Executive Summary

Evaluation of Edgenuity

SCHOOL DISTRICT OF OSCEOLA COUNTY

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Complete details of all analyses and literature references, can be requested from REA

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Background

A multitude of digital support tools exist for instruction and intervention. As part of the continuous evaluations of the various tools and resources that the School District of Osceola County spends money on, a program called Edgenuity – 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.

Digital platforms that provide differentiation through targeted interventions have become increasingly common in recent years. Despite their popularity, however, the effects of these programs are often low. In 2009, John Hattie established a baseline for the expected effects a teacher can provide a student in their growth as $d = 0.40$, a solid baseline expectation for interventions to meet. In 2019, after reviewing 747 randomized control trials, Matthew Kraft at Brown University proposed a new means of interpreting d effect size in relation to interventions, with less than $d = 0.05$ as a small effect, and greater than $d = 0.20$. In *Visible Learning*, John Hattie identified "second or third chance programs" as having an effect size of $d = 0.50$, and provided that they were offered as "a supplement to, not a substitute for, classroom teaching."

While Edgenuity does not have a rating from What Works Clearinghouse, a variety of studies of its effectiveness in various states have been completed. Generally, there is consensus that students who work on the platform see improvement in credit recovery success and progress toward graduation (Avellaneda, 2020; Desimone, 2019; Llewellyn, 2018) although results on whether students were able to improve performance in other academic settings after usage were much more mixed. A Hypothesi (2015) study show that students who spent a year in Edgenuity improved on their NWEA scores and Desimone (2019) found that academics improved in all areas except science. However, Avellaneda (2020) saw little change for students on the platform in terms of change in assessment scores. Considering the two seminal studies as a baseline, and adjusting based on effects from similar platforms and the reviewed research, the expectation for the Edgenuity platform intervention should fall between the range of $0.15 < d > 0.25$.

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 and the maximum time was 866 hours. Students spent a total of 177,022 hours on the platform, with the course average of 32-and-a-half hours per course, indicating that there are potentially a large number of courses that will be completed before the end of the school year. All data and costs utilized in this analysis were for the 2022-2023 school year.

Purpose

The purpose of this evaluation was to examine the effectiveness of the Edgenuity for the cost per student.

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?

Methodology

Quantitative methodologies via statistical analyses were utilized to examine the effects of each current program. 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 were collected from the Florida Reporting System for SY2023, and internal data sources with each student in a row context. 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. 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.

Key Findings

Edgenuity-NWEA Associations

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 and the maximum time was 866 hours. Students spent a total of 177,022 hours on the platform, with the course average of 32-and-a-half 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 in 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 or not 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 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, $t(5417) = -9.042$, $p < .001$. This means that the 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 certainly higher for students who completed Edgenuity, the results were not statistically significant ($F(2, 1329) = 1.834$, $p = .160$, $\eta^2 = 0.003$). Furthermore, in a Tukey post-hoc analysis, no individual group scored statistically significantly differently from any other.

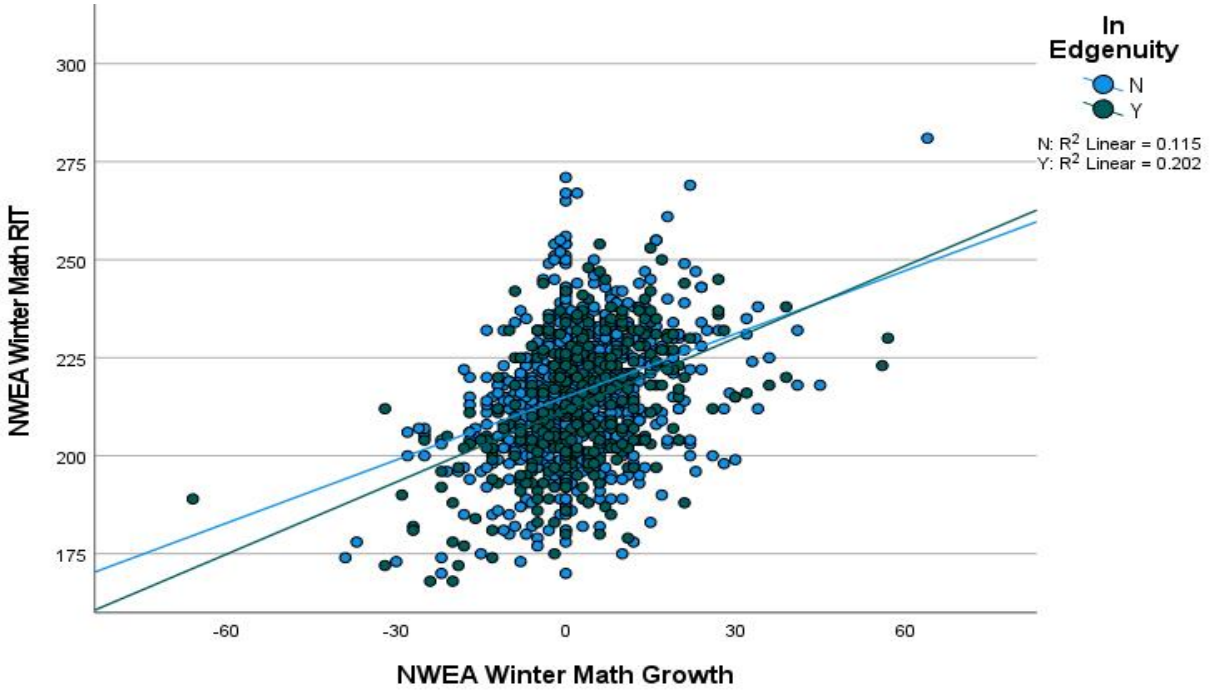
This suggests that participation in Edgenuity is associate with improved performance on standardized measures, although there is not a large difference between students who complete a course or students who are simply in the the process of completing a course.

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, $t(1328) = -0.789$, $p = .215$. This indicates 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.

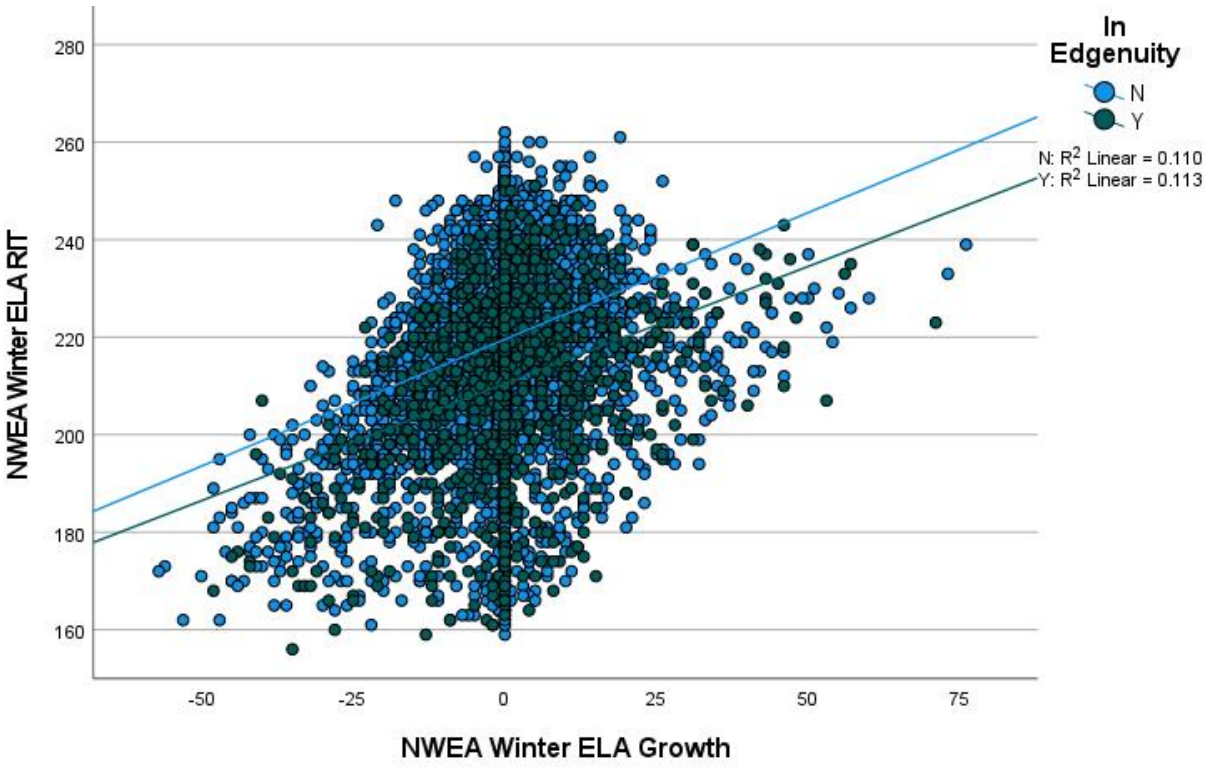
Students in a math Edgenuity course ($n = 232$) grew by a mean of 3.29 RIT points between the Fall and Winter MAP Growth assessments. Students not in a math Edgenuity course ($n = 1098$) grew by a mean of 2.06 RIT. This difference was statistically significant, $t(1328) = 1.655$, $p = .049$, with an 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, ($F(2, 1329) = 0.661$, $p = .517$, $\eta^2 = 0.001$). The following table summarizes the findings.

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



This 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.



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.

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 Osceola 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, the School District of Osceola County 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 Osceola 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 Edgenuity provides a valuable return on investment *when measured on growth metrics provided by NWEA*. Given that multiple studies have found that 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 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 more full 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%.

When considering the academic outcomes of 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.

Conclusion

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 and DreamBox, but otherwise exceeds other examined digital interventions such as Freckle, iReady, and Penda. Of the mentioned interventions, however, Edgenuity 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, 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 (iReady was $6 per student; SuccessMaker was $20 per student; Freckle was $14 per student) 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.