Transforming Sense into Cents: Evaluation of Edgenuity's Impact in a County's Schools

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Edgenuity is a one of a multitude of digital support tools for instruction and intervention. In 2019, a School District in the South began using Edgenuity – a digital intervention platform focused on grade and credit recovery. This current study evaluated Edgenuity to determine its effects on students learning and the associated cost. For the 2022-2023 school year, a total of 2371 students entered the platform and participated in approximately 5447 courses, and students spent a total of 177,022 hours on the platform. Quantitative methodologies were utilized to examine the effects of each current program. Data collected included individual student data including grade, school, courses attempted, overall course grade, time spent on platform, length of enrollment as well as assessment data from the Florida Reporting System for SY2023. Additional data were collected on students' graduation measures, including credits earned over time, GPA over time, and graduation requirement status (such as concordant scores) over time. Based on the quantitative results, it appears that the utilization of Edgenuity is associated with student growth higher than standard student growth measures, even when students in the platform are scoring significantly lower than their academic peers. Students completing coursework in Edgenuity had higher growth in both ELA, d = 0.12**, and math, d = 0.12*. When considering just academic outcomes, Edgenuity has an ROI of 12%, however when adding credits earned to the measurement, the ROI is between 22% (current) and 53% (potential) depending on how many students currently in progress on their courses complete the course and pass their exam with the requisite grade. While the *direct cost* of Edgenuity ($49.31 per course) is very high in comparison to other digital interventions Edgenuity still provides a return on the investment made and provides the further benefit of allowing students to earn a credit and correct their path towards graduation when they otherwise would not have had the opportunity. It is recommended that schools continue the use of the Edgenuity platform.

Keywords: Edgenuity, educational leadership, program evaluation, digital support, instruction, intervention

A multitude of digital support tools exist for instruction and intervention. As part of the continuous evaluations of the various tools and resources that a School District in the South spends money on, a program called Edgenuity, (n.d.), hereto forward referred to as simply Edgenuity, is a digital intervention platform focused on grade and credit recovery – was evaluated to determine its effects on students learning, and the cost associated with that learning. Edgenuity was introduced to the school district in 2019, when students began using the course for the purposes of credit recovery, grade forgiveness, or in substitution for a teacher when one was unavailable. In addition to being an explicit evaluation of the effects of a program, this article also proposes a framework for applying the Return on Investment framework to education both broadly as a concept and specifically in Florida.

Purpose

The purpose of this evaluation was to examine the effectiveness of the Edgenuity program regarding student outcomes and cost-effectiveness. This evaluation aimed to provide valuable insights into the program's efficacy in delivering quality education in a cost-efficient manner by investigating the impact of Edgenuity on student learning and academic achievement while considering the associated costs per student. The study outcomes examined success on Edgenuity associated with success on measures of standardized assessments, relationships between the implementation of the program and graduation, and return on investment (ROI). Drawing upon a range of studies (Avellaneda, 2020; Desimone, 2019; Llewellyn, 2018) and employing rigorous analysis, this evaluation sought to shed light on the effectiveness of Edgenuity as a valuable educational intervention within the context of limited resources and budget considerations. Additionally, the evaluation aimed to identify any potential trade-offs between the program's effectiveness and its associated costs, providing a comprehensive understanding of its overall value and impact in educational settings.

Research Questions

The following evaluation questions were posed for each tool:

1) Is success on Edgenuity associated with success on measures of standardized assessments?
2) What relationship, if any, exists between the implementation of the program and graduation outcomes?
3) What is the cost per student of Edgenuity and is there a return on the investment in the program?

Literature Review

In K-12 settings, digital intervention platforms have gained considerable popularity in the field of education. They are able to provide targeted support for students in areas such as credit recovery and grade improvement. This summary of the literature reviewed explores existing research on

effectiveness of Edgenuity, its impact on student learning, and the associated costs. Additionally, this review aims to provide valuable insights towards the potential of the Edgenuity program by synthesizing a diverse range of studies.

In analyzing the effectiveness of Edgenuity, we can draw upon a philosophical framework rooted in pragmatism (Dewey, 1910; James, 1907). Pragmatism emphasizes the practical consequences and outcomes of actions and interventions, aligning with the goal of evaluating the use of the tool Edgenuity and its impact on student learning and academic achievement. Additionally, a theoretical lens informed by constructivism (Piaget, 1977; Vygotsky, 1978) can be applied to understand how students engage with Edgenuity and actively construct knowledge through their experiences. Lastly, from a conceptual standpoint, Edgenuity can be viewed within the broader context of digital intervention platforms and educational technology (Selwyn, 2011), considering its role in addressing educational gaps, supporting student needs, and navigating the evolving landscape of modern education. Better understanding the needs of students during rapidly developing times and preparing teachers is crucial (Eadens et al., 2022). This is especially important now that results of learning loss are even more visible, due to "the pandemic and sudden shift online" (Eadens, et al., 2022, p. 148). Integrating these philosophical, theoretical, and conceptual frameworks enables a comprehensive examination of the effectiveness and implications of Edgenuity in educational settings today.

Effectiveness of Edgenuity

Because the authors are not vendors of Edgenuity and received no compensation or benefits from the program, this examination was unbiased. A fair deal of research has been conducted to investigate the effectiveness of Edgenuity across diverse educational contexts. Notably, studies conducted by Avellaneda (2020), Desimone (2019), and Llewellyn (2018) have consistently shown strong evidence that students who utilized the program Edgenuity experienced significant improvements in credit recovery success and progress towards graduation. These findings underscore the platform's efficacy in helping students regain credits and stay on track for successful graduation.

To further examine these findings the body of literature around the platform, Avellaneda (2020) conducted research on the impact of Edgenuity as a credit recovery tool, revealing positive outcomes in credit recovery success rates. In Avellaneda's dissertation, a mixed method evaluation of the Edgenuity program in a public high school using a CIPP model, findings indicated that the use of Edgenuity program was practical for credit recovery, had significant impacts on aiding students towards remaining on track for graduation, and there was significance in recovery of several core subjects including Algebra, English, and Biology (Avellanada, 2020). Desimone (2019) conducted a comparative analysis of Edgenuity's influence on student achievement across various subject areas, uncovering limited improvements, especially in science. Llewellyn (2018) explored the impact of Edgenuity on graduation rates through a comprehensive statewide analysis, highlighting its positive influence on progress towards graduation. Hypothesi (2015) investigated the effectiveness of Edgenuity in relation to NWEA scores, finding evidence of improved student achievement. In a recent study by Williams et al. (2021), a rigorous randomized controlled trial was conducted, reporting positive outcomes in credit recovery and grade improvement.

When examining the impact of Edgenuity on academic performance rather than just credit recovery, the results have been more mixed. For instance, the study conducted by Hypothesi (2015) indicated positive effects of Edgenuity on students' NWEA scores, suggesting a potential favorable impact on academic achievement. On the contrary, Desimone (2019) observed limited gains in academic performance, particularly in the field of science. Avellaneda (2020) reported minimal changes in assessment scores among students using the platform. These divergent findings highlight the need for further research to comprehensively understand Edgenuity's impact on academic performance across various subject domains. Furthermore, these studies all considered the effect that the use of Edgenuity had on academic achievement despite the fact that usage of the program has additional financial outcomes to considered beyond simply the academic implications of the program.

Comparative Effect Sizes

Effect sizes serve as a valuable metric for assessing the impact of interventions. Notably, Hattie (2009) established a baseline effect size for teacher education, which he termed the “hinge-point”, set at an effect of $d = 0.40$. This effect is useful for comparing academic core programs, but it a difficult hurdle to cross for academic interventions, which happen *in addition to* core academics and therefor have isolated outcomes. Kraft (2019) proposed a revised interpretation which is useful for examining the effect sizes of specific expectations, set at $d > 0.05$ for moderate effects, and $d > 0.20$ for large effects. Considering these benchmarks, the expected effect size for the Edgenuity program intervention falls within the range of $0.05 < d > 0.20$, especially when interpreting outcomes from standardized tests which can include zero or negative outcomes into the model. With Edgenuity specifically, the possibility of negative inflation bias exists with students who have very low participation in their coursework.

In summary, the literature indicates that the use of Edgenuity has demonstrated a positive impact on credit recovery success and progress towards graduation. However, the effects on academic performance in other subject areas remain inconclusive. This underscores the need for further reviews and research. Additional studies are required to explore the specific impact of Edgenuity across different subject domains, consider return on investment, and identify optimal implementation practices to maximize its potential as an effective educational intervention.

Return on Investment in Education (ROI)

It is essential to consider the cost-effectiveness and practical implementation of Edgenuity as a key piece of evaluating effectiveness. The Return on Investment methodology from the ROI Institute (Phillips, Phillips, Paone, & Gaudet, 2019) provides valuable insights into the financial implications and overall value of utilizing Edgenuity compared to alternative interventions. Furthermore, examination of implementation processes, including teacher training, student engagement strategies, and technical support, can be considered within the context of costs and therefore operationalized as outcomes.

Within the realm of return-on-investment research, cost analysis must be conducted. For the purposes of proposing a framework for conducting academic return-on-investment research, the Institute of Educational Sciences Standards for Excellence in Education Research (IES SEER, 2020)

present an excellent methodology for cost analysis in which the costs of personnel, materials, equipment, facilities, and other inputs are systematically examined from a set perspective. The IES Cost Analysis method is a rigorous method for systematically determining costs in alignment with the ROI Institute methodology and remains applicable in an ROI analysis even though it was developed for use with cost-effectiveness analysis. While cost-effectiveness analysis remains a useful way of measuring the effectiveness of an intervention, ROI analysis can have different utility in two manners. First, the output value of cost-effectiveness analysis is cost-per-unit-increase-in-effect-size. This requires the reader to understand the cost framework, the value of an effect size increase, and what a standard deviation increase means regarding the assessment utilized (Hollands et. al, 2016).

While the ROI analysis allows for a less nuanced analysis of the data, it does output variables that are more generally understandable by public stakeholders: dollars and time. Second, because the ROI framework requires both the costs to be turned in dollars and the benefits to be turned into dollars, the output is standardized. This allows for any ROI analysis completed with this methodology to be immediately comparable to any other ROI analysis completed in the same manner. This analysis is still subject to the same assumptions that cost-effectiveness is subject to, mainly the assumptions that the effects of an intervention can be isolated from the effect of a teacher and that the assessment we utilize accurately measure educational growth, however the output is easier to report and share with stakeholders, thereby allowing them to make better informed decisions not hindered by statistical inability.

Additionally, within the cost-effectiveness framework, any growth that occurs with the teacher is not inherently isolated out from the cost-per-unit-increase metric. In this variable, the cost of the teacher is inherent, resulting in values that *assume* the cost of the teacher as part of their effect. For this reason, the SEER standards (2020) recommend that researchers utilize reference case analysis and control or comparison conditions to help disambiguate the comparative cost of the intervention. That is to say, studies should use national average teacher salary, or suffer an exposure to bias from teacher making above-average salaries in states such as Massachusetts, or from studies wherein teachers earn below-average salaries in states such as Mississippi. A feature of the return-on-investment framework is that, when teacher costs are included, it utilizes the *true* teacher cost in both the numerator and the denominator, thereby isolating out the cost of the teacher within the context they are employed from, and in turn reducing the bias of either the true teacher cost, or the assumed average teacher cost. This means that an ROI analysis should, theoretically, yield a similar ROI regardless of the state or country examined and the variance in cost of the teachers (although it would be subject to validity issues if teacher methods varied in such a manner that costs were otherwise incomparable).

A framework for applying the return-on-investment method to the context of non-for-profit education environments in conjunction with the SEER cost-analysis method will be examined in detail in the methodology. The return-on-investment method will also be explained in explicit detail during the analysis in the hopes that the methodology is easily replicable for future academic ROI research.

Methodology

Multiple quantitative methodologies via statistical analyses were utilized to examine the effects of the examined intervention. For the evaluation of Edgenuity, data were collected sent directly from Edgenuity with each student's individual data, including grade, school, courses attempted, overall course grade, time spent on platform, and length of enrollment. Assessment data for the Florida Assessment of Student Thinking were collected from the Cambium Florida Reporting System for SY2023, and internal data sources were paired with each student in a row context, harvested from the Student Information System.

Additional data were collected on students' graduation measures, including credits earned over time, Grade Point Average (GPA) over time, and graduation requirement status (such as concordant scores) over time. Data for the NWEA assessment were collected directly from the NWEA platform and match to the student records. The data related to platform costs were collected via quote. Statistical tests were performed to compare differences among students. All statistical analyses were performed using SPSS 27.0.

Methods for Using Return on Investment in an Educational Context

The Return-on-Investment model (Phillips et al., 2019) does not seem inherently applicable to educational contexts. Indeed, it is a measure of the return, in dollars, for the cost, in dollars, of a program, and it is widely accepted that student learning does not equate to dollars earned. If it did, it's likely that educators would be exceptionally wealthy. For this reason, a method is needed for collecting both the costs and benefits of the intervention program.

In order to determine the cost of the intervention program, the methodology provided by the ROI Institute (Phillips, Phillips, Paone, & Gaudet, 2019) was combined with the IES SEER Standards for analyzing intervention's costs (IES SEER, 2020). Within this method, data were collected for the cost of Edgenuity and associated teacher training, the use of computers and internet, the cost of personnel to implement the program. While the cost of facilities utilized are also considered in SEER Standards, they were not included in the ROI analysis. The reasoning behind this decision is that the benefit rate for ROI analysis comes from the Florida Education Finance Program, FEFP (FLDOE, 2023), which provides a per-pupil allocation of funding per student based on the number of hours they attend school in Florida, while the funding for the facilities comes from a local sales tax. Given that the facility cost is not valued in the benefit rate, it has been excluded from the cost rate. This will be further examined in the analysis.

Under the SEER Standards, it is also important to adopt a perspective for analysis. Within this study, a district perspective was employed given that the purpose of an ROI evaluation is so that stakeholders within the district can determine if they should continue to utilize the examined program. From this lens, it is critical to determine the costs as they associate to the district specifically, rather than how they might work within larger contexts.

Once all costs have been collected, the benefits must be determined. In the case of public schools in the United States, students do not pay to attend school. Instead, schools are funded as a service through local and state tax systems, often through property taxes. In Florida specifically, these funds are provided as a specific per-pupil allocation, which means that there is a fixed amount paid to the school districts if a student completes a course. This allows school

districts to assign a certain number of students to a teacher for a fixed "period" of time and guarantee they will get a set amount of funding from providing a class. This begs the question; how can a school have a financial benefit in an ROI framework if they will be paid a fixed amount of money per student?

The answer to this comes from the fact that schools have specific expectations for student performance, and if students do not meet those measures, they will receive intervention and remediation as classes instead of electives or other alternatives. For example, if a student is unsuccessful on their tenth grade English examination, they may be required to take eleventh-grade "intensive reading" courses. These intervention courses require additional staff to be utilized to help students meet expectations. Within this paradigm, a student who is a year behind expectations would cost one class period of funding for a year to return to expectations. Funds that could otherwise be utilized for different or more varied services, or for more targeted support, instead go to providing teachers for intervention classrooms. If a student were two years behind, it could take two years to return them to expectations, however, if an intervention could return that student to expectations within a year, then a full year of funds for intervening with that student are released to be utilized for other purposes.

It is within this structure that the return on the investment In the program is measured by the *costs of remediation avoided* rather than actual monies earned from student performance. While this is perhaps a less subtle metric than cost-per-unit-growth, it is more plainly interpretable. If 150 students were in a program that returned a 100% ROI, that would mean the program *avoided* the cost of a teacher for those 150 students for a year of remediation. In the examined district, a high school teacher generally serves 150 students per day, ergo this example would result in the school having avoided the cost of providing an "intensive reading" teacher in a future year. A 200% ROI would indicate two years of avoided costs.

Findings in Relation to the Research Questions

Edgenuity was introduced to the school district in 2019, when students began using the course for the purposes of credit recovery, grade recovery, or in substitution for a teacher when one was unavailable. For the 2022-2023 school year, a total of 2371 students entered the platform and participated in approximately 5447 courses. Of those courses, a total of 1851 courses were completed. The mean time spent in Edgenuity for a course completion is 40 hours and 24 minutes. The minimum time for a course completion was 3 hours. However, the maximum time was 866 hours. In this case, students spent a total of 177,022 hours on the platform, with the course average of 32.5 hours per course, indicating that there are potentially a large number of courses that will be completed before the end of the school year.

The Edgenuity program specifically targets students who need credit recovery or grade forgiveness. The district-wide mean GPA for students not in Edgenuity is 2.87, while for students in Edgenuity it is 2.01. Students using Edgenuity are likely to have fewer credits and lower scores on standardized assessments than their counterparts not in Edgenuity. Students who participate in Edgenuity are also likely to complete more than one course. The average amount of courses completed for students in the program was 2 (each course completed is worth one half-credit, or a semester worth of learning). This is an interesting value given that this evaluation is being

conducted in March: students in Edgenuity are completing the equivalent of a year of learning in the platform in less than one academic year.

Students who completed courses in Edgenuity had higher growth measures of standardized assessment than students not in the program, although not at a statistically significant level. Since the NWEA MAP Reading assessment is only required for students in need of a reading concordant score to graduate, a t-test was conducted among 11th and 12th grade students who took the MAP Reading assessment, grouped by whether they had participated in an Edgenuity reading course.

Among students who completed the MAP Reading assessment (already a delimitation since the assessment is only assigned to students who demonstrate need) when students who were in an Edgenuity Reading course (n = 567) were compared to students who were not in an Edgenuity course (n = 4852), students in Edgenuity saw statistically significantly higher growth than students not in the platform between their Fall and Winter NWEA assessments, $t(672) = 2.361$, $p = .009$, $d = 0.116$ (MD = 1.16). It is also important to note that students in Edgenuity score a mean 211 RIT (Rasch Unit) on their Winter MAP assessment, statistically and practically significantly lower than students not in Edgenuity, who scored a mean 219.

This means that, on average, students in Edgenuity are reading at around a 5th grade level, while students not in the program read at around a ninth-grade level, $t(5417) = -9.042$, $p < .001$; meaning students being identified to participate in Edgenuity are performing significantly lower than the ones not identified for the program.

To further examine these results, an ANOVA was conducted with students who in a reading course in Edgenuity grouped by whether the completed the courses, were still in progress, or had not participated. Students who had completed the course saw an average RIT growth between their Fall and Winter assessment of M = 4.19, while students who were in the process of completing an Edgenuity course grew by M = 2.82, and students who had not taken any Edgenuity course at all grew by M = 2.05. While this growth was higher for students who completed Edgenuity, the results were not statistically significant**,** $F(2, 1329) = 1.834$, $p = .160$, $\eta 2 = 0.003$.

Furthermore, a Tukey post-hoc analysis revealed no individual group scored statistically significantly differently from any other. This might suggest that participation in Edgenuity is associate with improved performance on standardized measures, although there is not a large difference between students who complete a course or students who are simply in the process of completing a course.

The mathematics comparison was also conducted, although the data is less reliable since far fewer students completed the NWEA MAP Math assessment. There is not as wide of an initial gap as there is with ELA; students in a math Edgenuity course average a RIT of 214.5, and students not in a math Edgenuity course average a RIT of 215.4, $t(1328) = -0.789$, $p = .215$. The indication is that there were not statistically significant differences between the students who were chosen to participate in Edgenuity versus those who were not. The difference in growth, however, was considerable.

Students in a math Edgenuity course (n = 232) grew by a mean of 3.29 RIT points between the Fall and Winter MAP Growth assessments. Students not in a math Edgenuity course (n = 1098) grew by a mean of 2.06 RIT. This difference was statistically significant, $t(1328) = 1.655$, $p = .049$, with an effect size of $d = 0.12$. As with ELA, the difference between groups in an ANOVA, when

comparing course completion versus partial participation, was not statistically significant, $F(2, 1329) = 0.661$, $p = .517$, $\eta 2 = 0.001$). Information within Table 1 summarizes the findings.

Table 1

Summary of Findings

Assessment (NWEA MAP)	Mean Difference	Effect Size (*d*)	Significance
Reading RIT	7.41 RIT	-0.40**	<.001
Math RIT	0.90 RIT	-0.06	.215
Reading Growth	1.16 RIT	0.12**	.009
Math Growth	1.23 RIT	0.12*	.049

This suggests that participation in Edgenuity is associate with improved growth on standardized measures, although there is not a large difference between students who complete a course or students who are simply in the process of completing a course. Additionally, the growth experienced during the Edgenuity program is not enough to cover the vast gaps in reading ability, although it may be enough to close the gaps in mathematics. See Figure 1 for a depiction of the results.

Figure 1

NWEA Winder Math Growth

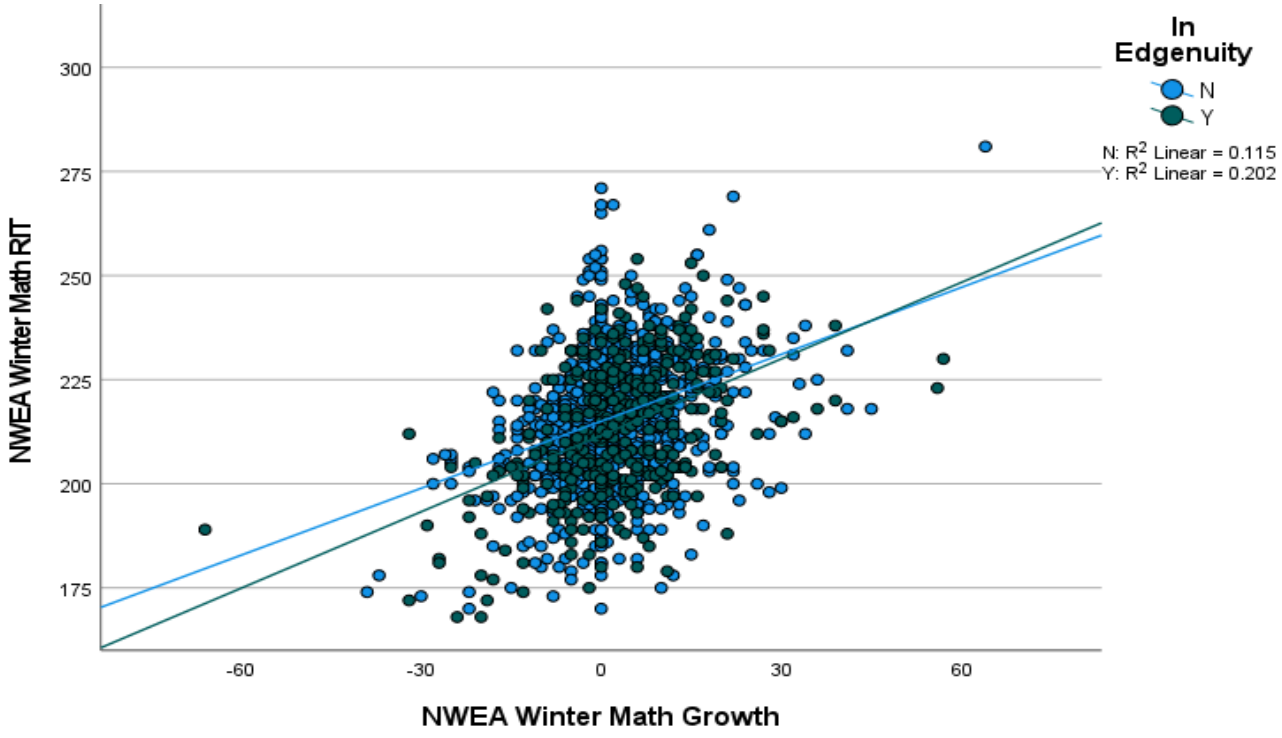
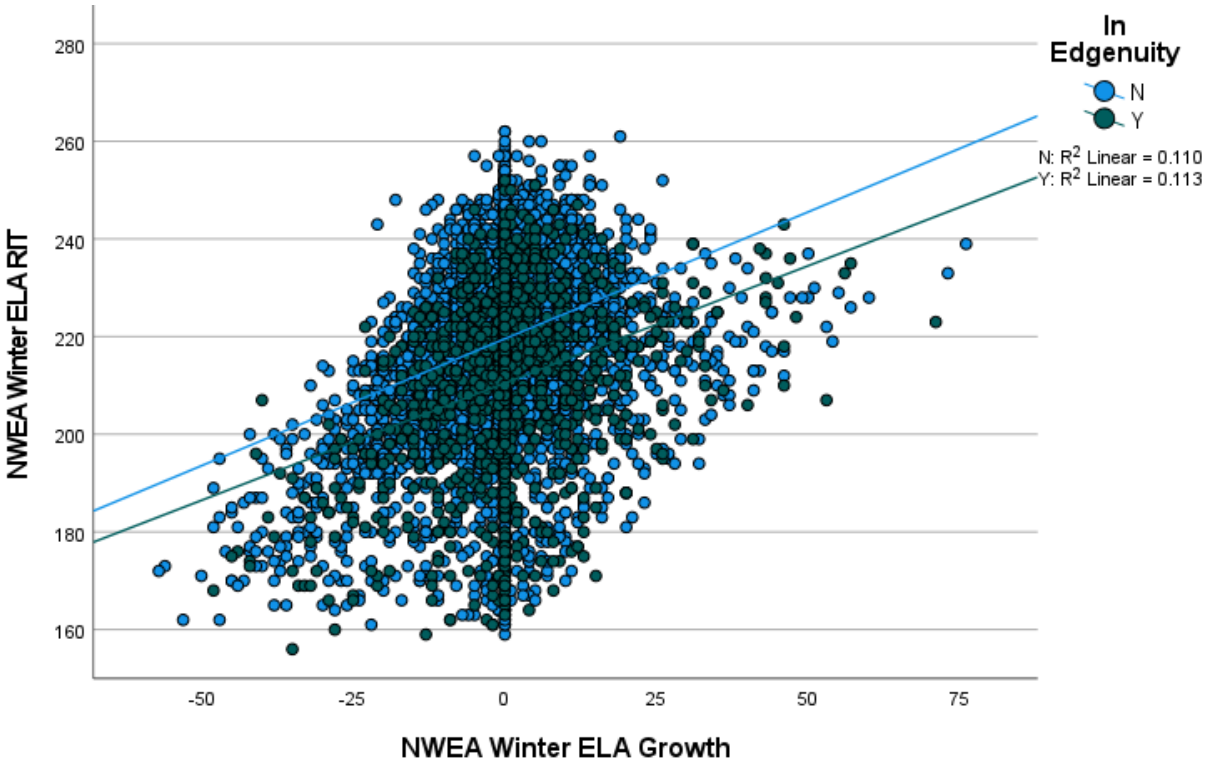


Figure 1 visualization represents the growth experiences in NWEA scores for students in Edgenuity in math (above) and ELA (below). While students in both subjects experience more growth than students not in Edgenuity, in mathematics this is enough to account for the starting disparities in performance, although in ELA it is not (Figure 2).

Figure 2

NWEA Winder ELA Growth



Edgenuity Return on Investment

The final question in the evaluation was related to cost per student and the potential return on investment from Edgenuity. A total of 2371 students used the platform at an initial cost load of $268,600 for user reusable enrollments to Edgenuity's digital libraries, or $113.28 per student. A total of 5447 courses were participated in, which arrives at a cost of $49.31 per course. In order to provide the most conservative ROI calculation as possible, the cost loading process provided by the ROI Institute was followed. For digital interventions, the expectation for ROI is at least 0%, that is, the amount of money spent on increasing student learning returns at least as much value as it cost. In addition to the $268,600 direct cost, $61,100 were spent to provide training to teachers, bringing the cost to $329,700.

The program Edgenuity is traditionally operated during a research class, which is scheduled during the student day and requires a teacher to at least be present in the classroom

with the students to ensure that they can log on to the platform, to answer questions as needed, and to provide supervision for student safety. Their salary cost must be operationalized into the model in order to fully understand the cost of providing Edgenuity to students. The average hourly salary for teachers in this county is $35 per hour ($34.47), with a benefits rate of 19.79%, or a fully loaded cost of $41.93 per hour of teaching (regardless of the quantity of students in a classroom).

Across all high schools, a total of 34 teachers worked with students during the Research period, wherein students spent time on Edgenuity, although it is worth noting that seven of the teachers have courses other than Research on their schedules at some point in the day. However, while calculating the full day rate for all 36 teachers time may be an overestimation, the slight inflation accounts for the potential of teachers who earn over the average pay, which only works to increase confidence in the ROI calculation. At a rate of $41.93 per hour for 34 teachers for seven and a half hour per day for 182 school days, the instructional cost of Edgenuity was approximately $2,060,440 in unavoidable employee wages and benefits (that is to say, there is no option to provide Edgenuity but *not* pay employees while students utilize it during the school day). The monthly cost of internet for last year was $336 per month at each site, for a total cost of $27,216 for schools combined. This brings an "all-in cost" for providing the intervention to a maximum cost of $2,417,356, not accounting for unavoidable sunk costs such as facilities usage, janitorial services, air condition, and technology. At this rate, considering all indirect costs, Edgenuity was $1109 per student in the program, or $443.80 per course. At this point, it is also worth reiterating that each Edgenuity course is the equivalent to one half-credit, or a half-year of education.

In SY2023, this district received a base per-pupil expenditure of $8,629 (FLDOE, 2021). For simplicity, weighted FTE will not be used during the analysis to increase confidence in the ROI measure. High school students in this county have class periods that average out to 49 minutes (this is slightly different for schools that have "block scheduling", where the block ranges from 90 to 106 minutes). Since a student has seven periods a day, for 182 school days, it can be determined that one hour of learning at the high school level is worth approximately $6.77 (for comparison, the DreamBox evaluation found that in elementary schools, one hour of learning was work $7.29 at its base level, a rate that is slightly different after accounting for time spent in transition at high schools). This metric means that one student, learning for one hour, is worth approximate $6.77 of a teacher's time (students with greater need garner greater dollars to meet their needs), and can be used in calculating the costs avoided in interventions. For example, a student who was 100 hours behind, by this measure, would cost $729 in teachers' time to remediate back to Tier 1. For the purposes of this calculation, students spend approximately 148.6 hours a year in Tier 1 mathematics instruction, so a student who was "a year behind" would cost $1,006 in employee wages to remediate. For this reason, it becomes important to determine how far behind a student actually is in this formula, which is something that can be determined with data from the NWEA assessment.

The NWEA Measurement of Achievement Progress (MAP) assessment provides each student with a "RIT Score", which is a measure of where the student is in the K-12 learning continuum. By taking the student scores on this assessment and applying them to the grade level norms, it can be determined which level a student is operating within. For example, a student who scores a 209 on their Winter Reading assessment would be performing at the same level as

a “normal” fifth grader. While it is somewhat reductive to say that a 12th grade student performing at this level would take seven years’ worth of teacher time to remediate to that level of performance (this ignores teacher and student effects, as well as multi-year growth), it does create a useful heuristic for the purposes of ROI evaluation. In this model, that student would need approximately $7,042 of academic support (in a single content area) to catch the student up. In this manner, it can be theorized that a student who grows by a years’ worth of RIT points is an avoidance of 148.6 hours of teacher time costs avoided in remediation. Ergo, if Edgenuity assists a student in growing more than a traditional year, the ROI will be greater than 0%.

For ELA, the 573 students who participated in an ELA credit recovery or grade forgiveness program were approximately a collective 3032 years behind, with the average being 5.3 years of progress (although only means are reported, all students were analyzed independently in a row context). The combined cost to remediate all these students to grade level expectations would be approximately $3,050,192 (in monetary cost, it would also take multiple years). For mathematics, students average 5.2 years of progress behind, with the average cost of remediation being $5,796 per student, for a total of $3,645,684 to remediate all students to grade level expectations.

For students in 11th grade, the growth norm on NWEA MAP for one year in ELA is 1.18 RIT (1.11 for the Fall semester) and for math it is 2.52 RIT (1.77 RIT for the Fall semester). For 12th grade students, the growth norm is 0.52 RIT in ELA (0.05 RIT in the Fall semester) and 1.18 RIT for math growth (0.30 RIT in the Fall semester). Using ELA growth norms for high school seniors, a growth of 1 RIT is approximately one year change, 2 RIT is two years, 4 RIT for three years, 6 RIT for four years, 9 RIT for five years, 13 RIT for six years, 18 RIT for seven years, 25 RIT for eight years, 32 RIT for nine years, 42 RIT for ten years, 55 RIT for eleven years, 70 RIT for twelve years, or 86 RIT for thirteen years growth. Utilizing this measure, students in Edgenuity ELA courses grew an average of ~7 months during the Fall semester, for a combined total of 403 years of academic growth, as measured by the NWEA MAP assessment. As measured by NWEA, this would result in an academic benefit of $405,418 dollars in ELA growth. The same logic applied to mathematics (1 RIT for one; 3 RIT for two; 7 RIT for three; 10 RIT for four; 16 RIT for five; 22 RIT for six; 30 RIT for seven; 40 RIT for eight; 51 RIT for nine; 63 RIT for ten; 78 RIT for eleven; 94 RIT for twelve; 112 RIT for thirteen years growth) finds student in Edgenuity had 1.2 years math growth on average, for a combined total of 167 years of academic growth, or a benefit of $168,002. This is a combined academic benefit of $573,420. However, this only represents the growth for the 501 students measured on NWEA who also completed Edgenuity, which is only a fraction of the costs incurred. Since 2371 students are in Edgenuity, the value of 501 students represents 21.13% of students on the platform. An equivalent portion of the total cost of providing the program ($2,417,356) would be $510,787. This would result in a benefit-cost ratio of 1.12:1, or a return on investment of 12%. This would exceed the expected ROI of 0% and indicate that it costs less to remediate students using Edgenuity than it does to use traditional intervention measures.

This suggests that the use of Edgenuity provides a valuable return on investment *when measured on growth metrics provided by NWEA*. Given that multiple studies have found that using Edgenuity does not provide a large effect on standardized assessments, any ROI at all is surprising.

However, as stated earlier, the primary tangible benefit of using Edgenuity is not its impact on academic performance, but rather the earning of credit for participation. To that end, a second ROI calculation was completed. The math is simpler when determining return on investment based on credits: one credit is the equivalent of one course, or the $1,006 cost by the teacher for base FTE during a class. Since all Edgenuity courses provide one-half a credit (one semester of learning), the benefit is $503 per course completed (in cost avoidance). This measure will almost *invariably* result in a negative ROI since the cost of teacher plus Edgenuity will always be greater than the cost of Edgenuity alone, and there is no way for a student in Edgenuity to ever earn more than the fixed rate of one-half credit per course. The only way to render a positive ROI by this measure would be if all students were completing three or greater courses during a single year period with their teacher (earning 1.5 credits during one class rather than tradition one credit per class). A total of 1068 courses that provided a half credit were completed, which earns a benefit of $537,204. A further 1469 courses are in progress and not-yet-completed, which is a potential benefit of $738,907 for a combined total potential benefit of $1,276,111. Under this measure, the current ROI is -77%, and the potential ROI if all students currently enrolled in their courses complete them would be -47% ROI. At this rate, a total of 4,806 courses would need to be completed for the program to measure a positive ROI, if measured only on the value of student credits earned.

Of course, it is to be expected that a program such as Edgenuity would have a negative return on investment when measured by credits earned given that the program exists *to cover a net negative effect* of the student not earning a credit the first time they participated in a course. If the traditional expectation of academic investment is a student spending one year with a teacher (and the costs associated) to earn one credit, then a student who spends the full year with the teacher *plus an additional year with a second teacher* to earn the same one credit will result in a greater investment for the same return. For this reason, it is highly unlikely that Edgenuity, when measured by credits earned, would ever show a positive ROI, unless all students began progressing at a rate of two years progress in one year. The question that must be asked is whether the cost of the program is worth the investment in offering students the chance to graduate when they otherwise would not receive the opportunity.

It is also worth noting that this measurement only considers students enrolled in credit recovery courses in Edgenuity, and not grade forgiveness courses. Additionally, it is also a relatively restrictive measure as it only considers the tangible benefits of earning a credit, and not the improvements in academics. While a fully robust model would measure the academic benefits for all students, the patchwork nature of the SY23 assessment schedule (brought about by the nascent BEST progress monitoring), does not allow for a full analysis of academic returns. Still, the returns measured for the students in program can be synthesized with the credits return to get a fuller understanding the benefit returns of Edgenuity. Afterall, students in Edgenuity can *simultaneously* improve their academics while also earning a credit. The academic benefit of $510,787 from the academic analysis only captures the benefits of the 501 students who were measured. Assuming the patterns identified from that sample are applicable to the population and not due to random chance (a valid assumption given that the growth measures of students in Edgenuity were statistically significantly different from the growth measures of students not in Edgenuity), this value can be extrapolated to the complete population at $2,417,357. Among the same population, a benefit of $537,204 was created from the credits earned, which results

in a value of $2,954,561. When accounting for student gains in learning along with credits earned, the ROI yielded is 22% (BCR 1.22:1). Loading in the potential student credits earned if all students completed their courses would result in a benefit value of $3,693,468, or an ROI of 53%.

Implications for Practice and Policy

When considering the academic outcomes of using Edgenuity in addition to the credit benefits to students the value of the program is greater than the cost. While this value is primarily in costs avoided (as in, it would be more expensive to provide credit recovery to students in a traditional class setting than via Edgenuity), it still yields a return on investment when academic gains are included.

This evaluation's findings carry significant implications for both educational practice and policy. The observed positive outcomes in terms of credit recovery success and progress towards graduation shed light on the potential effectiveness of Edgenuity in this district as a valuable tool for supporting students requiring academic intervention. Educators can harness the platform to deliver targeted support and personalized learning experiences, especially in credit recovery programs or instances where teacher availability is limited. However, the varied results regarding academic performance in other subject areas emphasize the importance of integrating Edgenuity as a supplementary resource alongside comprehensive classroom instruction. Policymakers and education leaders must consider the cost-effectiveness and practical implementation strategies of using Edgenuity, ensuring sufficient teacher training, technical support, and student engagement to optimize its impact and alignment with broader educational objectives. By thoughtfully considering these implications, practitioners and policymakers can make more informed decisions about the integration of Edgenuity into educational practices and policies.

Limitations

While this evaluation provides valuable insights into the effectiveness and ROI of the Edgenuity program, it is important to acknowledge specific limitations. This evaluation relied on existing studies and data. That may have inherent biases or limitations regarding design and generalizability. The evaluation focuses on the specific context of this school district may not fully capture the diverse range of educational settings and student populations. Furthermore, the evaluation does not account for potential variations in implementation fidelity or the nuanced effects of individual student engagement with the Edgenuity platform. These limitations highlight the need for further research and context-specific investigations to fully comprehend the strengths and weaknesses of the Edgenuity program. This study was also delimited to only quantitative results. Many interventions have value in that they lower the cognitive burden and time requirements for teachers to effectively achieve the same results in a different manner, but those non-tangible results were not captured in the course of this study.

Conclusion and Recommendations for Further Research

Based on the quantitative results, it appears that the utilization of Edgenuity is associated with student growth higher than standard student growth measures, even when students in the

platform are scoring significantly lower than their academic peers. Students completing coursework in Edgenuity had higher growth than their non-Edgenuity peers in both ELA, d = 0.12**, and math, d = 0.12*. This measured effect size of d = 0.12* meets Kraft's (2019) recommendations for moderate effects from academic interventions (0.05 <d > 0.20), although they are well below Hattie's hinge-point (d = 0.40), and also below the expected d = 0.15. This effect is lower than that measured on SuccessMaker (Lewis, 2017) and DreamBox (Foster, 2024), but otherwise exceeds other examined digital interventions such as Freckle, iReady, and Penda. Of the mentioned interventions, however, the Edgenuity program is one of the only ones that targets high school students, and the only one that provides students credit for completed work. When considering just academic outcomes, the Edgenuity program has an ROI of 12%, however when adding credits earned to the measurement, the ROI is between 22% (current) and 53% (potential) depending on how many students currently in progress on their courses complete the course and pass their exam with the requisite grade.

While the *direct cost* of Edgenuity ($49.31 per course) is very high in comparison to other digital interventions (iReady was $6 per student; SuccessMaker was $20 per student; Freckle was $14 per student). The program Edgenuity still provides a return on the investment made and provides the further benefit of allowing students to earn a credit and correct their path towards graduation when they otherwise would not have had the opportunity. Given the cost of the Edgenuity platform, the moderate effect sizes within the field of interventions, and the positive return-on-investment measure, it is recommended that schools continue the use of the Edgenuity platform.

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