect the outcome of remediation. In past research regarding CUNY remediation, low socioeconomic backgrounds were a main focus when determining why students were placed in remedial courses and why it has been unsuccessful in terms of matriculation. An explicit evaluation of best practices in college campuses where developmental reading programs are rapidly growing will better help increase matriculation and retention.

Researchers have argued that developmental reading is a problem among retention rates of students enrolled at a CUNY community college (Crooks et al., 2011; Harris, 2017; Hernen, 2016; Hodara, 2012; Lehner et al., 2017). Due to the hours that are required of developmental reading, students believe they will never complete college requirements and wind up dropping out during the semester (Harris, 2017). Students become frustrated and often believe the skills being taught in developmental reading are not assisting them in college level coursework (Hernen, 2016). Many community college students have other commitments aside from school. Brzeski (2014)

highlighted the demands that CUNY students have while trying to obtain a college degree to better their lives. Students who attend community college often have full time jobs, children and family obligations, which impact their schedules and demands of college coursework (Brzeski, 2014; Harris, 2017). Due to these obligations, students find developmental courses to be hindering their success in college.

What Hodara (2012) failed to mention in her study was the abundance of ELLs and low-socioeconomic students that were enrolled in developmental reading. Low retention rates were aligned with the unsuccessful outcomes of developmental reading and effective instructional strategies were ignored. Brzeski (2014) discussed the need to change strategies to meet the demanding needs of community college students, specifically, those at Bronx Community College. The research has suggested further examination of instructional strategies to better fit the urban community college student, yet no such examination has been observed (Crooks et al., 2011; Foderero, 2011; Harris, 2017; Hernen, 2016; Hodara & Jaggars, 2012; Lehner et al., 2017)

Brzeski (2014) studied instructional strategies as being the pathway to retaining students in developmental reading. Like Brzeski (2014), Hernen (2016) and Lehner et al. (2017) outlined the benefits of implementing effective instruction to students in a developmental reading course. Brzeski (2014) highlighted the need to shift instructional strategies to meet the needs of the 21st century student. A common theme throughout the literature was the need to change instructional strategies in developmental reading and move away from a skill-based course to address the retention rates.

Hybrid learning has become a popular instructional method among institutions in recent years (Gleason & Greenhow, 2017). Hybrid learning has been termed *blended learning* (Gleason

& Greenhow, 2017; Hernen, 2016; Yang, 2012), where students use online resources and learning management systems to complete course work. Hernen (2016) and Yang (2012) articulated that the hybrid learning method allows students to receive both online and face-to-face instruction. In a hybrid course, the class will meet face-to-face for half the semester hours and use the learning management system the other half of the course. A hybrid course allows students to get both a traditional method of instruction and an online learning experience (Beetham & Sharpe, 2013).

Research Methodology

The treatment group for this study were college students enrolled in developmental reading 200 class. The control group in this experiment was “other” college students enrolled in developmental reading 200 courses not receiving the hybrid reading model but rather that of a traditional lecture model. A quasi-experimental design was sufficient because the study used a control group and an experimental group (Campbell & Stanley, 2015). The students were not be randomly assigned to the experimental group or control group (Cresswell, 2013). The study statistically evaluated a hybrid reading model and its effects on students’ proficiency and achievement in developmental reading by comparing exit examination scores and participant’s pre-test and post-test scores on the Townsend Press College Reading Test (Townsend Press Inc, 2017). The scores of the students in the experimental group were compared to the scores of the students in the control group to evaluate the effectiveness of a hybrid reading model in developmental reading. The overarching research question was:

Q1. To what extent, if any, does a statistical difference exist when comparing a hybrid reading model to those of traditional lecture models and the effects on developmental reading exit exams?

Research Methodology and Design

The comparative pre-/post-test design was selected to analyze whether a difference exists when comparing the independent variables (hybrid versus traditional reading courses) to the dependent variables (reading growth and learning outcomes) based on departmental exit examinations and the Townsend Press Reading Test. A *t*-test was used for measuring and analyzing the dependent variable (reading growth) in this study. An independent *t*-test of aggregated means analysis was used in this study to test the learning gains of a hybrid reading course. The data sets in this study were pre-test data compared to post-test data from Townsend Press Reading Test reports distributed at the beginning and end of the semester.

Two reading sections, or 31 participants, were used in the study. The college offers approximately 17 sections of RDL 02 Developmental Reading to approximately 390 students. The College has recently revised the departmental reading examination to align with CUNY reading outcomes. Student's participation in this study was obtained through informed consent but was not strategically selected. Data were accumulated from the participants based on self-selection into the hybrid reading course. Appropriate enrolment into the course was assured by CUNY placement examination scores and academic advisors guiding students' registration; however, students chose the course day and time. Further, 31 participants were used in this study and were a direct result of self-selection of their RDL 02 course section. Fourteen students were examined from the hybrid section and 17 students were examined from the traditional section.

Past RDL courses at Bronx Community College were traditional, focusing on basic reading skills, and never addressed student's critical thinking skills. The data from the hybrid course was compared to the RDL 02 section where traditional learning method was used. A *t*-test was used to determine if a significant difference existed between the two mean scores.

The population was measured for developmental reading by the administration of the Accuplacer Reading Placement Test. The test is administered by CUNY to determine reading placement into the developmental courses. At Bronx Community College, a score of 44-54 requires students be placed into RDL 02. A score of 55 or higher meets CUNY literacy requirements and no developmental reading is needed. Those scoring 44-54 were required to complete the hybrid RDL 02 course for this study. Those scoring below 44 were required to take RDL 01, which is a lower level of developmental reading. Data in this study were analyzed using the pre- and post-test Townsend reading scores for the students enrolled in the hybrid section of RDL 02 and the traditional course. Examination of pre- and post-test scores and course outcomes were statistically analyzed by group. A Townsend reading score change of ± 8 comprises one standard deviation, and is considered a valid measurement (Townsend Press, Inc 2017).

Sample

The sample classified for this study included a randomization group of students who self-enrolled in the developmental reading hybrid course during the spring semester of 2017. The sample included students who scored below the 55-score cut mark for placement exams. Students were placed into the hybrid developmental reading course based on convenience of course and how it fit into their daily schedules. Students were not recruited for this study; however, their authorization was accessed through informed consent. The hybrid course for this study was taught 3 hours face to face and 3 hours online. The traditional course for the study was taught entirely face-to-face. Participants' data was collected based on their self-enrollment into the hybrid developmental reading course. Prior to the hybrid developmental course being

implemented, courses were created to address basic reading skills without implementing an online course structure.

A previous power analysis for an independent *t*-test of accumulated means was conducted using SPSS 23.0 software in order to determine the statistically valid number of participants for this study. A calculation for *p value* was made a priori. Therefore, if the *p* value was less than .05, the null hypothesis would be rejected. The considered sample size of 31 participants meets the criteria for the proposed data analysis method.

Findings

A pre-/post-test design was used to investigate whether the hybrid method of instruction had an increasing impact on student reading achievement. Participants were 14 developmental reading students enrolled in the traditional and hybrid method of instruction for the spring semester of 2017. The reading 200 course was taught following a hybrid model of instructional methodology whereas the students enrolled in the reading 100 course were taught in a traditional method where students participated in a student- teacher lecture. Students enrolled in both courses were given a pre-test the first week of classes using Townsend Press. This represented the pre-test data. At the end of the semester, students were given a post-test using the same program to evaluate reading growth. This represented the post-test data. Student grades were collected as evidence of reading growth. Dependent samples paired *t*-test was used to compare pre-test and post-test data to find score discrepancies.

The second test used for collection of data to show whether a hybrid reading method of instruction had an impact on students' reading growth was the exit exams. Exit exams were administered by the instructor at the end of the semester. The reading exit exams were given at the end of May 2017. Exams were collected by the instructor and given to the department of

reading's data analyst administrator for examination of scores. Exit exam scores were collected from 14 students from the traditional reading 100 course and the hybrid 200 course. A total of 28 exit exam scores were collected.

Data Collection Procedures

The students selected to participate in the study were undergraduate incoming freshman students who were assigned to either the hybrid section of developmental reading or a traditional section. Random selection was not possible: students were placed into their courses based on each student's individual needs and the course availability to meet those needs. Further, although the sample was one of convenience, it is assumed that the students in each course represent a reliable and valid representation of the student population. The entire sample was comprised of 28 participants.

Students were assigned a random number (1-14) to maintain anonymity. For any written work, the department of education and academic literacy's computer lab technician submitted students' data from Townsend Press to the instructor with their assigned number rather than their name to protect their identity. The department of education and reading's data analyst emailed end of semester exit exam scores for both the Reading 100 and Reading 200 courses with each student's assigned numbers. The Townsend Press Reading Skills Test was the first assessment (pre-test) students were given in this study. An example of the Townsend Press reading test is as follows: four short reading passages were provided electronically to the students where they were asked to read the passages and answer the questions that followed. These questions pertained to the short reading passage which assessed the student's comprehension of each passage. There was a total of four reading passages and forty questions. Students were given fifty minutes to

complete the test. The test also measured students' knowledge of vocabulary and literary sense. The reading skills test was submitted electronically and scored; the score reflected how many answers a student answered correctly (e.g. 5 out of 10). The students received the score of this Townsend Press reading skills test electronically, as well as the department of education and academic literacy's computer lab technician.

The next stage of the study consisted of the implementation of the hybrid reading course. Students who were enrolled in the hybrid reading section (200) were given explicit instructions by the instructor regarding the course outline. Developmental reading courses at Bronx Community college are six semester hours per week. The hybrid course met face to face in a lecture style for three hours per week and students were given online assignments for the remainder of the three semester hours. These online assignments were combined with PowerPoint presentations for the daily skills lecture and no textbook was used throughout the semester. All assignments were submitted to the instructor electronically through the learning management system, Blackboard. The course syllabus was also provided through Blackboard, as well as daily class announcements.

The traditional reading course (200) was lecture based, where students were required to attend all six semester hours weekly in class. Daily skills practices consisted of the use of a textbook and all quizzes and exams were given in class on paper. Students were not required to use the learning management system and any assignments were submitted in class on paper. There was very little use of PowerPoint or the smartboard and technology was limited. Students did take the Townsend Reading Skills Test electronically. A course syllabus was provided to the students in class and printed out for the traditional course.

Results

The average traditional pre-test score was 95.90 ($SD = 20.41$) and the pre-test scores ranged from 51.67 to 128.34. The average post-test score was 102.27 ($SD = 17.02$) and the post-test scores range from 75 to 126.67. A pair sample t -test statistic was carried out on the data set obtained from the hybrid reading section (100) and traditional reading section (200) from the spring semester of 2017 at Bronx Community College. The mean for pre-test score was 57.38, the post-test mean score was 71.67, the Hybrid Compass scale score was 92.57, and, finally the comparative compass scale score was 72.18. The sample size for the first pair (pre-test/post-test) is 13, and that of the second pair (RDL02 hybrid/comparative compass scale score) is 14.

Another Paired samples t -test was performed to find out if there is any significant difference in the pre-test and the post-test hybrid course scores. The results of the paired samples t -test indicate that the post-test hybrid course score ($M = 72.08$, $SD = 8.49$) is significantly greater than the pre-test hybrid course score ($M = 57.75$, $SD = 11.10$), $t(11) = -3.042$, $p < .05$, $CI [-24.70, -3.96]$, Cohen's $d = 0.88$ which indicates a large effect size. It shows significant score improvement in the post-test results compared to the pre-test results.

The null hypothesis states that there is no statistical difference when comparing the hybrid model to the traditional model. In order to accept or reject this assertion we must look at the p value. The null hypothesis will be accepted if the p value is greater than alpha and rejected if the p value is equal or less than alpha. In this case, p value for (pre-test/post-test score) is calculated at 0.006, which is less than alpha value 0.05. The p value for the hybrid (RDL 02 Hybrid Compass Scale Score) and the traditional (RDL02 comparative Section Compass Scale score) is calculated at 0.001, which is less than the alpha value 0.05. Therefore we must reject the null hypothesis and

accept the alternative hypothesis that there is a statistically significant difference between the experimental group studied in the spring semester of 2017.

Discussion

Based on the findings presented above, the students' enrolled in the hybrid developmental reading course showed significant achievement in reading skills, more so than students receiving the traditional model of instruction. Since this study was conducted in a college with a high level of economically and linguistically disadvantaged students, it is promising to find that the hybrid method of instruction had an effective impact even with those factors that affect student's success in college: disparity in language and culture, multiple work commitment, lack of support from family, single family household and disconnect from high school to college (Wldadis, Conway & Hachey n.d; Rosenthal & Wilson 2003).

The problem that this study addressed is the need for an instructional method to improve reading achievement throughout developmental programs in CUNY (Lehner et al.,2017) The lack of reading achievement in developmental courses is prevalent in CUNY and current research supports the severity of the issue across the country as well (Hernen, 2016; Carasquillo et al, 2014). Instructors today encounter low end of semester exit exam scores or lack of course completion (Hernen, 2016). Hodara (2014) stressed the need to re-engage those students who have lost motivation to actively engage in course content, and who are linguistically diverse, to successfully complete developmental reading. In order to meet the needs of developmental reading students, new methodology and pedagogy are necessary: a strong emphasis on technology infused instruction (Hernen, 2016; Lehner et al, 2017). This emphasis on technology is the foundation for a hybrid model of instruction (Hernen, 2016). Students taking ,developmental reading at Bronx Community College struggle with the demands of life in a low socioeconomic society.

The purpose of this study was to determine if the hybrid model of instruction had a significant impact on student reading achievement in developmental reading. The hybrid model is student-centered and essentially allows the instructor to become a constructivist in their methodology. The role of the instructor is essential: knowledge, in this case, is not transferred to the student through lectures, which can imply lack of engagement by the student. Instead, a constructivist believes that students take an active role in their learning (Gilboy, Heinerichs, & Pazzaglia, 2015). More so, students construct their own knowledge through their own conception by being actively engaged in learning (Gilboy et al, 2015).

Using connectivism theory as the main foundation of the study, it was predicted that the hybrid method of instruction would have a significant impact on reading achievement among developmental reading students. Connectivism addresses the basic issues of students in the 21st century: the need for collaborative learning, online resources and the ability to use technology to drive learning (Sieman, 2015). What Sieman (2015) believed was that students are working more collaboratively in the 21st century and are more comfortable with technology than ever before. The hybrid method of instruction meets the needs of the 21st century learner, allowing students to work collaboratively. Because the hybrid model allows students to connect with peers and instructors in a more open platform, the students develop a feeling of security and are more willing to take risks. During a hybrid model, the instructor flips her role as an educator and becomes more of a mentor, allowing her quality time with her students. Students take a more active role in their learning and are held accountable for their work.

Due to the significant impact the hybrid model had on the developmental reading course overall, instructors in these courses should consider implementing this model as concrete

pedagogy. It is imperative, however, that instructors wishing to implement a hybrid reading model follow the guidelines for creating a successful hybrid reading course. It is important to first note that instructors must have some knowledge of using technology in the classroom as well as their institutions learning platform.

It is recommended that users of the model begin with a web-enhanced course, becoming familiar with uploading documents, recording lessons and creating assignments that are useful for the learner. Creating a hybrid model requires time and patience; setting a small goal during one semester is more attainable. Additionally, colleges or universities choosing to adopt the hybrid model must provide professional development for instructors which must include both technology training along with the learning platform. The hybrid model is a research-based method that has enhanced student learning and may benefit reading achievement for the linguistically diverse and students of all backgrounds.

Limitations

One of the considerable challenges to this study was the lack of motivation to attend the in-class lectures for the hybrid section. This limited motivation may be connected to the socioeconomic status of the student and their commitment to long working hours. Additional research to certify this claim is necessary. It is also possible that instructor's teaching style played a role in the outcome of the study. Because there were two different instructors who taught both the hybrid model and traditional model, it is possible that students responded better to the hybrid instructor's teaching style, which had unforeseen effects on the student's achievements in reading. Further testing of the hypothesis is necessary with similar methods of instruction to determine if the hybrid model has a significant impact on student achievement; however, because the components of a hybrid model are research-based and are shown to be effective with college

students, specifically those who are linguistically diverse and academically challenged, it is recommended that this model of instruction be considered for developmental reading instructors.

The results of this study may have been limited by the number of students enrolled in the developmental reading courses, the population from which the sample was drawn, and the research design itself. The sample was drawn from a population that has a high percentage of English Language Learners and may have been selective due to the process of course selection at Bronx Community College. Further, selection from a larger population may not have results as vigorous. It is also possible that instructor motivation played a role in the hybrid course achievement, causing students to be more motivated and the reading scores to be higher in that section. It is also important to be informed that this was a quasi-experimental research design that may also impact the generalizability of the results.

Conclusions

The problem that this study addressed was developmental reading students' poor end of the semester reading exit exam scores and non-motivational instructional design throughout CUNY (Hodara, 2012; Hernen, 2016; Lehner et al, 2017). The causes of the low success rate in developmental reading throughout CUNY have been challenged (Harris, 2017; Hodara, 2012) and current research supports the severity of this issue in CUNY (Fodero, 2011; Harris, 2017; Hernen, 2016; Hodara, 2012; Lehner et al, 2017). Instructors in developmental reading throughout CUNY are challenged with lack of motivation, 21st century technology and socioeconomic needs by their students (Harris, 2017; Hernen, 2016). Paired samples *t*-test was conducted on a group of 28 students enrolled in a developmental reading course at Bronx Community College in New York City.

The current literature shows a gap in pedagogy throughout developmental reading in CUNY; this current study can lend itself to the missing pieces of the literature and supports end of the semester reading achievement as shown by the scores of the 28 students. The goal of this research study was to determine if the hybrid reading method of instruction increased reading achievement. Even though this study is limited to a small selection of participants and one setting, the conclusion of connectivism theory in the classroom as the hybrid method of instruction supports the developmental students' needs of reading achievement, motivation and accountability (Sieman, 2015). As a result of this study, instructors in developmental reading should work to develop a curriculum that is centered on active learning, technology, and a student-centered approach that would increase student's reading achievement.

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