The Effectiveness of an Online Credit Recovery Program on Improving the Graduation Rates of Students at Risk of School Failure

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Introduction

Students are dropping out of high school at alarming rates. Reports suggest that between 6,300 and 7,000 high school students drop out daily (Dessoff, 2009; Stanley & Plucker, 2008), and more than 1.3 million students drop out each year (Long-Coleman, 2009; Zehr, 2010). In the United States, nearly one in five individuals has not earned a high school diploma or General Equivalency Degree (GED) (Kaufman, Alt, & Chapman, 2004). Every member of society feels the impact of high school dropouts, given the enormous economic and social costs (Organization for Economic Co-operation and Development [OECD], 2009). For example, over the course of a lifetime, the average high school dropout earns roughly $260,000 less, compared to a high school graduate (Rouse, 2005). Dropouts are also more likely to be arrested or become pregnant during their teenage years (Sum, McLaughlin, & Khatiwada, 2008). Long-Coleman (2009) estimated that dropouts cost society $325 billion in lost wages, tax revenue, and productivity annually.

Bridgeland, Dilulio, and Morison (2006) indicated that nearly 30% of all students dropped out of America's high schools, and for African American, Hispanic/Latino, and Native American youth, the dropout rate approaches 50%. Orfield (2004) stated, "Every year, across the United States, a dangerously high percentage of students—mostly poor and minority—disappear from the educational pipeline before graduating from high school" (p. 1). According to Northeastern University (2009), "In 2007, an astounding 16% of persons between 16 and 24 years of age (nearly 6.2 million people) were high school dropouts" (p. 2). It is little wonder President Obama declared that the United States has "one of the highest high school dropout rates of any industrialized nation" (2009, para. 61). The President also agreed that helping students graduate high school is everyone's responsibility (Long-Coleman, 2009).

To address the dropout problem, school districts in Texas have implemented proven research-based strategies such as creating learning environments that are challenging and personalized to individual students, utilized data systems that identify struggling students in need of early intervention, provided students who are behind in school with additional academic support, and used mentors as role models and advocates for students. Texas has also targeted millions of state and federal dollars to reduce the number of dropouts and increase high school graduation rates

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through dropout prevention programs, recovery initiatives, and college readiness initiatives (TEA, n.d.-a.). The TEA (n.d.-b.) reported that in less than 2 years, almost 1,300 previous dropouts had completed the requirements for graduation through innovative recovery strategies.

One innovative recovery strategy is the use of online credit recovery programs. These programs are designed to target students with credit deficiencies who are deemed at risk for dropping out or not graduating on time because of failed coursework. Edgenuity is the online credit recovery program that has been implemented in the district in which this study was conducted. According to Edgenuity's developers, this program has provided one-on-one online instruction in core and elective courses for students in grades 6-12 since 1998. The program's curriculum is aligned to state and national standards and is designed to help students graduate from high school. (Edgenuity, n.d.).

The foundation of the Edgenuity program is based on the principles of Universal Design for Learning (UDL), which incorporates three methods of flexible and individualized learning. The first method of UDL emphasizes multiple representations of information using various formats and media. The second method allows for multiple means of student actions of understanding and interaction with the material. The third method of UDL is flexibility, which focuses on engaging and motivating students through multiple pathways (Rose & Meyer, 2002).

These principles are used in all Edgenuity platform features and course structures. School districts that use Edgenuity are able to customize content delivery and assessment, and students are able to bypass material already mastered through prescriptive testing, personalized passing thresholds, and a variety of assessment options. Additionally, teachers and administrators are able to assign, monitor, and assess student progress through management, tracking, and reporting tools available through Edgenuity (Edgenuity, n.d.).

Significance of the Study

Public education in the United States has been addressing the challenge of increasing high school graduation rates for more than a decade. In 2008, the national high school graduation rate was 72%, and in Texas, the graduation rate was 66.6% (Graduation, 2011). The Editorial Project in Education Research Center (2011) predicted that 1,154,132 students would not graduate with the class of 2011. Amos (2013) reported that U.S. graduation rate for 2011 was 78.2%.

Dropping out of high school has a negative impact on the life of the dropout as well as on society (Ou & Reynolds, 2010). Bridgeland et al. (2006) asserted that dropouts have an increased chance of being unemployed, having health problems, living in poverty, receiving government assistance, and becoming single parents with children who also drop out of high school. The researchers also suggested several reasons for dropping out of school including peer pressure, economy, lack of interest in the course work, getting behind on courses, and being unable or unwilling to recover credit (Bridgeland et al., 2006).
No Child Left Behind (NCLB) raised the stakes for graduation rates nationwide by requiring states to develop single statewide accountability systems that required districts to report secondary student graduation rates (Bridgeland et al., 2006). In response, high schools began implementing credit recovery programs to increase on-time graduation rates (Trotter, 2008). A

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credit recovery program allows a student who has failed a high school course a second chance to master the material and receive the credits required for graduation (Watson & Gemin, 2008).

McCabe and St. Andrie (2012) noted that dropout programs should be tailored to the needs of the student population being served. School districts nationwide offer several forms of credit recovery programs that are currently not regulated or defined at the state or federal levels. Credit recovery programs have been available as fully online, blended learning, or in-person (McCabe & St. Andrie, 2012; Picciano & Seaman, 2007; Watson & Gemin, 2008). According to Zehr (2010):

> The surge of interest in online credit recovery programs has also come despite scant research on the programs' effectiveness. While studies have been conducted on online learning in general, studies haven't been conducted on the effectiveness of online learning specifically for the use of credit recovery, researchers say (para. 21).

Gouskova and Stafford (2005) found that, on average, households headed by a high school graduate accumulated ten times more wealth than did households headed by a high school dropout. Thus, this research aimed to determine whether Edgenuity's online credit recovery program is a viable option to keep students engaged in school by giving them the opportunity to regain lost credit.

Purpose of the Study

The professional literature offered information on the growth and effectiveness of virtual schools (Means, Toyama, Murphy, Bakia, & Jones, 2010; Watson & Gemin, 2008; Watson, Gemin, Ryan, & Wicks, 2009); however, literature documenting the effectiveness of these online learning programs as a credit recovery option is limited (Blackboard K-12, 2009; O'Dwyer, Carey, & Kleiman, 2007; Zehr, 2010). Therefore, further examination of the effectiveness of online learning programs is warranted. Thus, the purpose of this quantitative study was to determine the extent to which Edgenuity, an online credit recovery program, improves graduation rates by allowing students to regain lost credits and advance with their cohort.

Research Questions

The following research questions formed the basis of accomplishing the purpose of this quantitative study:

1. Has using Edgenuity assisted the at-risk student population in the recovery of lost credits?
2. What is the relationship between credit accrual and credit recovery and students' abilities to graduate with their 2012-2013 cohort?
3. Does a statistically significant difference exist in the percent of students who successfully used Edgenuity for English course credit recovery and passed English the subsequent school year compared to students who did not successfully use Edgenuity for English course credit?

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4. Does a statistically significant difference exist in the percent of students who successfully used Edgenuity for English course credit recovery and passed the End-of-Course (EOC) English assessment the subsequent school year compared to students who did not successfully use Edgenuity for English course credit?

Hypotheses

The following hypotheses contribute to the growing body of research on the effectiveness of online credit recovery programs. Overall, it is proposed that Edgenuity is a viable credit recovery program option for school districts looking for ways to help students recover credit and improve the graduation rate. The following research and null hypotheses guided this study:

Hypothesis 1

Ha_1. A statistically significant relationship exists between credit accrual and successful credit recovery and students' abilities to graduate with their 2012-13 cohort.

Ho_1. No statistically significant relationship exists between credit accrual and successful credit recovery and students' abilities to graduate with their 2012-13 cohort.

Hypothesis 2

Ha_2. A statistically significant difference exists in the percent of students who successfully used Edgenuity for English course credit recovery and passed English the subsequent school year compared to students who did not successfully use Edgenuity for English course credit.

Ho_2. No statistically significant difference exists in the percent of students who successfully used Edgenuity for English course credit recovery and passed English the subsequent school year compared to students who did not successfully use Edgenuity for English course credit.

Hypothesis 3

Ha_3. A statistically significant difference exists in the percent of students who successfully used Edgenuity for English course credit recovery and passed the EOC English assessment the subsequent school year compared to students who did not successfully use Edgenuity for English course credit.

Ho_3. No statistically significant difference exists in the percent of students who successfully used Edgenuity for English course credit recovery and passed the EOC English assessment the subsequent school year compared to students who did not successfully use Edgenuity for English course credit.

Methodology

A quantitative method was used to ascertain the effectiveness of Edgenuity. The use of archival data indicated that the research design was non-experimental. Non-experimental research is an "empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulatable" (Kerlinger, 1986, p. 348). This design was appropriate because the data analysis

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did not require the investigator to manipulate variables. Course completion through Edgenuity was the predictor variable.

Data Collection

The request for archived data for this study began once Texas A&M University-Commerce Institutional Review Board (IRB) approval and receipt of the site letter from the studied district was received. Archived data from the studied district were obtained from the district's Skyward student management system and Edgenuity, the district's online credit recovery program.

Data collected consisted of the following: (a) an Excel spreadsheet that contained an entry for each credit recovery course attempted through Edgenuity since the fall 2010 that provided the name of courses attempted and the students' final grade; (b) an Excel spreadsheet that contained student data from Skyward for the 2012-2013 cohort group indicating student entry date into high school, number of credits that each student had at the completion of his or her first, second, third, and fourth years of high school, number of credits recovered through Edgenuity at the completion of the first, second, third, and fourth years of high school, and each student's enrollment status at the end of his or her fourth year of high school (graduated, still enrolled, moved, or dropped out); and (c) an Excel spreadsheet from Skyward that contained an entry for each student who attempted to recover English credits through Edgenuity and each student's grade in English the subsequent school year. Using the district's data management systems for data collection provided assurance of both data reliability and validity.

Data Analysis

Descriptive statistics were used to answer Research Question 1. Logistic regression was performed to answer Research Question 2. The analysis of data included computing the probabilities of students graduating based on predictor variables. Logistic regression analyzes the effect a specific independent variable has on a dependent variable while controlling for the other independent variables (Huck, 1996).

A chi-square test for independence was used to answer Research Questions 3 and 4 to explore the relationship between two categorical variables. The chi-square test compares the observed frequencies or proportions of cases occuring in each of the categories with the values that would be expected if there were no association between the two variables being measured (Pallant, 2010).

Student credit recovery data from Edgenuity, student credit accrual data from Skyward, and student reading End-of-Course (EOC) assessment data were exclusively archival and quantitative. SPSS, Version 21.0 was used for the statistical analysis. Three research questions were analyzed at the $p < .05$ confidence level, and null hypotheses were rejected if data were statistically significant. All procedures included the data setup and analysis following the outline provided in the *SPSS Survival Manual* (Pallant, 2010).

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Findings and Conclusions

This study examined the extent to which Edgenuity was effective at improving graduation rates by allowing students to regain lost credits and advance with their cohort group. The sample population was comprised of a purposeful sample drawn from a midsized school district in Texas. The sample district used Edgenuity to assist students with credit deficiencies, andstudents seeking course acceleration (these students were not assessed in this study). The sample district began using Edgenuity for online credit recovery intervention to target students deemed at risk for dropping out or not graduating on time in August 2010.

The research collected archival data from two sources: the sample district's Skyward student management system and Edgenuity. The sample of students was narrowed to those who used Edgenuity for credit recovery during their high school careers to avoid skewing the data with students using this program for acceleration.

The following section offers a description of the findings for each research question followed by a summary of findings from the data collected.

Research Question 1

This study evaluated half-credit courses that were attempted for credit recovery through Edgenuity since the district began using the program in 2010. Research Question 1 was as follows: Has using Edgenuity assisted the at-risk student population in the recovery of lost credits? Descriptive statistics were determined from data obtained from Edgenuity for each credit recovery course taken through Edgenuity since the fall 2010 in the study district to determine whether at-risk students successfully recovered credits through this program. A success rate of 67% was obtained among at-risk students who used Edgenuity for credit recovery. These data indicated that Edgenuity is a viable option for students who wish to regain lost credits and continue progressing toward graduation. These results support previous research that indicated online instruction allows schools to reach students who struggle in the traditional classroom (McCabe & St. Andrie, 2012; St. Andrie, 2012; Trotter, 2008; Watson, 2007).

The percentage of students who were successful at recovering credits through Edgenuity was lower than that reported by other researchers who evaluated different programs. For example, Gordon (2007) examined the online credit recovery program PLATO and found that 94% of participating students were successful in regaining credits needed for promotion. Washburn (2004) reported that 80% of the students who used the PLATO program regained English credits and were promoted to the next grade level. Volkerding (2012) studied at-risk students who attempted to regain credits with NovaNET, and found that more than 70% of participants were successful.

Research Question 2

The 2012-2013 student cohort group from the sample district was studied to address Research Question 2, which asked: What is the relationship between credit accrual and credit recovery and students' abilities to graduate with their 2012-2013 cohort? A logistic regression was conducted

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to assess the impact of a number of factors on the likelihood that students in the 2012-2013 cohort would graduate with their cohort. An examination of the findings indicated that the full model containing all predictors was statistically significant. The predictor variables that yielded the greatest significance were students having enough credits to be classified as a senior at the end of the third year of high school, students having enough credits to be classified as a junior at the end of the second year of high school, and students recovering credits during their senior year of high school.

Of the 21 students who graduated with their cohort but did not have enough credits to promote to the 10th grade after their second year of high school, 95.2% recovered credits using Edgenuity. Of the 31 students who graduated with their cohort but did not have enough credits to promote to the 11th grade after their third year of high school, 96.8% recovered credits using Edgenuity. Lastly, of the 25 students who graduated with their cohort but did not have enough credits to promote to the 12th grade after their fourth year of high school, 100% recovered credits using Edgenuity.

Using credit recovery increased the probability of graduating over other outcomes such as dropping out, staying enrolled in school, or moving. For those who did not have enough credits to advance to 10th grade, the probability increased from 14% to 39% when students used credit recovery. For those not having enough credits to advance to 11th grade, the probability increased from 9% to 40% with credit recovery. Students who did not have enough credits to advance to 12th grade and did not use credit recovery had an 8% probability of graduating. However, students who did not have enough credits to advance to 12th grade and used credit recovery increased their chances of graduating to 23%. These findings supported Allensworth and Easton (2005) who suggested that the NCLB mandate is achievable. Specifically, when students were successful in their first year in high school, they were 3.5 times more likely to graduate in 4 years than were students who are not successful at earning enough credits to promote to sophomore status by the end of their first year in high school (Allensworth & Easton, 2005).

The current findings demonstrated the importance of students accruing the required credits to be promoted to the next grade level each year. Students who do not meet the expectations needed to recover credits in a timely manner increase the risk of dropping out of school or not graduating with their cohort. Additionally, students who receive a failing grade at some point in their educational careers are more likely to not graduate high school on time.

As students fall further behind in their course work, they lack the number of credits to be promoted to the next grade, are required to repeat classes and grades, and become older than their classroom peers—all factors that make these students more likely to drop out of school (Allensworth & Easton, 2005; Bridgeland et al., 2006). In keeping with the research (Bridgeland et al., 2006, Schargel & Smink, 2004), the data demonstrated that students need support programs to help them recover credits after they have failed a course. This concurs with the finding that support programs such as credit recovery have been shown to keep adolescents in school and improve their grades (Schargel & Smink, 2001).

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Research Question 3

Research Question 3 asked: Does a statistically significant difference exist in the percent of students who successfully used Edgenuity for English course credit recovery and passed English the subsequent school year compared to students who did not successfully use Edgenuity for English course credit? Student data were purposefully refined to examine those students who took English coursework through Edgenuity. A chi-square test for independence was conducted on data obtained from Edgenuity and the Skyward student information management system to explore the relationship between students who passed a traditional English class the following school year and students who took English through Edgenuity the prior semester. From the analysis of the English I data, the Pearson chi-square value was significant for students who recovered their English I credits through Edgenuity. In other words a student who passed English I with Edgenuity was five times more likely to pass English II without credit recovery the following year than a student who failed English I with Edgenuity.

The significant difference obtained could be a result of freshman students' adjustment to high school and the reality that failing a single course requires that the course be recovered. According to NCLB (2001), students must finish one grade level per year beginning with the ninth grade to satisfy high school graduation requirements. From the analysis of the data for English II and English III, the Pearson chi-square value was not significant for students who recovered English II or English III credits through Edgenuity. Therefore, a student who passed English II with Edgenuity was 1.9 times more likely to pass English III without credit recovery the following year than was a student who failed English II with Edgenuity. Additionally, a student who passed English III with Edgenuity was 4.2 times more likely to pass English IV than was a student who failed English III with Edgenuity.

The lack of a significant difference between English II to English III or English III to English IV wass unclear; perhaps student maturity and desire to graduate from high school on time motivated them to pass English the subsequent school year after the experience of recovering or attempting to recover English credits through Edgenuity. This rationale may also explain why the number of students recovering English through Edgenuity declined from 228 in English I, to 147 in English II, to 91 in English III. This rationale was also supported by Picciano and Seaman (2009) who determined that student success was dependent on the student's level of maturity, self-discipline, and the possession of certain basic skills in reading and math to succeed in online credit recovery courses. Perhaps participating in Edgenuity re-engaged students in school and gave them hope that they would be able to graduate with their cohort.

Research Question 4

Research Question 4 asked: Does a statistically significant difference exist in the percent of students who successfully used Edgenuity for English course credit recovery and passed the EOC English assessment the subsequent school year compared to students who did not successfully use Edgenuity for English course credit? Data were purposefully refined to examine those students who took English coursework through Edgenuity. A chi-square test for independence was conducted on data obtained from Edgenuity and the student management

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system to explore the relationship between students who passed the EOC after recovering English credits through Edgenuity.

An examination of the findings for Research Question 4 indicated no significant difference between students who passed or failed English I or English II through Edgenuity and whether they passed the 9th or 10th grade reading EOC. The lack of significance may be that students failed English because of zeros on assignments rather than because a failure to understand the English TEKS for their grade level.

An additional variable that may need to be considered is the EOC passing standard at Phase 1 of three phases. The Texas Education Agency (TEA) adopted a phase-in standard approach to provide districts time to adjust instruction, provide additional staff training, and close knowledge gaps because of significant increase in the rigor of the new state assessment, State of Texas Assessments of Academic Readiness (STAAR). Performance standards are based on the year students take their first EOC assessment. Students taking their first EOC reading assessment in 2011-2012 and 2012-2013 were held to the first set of Level II phase-in performance standards (1875 score). Students taking their first EOC reading assessment in 2013-2014 and 2014-2015 will be held to the second set of Level II phase-in performance standards (1950 score). Students taking their first EOC reading assessment in 2015-2016 or later will be held to the final set of Level II phase-in performance standards (2000 score) (TEA, 2012).

Summary. The findings of this study indicated that Edgenuity was a viable option for students who wish to regain lost credits and continue progressing toward graduation. The results yielded a significant difference for students who recovered English I credits through Edgenuity and their success the subsequent school year. While the results of the study did not yield significant differences between English credits recovered and student success the subsequent school year or on the reading EOC, the fact that students successfully regained credits needed for graduation made the program effective for many. This study also found that the number of credits students accrued by the end of the 10th, 11th, and 12th grades, along with the number of credits recovered with Edgenuity during these grade significantly predicted whether they would graduate.

Recommendations

The following recommendations are based on the current findings:

1. Districts, campuses, administrators, and educators are inundated with programs, sellers, and vendors who may be genuine and authentic, or who may be selling unreliable products. Therefore, campuses and districts that have experienced positive outcomes using their credit recovery programs should begin speaking out and disseminating these successes to the larger community.
2. The findings of the current study yielded a 67% success rate with Edgenuity since its implementation in 2010. Therefore, additional research is needed to determine why some students are not successful at regaining credits using this program.
3. Based on the positive results from this study and the reduction in school funding and additional budget cuts, campuses and districts should conduct financial analyses to determine available funding that could be allocated to fund Edgenuity.

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4. With the positive gains of Edgenuity as a credit recovery program, counselors and administrators must continue to identify students in need of credit recovery early in their high school careers.
5. The district studied should reconsider the impact of Edgenuity on students who are recovering English through credit recovery and their success on EOC assessments required for graduation after multiple years of data are available.

Recommendations for Future Study

To continue understanding the positive impact of Edgenuity, future research is suggested in the following areas:

1. No program addresses the needs of all learners; therefore, future research should determine the characteristics of successful students who participate in the Edgenuity program. This knowledge could assist teachers and administrators in placing students in the appropriate programs and courses.
2. The current study should be expanded to include teachers' and students' perceptions of Edgenuity and its effectiveness.
3. Future research should determine the criteria that counselors or administrators use to enroll students in the Edgenuity online program.
4. Future research should evaluate the role that the teacher assigned to the Edgenuity class plays in the success of students recovering credits through this program.
5. Continued investigation should focus on the impact of Edgenuity on EOC assessments. The current study did not yield a significant difference in EOC success after credit recovery; however, only two years of data for 9th grade reading EOC and one year of data for 10th grade reading EOC were available. Future studies might also include data from a campus or district with a low reading EOC success rate to determine whether Edgenuity can significantly improve these rates.
6. The district used in this study traditionally had a 94% or higher graduation rate. Therefore, research needs to be conducted on the effectiveness of Edgenuity in a district with lower graduation rates.
7. The current study found a decline in the number of students recovering English credits over the four years in high school. Therefore, future research needs to examine this relationship. For example, is a transfer of skills or information facilitating this success? Are students improving academically in terms of content knowledge or are certain qualities of Edgenuity increasing and transferring to student success in face-to-face classes such as satisfaction with school or academic self-efficacy? This study identified such a pattern of credit recovery; understanding why this pattern existed may illuminate areas that could increase student achievement.
8. Given the gap in research at the secondary education level concerning online learning, the possibilities are endless for researchers interested in this area of study. There is such a great need for more information concerning the effective implementation of online learning programs that any topic is worthy of study as long as the research is of a rigorous nature.

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