

THE EFFECTS OF USING A RETAKE TICKET IN THE
9TH GRADE SCIENCE CLASSROOM

by

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ABSTRACT

Providing students the opportunity to retake assessments gives them a second chance to demonstrate their knowledge and skills, which is a needed option in a proficiency based classroom. To show improvement, however, students must engage in a relearning process. This study investigated the impact of a retake ticket on student learning, student attitudes, and student motivation to engage in the retake process. The retake ticket required students to reflect on their original performance and create a plan for relearning. Student assessment scores, student surveys, and student interviews were used to examine the effectiveness of the retake ticket. This study did not show an overall increase in student learning when using a retake ticket and showed mixed results in regard to student motivation and attitude. Examining individual student effort, however, suggests that students who used the retake ticket more effectively show larger gains in learning. The retake ticket may need to be implemented under different conditions to have a greater effect on all students.

INTRODUCTION AND BACKGROUND

I teach at Mount Mansfield Union High School (MMU) in Jericho, Vermont. Recently, the state of Vermont adopted Proficiency-Based Graduation Requirements (PBGR's). To earn a high school diploma, students in the class of 2020 must show proficiency within core subject areas by demonstrating their knowledge and abilities. This mandate has affected curriculum, instruction, and assessment for every teacher at the high school level. In order to allow students to demonstrate proficiency, many teachers are using retakes and revisions. Rather than allowing students to fail or take a low grade they are now encouraged or possibly required to relearn the material, ultimately preparing them to meet the standards.

Retakes and revisions have come with frustrations, however, for both teachers and students. Due to the fact that the class typically continues to move forward with new material, completing a retake becomes an additional task for students that requires time and effort. This in itself is enough to discourage some students from doing a retake, meaning that they do not improve their understanding. Of those that do complete a retake, there are often mixed results. Some students approach retakes with additional studying and preparation; they relearn the material and demonstrate their understanding successfully by earning a higher score on the retake. Other students, however, do not prepare or do not know how to prepare successfully. Students who do not take any real action to relearn and understand the concepts often times see no improvement on their retake or even earn a lower score. The process of completing the retake can then be discouraging and contribute to a student having low self-confidence. For teachers, retakes

can add to one's workload as it takes time to both create and grade retakes. Time is also spent working with students to relearn material and generally organizing time for students to take the retake. When students request to take a retake, but don't prepare adequately, the teacher can also feel that their time could be better spent.

In my action research project, I investigated strategies and policies to encourage students to complete retakes and prepare adequately in their relearning. I used a retake ticket as my treatment, a form that students completed prior to taking a retake that encouraged them to reflect on their first assessment and determine what next steps they should take in order to prepare for the retake. The greater goal is for students to complete their relearning successfully and, through self-reflection, improve their study skills for future assessments.

This study holds significance for numerous groups. Ultimately both teachers and students hope that the time and effort spent on retakes pays dividends by showing increased student understanding on assessments. Retakes have been a "hot-topic" throughout my school, as each teacher tries to implement the most effective methods to increase student understanding and engagement. Many teachers have shared frustrations with retakes at both department and faculty meetings. I believe any conclusions from this study will be meaningful for other teachers within my school. This study could have significance to a wider audience, that would include any other teachers that use retakes within their classroom. The results of this study would likely be of interest to any teachers using a standards-based or proficiency-based classroom, which allows students multiple attempts to demonstrate their knowledge.

This action research investigated several questions in regard to retakes. The primary research question was, “Does the use of a retake ticket help students make the most of their opportunities to retake assessments?” Within this topic I investigated several subquestions. My first subquestion asked, “How do retake tickets affect student learning?” The second subquestion asked, “How is student attitude and motivation to do retakes affected by retake tickets?” And lastly, the third subquestion asked, “How does the use of a retake ticket affect my teaching?”

CONCEPTUAL FRAMEWORK

Students do not typically retain knowledge when learning passively. Students must engage with the material and fit new learning into their own pre-existing ideas, known as constructivism. When students create their own knowledge by drawing conclusions, thinking critically, and problem-solving, that new knowledge is more likely to “stick” (Educational Broadcasting Corporation, 2004). Teachers play an important role in constructivism, by providing students with engaging classroom activities that push them to wrestle with new ideas. Constructivism puts more responsibility on the student; rather than receiving information passively, students must engage with the material and play an active role in the learning process (Educational Broadcasting Corporation, 2004). It is a teacher’s responsibility to ensure that students are filling this role of active participant.

When a student does poorly on an assessment, they have likely not had the time or opportunity needed to construct new ideas and engage with new material. To master concepts, it is important that a student engages in strategies that allow them to construct

new knowledge and come to an understanding of how new concepts fit within existing knowledge. Various practices have been shown to improve learning and retention. Wellington (2014) suggests having students self-question and self-explain. This technique engages the brain through asking questions and explaining new ideas in relation to existing concepts that the student has already mastered. Interleaved practice and formative assessment through practice testing are also strategies to encourage knowledge retention (Wellington, 2014). The former asks students to work with current material in relation to other concepts so that the brain must wrestle with more than one idea and make sense of the concept at hand. The latter challenges students to recall and apply knowledge in low-stakes situations so that the brain can practice and decipher how new knowledge fits with what is being asked (Wellington, 2014).

There are many teachers who include the idea of retakes and revisions in their list of best practices. Rick Wormeli (2011) argues that retakes and revisions offer students the ability to show what they really know and can avoid some of the ambiguity of other grading practices, like offering extra credit. There can be a variety of reasons that a student might do poorly on an assessment and in most cases, students would like an additional opportunity to improve. “Allowing students to redo both assignments and assessments for particularly important standards and outcomes most of the time is highly effective...and it better prepares students for the world beyond school” (Wormeli, 2011, p. 23). Students cannot always be expected to be perfect the first time. They are still in the process of learning and need repetition in order to achieve mastery. Allowing a retake means that students can demonstrate their learning after additional practice. It is also

argued that allowing retakes is not setting students up for failure later in life. In fact, it is more realistic to allow retakes as most professional exams, or even a driver's test, for instance, are able to be retaken (Wormeli, 2011).

While some teachers object to retakes with the idea that allowing students a second try will lower the bar in their class, Wormeli (2011) argues that it can have the opposite effect. By encouraging and even insisting that students relearn material, teachers do not let their students get off easy. "Making students redo their learning until it meets high expectations demands far more of both students and teachers than letting them take a failing grade but it also results in far more learning" (Wormeli, 2011, p. 26). In a standards-based system it is the teacher's job to ensure that their students have the opportunity to meet the standard. By having students go back and relearn the material they do not give students the option of failure. While this can mean more work for both parties, it offers a more accurate picture of whether or not the student is capable.

Van Winkle (1978) demonstrated that retakes lead to relearning. In a study of 115 college students in introductory science courses, students were required to retake a quiz if they earned lower than an "A" on the original assessment. Students were also required to complete a set of remedial questions to practice the material. They then took the retake the following class period. While this is a somewhat rigid approach, Van Winkle found it to be successful. The majority of students showed improvement on their retakes, as well as on the final exam. The procedure received some mixed reviews from students. Student feedback indicated that roughly 20 percent of the students thought the retake policy should be optional (Van Winkle, 1978). In response to this feedback, on the final quiz the

remedial practice questions and retakes were optional, and student scores dropped. It was concluded that “enforced remediation is essential to improving performance for most students” (Van Winkle, 1978, p. 92).

Certain procedures and policies have been found to improve student performance on retakes. Dueck (2011) created a tracking sheet, or retake ticket, that students were required to fill out prior to taking a retake. In creating the tracking sheet, he was forced to look closely at the format of his assessments and ultimately decided to revise his tests so that students could more easily identify areas of weakness. By breaking his tests into certain learning objectives, students could use the tracking sheet he designed to identify specific areas to focus on prior to a retake. In addition, “I included on each tracking sheet questions about their test preparation, study skills, and goal setting” (Dueck, 2011, p. 75). Including questions asking students to reflect on their preparation can then allow the teacher and students to identify changes to the student’s study habits that may be beneficial.

Policies surrounding retakes can be equally important to student success. They can have a large effect on student motivation to engage in the relearning process. When students view the relearning as overwhelming, they are less likely to do it. Dueck (2011) allowed students to retake certain parts of an assessment, meaning that students could focus on specific areas and felt that the work was more manageable. “Because extra studying focused on only one section or topic, the at-risk learner usually perceived it as easier and shorter and was willing” (Dueck, 2011, p. 75). Overall, implementing a tracking sheet improved student achievement and motivation (Dueck, 2011).

Wormeli (2006) makes a strong case for giving students full credit after retakes and revisions. By only giving students full credit the first time around, we are holding students to a very specific timeline. While this is necessary in a setting with larger classes, it does not offer students any recourse if they are not able to operate on that same timeline. If a student can show mastery at a later date, they are still meeting the standard and should earn full credit for doing so (Wormeli, 2006). Wormeli (2006) argues, “when we don’t allow re-takes, we allow students to get away with not learning” (p. 21). By allowing retakes, and awarding full credit, we encourage that students relearn the material and demonstrate their understanding.

Both quantitative and qualitative data are necessary in analyzing the use of retakes. Evaluating student scores on assessments, as well as seeking student opinions are valuable forms of data. Stoker and Parker (1976) used a variety of quantitative data to examine student willingness to take a retake and evaluate improvement of test scores and overall course grades. The researchers first recorded the total number of retakes taken by students in order to evaluate whether or not students chose to take advantage of this opportunity. They also recorded the original grades of each student and number of students who earned that grade who then pursued a retake. Stoker and Parker (1976) examined student improvement by calculating retake efficiency, which is defined as the student’s score increase on the retake compared to the maximum possible score increase.

Abraham (2000) used a combination of quantitative and qualitative methods in evaluating the use of retakes in a college math course. His study focused on how retakes affected students’ final exam grade, overall grade, and GPA as compared to dropping the

lowest grade. In the study, data was broken down by class section so that patterns could be seen but influences that affect each section might still be discussed. Abraham (2000) also compares data gathered in his own classroom with institutional data, in this case, student overall GPA.

Qualitative data added greater depth to Abraham's study. The researcher used a student survey that included four questions in order to gather feedback about the retake policy. Student comments provided insights into why they did or did not use the retake opportunity. These comments give greater depth to the study and in some ways, more clearly indicate how students are affected by the opportunity to retake tests.

METHODOLOGY

Treatment

The purpose of this study was to investigate the effects of a retake ticket on student learning, and also on student attitude and motivation to engage in the retake process. This action research study began in September, 2018 and extended to March, 2019. Baseline data was collected during the first three units of the year, from September to November. During this time, students had the opportunity to retake any assessment. The retake was not an identical test to the original, preventing students from simply memorizing answers. For example, multiple choice question options were rearranged, and short answer prompts were reworded, to get at the same concept in a new way. Students were allowed to complete only one retake for each assessment. Before completing a retake, they were asked to correct any mistakes on their original assessment. Any additional studying or preparation was up to them.

The treatment units were composed of the next three units of study which extended from December to March. During the treatment, students continued to have the opportunity to retake any assessment but were required to complete a retake ticket prior to retaking the assessment. The retake ticket is a form asking students to reflect on their original assessment and identify steps they will take to improve their learning prior to taking a retake (Appendix A). Students completed this online using Google Forms. In addition to the retake ticket, students were still required to correct their original test and could complete other studying activities or relearning as identified in their retake ticket.

Both the non-treatment and treatment periods included three summative unit tests. While the content varied with each unit, tests were of a similar level of difficulty. The curriculum for this course has been taught for over ten years and is standardized among all ninth-grade teachers. While each year small adjustments may be made to assessments, the majority of the test has been piloted in previous years, ensuring that the academic level of each test is similar.

Demographics

This research project included students in three 9th grade Earth Science classes. The total sample included 60 students, 28 females and 32 males. Within the sample, five students access IEPs and seven students access 504 Plans. Within my classes, 27 students are designated as honors students. These students have been identified as strong science students and perform enrichment activities when appropriate to the curriculum. At MMU, most students come from white, middle class or upper-middle class families. The school has a student population where 9.92% are eligible for free and reduced lunch (Vermont

Agency on Education, 2018). Within this population, most students are motivated to do well in school and come from families that value and support their educational goals. The students in this study had an 85% average for the first semester. Only one student earned below a 70% average for that first semester.

Instrumentation

To assess student learning and the effectiveness of the retake ticket, students' original test scores and retake scores were recorded. The two groups of data were compiled and compared by calculating the differences in the two scores and using normalized gains, or retake efficiency, as described by Stoker and Parker (1976). This data was also compared between two groups of students: honors students and those at the regular level. The data was compiled to create box and whisker plots for comparison between the non-treatment and treatment periods.

To examine how the use of a retake ticket affected individual improvement, each retake ticket was examined and scored based on the student's level of reflection and analysis. The effort that a student put into a retake ticket was ranked on a scale of 0-3. The retake ticket included three questions where students were asked to reflect on their original performance, and each question was worth one point. If the question showed evidence of good reflection and included specific references to their performance, then the student earned a point for that response. If the answer was general or vague, the student earned no point. For example, in identifying areas for improvement, a student that said "I did not understand the concept of feedback loops" earned a point. A student that

responded, “All of it” did not earn a point. This effort score was then compared to their performance on the retake using normalized gains.

Student motivation was analyzed by examining the number of retake attempts among performance levels. The percentage of students taking retakes was calculated by grade range according to the score they earned on their original test (Stoker and Parker, 1976). The percentages were displayed graphically using a bar graph.

Student surveys were conducted at the end of the non-treatment and treatment periods. The Pre-Treatment Student Survey (Appendix B) was administered in December, 2018, at the end of the non-treatment period, while the Post-Treatment Student Survey (Appendix C) was administered following the conclusion of the three assessments in the treatment period, in March, 2019. The surveys were used to determine student attitudes towards assessments and retakes, motivation to complete retakes, and overall test and retake preparation strategies. The Post-Treatment Student Survey also included additional questions to understand student attitudes towards the retake ticket. Many questions used a Likert format where students responded on a scale of "strongly disagree" to "strongly agree". The survey also included some open response questions where students could explain their choices to the Likert Scale questions. Split bar graphs were used to compare differences in responses. Student quotations were analyzed and used to illustrate themes within the data.

The Pre-Treatment Student Interviews (Appendix D) were conducted at the end of the non-treatment period to gather feedback about how students had approached the coursework, assessments, and retakes. The Post-Treatment Student Interviews (Appendix

E) were conducted at the end of the treatment period and included most of the same questions as the Pre-Treatment Student Interviews, for comparison purposes, as well as additional questions about the retake ticket, when applicable. Individual interviews were conducted with a stratified, random sample of six students. The sample was composed of one male and one female student from each of three different class periods. Within each class period one student represented the honors level and one student represented the regular level of the course. For the Post-Treatment interviews, two additional students were interviewed in order to obtain more feedback from students who had actually used the retake ticket. The interview responses were used to evaluate student attitudes towards assessments and retakes, attitudes towards the retake ticket, motivation to complete retakes, and overall test and retake preparation strategies. The interviews were recorded and analyzed for themes. Student quotes were used to support other findings.

Throughout the study I recorded thoughts, comments, ideas, and conversations within a teacher journal. The journal was analyzed for common themes and quotations were used to support trends and analyze the impact this study had on my teaching.

A summary of the instrumentation used in the study can be seen below in the Data Triangulation Matrix (Table 1).

Table 1
Data Triangulation Matrix

Research Question	Data Collection Method #1	Data Collection Method #2	Data Collection Method #3
Does the use of a retake ticket help students make the most of their opportunities to retake assessments?	Retake ticket student responses	Student scores on retakes as compared to their original assessments	Records of the percentage of students that attempted retakes across all levels of performance
How do retake tickets affect student learning?	Student scores on retakes as compared to their original assessments	Retake ticket student responses	Student Interviews
How is student attitude and motivation to do retakes affected by retake tickets?	Records of the percentage of students that attempted retakes across all levels of performance	Student surveys	Student Interviews
How does the use of a retake ticket affect my teaching?	Teacher journaling	Student surveys	Student Interviews

To ensure the validity and reliability of the instruments used, I consulted with my peers in the Master of Science in Science Education program and colleagues who served as advisors for this study, and also received feedback from Professor Walt Woolbaugh. The retake ticket design was piloted during the 2017-18 school year. The research methodology for this project received an exemption by Montana State University's

Institutional Review Board, and compliance for working with human subjects was maintained (Appendix F).

DATA AND ANALYSIS

This study assessed the impact of a retake ticket on both student learning and student attitudes and motivation to engage in the retake process. While some students did benefit from using the retake ticket, it did not show overall improvement in student learning or motivation.

Impact on Student Learning

Student scores from three non-treatment assessments were compared to scores for the same students from three treatment assessments. While all students in the sample took the original assessments, students self-selected to take a retake, so sample sizes vary for each retake assessment and for the non-treatment and treatment retake data. Overall, data showed a slight decrease in student learning on retakes during the treatment period. While the average retake score was very similar for both groups, the non-treatment group showed greater learning gains. During the non-treatment period, the average score on retakes was 82.5% compared to the original average score of 65.1% ($N=11$). For the treatment period, the average score on retakes was 81.6% compared to the original average score of 72.0% ($N=25$). This shows a larger separation of scores and larger improvement during the non-treatment period, shown in Figure 1. Calculating normalized gains for the retake assessments shows a similar trend, with the non-treatment group showing larger gains. The average normalized gain for the non-treatment assessments was 46.9% compared to 37.5% for the treatment group.

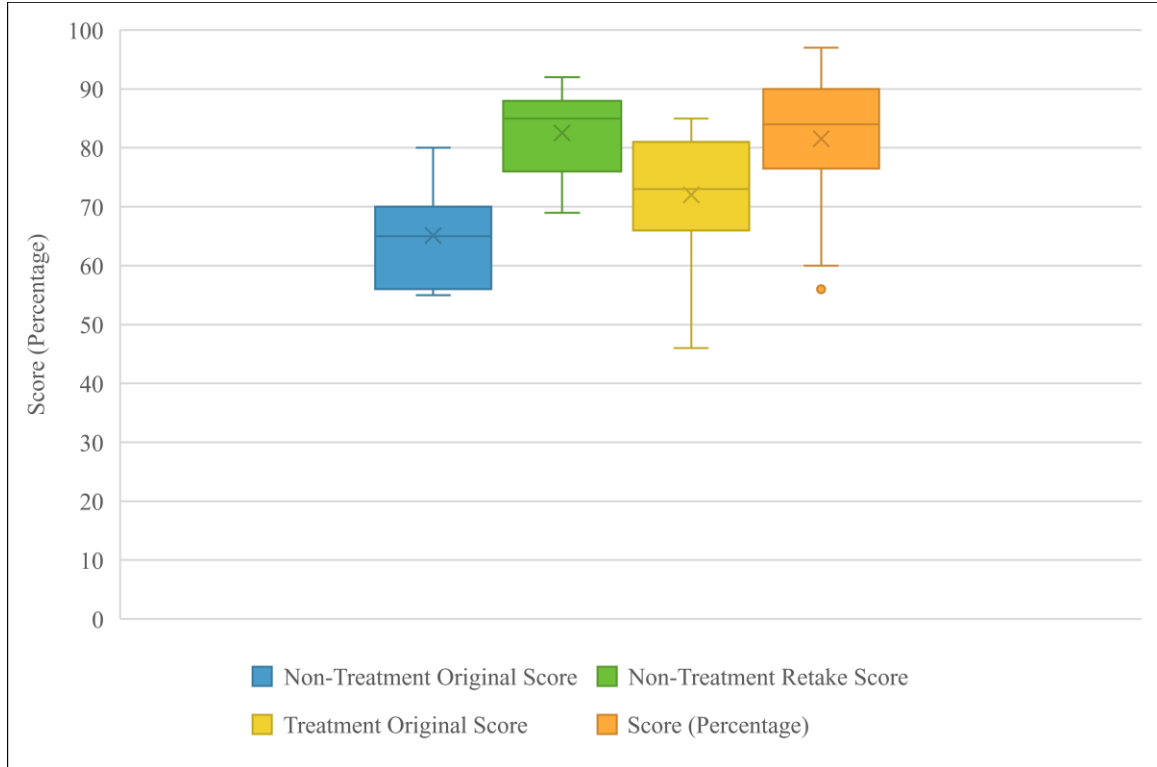


Figure 1. Score distributions for non-treatment assessments and retakes ($N=11$) compared to treatment assessments and retakes, ($N=25$).

While the non-treatment group shows a larger gain in learning, it is still promising that both groups showed an increase in achievement from the original assessment scores. It is important to acknowledge there are other factors that could have affected the gains shown, including the timing of the non-treatment and treatment periods. The non-treatment period happened in the beginning of the year, from September to November, while the treatment period extended from December to March. It is possible that students may score lower on assessments in the beginning of the year as they adjust to a new teacher and assessment style. One student mentioned this in an interview, saying, “I took retakes in the beginning of the year because I wasn’t used to the tests and didn’t know what to expect.” Certainly not all students feel this way, however, as another student

explained that their performance is more connected to the content. This student stated, “It depends what the test is on. Sometimes I get it, sometimes I don’t.”

There were some differences in student learning when comparing honors students with regular level students. Students in the honors level earned higher scores overall and demonstrated greater gains in learning on the retake assessments. During the non-treatment period, the average score on retakes was 86.5% compared 68.0% on the original assessments ($N=2$). During the treatment period, the average score on retakes was 86.3% compared to 74.4% ($N=12$). The normalized gains show that while the average score on retakes was similar, there was greater gain in scores during the non-treatment period. During the non-treatment period the average normalized gain was 51.0% and during the treatment period it was 43.3%. While there are greater gains during the non-treatment period, one can also see that there is greater separation when comparing the treatment data sets within the honors students (Figure 2). The mean score, as well as the highest and lowest scores all increased within the treatment. It should also be noted that the small sample size during the non-treatment period may be affecting the results. Two data points may not provide a fair comparison for the treatment period, but it is also reflective of the fact that many times honors students do not need to retake assessments based on their original performance.

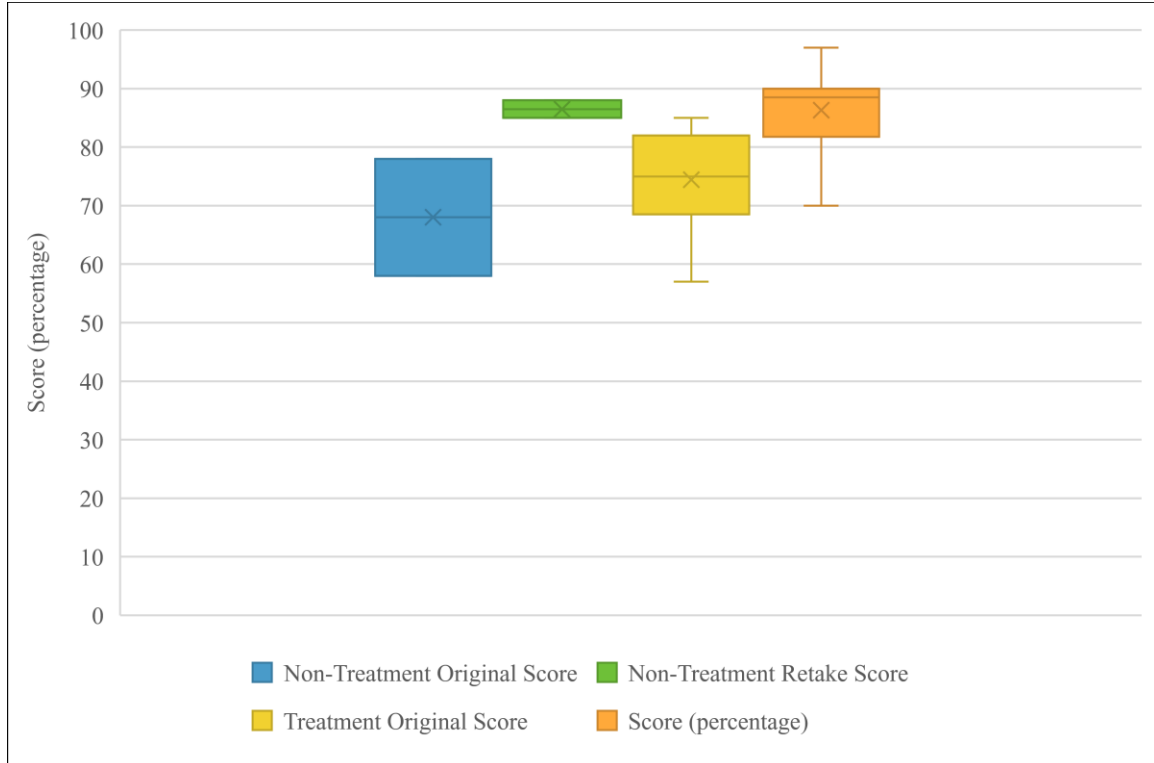


Figure 2. Score distributions for non-treatment assessments and retakes ($N=2$) compared to treatment assessments and retakes ($N=12$) in honors level students.

Students in the regular level of the course showed less gain when using a retake ticket. During the non-treatment period, the average score on retakes was 81.7% compared 64.4% on the original assessment ($N=9$). During the treatment period, while there was an improvement in the average, there was less gain in the retake scores, as seen in Figure 3. The average score on retakes was 77.1% compared to 69.8% ($N=13$). The normalized gains also demonstrate this trend. During the non-treatment period the average normalized gain was 45.8% and during the treatment period it was 32.2%. Within the treatment period there was one student who performed more poorly on the retake than the original assessment, which is included in the results.

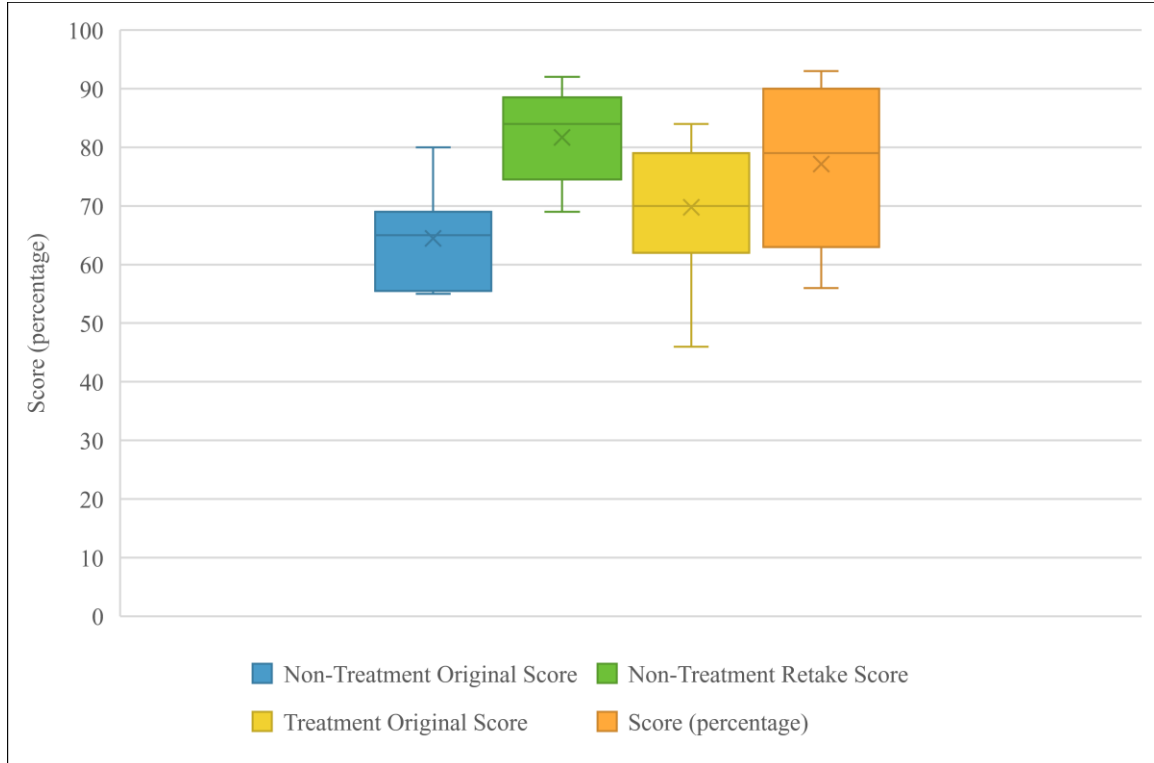


Figure 3. Score distributions for non-treatment assessments and retakes ($N=9$) compared to treatment assessments and retakes ($N=13$) in regular level students.

Students at the honors level have been identified as strong science students and typically demonstrate good study skills and work habits. For many, this also means they are naturally better at reflecting on their work and analyzing their mistakes. These students show a substantial learning gain during both the non-treatment and treatment periods. Student interviews support this trend. One honors level student commented, “I didn’t mind using the retake ticket, but it didn’t change things that much. I always look over my test and figure out what I did wrong.” The honors students also showed good use of the retake ticket to reflect and set goals, as they tended to add more detail to their responses. In reflecting on the original assessment, one honors student described her mistakes, “I got confused on some of the questions with the wording. I should pay more attention to what the question is asking.” Another honors student outlined an important

step in his studying process explaining on the retake ticket that he would be, “meeting up with Ms. Goodwin during Monday’s PAWS period.” The PAWS period is a call back period where students can receive extra help.

Regular level students showed much less gain in learning during the treatment compared to the non-treatment unit (Figure 3). While most students did improve their grade, it is clear that they did not improve as much as they did during the non-treatment period. Using the retake ticket effectively may have been more challenging for these students, and their use of the retake ticket varied. Some students used the retake ticket for careful reflection. In reflecting on the original assessment, one student said, “I did not memorize the annual precipitations and temperatures for the individual biomes. I will study them for this retake and try my best to have them memorized.” Other students had trouble utilizing the retake ticket. Another student, in identifying steps to take prior to the retake responded, “Well, maybe just study more, I guess?” This student may have needed more practice and support for the retake ticket to be effective.

As discussed above, not all students used the retake ticket as effectively as possible. Some students completed the retake ticket using very vague answers that did not show much real reflection. Comparing individual effort on the retake ticket with student performance using normalized gains shows that the retake ticket may be a helpful tool for improvement (Figure 4). While there is not a direct correlation between the two sets of data, generally, students who put greater effort into the retake ticket performed better on the retake. There is clear distinction in retake performance between those students who earned a score of one and those earning a three on the retake ticket effort score. Of

students that scored a one, the normalized gains ranged 0-30%. Of students that earned a three, the normalized gains ranged from 35-74%. Those who scored a two in retake effort, however, showed the widest range of results, from 6-90%. Additionally, there were three students who put very minimal effort into their retake ticket reflections and earned a zero on the effort score. These students still all showed some improvement on retakes and, in some cases, performed better than students with higher effort scores.

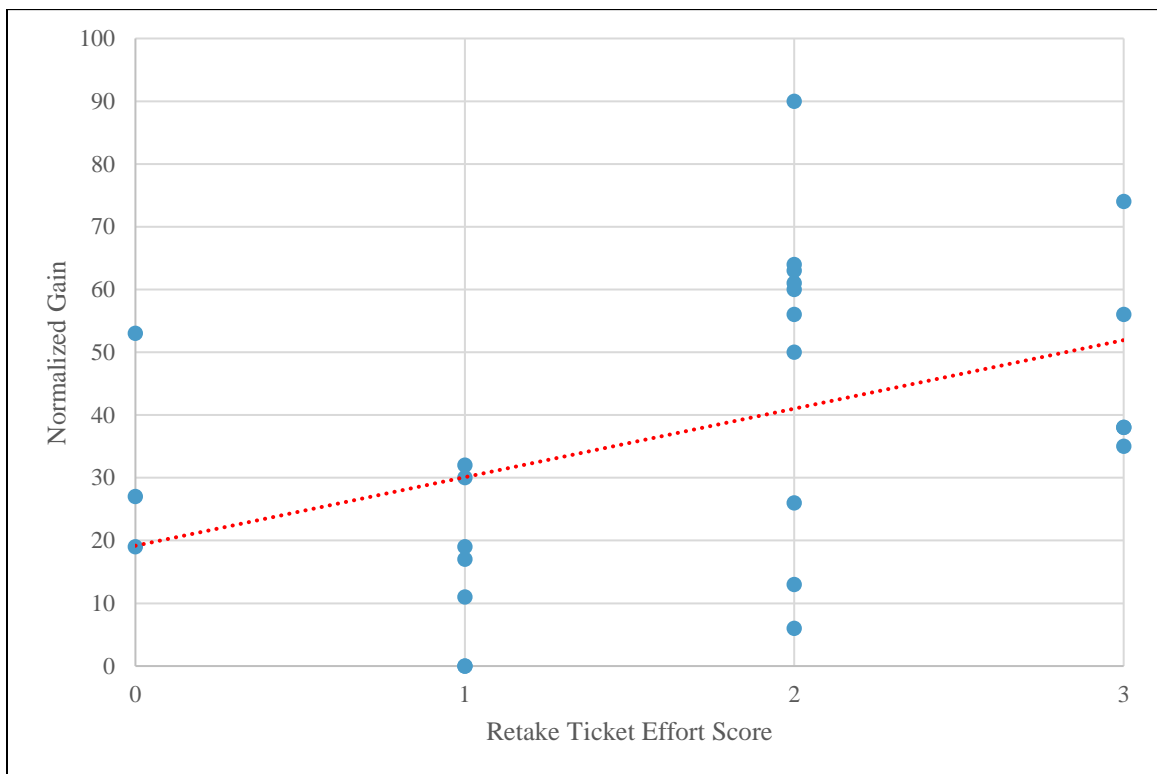


Figure 4. Retake Ticket Effort (scored on a scale from 0-3) compared to student achievement on retakes, shown using normalized gains, ($N=25$).

Comparing retake ticket effort with normalized gains suggests that careful reflection can be helpful in improving one's performance on a retake. While there are certainly some outliers within this data, the overall trend is encouraging. Students that earned a high effort score were able to carefully reflect and identify specific areas of

improvement. Having a specific focus for improvement may then make it easier to tailor their studying and relearn material.

Student Motivation

Another important aspect of this study was to investigate whether completing a retake ticket affected student motivation to complete retakes. Overall, more students completed retakes during the treatment period than the non-treatment period, suggesting that the retake ticket did not discourage students from accessing retakes. Twenty-five students completed retakes during the treatment period, while only 11 students completed retakes during the non-treatment period.

It is important, however, to examine which students are taking retakes. In a proficiency-based environment, the hope is that students who are earning low scores, and thus not demonstrating proficiency, are taking advantage of completing a retake. During the non-treatment period, 50% of students who earned an original grade below 70% completed a retake, while only 33% of those students completed a retake during the treatment period, as seen in Figure 5. This may suggest that the retake ticket had a greater adverse effect on low-performing students. Requiring students to complete a retake ticket is asking students to do additional work. While from the teacher's perspective this work is designed to help the student, they may not see that benefit. For a struggling student, this extra step could discourage them from engaging in the retake process. It is also interesting to note that during the treatment period, a wider range of students completed retakes as a greater number of students earning grades between 70-79% and 80-89% chose to complete retakes during the treatment period (Figure 5). This may suggest that

higher achieving students were less deterred by the extra step of completing a retake ticket.

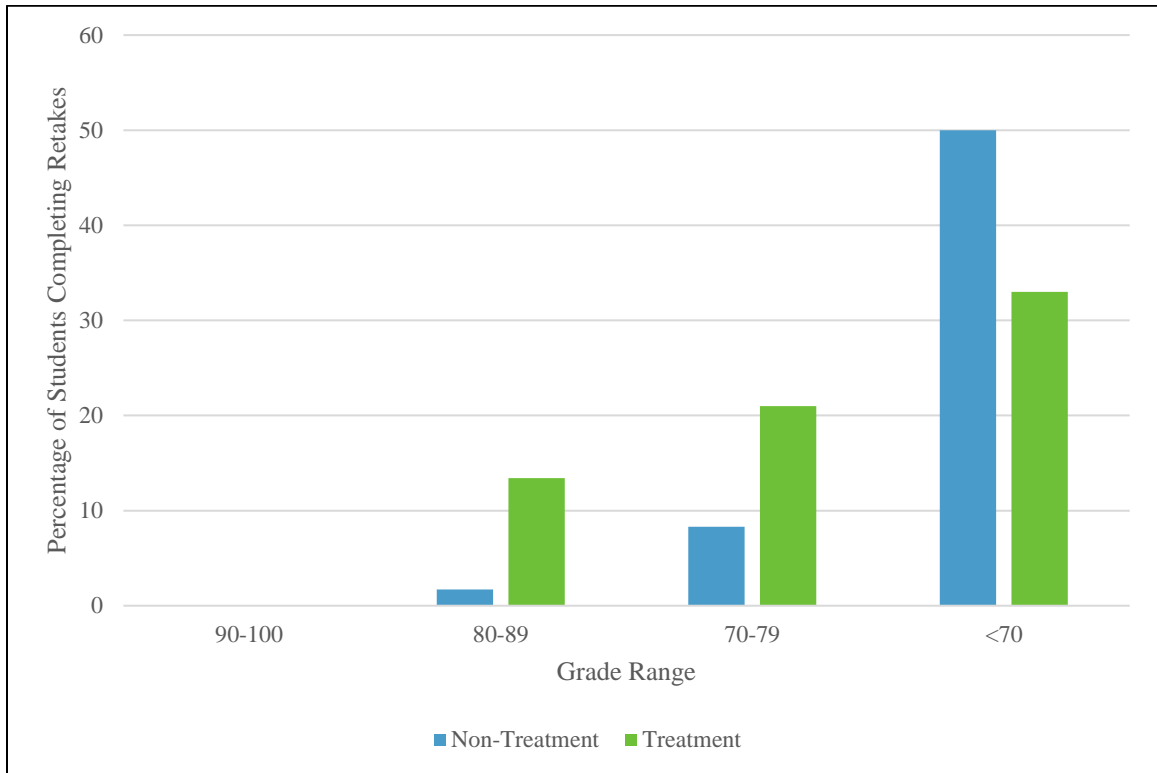


Figure 5. The percentage of students completing retakes during the non-treatment ($N=11$) and treatment ($N=25$) periods by grade range.

In examining the percentage of students who engaged in retakes, there was some variation between assessments. In particular, students generally struggled on Test 5, an assessment on atmosphere and climate change, during the treatment period. Sixteen students earned grades below 70% and only three students chose to retake the test. On another test during the treatment period, Test 6, an assessment on the biosphere, ten students earned a grade below 70% and six students completed a retake. While there may be a variety of reasons that motivated or discouraged students in completing a retake, I noted in my teacher journal that timing may have influenced students' decisions. Test 5

was returned right before a school break period, not leaving students much time to complete a retake prior to leaving for break and leaving them less motivated when they returned from break. On the contrary, Test 6 was returned towards the end of the marking period and students may have been motivated to try and improve their quarter grade.

Student motivation to take retakes was also influenced by other factors. One student echoed this idea in an interview saying, “I always check PowerSchool to see what my grade is and decide if I need to take a retake,” explaining that he factors his overall grade into his decision to take a retake. In response to a survey question asking students why they chose not to take a retake, the majority of students responded that they performed well on the original assessment and did not need to complete a retake (Figure 6). Other students responded that they did not have time to take a retake or forgot to set up a meeting. Again, interview data supports these ideas. One student, who accesses support through an IEP, said, “Sometimes I want to take a retake but I have too many other things to do because I am behind.” An important data point to note is that only three students responded that they did not take a retake because they did not want to complete a retake ticket.

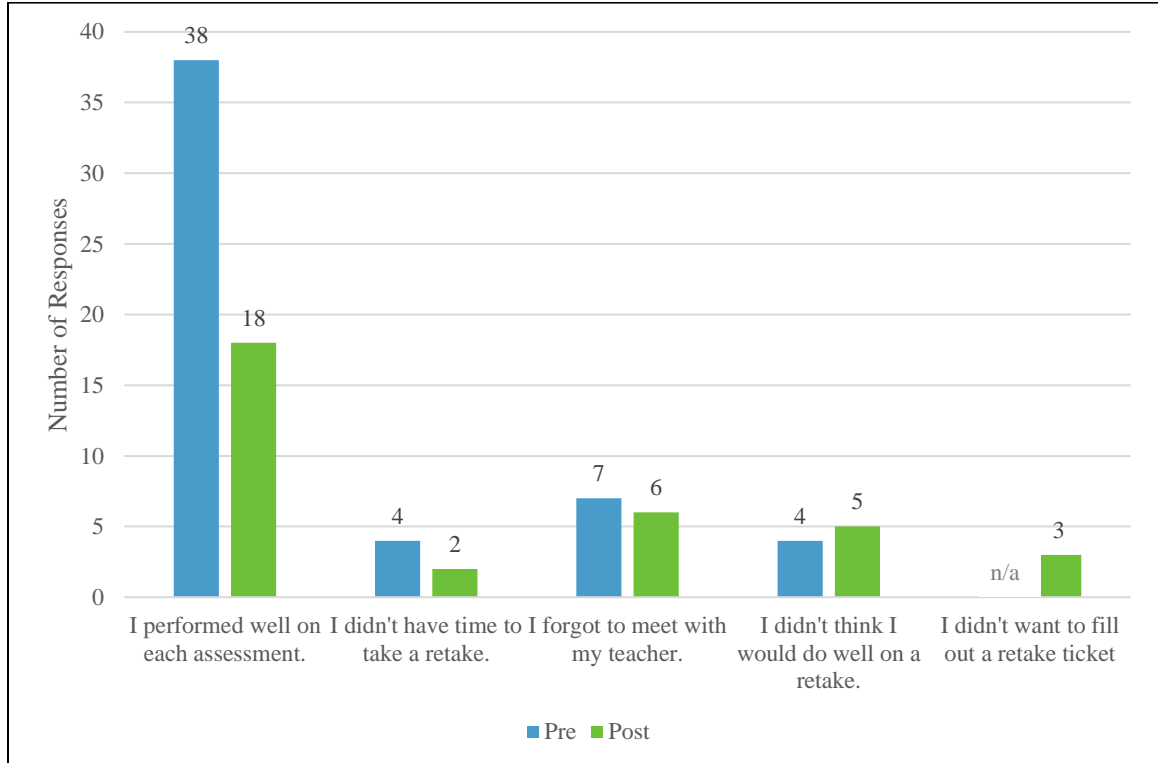


Figure 6. Pre-treatment ($N=43$) and post-treatment ($N=25$) survey responses to the question, “Why have you not taken a retake in this class? Select all that apply.”

Student Attitude

Student attitudes shifted between the Pre-Treatment Student Survey and the Post-Treatment Student Survey. Interestingly, students responded more positively to the statement “I understand the mistakes I made on my original test or quiz” in the post-treatment survey than the pre-treatment survey, as seen in Figure 7. In the pre-treatment survey 27% of respondents strongly agreed with the previous statement and 60% agreed, while in the post-treatment survey 43% strongly agreed and 53% agreed. It is not surprising that there are a high number of positive responses, because in both the non-treatment and treatment periods students were asked to review their original assessment. The difference in responses does suggest that the retake ticket may have been more

successful in having students review and analyze their mistakes. One student came to the same conclusion and wrote in their survey response, “It made me think and study harder.”

In response to the statement “Prior to taking a retake I prepared by doing additional studying or learning activities,” however, a higher percentage of students responded positively in the pre-treatment survey than the post-treatment survey (Figure 7). Twenty percent responded that they strongly agree with the previous statement and 60% responded that they agree during the pre-treatment survey, while 10% strongly agreed and 60% agreed during the post-treatment survey. This shows that even though students may be reviewing their mistakes, they might not be taking the next step in preparation for a retake. As one student wrote in a survey response, “The retake ticket was really just me stating what I should do to study more for a test.” While one can argue the importance of that action, it is also an important critique of the retake ticket. It does not necessarily hold students accountable for following through on the plan they make.

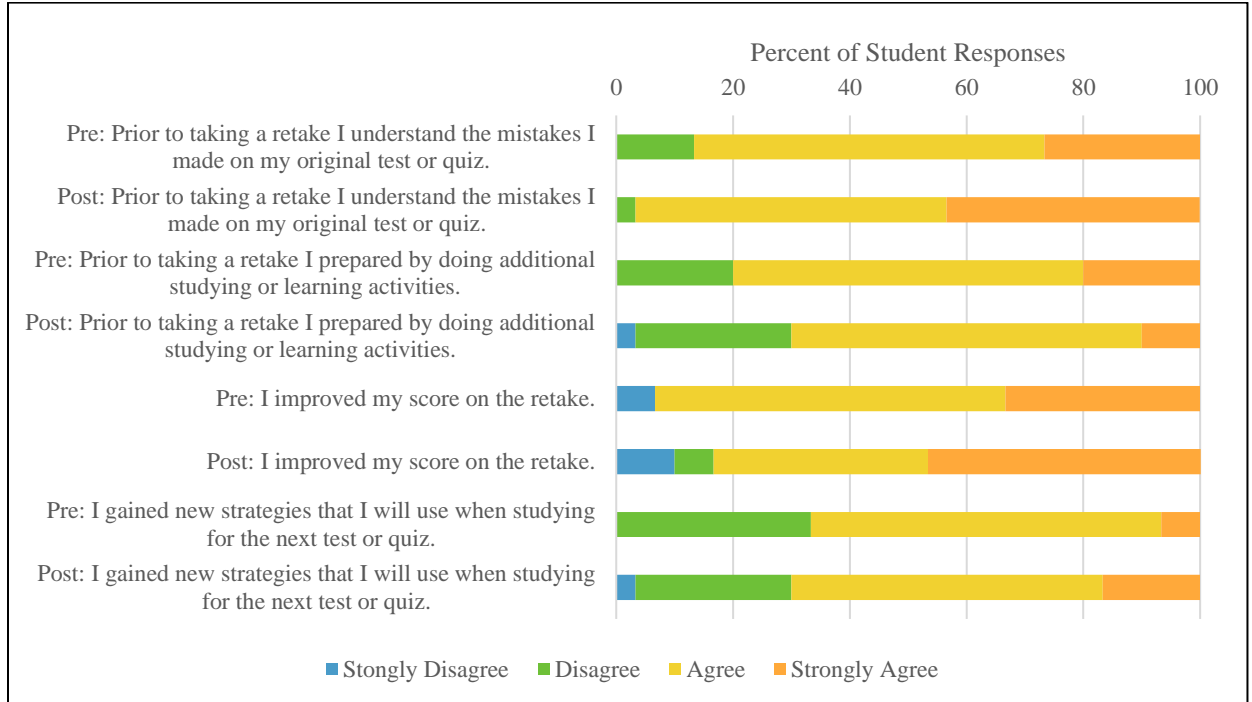


Figure 7. Pre-treatment ($N=15$) and post-treatment ($N=30$) Likert survey responses.

Students also responded to Likert survey questions regarding the retake ticket which illustrated some interesting trends. Students responded most favorably to the statement “The retake ticket helped me improve my score on the retake.” To this statement, 13% of students responded “strongly agree” and 30% of students responded “agree.” Students responded the most negatively to the statement “I like using the retake ticket.” Seventeen percent of students strongly disagreed with this statement, while 30% disagreed (Figure 8). Overall, the majority of students responded “neutral” in reference to statements about the retake ticket. In each case, between 30-40% of students selected the neutral response, indicating that they may not have strong feelings about the impact of a retake ticket. In explaining this choice one student said, “I think I would have done the same things to prepare for my retake without filling out the ticket, but maybe for others and for myself sometimes it helps you think of some ways to prepare.”

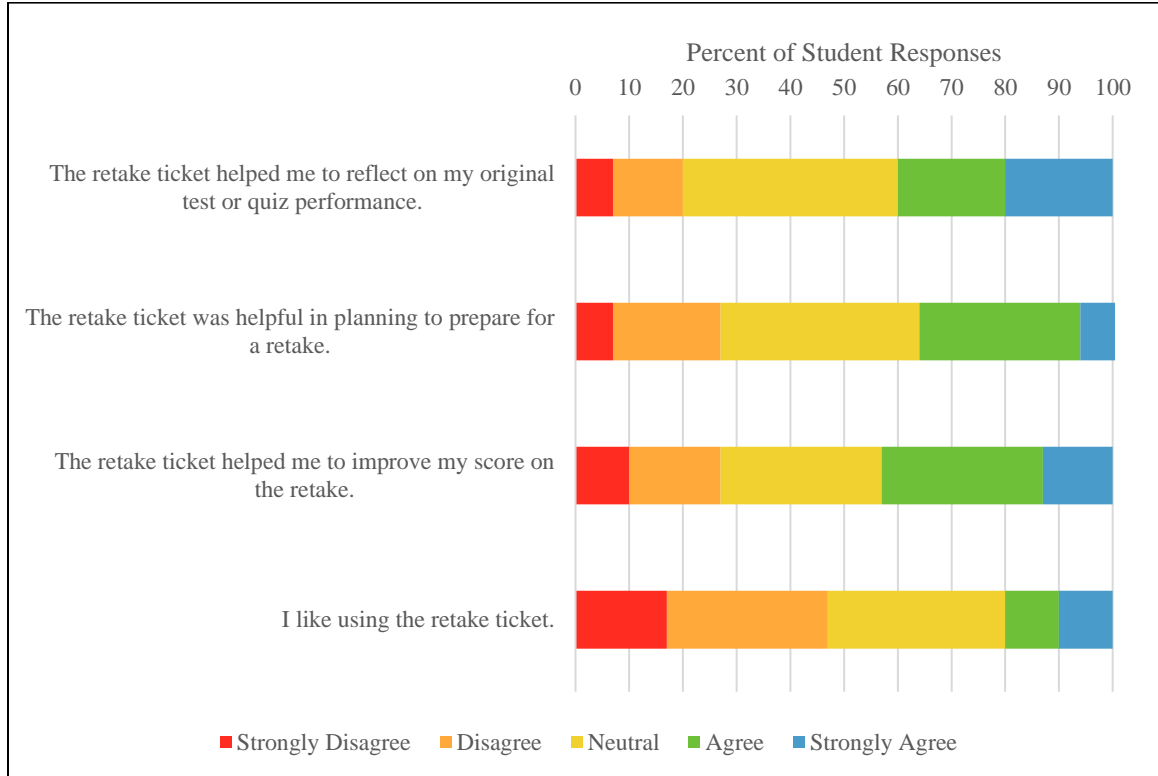


Figure 8. Post-treatment ($N=30$) Likert survey responses to questions pertaining to the retake ticket.

Survey and interview responses also showed that students had a variety of opinions about the effectiveness of a retake ticket. Some students felt that the retake ticket did not affect their performance and was simply an added step. In a survey response one student wrote, “It doesn't improve or make my score worse and it doesn't change how much I study so I feel that it is unnecessary and I don't see the point of doing it.” Another student was more to the point saying, “I honestly think it's a waste of time.” There were other students who felt that the retake ticket was effective with one student writing, “It is helpful when you want to improve your score.” In an interview response one student addressed both the positive and negative aspects by saying, “It's kinda like homework. I don't like it, but I think it helps me learn.” In two different interviews

students explained that they did not put a lot of effort into the retake ticket, but still prepared for the retake. One student explained, “I don’t think it’s needed so I didn’t try very hard. It would be easier to just ask for a retake and be able to do it without having to fill out a ticket.”

INTERPRETATION AND CONCLUSION

In this action research project, the impact of a retake ticket was investigated. The purpose of the retake ticket was to encourage student reflection and relearning, with the goal of showing improved scores on a retake. Overall, the use of a retake ticket did not show increased improvement in student learning compared to the non-treatment period and there were not clear trends of increasing student motivation. Student attitudes varied widely, and many students seemed impartial to its use. While these results may suggest that the retake ticket failed in its goal, individual effort scores show that self-reflection may improve relearning. Moving forward, I am interested to see if I can improve the effectiveness of the retake ticket by making changes in the implementation.

In response to my question on student learning, while the results showed an overall improvement in student achievement on retakes, the non-treatment period showed greater gains in learning than the treatment period. Within the treatment period, however, student effort on the retake ticket was shown to be a good indication of student performance. I believe that self-reflection and analysis may be the key to the differences seen in the non-treatment and treatment units. During the non-treatment units, students typically attended our call-back period to discuss taking a retake. This meant that I had a face-to-face conversation with almost every student regarding their retake (occasionally a

student emailed instead). While these conversations were not always long, it typically gave me a good idea of whether the student had looked over their original mistakes. It gave the student the opportunity to ask questions and I could work with students that needed help relearning concepts. It allowed me to ensure that almost every student had done some level of self-reflection prior to taking a retake. During the treatment units, however, much of this responsibility was passed on to the students. Students completed the retake ticket online via Google Forms. This method was efficient, but it also decreased my ability to easily check in with students. This meant that some students put good effort into the self-reflection process and some students did not, and logistically, it became harder for me to follow up with students when they did not show good evidence of self-reflection. This led to some students showing less gains in relearning (Figure 4).

Moving forward it is important that I am able to encourage strong self-reflection and relearning using the retake ticket. I hope to make two important changes. First, I need to put more time into teaching how to use the retake ticket effectively. I envision dedicating a lesson to this process and modeling how to include proper detail in the retake ticket. I will provide students with examples of what a good retake ticket looks like. Secondly, I will have students complete the retake ticket in hard copy in my presence. I want to encourage students to use the call-back period more, as they did during the non-treatment unit. Here, I hope that students would work on their retake ticket individually, but that when the student finished, I could look at it to determine if they had adequately prepared. When a student uses vague language or inadequate details, it would be easy for me to hand it back and require them to revise. It would also restore

the opportunity for one-on-one conversations, allowing me to provide more support when a student is struggling.

In response to my question about student motivation, it was found that while the retake ticket did not decrease total participation in retakes, it did show a decrease in the percentage of students earning below 70% on assessments engaging in retakes. With these results, I am again interested to see if a change in format might help. In student interviews, two students mentioned that it is helpful when teachers reach out to students about their performance by inviting them to take a retake or get extra help. I think it will be important that when students do poorly, I address this with them. In the future, I am considering asking any student who did poorly to see me during our student call back period or scheduling an after-school help session for this group. While I may not get perfect attendance, this action may be enough to encourage greater participation in retakes within that demographic.

In regard to my question on student attitude, the responses varied widely. While some students indicated it was helpful in improving their learning, others felt it was an unnecessary step. It makes sense that if some students are not seeing improved results on their retakes that they would not see the value of the retake ticket. I am curious to see if I can help students use the retake ticket more successfully and consequently see a change in attitude. That being said, I also need consider student attitudes through a teaching perspective. As self-reflection does require extra effort on the students' part, some students may never like the idea of completing the retake ticket. It is my job as a teacher

to make sure that this tool can be used effectively and is therefore worth their time and effort.

Lastly, retakes certainly continue to affect my teaching. My hope was that using a retake ticket could help limit the time and frustration that I feel with retakes. The bottom line is that offering students the opportunity to relearn material and retake an assessment will always add to a teacher's workload, but I did see some improvements. First, witnessing students succeed on a retake is extremely rewarding. This year there were only two examples of students not improving their score, which is a big change from previous years, and reinforces that this is a meaningful process. Additionally, I became more efficient at creating retakes as I developed the habit of creating the retake at the same time as the original test as suggested by Dueck (2011). Like many aspects of teaching, I expect to get better each year. I hope to make changes that are positive for both student performance and my teaching.

VALUE

The option to retake assessments can encourage students to continue their learning and gives them a second chance at success, which is an important skill in the real world (Wormelli, 2011). As our school transitions to proficiency-based learning, it is essential that students have multiple opportunities to demonstrate their knowledge and skills. I want to encourage students that do not perform well on an assessment to engage in relearning, and retakes provide students with this opportunity. I hope that in retaking assessments students are not only relearning content, but also improving their study skills

and learning from their mistakes, skills which can be carried forward to future assessments.

Examining the data from this research project showed that retake tickets may not have benefitted students in this implementation, yet there are many variables surrounding retake tickets that may affect their efficacy. For the past three years, I have made changes to the way in which I implemented retakes and I plan to continue to make changes in the future to find the most effective way forward for both students and teachers. My hope is to establish a balance where the teacher is providing guidance and support throughout the retake process, while students are taking responsibility for their learning.

As I make some of these changes it is clear to me that I need to revisit student data in order to evaluate the effectiveness of those new changes. In completing this action research, I have come to understand the importance of analyzing data rather than relying on only anecdotal evidence. While I consider myself to have a good feel for what is working in my classroom, examining student scores and taking the time to illicit feedback from students was hugely valuable in determining the effectiveness of the retake ticket. By seeking student feedback, I was not left to assume their thoughts and impressions. I was empowered to make changes as a result of their suggestions, and they felt empowered knowing that their ideas were being listened to and considered- a positive result for all involved.

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APPENDICES

APPENDIX A
RETAKE TICKET

Retake Ticket

If you are interested in taking a retake on any quiz or test, please complete and submit this form.

Your email address (katie.goodwin@cesuvt.org) will be recorded when you submit this form. Not you? [Switch account](#)

* Required

Which quiz or test would you like to retake? *

Your answer

Why did you not perform as well as you would have liked on the first assessment? What might you do differently next time? *

Your answer

Review your assessment. What specific areas need improvement? *

Your answer

In order to complete a retake you must correct your original assessment. What else do you plan on doing to prepare for your retake? *

Your answer

When do you plan to complete the retake? (what date and period?) *

Your answer

Send me a copy of my responses.

SUBMIT

Never submit passwords through Google Forms.

APPENDIX B

PRE-TREATMENT STUDENT SURVEY

Participation in this research is voluntary and participation or non-participation will not affect a student's grades or class standing in any way.

1. In science I generally earn grades:
 - a) in the A range
 - b) in the B range
 - c) in the C range
 - d) in the D range or below

2. On tests and quizzes I generally earn grades:
 - a) in the A range
 - b) in the B range
 - c) in the C range
 - d) in the D range or below

3. Overall, I find this course:
 - a) very easy
 - b) somewhat easy
 - c) just right
 - d) somewhat challenging
 - e) very challenging

4. Explain the answer you selected above: _____

5. How much time do you generally spend preparing for test and quizzes?
 - a) I don't prepare.
 - b) < 20 min
 - c) 20-40 min
 - d) 40-60 min
 - e) >60 min

6. What types of strategies do you use to prepare for tests and quizzes? (select all that apply)
 - a) completing the study guide
 - b) reviewing my notes
 - c) making flashcards/quizlet
 - d) reviewing my vocabulary template
 - e) reviewing class activities and labs
 - f) studying with classmates
 - g) other _____

7. I have taken a retake on a test or quiz.
 - a) yes
 - b) no

If you have not taken a retake, please answer the following question:

8. Why have you not taken a retake in this class? (select all that apply)
- a) I performed well on each test or quiz and did not want to take a retake.
 - b) I didn't have time to take a retake
 - c) I forgot to meet with Ms. Goodwin about a retake
 - d) I didn't think I would do well on a retake
 - e) Other: _____

If you have taken a retake, please continue to answer questions 9-14.

9. I understand the mistakes I made on my original test or quiz.

Strongly disagree Disagree Agree Strongly Agree

10. Please explain your response to question #7: _____

11. I prepared for the retake by doing additional studying or learning activities.

Strongly disagree Disagree Agree Strongly Agree

12. Please explain your response to question #9: _____

13. I improved my score on the retake.

Strongly disagree Disagree Agree Strongly Agree

14. I have gained new strategies that I will use when studying for the next test or quiz.

Strongly disagree Disagree Agree Strongly Agree

APPENDIX C
POST-TREATMENT STUDENT SURVEY

Participation in this research is voluntary and participation or non-participation will not affect a student's grades or class standing in any way.

1. In science I generally earn grades:
 - a) in the A range
 - b) in the B range
 - c) in the C range
 - d) in the D range or below

2. On tests and quizzes I generally earn grades:
 - a) in the A range
 - b) in the B range
 - c) in the C range
 - d) in the D range or below

3. Overall, I find this course:
 - a) very easy
 - b) somewhat easy
 - c) just right
 - d) somewhat challenging
 - e) very challenging

4. Explain the answer you selected above: _____

5. How much time do you generally spend preparing for test and quizzes?
 - a) I don't prepare.
 - b) < 20 min
 - c) 20-40 min
 - d) 40-60 min
 - e) >60 min

6. What types of strategies do you use to prepare for tests and quizzes? (select all that apply)
 - a) completing the study guide
 - b) reviewing my notes
 - c) making flashcards/quizlet
 - d) reviewing my vocabulary template
 - e) reviewing class activities and labs
 - f) studying with classmates
 - g) other _____

7. I have taken a retake on a test or quiz.
 - a) yes
 - b) no

If you have not taken a retake, please answer the following question:

8. Why have you not taken a retake in this class? (select all that apply)
- a) I performed well on each test or quiz and did not want to take a retake.
 - b) I didn't have time to take a retake
 - c) I forgot to meet with Ms. Goodwin about a retake
 - d) I didn't think I would do well on a retake
 - e) I didn't want to fill out a retake ticket
 - f) Other: _____

If you have taken a retake, please continue to answer questions 9-10.

9. I understand the mistakes I made on my original test or quiz.

Strongly disagree Disagree Agree Strongly Agree

10. Please explain your response to question #9: _____

11. I prepared for the retake by doing additional studying or learning activities.

Strongly disagree Disagree Agree Strongly Agree

12. Please explain your response to question #11: _____

13. I improved my score on the retake.

Strongly disagree Disagree Agree Strongly Agree

14. I have gained new strategies that I will use when studying for the next test or quiz.

Strongly disagree Disagree Agree Strongly Agree

15. The retake ticket has helped me to reflect on my original test or quiz performance.

Strongly disagree Disagree Agree Strongly Agree

16. The retake ticket was helpful in planning to prepare for the retake.

Strongly disagree Disagree Agree Strongly Agree

17. The retake ticket helped me to improve my score on the retake.

Strongly disagree Disagree Agree Strongly Agree

18. Please explain your answer to #17: _____

19. I like using the retake ticket.

Strongly disagree

Disagree

Agree

Strongly Agree

20. Please explain your answer to #19: _____

APPENDIX D

PRE-TREATMENT STUDENT INTERVIEW QUESTIONS

1. How is this class going for you?
 - What has been successful for you?
 - What has been challenging for you?
 - How does science compare to your other classes?
2. How have you performed on assessments in the first three units?
 - Have you been consistent in your performance?
 - Are you happy with your performance?
 - In what areas would you like to improve?
3. How challenging did you find the assessments in the first three units?
 - Are tests and quizzes consistently challenging?
 - Are some concepts harder than others?
4. How do you prepare for assessments in the first three units?
 - What techniques do you usually use to study?
 - What techniques have been most successful?
5. Have you taken any retakes in class this year?
 - Why or why not?
 - How do you decide to take a retake?
6. If you have taken retakes, how has your performance on a retake compared to your original performance?
 - Are you glad you took a retake?
 - Did you feel like you had a better understanding of the material after?
7. If you have taken retakes, how have you prepared for the retake?
 - What study habits have been helpful in preparing for retakes?
 - Does your preparation for retakes differ from the original assessment?

APPENDIX E

POST-TREATMENT STUDENT INTERVIEW QUESTIONS

1. How is this class going for you over the last three units?
What has been successful for you?
What has been challenging for you?
How does science compare to your other classes?
2. How have you performed on assessments in the last three units?
Have you been consistent in your performance?
Are you happy with your performance?
In what areas would you like to improve?
3. How challenging did you find the assessments in the last three units?
Are tests and quizzes consistently challenging?
Are some concepts harder than others?
4. How do you prepare for assessments in the last three units?
What techniques do you usually use to study?
What techniques have been most successful?
5. Have you taken any retakes in class in the last three units?
Why or why not?
How do you decide to take a retake?
6. If you have taken retakes, how has your performance on a retake compared to your original performance?
Are you glad you took a retake?
Did you feel like you had a better understanding of the material after?
7. If you have taken retakes, has the retake ticket helped you prepare for retakes?
Is it helpful to reflect on your first test or quiz?
Is it helpful to make a plan to relearn material?
Do you feel that the retake ticket has helped you perform better on retakes?
8. Do you like using the retake ticket?
Is it easy to use? or is it a pain to fill out?
Would you like to continue using the retake ticket in this class?

APPENDIX F
IRB EXEMPTION FORM



INSTITUTIONAL REVIEW BOARD
For the Protection of Human Subjects
FWA 00000165

960 Technology Blvd. Room 127
 c/o Microbiology & Immunology
 Montana State University
 Bozeman, MT 59718
 Telephone: 406-994-6783
 FAX: 406-994-4303
 E-mail: cherylj@montana.edu

Chair: Mark Quinn
 406-994-4707
 mquinn@montana.edu
Administrator:
 Cheryl Johnson
 406-994-4706
 cherylj@montana.edu

MEMORANDUM

TO: Katherine Goodwin and Walter Woolbaugh

FROM: Mark Quinn *Mark Quinn CJ*
 Chair, Institutional Review Board for the Protection of Human Subjects

DATE: October 26, 2018

RE: "The Effects of Using a Retake Ticket in the 9th Grade Science Classroom" [KG102618-EX]

The above research, described in your submission of October 25, 2018, is exempt from the requirement of review by the Institutional Review Board in accordance with the Code of Federal regulations, Part 46, section 101. The specific paragraph which applies to your research is:

- (b) (1) Research conducted in established or commonly accepted educational settings, involving normal educational practices such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
- (b) (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.
- (b) (3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
- (b) (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available, or if the information is recorded by the investigator in such a manner that the subjects cannot be identified, directly or through identifiers linked to the subjects.
- (b) (5) Research and demonstration projects, which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.
- (b) (6) Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed, or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the FDA, or approved by the EPA, or the Food Safety and Inspection Service of the USDA.

Although review by the Institutional Review Board is not required for the above research, the Committee will be glad to review it. If you wish a review and committee approval, please submit 3 copies of the usual application form and it will be processed by expedited review.