IMPLEMENTING AN INCENTIVE-BASED SYSTEM IN AN ALTERNATIVE PROGRAM WITHIN THE SCIENCE CLASSROOM

by

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ABSTRACT

Students in the no-homework alternative program within the traditional high school have attendance and behavior issues that lead to students not earning the required science credits within the science classroom. This study tracks the goals, research, implementation, and results of using a motivational incentive program to improve student performance in three areas: attendance, positive behaviors, and quarterly credits earned. The system chosen used a four color-coded, silicon wristband system to track progress in earning the following incentives: being awarded a bracelet at a formal ceremony, earning recognition in front of peers, winning prizes, earning inclusion in a display of student photos posted on a wall, and earning additional privileges within the alternative classrooms. This research involved all four core teachers within the 48 to 50 student alternative program. Historical data for the program on the number of dropped students, average number of absences per student per quarter, and the number of failed classes, failed classes within the science classroom, and individual attendance provided statistical data for the study. A parent survey and student pre and post-Likert surveys with open-ended questions and focus group and individual interviews were used with the purpose of gathering both quantitative and qualitative data. Together, a determination of the impact of the additional incentives added to the program was triangulated. In the alternative program addressed, the results for the incentive did not show a difference for the program as whole for attendance, behaviors or credits earned. A few individual students did agree that the program did influence them positively.

INTRODUCTION AND BACKGROUND

The Alternative Program

The alternative program is part of a unique school district serving five different communities in central Iowa in a sprawling suburban area marked with farms and businesses between the communities. The 6,800-student district consists of eight different elementary schools, a 6th grade center, a junior high for 7th and 8th grade and the high school that houses the alternative program in a four-room hallway in one wing of the high school.

The alternative program serves 48 to 50 students each quarter. About 50% of the students are seniors, 44% are juniors and 6% are sophomores. Males comprise 66% of the population with 34% females. Students with Individual Education Plans (IEP's) comprise about 5% of the population, English language learners are about 0.5%, and 10% of the population has 504 Plans.

The program operates within the traditional high school with 74% of the alternative students attending full-time. The remaining 26% are either part-time morning or afternoon students in the traditional high school or students only needs a shortened schedule to earn credits for graduation.

High school alternative students need to be in school to earn the required credits in all core areas of science, English, social studies, math and elective classes for graduation. The alternative program offers eligible students a unique opportunity to earn high school credit outside of the traditional, mainstream educational curriculum. The program is based on a quarter system with students earning a half credit for up to eight

classes each quarter. Eligibility is based on grade level, number of credits earned, and other factors such as counselor and administrator evaluations. It is a last resort to help students earn credits to keep students in school and keep the dropout rate low for the district.

The alternative program has strict attendance policies for the Monday through Thursday, eight-period academic day with a Friday morning make-up session. The attendance policy for the alternative program states that students can only miss nine absences per quarter with no excused absences. On the tenth absence, students are dropped from the program until the next quarter begins. If the student is dropped for three consecutive quarters, the student is referred to the local consortium offered by the community college. See Appendix A for more details about the alternative program to better understand the context of the research.

Purpose of the Action Research

The staff within the alternative program has a goal to decrease the number of students that are dropped per quarter, increase the number of credits earned in a quarter, and increase more adult like behaviors in students. If more credits are earned by students towards graduation, the number of consortium students and dropouts will decrease making the research significant for the district.

Student attendance plays a crucial role in reducing dropout rates, especially because a no-homework policy is used in the alternative program. This means that students must be in class in order to succeed. Our purpose in conducting this research was to test whether or not one particular system would increase attendance.

To better understand the research, a closer look at the program is necessary. Each quarter some students are dropped from the alternative program due to excessive absences. All four core teachers and the counselor work with these students whose absences are rising over the quarter, encouraging them to come to class. The teachers also reach out to and involve the parents of these endangered students. The program is a no homework program. Students do all their work in class during the eight-period day. Attendance is key for students to complete daily assignments, participate in readings and discussion, and complete projects and assessments. If a student misses during Monday through Thursday classes, the student and parent are notified about attending the Friday morning make-up session. If the student does not attend the make-up day on Friday, another day of absence is recorded for the student.

The alternative program's action research proposal was a group project among all four teachers, but as the science teacher and a participant in the action research, I looked at changes within the science classroom. Note that I see all of the students in the alternative program. This led me to the research questions below:

Research Question and Sub Questions

What impact does an incentive-based system have on attendance, behavior and academic learning in the science classroom within an alternative program?

Sub Questions

1. What is the impact of using an incentive-based system on attendance of alternative high school students?

2. What is the impact of using an incentive-based system on behavior of alternative high school students?
3. What is the impact of using an incentive-based system on the number of credits earned per students per quarter?
4. What is the impact of using an incentive-based system on me as a teacher?

By conducting action research to study the effectiveness of one incentive-based system in one school, we were also interested in the implications of extrinsic motivation to increase intrinsic motivation, in general. Other schools and many businesses use incentive-based systems to increase intrinsic motivation, a highly controversial approach. The results of this action research will directly impact whether I emphasize incentive-based tools to decrease the number of days my students are absent, thus increasing their chances of earning credits and becoming better prepared for productive adult lives.

According to school board policy in the school district, guardian and student signature is required for action research within the classroom. The action research was approved by the superintendent and the school board. A letter of explanation of the incentive program was available at the parent and student meeting held the first day of school for the fall term. The sampling of students was determined by the number of letters signed with both the guardian and student signature. See Appendix B for the consent letter. The Montana State University Institutional Review Board also approved of the project. See Appendix C for the approval notification.

Support Team

I have 21 years of experience in alternative education in two different schools with nine years in my current position. My support team for my Action Research includes my alternative Professional Learning Team (PLC) of four teachers and one counselor, my assistant principal, the business instructional coach, and a retired English teacher and friend. The math teacher on the PLC team has an engineering degree in addition to his teaching certificate. At the time of our action research, he had six years of experience in the alternative program. The English teacher had seven years of experience in the alternative program. The social studies teacher, the high school football coach, had 14 years of experience in the program. The alternative program is fortunate to have our own counselor with three years of experience in this school.

The PLC team understands the dynamics of our student population in the alternative program. The team meets each Friday afternoon and during PLC time on Wednesday late starts. Our classrooms are all in the same hallway and we see one another daily. The team is committed to being prepared, present, and engaged to work together to do what is best for students. The team is accountable to each other to follow through with what we have agreed upon to do. All ideas are respected and each team member's viewpoint is considered.

Discussion and decisions on what students would receive as rewards while the research was being conducted was a team effort and flexibility was key. The team supported on another and thoughtful feedback on the incentive plan was considered.

The Assistant Principal and administrator for the traditional high school and the alternative program, was new to the program in the Fall of 2017. He has shown great interest in our program and has been working with our students since the Spring of 2016 while he filled in for our previous assistant principal. He has been a sounding board for implementing the new incentive program and helpful in finding incentives. He is very supportive of keeping students in school and preventing dropouts every way possible. He meets with the PLC team each Friday afternoon for part of our PLC meeting.

The instruction coach has her Master's in Education and serves in the Business, Shop and Agricultural Department. She is across the hall in the business office. She has been helpful with recording data for focus groups, has attended service projects with alternative students, works with students with career planning, shows interest in working with our students and providing assistance for our staff. She has worked to proof-read my paper. She is diligent, hard-working and happy to offer any assistance with my research work.

The last support person stepped in at the last minute to help proof-read my paper and offer assistance as an outside source. She is a retired English teacher and editor who took the time to offer encouragement and give professional advice for writing the paper.

CONCEPTUAL FRAMEWORK

Attendance in schools would seem to correlate with increased performance in school starting in preschool and early years in elementary school. Setting the stage with good attendance early on is indicative of attendance in high school. Being engaged and present in school would lead to increased learning. Chronic absence early in a child's

education is defined as missing more than ten percent of the required 180 days of school (Chang & Romero, 2008). Comparing the alternative high school program to chronic absence in the lower elementary years would be twice as great in the alternative program for students missing nine days per quarter.

When students miss school at an early age, not only do they miss out on academic learning but also on social skills important for life. This is true for high school at-risk students as well and can impact dropout rates. If students do not gain the necessary academic skills by third grade, the chances of dropping out of school before graduation increases (Chang & Romero, 2008). Students at this early age need excellent teachers who are skilled at teaching and engaging students. Teachers also must be able to observe and address problems related to their students' physical well-being as well as their social emotional state. Students can be absent due to mobility of guardians, lack of communication with guardians, ineffective teaching, how families manage illness and chronic illness including insurance, and if guardians themselves experienced school failure. Issues include teen motherhood, single parent homes, unemployment, child abuse, domestic violence and more (Chang & Romero, 2008). Chang and Romero propose these issues need to be addressed. An early focus must be placed on increasing attendance and helping out young students to stay caught up with school work through additional communications with parents and community involvement.

The issues that impact student attendance in elementary school are very similar to issues alternative high school students face. Other factors also surface in high school including drug and alcohol abuse, runaway teens, incarceration, depression, anxiety,

mental health and rehabilitation programs. The incentive-based program goal is to help improve student attendance to increase academic performance in the science classroom.

Furthermore, studies have been conducted tying attendance to academic performance. This data reinforces that alternative high school students need to be in school in order to succeed. In 1996, Douglas J. Lamdin from the University of Maryland, conducted a study in 97 elementary schools in Baltimore attempting to tie attendance to academic performance. The question posed was this: are other factors, called input factors, such as teacher-pupil ratio and the amount of money spent per student by the district, also correlated when addressing attendance with scores on the California Achievement Test. A positive correlation was found between attendance and higher scores. Lamdin (1996) suggests, "The average level of attendance at the school does have a positive influence on student performance," (p.160) and interestingly "Devoting resources to increasing attendance rates is warranted" (p.161). Would an incentive-based system be useful to encourage attendance in the alternative high school?

A rebuttal was made two years later concerning Lambin's study in Baltimore by Melvin V. Borland and Roy M. Howsen (1998). The results should have included innate ability and competition when correlating attendance with academic performance. "Failure to take these two variables into account could lead one to the spurious conclusion that student attendance and expenditure per pupil have a positive and significant impact on student performance," indicating that spending monies on increasing attendance may not lead to improved attendance (Borland & Howsen, 1998, p.196).

In Ohio in 2004, state-wide research was conducted in the fourth, sixth, ninth and 12th grades to look for a correlation between student attendance and the performance on the Ohio Proficiency Tests with 3,171 schools participating. The powerful study showed a moderate to strong correlation with the best correlation at the ninth-grade level. Not only were test scores analyzed compared to attendance but also the number of instructional hours. “It is helpful to have a better understanding of the relevance of absenteeism as denoted by instructional time loss during the school year” (Roby, 2004, p.11). Roby (2004) suggested in his conclusions that incentives may be useful for increasing attendance especially in specific programs or schools where attendance is low giving credence to using an incentive system in the no-homework alternative program.

Why is it important to keep students in school until graduation? When students drop out of school, students lose about $6,504 per year in personal income in the state of Iowa when compared to students who do graduate and do not continue to further their education (Veale, 2015). Because these dropout students do not make as much income, the state receives less state revenue due to them paying less income tax. Dropouts increase the amount of welfare paid out for food assistance, Family Investment Program (FIP), and Medicaid. (FIP provides cash assistance to needy families as they become self-supporting so that children may be cared for in their own homes or in the homes of relatives.) The risk of incarceration increases with dropouts, thus increasing the costs of housing inmates in Iowa. Because dropout students are not educated, they have lower cognitive skills, do not have the necessary skills to move ahead in the workforce, have decreased social networking to find new employment, and make unhealthy choices.

Veale (2015) discusses the external and internal locus of control indicating dropouts have an external locus of control and feel that things happen to them and they do not have control over situations. Perhaps by using an incentive-based system in school, alternative high school students will feel compelled to assume more adult-like behaviors including taking ownership of situations, staying focused in school and being able to graduate with their fellow classmates.

In Urban Meyer's Plan to Win football program, a "transformative" point is when players reach a "marker of maturity and performance" (Gavazzi, 2015, p.301). Using this model within the alternative program should help out students to stay engaged, want to stay in school, and exhibit positive behaviors to help students make the adjustment from high school to a productive member of society.

Despite the controversies of using incentives in a school system, motivation has been studied over the years. Motivation is responsible for our human race surviving using a biological motivator to gather food, survive and reproduce. Another type of motivator is the reward and punishment motivation factor responsible for individuals working to receive a paycheck or being fired for not complying with the rules. It includes getting traffic tickets for speeding violations, earning a letter for excelling on the football team, or earning a credit for satisfactorily completing the requirements for a class. Back in 1949, another type of motivation was inspired by doing tests with Rhesus monkeys. The monkeys were placed in cages with a puzzle. The monkeys immediately solved the puzzle by pulling a pin, removing the hook from the latch and lifting up the hinge plate or hasp. This was all done without offering an incentive; the monkeys were motivated to

solve the puzzle intrinsically. “The behavior obtained in this investigation poses some interesting performance maintained without resort to special or extrinsic incentives” (Harlow, 1950, p. 231).

Another historic study was conducted by Edward Deci and his team in 1969 using the Soma puzzle. He found that individuals continued to play with the puzzle because they enjoyed the challenge. Deci continued to work with motivation by looking at the effects of using rewards on intrinsic motivation. Many other researchers joined in studying motivation while looking at different types of motivation tasks including non-contingent rewards, task-contingent rewards, performance-contingent rewards and completion-contingent rewards.

The over justification hypothesis or self-perception theory was investigated in field experiment in a classic study in 1973 by M. R. Lepper, and R. E. Nisbett. Over justification can be defined as offering a reward that results in decreased intrinsic motivation to do the same activity. In the study, children 40 to 64 months old of average or above average intelligence were divided into three different groups. In the expected award group, the children were asked to draw using multicolored felt tip drawing pens to receive a Good Player Award certificate. The second group of children was asked to draw, but the children did not know they would receive the Good Player Award certificate with a gold seal and ribbon. The third group was asked to draw in a “surprise room” individually. In the expected award group, the results showed the children were less interested in drawing the second time. In the second group, where children did not receive an award until after drawing, the children showed no change or an increased

interest in drawing. In the third group, where no award was given, a very small increase in drawing was noted. The first group shows the over justification hypothesis; the intrinsic interest of the children enjoying drawing was diminished by offering the Gold Player Award certificate (Lepper & Nisbett, 1973). This is considered the Sawyer Effect from Mark Twain's book, The Adventures of Tom Sawyer and painting a fence (Pink, 2009). In the research study, the fun of drawing had turned into work and the students were not as interested in drawing.

What types of rewards were found to be more controlling in diminishing intrinsic desire? What type of reward would increase intrinsic motivation? What makes people think and act in certain ways? Deci continued to study motivation. In 1999, Edward Deci, Richard Koestner, and Richard Ryan reported:

> Of 128 well-controlled experiments exploring the effects of extrinsic rewards on intrinsic motivation is clear and consistent. In general, tangible rewards had a significant negative effect on intrinsic motivation for interesting tasks (p.653).

Again, the controversy continues with a rebuttal to Deci's work, "A reward can decrease, have no effect, or increase intrinsic motivation depending on its method of presentation: reward increases perceived self-determination" (Eisenberger, Pierce, & Cameron, 1999, p.677). Robert Eisenberger continues with, "Our findings suggest no problem with rewarding low-interest tasks for rewarding the attainment of specific performance standards in high-interest tasks" (p.686). Another rebuttal to Deci's 1999 journal report considers how the meta-analysis was conducted:

> In short, researchers cannot rely on statistics alone to guarantee the truth or the accuracy of their conclusions. Although it may be tempting to succumb to the false assumption that meta-analysis provides clear cut, objective

> answers to complex questions, as scientists we must resist this oversimplification (Lepper, 1999, p.675).

A current study conducted in India looked at unintended results of encouraging attendance over 39 days using a small incentive with unintended results called crowding-out. In the field experiment, two groups of students were created in the slums of India. One group was the control with no reward given and the other group was given a reward of two pencils and one animal shaped eraser if the attendance was 85% or better during the 39 days. Each of the two groups were subdivided into two more groups: one group was high baseline attenders while the other group had low baseline attendance. A test was given three months later to see if attendance was correlated to test scores. The results did show increased attendance during the incentive period for both groups. The high baseline attenders continued to have good attendance after the incentive was over. The students who had low baseline attendance to start fell in their attendance after the incentive ended, the crowding-out effect. These same students also showed lower scores on the test three months later. “This paper shows that the incentive scheme can have unintended negative consequences for this very set of students which is the group that incentive schemes typically intend to help” (Visaria, 2016, p.163).

The literature on using incentives provides both pros and cons. The “stick and carrot” model has been used for years to get students to perform academically and behaviorally in school. Today monetary incentive programs are utilized in specific programs to encourage advanced high school student to do well on Advanced Placement tests, for elementary and middle school students to perform well on academic tests, and for students who maintain a certain level of grades. Some schools in the past used the

Pizza Hut mini pizza coupons for reading a minimum number of books. Gifts of all types have been earned by students for good behavior and academic excellence. This becomes controversial as teachers want students to learn for the sake of learning, not for earning a reward (Wallace, 2009, p.25). Many other psychologists also agree incentives are not good for students. A proponent of incentives, Tom Loveless, indicates that the payoff of incentives are years into the future. In the District Administrators magazine, Loveless states,

> Once kids have gained knowledge you can't take that away from them. So if these short-term incentive programs can get kids who otherwise would not have learned something to learn fundamental building blocks…those payoffs are much greater to enhance their prospects of being lifelong learners much more than any other thing that I am aware of in my years of teaching and studying research (as cited by Wallace, 2009, p.26).

A Florida high school did a study utilizing a Renaissance program using various incentives to encourage and motivate students and staff and improve the culture and climate of the school. "The results show that the Renaissance program has helped recognize student achievement through leadership, teamwork, character, and school spirit" (Buchanan, 2015, p. 1). Buchanan, the school's high school counselor, reported students had issues with motivation and were not utilizing time at school to get their work completed. The school had a history of students being absent, not earning good grades, not getting to class on time, fighting, and drug abuse similar to the alternative program. Utilizing incentives from snow cones to coupons for food at restaurants to movie tickets helped the 1,800-student school, all on free or reduced lunch, to improve school climate and culture and "students and staff were impacted positively by the Renaissance incentive program at the high school" (p. 6).

Despite the negative connotations of using extrinsic incentives to motivate students to have better attendance in our alternative program that requires students to be in attendance, the staff feel that extrinsic rewards will enhance our program and make it a stronger family atmosphere where the staff will be more deliberate about rewarding students' improved attendance, positive behaviors and increased academic performance in the science classroom and the entire alternative program.

METHODOLOGY

The research was started in the first semester of the Fall 2017 school year within the alternative program and completed by mid-January of 2018 at the end of the first semester.

The treatment for the action research project was implementing a new incentive-based program for students within the alternative program to enhance the existing incentive program. Two incentives were already in place. The first incentive enabled students to have Friday off as a result of their attendance and grades. If a student had no absences Monday through Thursday and had a passing grade in all classes and all work was completed in science with a passing score, then the students would have the day off. The second incentive was a long-term goal for the quarter. If a student had three or less absences for the quarter, the student could sign-out of his/her classes on the first day of sign-out (usually a Monday of the final week of the quarter) earning a vacation until the following Monday when the new quarter started again. A vacation of four school days plus the weekend was earned for good attendance for the quarter. Students still needed to have all work completed to be able to sign out early.

The treatment for the research was adding new simple incentives to promote attendance and positive behaviors. Four primary, new incentives were added including a color-coded silicon wristband system, recognition for earning bands, prizes, and special perks in the classroom. The staff was focused on positive behaviors and improvements in attendance. A color-coded system was implemented at the beginning of the school year with students earning the green level and working upwards to blue, purple, and gold, the highest level within the color-coded system. Movement up the color system was indicative of good attendance and more adult like behaviors. As students moved up, a new colored bracelet matching the level they are at was awarded. Earning the gold bracelet and being inducted into the Gold Club was the end goal, or highest level. Students could also move down if their actions warranted a level change. An example of a demotion would be when a student acted out in the alternative program hallway by demoralizing or threatening another student.

Staff monitored student attendance and behaviors at weekly Professional Learning Community (PLC) meetings using the school attendance program and a behavior spreadsheet. The spreadsheet considered different areas for students to demonstrate behaviors and attendance, including but not limited to organization and readiness, productivity and accountability, time management, collaborations skills, attitudes, grit, and improvement in attendance.

Special recognition meetings were held about every two weeks varying the time of the day to present the unexpected rewards. The social studies teacher presented the awards to each student honoring the student with words of good deeds, behaviors, and/or

attendance with each student being recognized in front of peers. The student received his or her colored silicon wrist band associated with the award the student earned. Drawings were held following the reward ceremony. All students who had earned a band at that time were included in the drawing. The drawings included simple gifts such as coupons to local businesses, ear buds, jewelry holders, homemade cookies, candy, or soda. Other gifts included a watch, t-shirt, and grocery store, department store, or coffee shop gift certificates.

Once students were awarded the purple award after receiving their green and blue award, students had the chance to have a special MVP parking spot, an upfront parking space in the staff parking lot. One name was drawn from the students at the purple level to park in the MVP space for a set period of time.

After the recognition meeting, a group and individual pictures were taken of students earning an award. A poster was created listing the attributes for each student, the level of the award, and pictures of the students. The poster was displayed in the alternative program hallway.

Each teacher also created their own incentives for earning the colored bands. Some classroom incentives included sitting in a special, comfortable chair during class, mechanical pencils for students with blue bands, and students not having to turn their cell phone in to the teacher during class time. Anther incentive was the use of headphones during work time in class.

Incentives involved individuals, whole classes, and even the entire student body in the alternative program. Class incentives were making cookies, preparing deer jerky,

making breakfast, or making homemade pizza with staff if the whole class was in attendance for several days. An idea for the entire student body making improvements was bowling or a special service project.

One of the keys of using the incentive-based system was to continue to change the incentives over time to keep the students interested in coming to school and exhibiting good behaviors. The teachers' goal was to be deliberate about talking with students about positive behaviors and the impact of being in school daily.

Research Matrix and Instrumentation

Several different methodologies were utilized in the new incentive-based program for the alternative program using both qualitative and quantitative data. See Table 1 below based on the research question, "What impact does an incentive-based system have on attendance, behavior and academic learning in the science classroom within an alternative program?"

Table 1
Data Collection Methodologies for each Sub Question of the Action Research Project

Research Sub Questions	Data Collection Methodologies									
	Guardian Survey	Pre-Likert Survey	Post-Likert Survey	Behavior & Attendance	Focus Group Interviews	Individual Interviews	Attendance Data Pre-Treatment	Attendance Data Fall 2017	Credits Earned Pre-Treatment	Credits Earned Fall 2017
1.What is the impact of using an incentive-based system on attendance of alternative high school students?	√	√	√	√	√	√				
2. What is the impact of using an incentive-based system on behaviors of alternative high school students?	√	√	√	√	√	√	√	√		
3.What is the impact of using an incentive-based system on the number of credits earned per student per quarter?					√	√	√	√	√	√
4.What is the impact of using an incentive-based system on me as a teacher?		√	√	√	√	√		√		√

The table shows each of the three main sub questions and how each sub question was analyzed. The fourth sub question of the impact on my own teaching and learning was also included. Having several different methods for each question helped produce reliable and valid data to answer each question of the action research question. Ultimately, better participation and more work completed in classes would lead to more credits earned each quarter towards earning a high school diploma.

A ten-question Likert survey with open ended questions was given to guardians during the guardian and student orientation meeting on the first day of school and at the

beginning of Quarter 2 for any new parents. For guardians not able to attend, the survey was sent home with students to give to their guardian and also emailed. The survey addressed attendance, transportation and back-up plans, appointments, formation of habits, connection to school, and career plans for their student.

A pre-Likert scale survey was used at the beginning of the quarter with all students within the science classroom during the Crew time, a 20-minute block of time each day after lunch for relationship building and working with students on 21st Century Skills analogous to homeroom or an advisory class.

Google forms were used to administer and gather the 10 question Likert survey data using a five-point response from “strongly disagree” to “strongly agree”. The responses for each student were recorded from one to five for each of the six attendance questions plus the written responses to open-ended questions. The survey involved perceptions about attendance and behavior. The questions ranged from the current long-term attendance incentive, transportation and back-up plans for getting to school, making appointments outside of the school day, school avoidance, and skipping school. The behavior questions were about the importance of school for creating good habits for life beyond graduation, behaviors in the school, if students felt their behaviors needed improvement, and if an incentive would be helpful.

The post-Likert survey was administered to students during Crew period at the end of Quarter 1 to graduating seniors and at the end of the semester in the science classroom to all other students. Google forms were used and a comparison was made to the pre-Likert survey to look for improvements of students’ perceptions on attendance

and behavior. A split-bar graph was made to look at frequencies and look at normalcy. A paired t-test was used to look for differences between the means of the data. An additional 3 questions were added to the ten-question pre-Likert survey. The students were asked directly in a yes/no format if the new incentive helped improve their attendance, behavior, and number of credits earned. Students were also asked if the staff should continue the incentive. Finally, the students were asked for their thoughts on how attendance could be improved in the alternative program. These questions were added to gain the students' perceptions about the changes and get their input on issues. Also, other open-ended questions were added to get more information from students within the 10 original questions.

The open-ended questions provided a great deal of qualitative data for the study. The qualitative responses from the Likert survey open-ended questions were observed looking for patterns noting specific comments about the incentive-based program. The open-ended responses within the spreadsheet were color coded into groups based on the similarity of answers or themes. These groups were assigned numbers and graphed as nominal data into a bar graph showing the impact of the incentive program. If students had comments fitting more than one theme, the response was recorded in each category. This adjustment allowed a quantification of the qualitative data. This quantification was used to support the Likert survey data, the attendance data and behavior data with the number of students earning awards for each color to triangulate the data.

Each week during PLC meetings, staff evaluated each student using a color-coded spreadsheet for behaviors to move to the green level, moving from the green level to blue

level, then to purple level, and finally to the gold level in conjunction with weekly attendance. In the color-coded boxes, we listed the reasons why the students earned the bands. The total number of students earning each colored band was collected at the end of the semester.

A data collection tool used by all teachers in the program included individual attendance using Infinite Campus, the school database. The counselor created a Google spreadsheet using Infinite Campus for each quarter including all students on the alternative program roster. This Google spreadsheet was used by the counselor to keep track of attendance for each morning class and the afternoon expedition classes. The spreadsheet also showed credits earned per quarter, credits attempted, and total number of credits earned. This tracking enabled the counselor and teacher to break down components of attendance and achievement of students in a more detailed manner. Individual data was looked at using the attendance data from Infinite Campus, the Google spreadsheet, and from each teacher's personal record of attendance.

The attendance was calculated as a whole for the alternative program from the Fall of 2014 though the first semester of the 2017/18 school year. This data gave a historical view of past quarters helped us to see if the incentive made an impact on the program. The number of absences was determined for each class period in the morning and the afternoon for each quarter. Calculating the total periods missed per quarter per student can be used to find the average number of absences for all students for the quarter. The average number of absences missed per quarter during the treatment period was compared to the previous years' data. An improvement for the entire alternative

program student body would indicate that the additional incentives were helping to keep students in school and missing fewer periods. Historical data was used as each quarter students graduate and new students enter the program with some students full-time while a few were part-time. The average number of absences for each quarter per student gave an overall look at attendance in the alternative program. With the incentive in place, the goal was to lower the average number of periods missed.

To help understand attendance further, the number of students dropped per quarter was calculated. Data from each quarter from Fall 2014 school year to present was calculated and a trend line was graphed for this data. Sometimes students were dropped for just the afternoon or for part of a morning schedule. For attendance calculations, if students were dropped, their attendance was not included in determining the number of absences missed per quarter per student. If the incentive was working, a lower number of dropped students would be likely.

To understand how the incentive program impacted the number of credits earned in the science classroom, two methods were used based on the failure rate. First, the whole population was used to calculate the failure rate using the number of credits earned each quarter and the number of credits attempted for each quarter. This rate was calculated from Fall of 2014 through the first semester of the 2017/18 school year. The reason the whole population was used is because the researcher in the science classroom sees all students within the program and the incentive was being used by all four core teachers. If the incentive was working for students in all of their classes in the alternative

program, the number of credits would rise from previous years when looking at the entire population for the past three and one-half years.

The second method of looking at the impact of the incentive within the science classroom was to look at the failure rate in just the science classroom. The failure rate for the science classroom was calculated over the past four school years beginning in the Fall of 2013. This rate was calculated from the researcher's own student attendance records for each class. At the end of each quarter as students "sign out" (all work completed satisfactorily with a passing score), each student is marked in the attendance roster as completed. Students who do not complete the class are highlighted and marked as an "F", meaning a failed class. The total number of failed classes and the total number of classes taught were used to calculate the failure rate for each quarter. This data did not include dropped students and it compared different groups of students over time. This historical data from within the science classroom was compared to the treatment period for the Fall 2017. The impact of the incentive period would lower the failure rate.

Individual improvement in attendance was also considered in the study using the Google spreadsheets and Infinite Campus records. Individual attendance from one quarter to another quarter were used for attendance.

Focus group interviews were an integral part of the curriculum. These interviews were conducted during Crew period six times over the semester to discuss the incentive-based program and gain the students' perspectives, pros and cons, and impact on attendance and behaviors. Comments from the focus group interview were logged in a journal by the science teacher.

Individual interviews took place as needed with students. Students with excessive absences were interviewed if possible. A journal was kept recording individual responses.

All of the methodologies above were used for data collection using quantitative and qualitative approaches to determine three outcomes: 1. if the incentives improved attendance, 2. if the incentives improved behaviors, and 3. ultimately, if students earned more credits each quarter.

Sampling Strategies

The goal was for all of the students within the alternative program to be part of the action research incentive program. Participation depended on how many guardians signed the parental consent form. Approximately 48 to 50 students attend the alternative program. Crew period was held only in the afternoon before the rotation of the expedition classes. The greatest number of students involved in Crew period was 44 students with 11 students in each Crew class. The survey and focus groups occurred during the Crew time frame of 20 minutes. Over four days, all four sections had class. The few part-time students that attended only in the morning would not be part of the Crew. These students completed the surveys before classes in the morning and were still a part of the research by looking at their attendance, behaviors, and the number of credits earned per quarter. A few of these students were involved in individual interviews.

All four core teachers of math, science, social studies, and English and the alternative high school counselor were part of the group action research. The assistant principal was directly involved with the students in the alternative program and was interested in how the incentive program worked.

Another consideration in the sampling size was students who lost either individual classes or their entire schedule during the 1st and 2nd quarter due to attendance issues. That was not the goal but these students were interviewed if possible to find out why their absences increased to the point of being dropped. Personal interviews provided important qualitative data. Other students graduated at the end of first quarter.

The data was collected and at the end of the 1st semester after running the incentive-based intervention, the analysis of the data began.

DATA AND ANALYSIS

A parent Likert survey was given to the parent/guardian on the first day of school in the Fall of 2017 during the orientation for alternative students and their guardian. The orientation included a PowerPoint presentation by staff and assistant principal about the alternative program including attendance expectations, the importance of being in school and working towards graduation, physical education requirements, current incentives and a brief introduction to the new incentive program.

The parent/guardian permission form and the parent Likert survey were filled out following the meeting. Students whose guardians were not able to attend took the forms home to be signed. The same survey was given to any new students' parents at the beginning of Quarter 2. Forty-four forms were returned for the semester by parents/guardians. The parent survey gave insight into attendance and transportation issues and impacts of school on behaviors and habits formed. The responses were recorded on a Google Sheet in addition to open ended questions to look for trends in the data from the parent point of view. See Appendix D for the parent Likert survey.

The parent Likert survey asked about their perception regarding incentives helping to get students to school since attendance is an integral part of the alternative program. Thirty-seven out of 44 parents or 84% strongly agreed or agreed it was helpful to have incentives to promote students getting to school. The majority of students attending the alternative program have had issues with attendance in the past in the traditional school setting. For parents new to the program and wanting the best for their child, an incentive would be helpful to improving attendance and as one parent commented, “He isn’t the only kid with these issues,” while another parent said, “You can only miss so much work before they [the employer] no longer need you,” relating school to work habits. One parent commented about the incentives being a “fair policy” while another said, “It is the responsibility, self-discipline that drives each student to want to succeed as an adult.” The incentive is meant to encourage students to get to school, have positive behaviors, and earn the necessary credits in science and all classes to earn their diploma. At the same time the students are forming good work habits that will carry into their adult life after graduation.

Attendance questions asked of parents/guardians included whether they tried to make appointments for their child outside of the school day with 73% of parents agreeing they try to do this outside of the school day. Ninety-three percent of parents agreed their child has a daily routine for getting to and from school and 80% of parents agreed their child has a back-up transportation plan. The program starts about one hour later than the traditional school. Some students drive themselves, some ride the regular bus and get to

school before the traditional school starts, and some ride the alternative bus that arrives about 15 minutes before the alternative program starts.

All parents agreed school plays an important role in forming the habits for a successful life beyond graduation based on the Likert survey question. The comments from parents/guardians reflected their beliefs that school is not just about learning, but it is also important in developing a good work ethic and keeping a job, learning responsibility, taking ownership on issues, and being engaged in society where rules are followed.

The parent survey reflected that parents/guardians are involved in their students' lives, as 84% of parents asked their child daily about their school day and 95% of parents felt their child had a connection to at least one adult at school. The teachers within the alternative program believe in the power of belonging within the program. As a result, the teachers engage with students to get to know them and to build trust and respect with students. This may lead to better attendance for some students.

The student pre-Likert survey with open-ended questions was administered to 53 high school alternative education students. See Appendix E for the student pre-Likert survey. The survey was administered over the course of four school days the first week of school in August and then to new students at the beginning of Quarter 2. It was given during the afternoon 20-minute Crew period to reach the maximum number of students. All part-time morning students were asked to complete the survey before school or during lunch. The sub-question being addressed by the survey was "What is the impact of

an incentive-based system on attendance and behaviors of alternative high school students?"

The post-Likert survey was administered at the end of Quarter 1 to four graduating seniors and at the end of Quarter 2 to 42 students. A total of 45 students took both the pre and post-Likert survey over the semester. The post-Likert survey contained a few adjustments with additional open-ended questions. See Appendix F for the post-Likert survey.

The pre and post-Likert surveys were given to see if the incentive program made a difference in how students answered the survey questions. Students ranked each question from a score of one (Strongly Disagree) to a score of 5 (Strongly Agree). The data from the survey was grouped into attendance (Questions 1-6) and behavior questions (Questions 7-10). The frequencies of the responses were tallied and used to create a split bar graph. See Appendix G for the attendance and behavior split bar graphs for the ten questions asked before and after the treatment. See Figure 1 and 2 below for Questions 1 and 7.

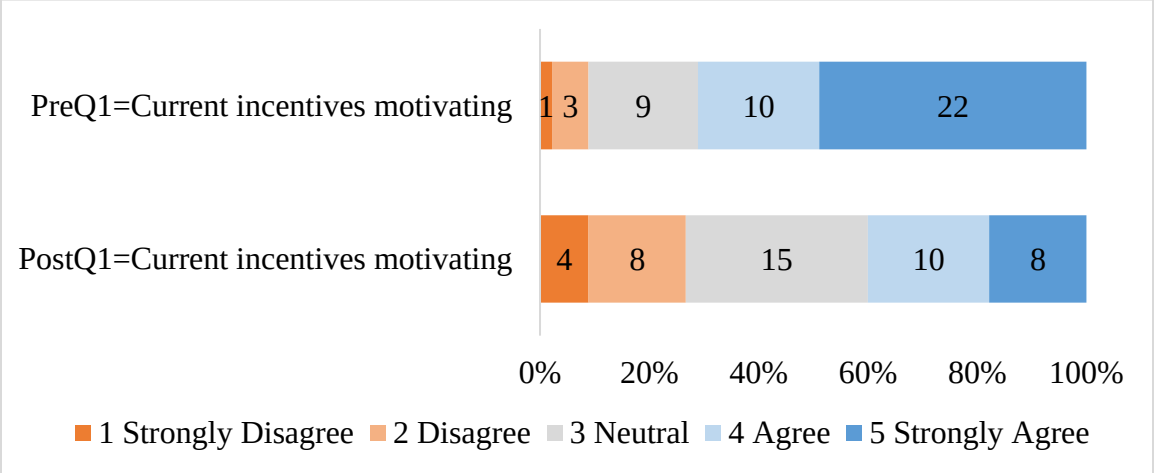

Figure 1. Split bar graph of pre and post-Likert survey frequencies for Question 1 for comparison, (*N*=45).

Upon visual observations a noticeable difference is seen in Attendance Question 1 from the pre-Likert survey to the post-Likert Survey. In the pre-survey, 22 students rated the statement, “The attendance incentive of having three or less absences for the quarter encourages me to attend school,” as strongly agree but in the post survey only eight students rated it as strongly agree. Students over the course of the treatment changed their mind about how the long-term incentive was working. More students felt the incentive did not empower them to come to school more often.

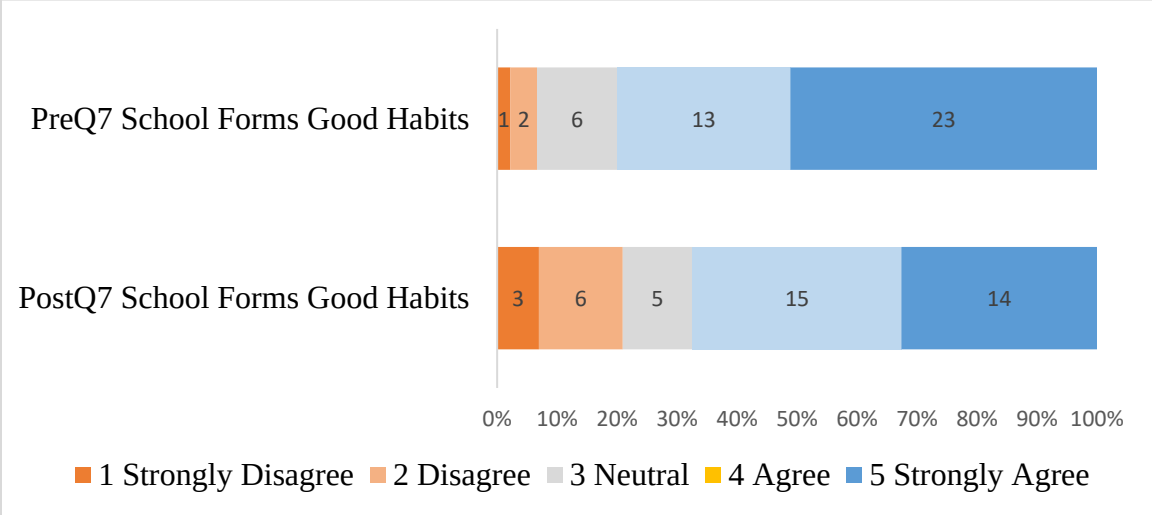

Figure 2. Split bar graph of pre and post-Likert survey frequencies for Question 7 for comparison, (*N*=45).

In Behavior Question 7 from the pre-Likert survey to the post-Likert survey, a difference is evident in the strongly agree frequencies. In the pre-survey, 23 students rated the statement, "I recognize that school plays an important part in forming the habits for a successful life now and beyond graduation.," as strongly agree but in the post survey 14 students rated it as strongly agree, a much lower number of frequencies. Students may have ranked this lower as the student culture was becoming more negative about the incentive being used in the alternative program. This is based on feedback from focus group questions. Comments included, "The incentive program doesn't really have an effect," "Makes you think if you are in a band ceremony, what did I do wrong? [referring to not receiving a band]," and "Don't really think about it except in the ceremony," Students complained about the incentive program with some students not getting bands that really deserved them. Students didn't want to participate in the focus group questions as they were tired of it.

Each student's paired pre- and post-scores were compared using the paired t-test. The paired t-test was selected due to its robust ability to test the null and alternative hypothesis about the mean of the responses. According to de Winter and Dodou (2010), t-tests, Mann-Whitney and Wilcoxon tests generally give the same results with a 5-point Likert scale with a larger set of data (p.5). See Appendix H for the data analysis of each Likert question. The results supported the visual data shown from the split bar graph that a significant difference was present in the mean difference in Question 1 ($t, (df=44) = 3.72, p<0.05$) and Question 7 ($t, (df=44) = 2.54, p<0.05$) following the treatment period. The mean from pre to post-treatment actually decreased from 4.09 to 3.22 for Question 1 indicating that students lowered their ranking on the current incentive helping them to attend school regularly. The mean for Question 7 went from 4.22 to 3.73 indicating that students did not feel as strongly about school being important for forming habits for life after graduating.

Both the pre and post-Likert survey included open-ended questions about why students answered the way they did in order to understand the data more clearly. The written responses were placed into themes for each question. These themes were placed into bar graphs located in Appendix I to provide quantitative data from the qualitative data provided by the questions. The open-ended questions embedded in the Likert survey helped to look at attendance and behavior within the program. The open-ended questions were analyzed.

The alternative students were asked in Question 1 about the current long-term attendance incentive already in place. This incentive helped students with three or less

absences to earn a four-day vacation at the end of the quarter. The survey findings for pre-Likert Question 1 showed that 23 out of 46 students or 50% strongly agreed that the current long-term attendance policy worked to encourage students to come to school. This was reinforced through the open-ended pre-Likert responses with 25 out of 36 students or 69% identified incentives motivated them to come to school. “We get a break” and “this[sic] plan, it’s like an extra bonus to encourage me to keep coming to school.” Half of the students appeared to have a desire to come to school and earn time off at the end of the quarter from the pre-survey. One student wrote, “It makes me want to be here to earn an extra free day.” One student outlier claimed that it is better to skip nine days of school during the quarter, the maximum number of days before being dropped from the program, and not earn a four-day vacation at the end of the quarter. The post-Likert open-ended question proved to have different results. Fifty percent of students said the current long-term incentive to earn a vacation at the end of the quarter was motivating while 47% said it was not motivating. Only 11% had said it was not motivating at the beginning of the school year. Student attitudes were changing from the beginning of the year to mid-year. One student concurring with the outlier student above, said, “You can skip more days and still not get dropped rather than achieve the attendance incentive.” This student did finish all work and did graduate at the end of the quarter, but he did start coming more often so he could get his work done. Another student answered, “I get what you're trying to do, but if people don't want to be here, they won't be here.”

Likert-survey open-ended Question 1 was, “The alternative program has another short-term incentive to encourage students to come to class. If you attend Monday through Thursday, have all of your work completed, and are passing each of your classes, you do not need to attend Friday morning make-up. Explain how this incentive helps you to succeed in the alternative program. What did you like or dislike about this plan?” This question was only asked at the end of the semester. The response to the short-term incentive was much more positive than the long-term incentive. Of the 46 responses, 41 students reported the short-term incentive to be motivating. Students reported liking Friday off and keeping students on track for getting done at the end of the quarter. One student commented, “This incentive makes me actually try to come to school and not skip like I used to [in the regular high school].”

To help understand how students get to school and what might prevent students from attending school, Question 3 asked about their daily routines. Students with routines have a better chance of getting to school. Over half the students responded that they have a routine they follow in the morning, coinciding with the guardian responses in the parent survey. From the open-ended questions, it was ascertained that 20 out of 46 students had challenges getting up in the morning or not getting enough sleep to make it to school. “Going to bed on time,” “I struggle getting to sleep for a variety of reasons,” and “Waking up” were issues recorded. One student indicated, “I’m not sure where I will end up by the end of the night,” while another student wrote, “I live with my best friend and her [toddler] cousin is annoying and cries a lot and I always have to help.” On the pre-Likert open-ended questions, 19% of students reported having issues with transportation.

Some students said they had issues with gas money and “finding a place to park” once they arrived at school if they drive since parking spots are filled because our program starts 55 minutes later than the traditional school. By the end of the semester, the number of transportation issues had increased to 39%. Students face many issues to attend school and have many obstacles to overcome to just get to school.

In Question 4, students were asked if they have a back-up plan if needed to get to school. The results were spread out from strongly agree to disagree. The theme 26 out of 46 students have a back-up plan in place to get to school and 25 out of 46 students use their family or friends for their back-up plan to get them to school with many students relying on grandparents or asking their parent to get them to school. Recall, that 80% of guardians indicated that their child had a back-up plan. Many times, the staff receives phone calls because the student does not have a ride to get to school and back-up plans are not available for students to get to school. Just asking the question on the survey helps students to think about what they will do if their primary of way of getting to school is changed.

Question 5 surveyed school avoidance with anxiety, depression, illness, or not having slept well. This question is important as many students miss school for these very reasons. The largest category was the “strongly disagree” group, but all responses were similar. Some students do avoid school due to these reasons. When surveyed in the open-ended question about why students avoid school, the number one reason was due to sickness at 43%, lack of sleep at 25%, and anxiety and/or depression and medical reasons both at 5%.

Following Question 5 on the post-Likert survey, an additional question was posed to students, “What can the staff do to encourage you to attend school more often?” The themes from the student responses were to keep the program the way it is at 45%, pizza and food incentives at 13%, more interesting topics at 13% and 29% of students reported they did not know what the staff could do. Comments included, “Nothing, the staff does a great job,” “They already offer a lot,” and “Nothing really. It is I who can only control that.” This was indication that students are in control of their attendance, not the incentive plans.

Skipping school is the issue addressed in the open-ended Question 6, “If you have skipped school, what influences you to skip school?” The majority of students said they do not skip school. Other reasons from highest to lowest were emotional issues, family issues, plans with friends, the need to sleep, and sickness. Student attendance records show that students leave school after lunch and do not return to school for the afternoon.

For open-ended post-Likert survey Question 7, the students were asked the following set of questions, “How has the alternative program prepared you for life beyond graduation? What positive habits have you formed? What can the staff do to assist future alternative graduates?” These questions had a variety of answers from helping students mature, taking on more responsibility, being on time, better attitudes, helping with real life situations, working hard, doing their best, staying focused, learning to deal with people, time management, better manners, and helping students mature faster than in the regular high school. One response suggested that “[Teachers] texting students builds relationships.”

Open-ended Question 9 was, “What specific behaviors do you feel helped you to be able to earn credits in the alternative program?” The themes for this question were sorted into 24 responses pertaining to behavior and attitude, 7 responses for attendance, and three responses from students who were ready to graduate. These graduating students found the perseverance and drive to graduate by buckling down to earn their credits.

The behavior data utilizing a spreadsheet for each student was stored on an Excel Google document shared with the alternative staff allowing the ability to sort data into categories. This file was analyzed for how many students were moving up (or down) the color levels over the 1st and 2nd quarter to show if students were improving their behaviors. Each student was tracked for color changes using the behavior spreadsheet. Table 2 below shows the percentage of students earning each color of wristband over the semester.

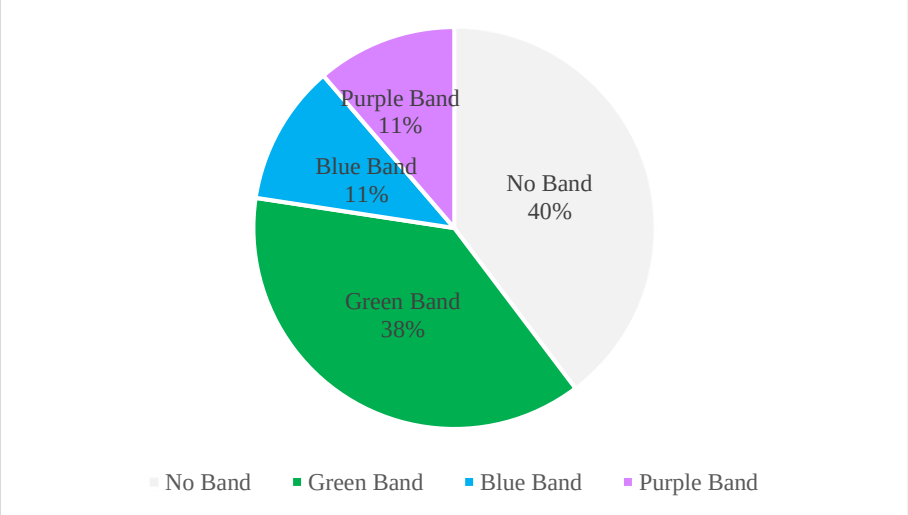

Figure 3. Percentage of colored silicon wristbands awarded to students during the treatment, (*N*=53).

The data showed that with each award ceremony, more students earned bands and more students were moving up the hierarchy of colors. Sixty percent of students earned a

band while 40% did not earn bands due to attendance and/or behavior issues. No students earned entry into the Gold Club during the semester. If the system was continued into the second semester, students would have received gold upon the next recognition ceremony. Three students were demoted due to behaviors and one of the three students did earn their band back before the end of the first semester and graduated.

To address the impact of the incentive program on attendance, the attendance records from Infinite Campus and the counselor data spreadsheet were used to look at student attendance and analyzed in three ways. First, each students' attendance was looked at independently by comparing past attendance to current attendance. Secondly, the alternative program data was analyzed as a whole to see if the incentive program improved attendance. Historical data from the past three years for the alternative program was used to find an average number of absences missed per student per quarter for the entire alternative population. Thirdly, the number of dropped students per quarter was recorded to see if this value drops over time after introducing more incentives for students this fall.

The Infinite Campus attendance data and the counselor's Google extensive spreadsheet for all students provided a great deal of data for analysis including the average number of absences per student per quarter, the average number of credits earned per student per quarter and the number of drops per quarter. A line graph was used to look at historical trends from last three years for each quarter to the first two quarters of the 2017-2018 year. It provided a comprehensive look at the alternative program as a whole. See Figure 4 below and Appendix J for the raw historical data.

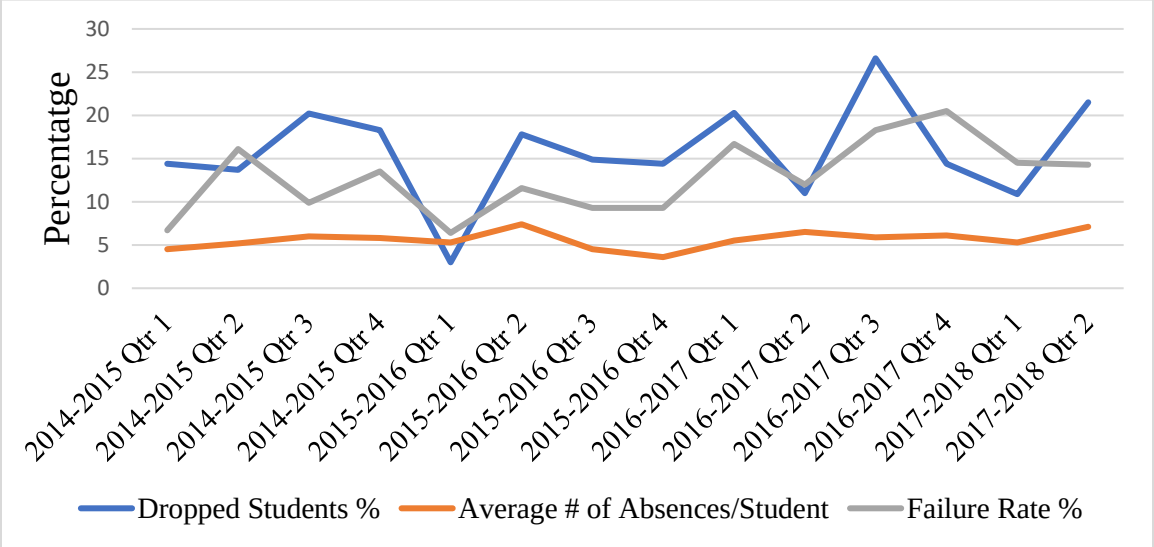

Figure 4. Historical trends for the percentage of dropped students, average number of absences per student, and the failure rate for the entire population of students in the alternative program for each quarter since 2014, (*N*=687).

The average percent of the number of dropped students historically was 15.8% +/- 5.7 per quarter. During the treatment using additional incentives, the percentage of drops fell during Quarter 1 for Fall 2017 to10.9%. During the Quarter 2, the percentage increased to 21.5%. The percentage for Quarter 1 was within the standard deviation but Quarter 2 was outside the standard deviation and an outlier. Four students during Quarter 2 were referred to the consortium with the local community college lending to a higher percentage of dropped students. The line graph depicts how the number of drops changed from quarter to quarter over the past several years.

Upon observation of the data, the average number of absences per student stayed fairly consistent over the years. To calculate this value, the students who had been dropped were eliminated from the data. Only students currently in the program were used in the calculations. The calculated average number of absences for the quarter was 5.6 +/-

1.0 absences for all the quarters. The first quarter for Fall 2017 was 5.3 and the second quarter was 7.1, an outlier to the data. Quarter 2 had more absences than Quarter 1.

The failure rate was calculated from looking at the number of credits earned per quarter and the number of credits attempted for each student. The failure rate average since 2014 was 12.8% +/- 4.2% with Quarter 1 and 2 of 2017 being at 14.5% and 14.3% respectively, slightly higher than the average, but well within the standard deviation. The failure rate from the graph shows the ups and downs of students earning more or less credits each quarter. Both math and science classes were perhaps harder for both quarters as the expedition involved using algebraic equations and understanding organic chemistry, a difficult skill for some students.

A separate failure rate was calculated within the science room although the researcher has almost all students in the alternative program in the science classroom. The failure rate was based on the number of students who failed science classes to the total number of students in the classroom in all classes throughout the day. This calculation is different from the overall failure rate that includes all classes whereas this calculation is only for science classes. This looks at the sub question, “What is the impact of using an incentive-based system on the number of credits earned per student per quarter in the science classroom?” See Figure 5 below for the trend line from 2013 to current.

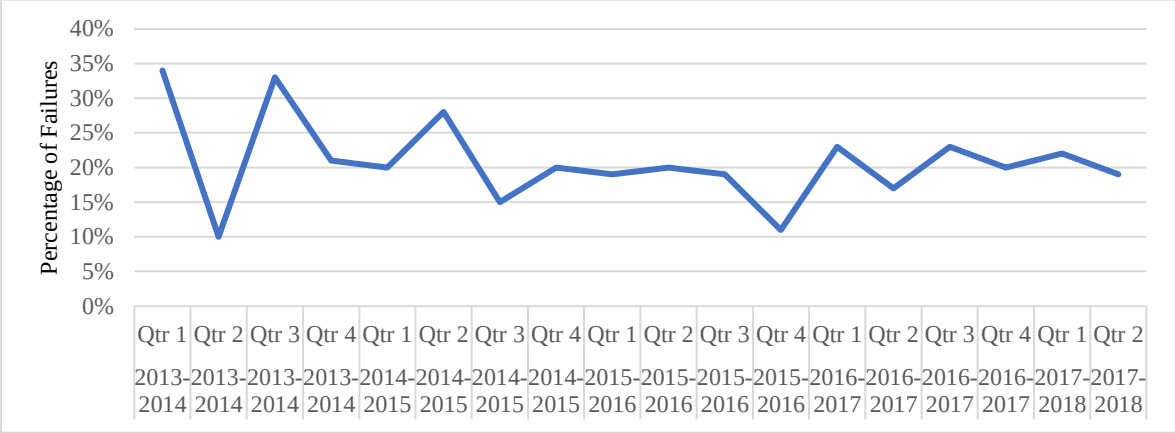

Figure 5. Trendline for failure rate in science classroom for each quarter from Fall 2013 through Fall 2017, (*N*=928).

The average percent for failures in the science classroom. for all quarters from Fall 2013 to mid-year 2017/2018 school year was 21% +/- 6.2%. Quarter 1 during the treatment had a 22% failure rate while Quarter 2 had a 19% failure rate both within the standard deviation of 6.2%. The range was from 34% down to 10% over the past several years. The failure rates were not different from the average failure rate for the science classroom. It is important to note that not all students respond in the same manner in the same classes and different classes are taught as needed to meet the needs of the required science classes.

Not finding that the incentive helped decrease the failure rate in science classes, or overall within the program, drops increased and absences went up, the researcher looked more closely at individual students to look for positive changes that may have occurred with the incentive.

The number of periods absent for the entire quarter was calculated from the attendance data for each student from 1st Quarter 2016 through 2nd Quarter 2017. Doing a check from 4th quarter of the previous year to 1st quarter to 2nd quarter during the

treatment period, two students were found to have lowered the number of periods absent. The first student missed 56 periods during 4th quarter of the 2016/17 school year. During 1st quarter of the 2017/18 school year, he was absent 67 periods but by the 2nd quarter of the treatment, he improved to missing only 23 periods. During the first quarter, he had racked up nine absences early on and after that he was in school every day except for one Friday. His attendance improved. The student earned his green band and moved to the blue band due to his improvement in attendance. One of his comments was about not being able to get up and move in the morning to get to school so he must have overcome that challenge to reduce his absences. The student also remarked on his survey questions that the incentive did help him. His dad commented in a phone conversation, "He acts grown-up and we can have adult conversations," indicating that his behavior had changed positively at home. During 1st quarter the student earned 2.75 credits out of 3.75 credits. Even though his attendance improved during 2nd quarter, he only earned 1.75 credits out of 3.75 credits. The student's attendance improved due to the incentive, but it did not correlate to more credits earned.

The second student decreased the number of absent periods from 34 down to 16 from 1st Quarter 2016 to the same time frame of 1st Quarter 2017. This student also improved attendance from 2nd quarter 2016 to 2nd quarter 2017 from 35 periods down to 6 periods. This is partly due to the student being able to go part-time as he graduated at the end of 1st semester. The student had dropped out of school the 4th quarter of 2016/17 school year to take a job. This student wanted to graduate, and he was able to through his attitude, determination and improved attendance. In a brief interview, this student stated,

"If it wasn't for this program, I'd be working at some mediocre job earning minimum wage, working seven days a week and not making enough money. I'm glad I joined the alternative program." This student made strides to earn his green band in November because of his work ethic and his focus on graduating. He reported that he did not think the incentive helped him either. This student earned all of his credits during both quarters of the treatment period. In this case the incentive did not help the student but rather his own intrinsic motivation.

The number of periods absent was not decreasing. The individual data for the above two students supported the evidence that attendance was better 2nd Quarter. Three more students did improve attendance and all three were seniors getting ready to graduate at the end of the semester. One of these students when asked if the incentive should be continued answered, "No, because I did what I was supposed to, but it did encourage me more with my anger to see if anybody noticed me," indicating it may have helped her control her anger as documented by the counselor as well. When asked why, the student replied,

> Just the teachers at the school are not normal; teachers there like family and that did help me a lot because when you go somewhere everyday feeling like you can't talk to anybody or your just there because you have to why even bother? Having a relationship helps.

This student reinforced the idea that teachers building relationships with students helps. This student earned all the credits for the 1st quarter to be able to graduate. The other two students did graduate but did not earn all of their credits for the quarter. One said the incentive helped while the other said it did not. The science teacher quoted from her teacher journal about the student that said it did not help, "He really turned it around with

his attitude and coming in early to actually work and not walk out to get breakfast or the restroom to avoid work." The other senior had a big moment in science. He finished his first science credit with the science teacher after six quarters. He worked diligently to finish his work. He was very proud of himself. His mom was called on speaker phone and he was able to tell his mom who was very proud of her son. The incentive did not play a role in him getting his science credit. Instead it was his intrinsic motivation to complete the class as he was getting closer to graduation.

Individual students were motivated by the extrinsic incentive while others were not motivated. Some students were intrinsically motivated because they wanted to graduate. Each student has individual needs and responds to the incentive differently. Having a positive relationship seems to be a plus with a least a few students.

The focus group discussions were recorded by the teacher in a journal during Crew period over six sessions throughout the treatment semester. Patterns in conversations were noted for each group interview and any patterns over the semester. Specific comments about the incentive-based program were noted. This part of the research was very revealing about students' behaviors and attendance. One student with a purple band was quoted as saying this:

> I don't just think about it [the incentive program]. This year, I've straightened myself out. When I get a band, I give myself a pat on the back. I'm not working toward a band. I'm working towards graduation. Last year, school was boring. If I'm not bored, I do better. Classes help. It's more me pushing myself.

Another student with nine absences 1st quarter stated,

> I really don't care about the wristbands. I just want to graduate. If you compare my attendance from early on, my attendance has improved because

> I want to graduate. I see people looking at the posters [of students earning the bands]. I think behaviors affect home life like having a better relationship with family. Having more trust. It is really hard because we are in the in between stage being treated like a kid and expected to have adult-like behaviors and get a job.

Both of these students indicated that the incentive program was not affecting them. It is more their drive and grit to graduate. Perhaps the students were thinking about their own personal goals. Maybe they realized that they could control their behaviors to help them reach their goals. The bands may have played a part in both of these cases. The incentive program could have provided the impetus to think about improving their behavior.

The conversations during the focus group interviews were different within each Crew class. See Appendix K for the focus group interviews. Sometimes the conversation was quiet and other times quite heated. Good conversations included characteristics of becoming more adult-like and then what characteristics individual students need to have to become more adult-like. Many students who have really good behaviors would speak up in front of their peers with comments like, “Don’t cry about cell phone [referring to cell phone policy]. Be mature,” “Don’t lash out when you have opinions. Do it at the right time,” “Realize that not everything deserves a reaction,” and “Follow directions. Don’t have the teacher say the same thing over and over. It’s annoying.” The focus group interviews stretched over a one-week period and helped students to think about their own behaviors and the impact of behaviors on others.

The teacher journal was used periodically throughout the semester. Phone calls were made to parents by the science teacher following each band award ceremony most of the time. Comments from parents included, “I have noticed a big change in [student’s

name] this school year. Thanks for calling," while the science teacher commented, "What a change in him." Unfortunately, this student was dropped and referred to the consortium. "The alternative program has done wonders for my son," was a comment made when calling another dad. According to the dad, his son had had a lot of "bad history" in middle school and he appreciated the teachers knowing and understanding his son. His behaviors had improved after two years in the program. He graduated at the end of the 1st quarter. Some parents had never had a positive phone call and the emotion in their voices was profound and indescribable, a win-win situation for the parent, teacher, and ultimately a positive for the student.

At the end of the semester, a very simple question was given to students as part of the post-Likert survey. Question 11 asked, "Do you think the colored wrist bands and small incentives helped improve your attendance, behavior, and number of credits earned during your time in the alternative program first semester?" This mirrored the basic research question. This data provided more evidence to whether the incentive improved attendance, behaviors and the number of credits earned per quarter per student. See Figure 6 below.

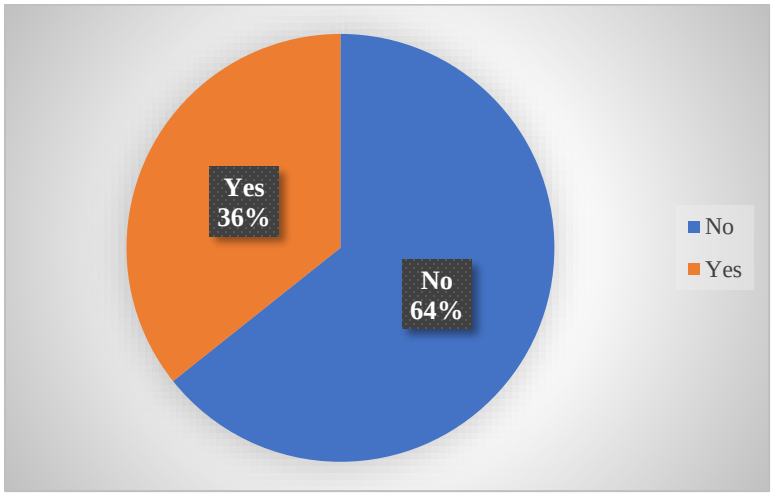

Figure 6. Responses from students from the direct question, "Do you think the colored wrist bands and small incentives helped improve your attendance, behavior, and number of credits earned during your time at the alternative program first semester?", (*N*=45).

Overwhelmingly, 64% of students did not think the incentive system worked while 36% said yes. Comments included, "I just think something like a yellow or whatever color bracelet isn't enough motivation." Not all incentives work for all students either. One student said, "i [sic] don't[sic] care about the insentive[sic] program, bring[sic] back our 1-6 parking spots and that will give a lot better of an insentive[sic] to come," referring to when the program had parking spots for the alternative students. Today, due to increased student population along with more staff, those parking spots were eliminated. The staff was able to get one spot in the staff parking lot just for our purple and gold students to park in during the incentive.

Another student was positive, reporting, "Because that was just me kicking it in gear and trying to get done with school." This has been identified to be instrumental for our students; seeing the light at the end of the tunnel helps improve student attendance, behavior and earning credits in order to graduate.

Many students did not find the system to work for them and thought the system was unfair, as expressed in this comment: “The people who I saw with no respect and dignity had earned bands while ones who are trying don't get anything.” The students did not always see how the staff works diligently to find positiveness in students despite other flaws and imperfections. At the first award ceremony, the social teacher said,

> We want to recognize the good things students do, the good jobs, and not all the wrong things you do. You want to develop traits that are important, the next step, to flap your wings, and go into the real world. We understand that many of you are on the border, a lot of you are on the cusp of getting your 1st bracelet. If someone gets a bracelet, congratulate them. We are proud of you.

On the positive side of continuing the incentives, students said the incentive system was motivating. One student said, “because i[sic] want one to show i[sic] can be better.” This shows determination. The second simple question was Question 12 on the post-Likert survey. It asked, “Should we continue the wrist band and award ceremonies during second semester in the alternative program?” See Figure 7 below for the results of the question.

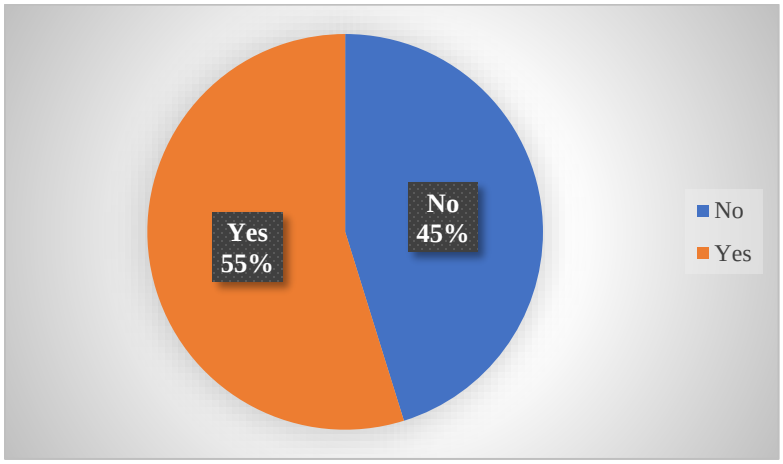

Figure 7. Responses from students from the direct question, “Should we continue the wrist band and award ceremonies during second semester in the alternative program?”, (*N*=45).

Interestingly, 55% of students replied yes while 45% of students replied no. This appears to be contrary to the previous question of the incentive not helping students. More students wanted to continue the incentive compared to those that do not by about 10%. Some students may have answered yes because they thought it might benefit other students even though it may not benefit themselves. Do students like to earn the bands and strive to do better and earn the recognition? Do they like having the band ceremonies and winning prizes? Or do students just want to get out of academic classes to attend the short ceremonies? One student commented, “Do more ceremonies.”

INTERPRETATION AND CONCLUSIONS

The purpose of the group research project within the alternative program was to increase the number of credits students earned each quarter through better attendance and behaviors by students within the program especially within the science classroom. The staff implemented a new, enhanced incentive-based system using a color-coded bracelet system. By improving behavior and attendance, students could earn a new bracelet whose color indicated a high level of achievement and new privileges. With better attendance, students would have a better chance to pass classes within the no-homework program. The research question analyzed was, “What impact does an incentive-based system have on attendance, behavior and academic learning in the science classroom within an alternative program?”

The first sub question was focused on attendance. From the analysis of the historical attendance data compared to the attendance data during the treatment period of two quarters, the results did not show a significant difference between the pre-treatment

and post-treatment. The average number of absences per student per quarter historically was 5.6 +/- 1.0. The Quarter 1 value was 5.3, slightly less, but the Quarter 2 value was 7.1. This value was above the standard deviation showing an increase in absences. This was also evident with individual attendance for students looking at the number of periods absent for each student. It was difficult to find students whose attendance actually improved. The number of dropped students historically was 15.8% +/- 5.7% per quarter. The average for Quarter 1 was at 10.9%, lower than the average, but the number of dropped students for Quarter 2 increased to 21.5% which was right on the border of being outside the standard deviation. This coincides with qualitative evidence that the students were missing more school leading to more dropped students, as well as the climate within the hallways becoming more negative about having the enhanced incentives with comments about students getting bands that did not deserve them and not being fair.

A pre and post-Likert survey was administered with six questions based on attendance. Upon analysis of the matched data for 45 students, only Question 1 of the six questions showed a significant difference between the means of the pre and post responses using the paired t-test ($t, (df=44) = 3.72, p<0.05$). But the mean was lower than the post-treatment compared to pre-treatment indicating the students thought the current long-term incentive was not helping students to improve their attendance. At least two students spoke freely about missing nine days of school, a better deal than coming to school every day and only getting three days off at the end of the quarter as an incentive.

The open-ended questions embedded within the Likert survey did show the majority of students liked having the four-day Monday through Thursday school week

and having Friday off from school if they attended each day and had all worked completed and passing the class. This current short-term incentive was much better received than the long-term incentive of having three or less absences to earn a vacation at the end of the quarter. Most students said they had transportation to school corresponding with the parents who completed the survey. The issue as the semester progressed was that more students had issues with transportation. Students indicated that parking at school was a problem that could lead to students missing school. Students do not want to walk from further away to get to the building. Some may risk a parking ticket. Others just leave. Sickness and a lack of sleep were the top reasons for students missing school. Skipping and school avoidance lead to more absences for students as well. Reasons given were a lack of sleep, emotional issues, family issues, and plans with friends. A large number of students said that getting up in the morning is difficult, preventing them from coming to school.

The incentive-based system did not have an impact on students when looking at the whole population of students; only a few students admitted that the incentive helped them individually to improve their attendance. According to the direct question posed to students at the end of the quarter, 36% of the students said it did help them in regards to attendance, behaviors and credits earned.

The next sub question was based on the behaviors of students. The color-coded system for students gave students more privileges within the classroom with improved behaviors including attendance. The behaviors of students were quantified through the Google spreadsheet based on the color of the band received. Sixty percent of students

actually earned a band at six award ceremonies indicating that positive things were happening in the program. Only three students were demoted and one of those three was able to earn it back.

The pre and post treatment Likert survey had four questions relating to behaviors. Again, after matching 45 pairs of data, no significant difference was noted between the means of the responses except for Question 7 ($t, (df=44) = 2.54, p<0.05$). As with Question 1, the mean of the responses was actually lower after the treatment than before the treatment. Question 7 asked students about their perception that school helps form habits that are used beyond high school. Students ranked this lower. Students were feeling ugly about having the bands. The negativity was pervading our hallways by the end of the semester. This was accounted for through some of the responses from the open-ended questions and focus group interview questions. “There’s no point to them [bands]”, and “its[sic] shot” were comments made by students. Students complained about the prizes not being motivating or good enough. Several students commented that enforcing the rules and not giving students second chances would improve behavior in the alternative program. At the same time other students wanted the staff to continue to have award ceremonies and said, “I think your ideas are fine” or “Ya, its[sic] kinda cool.” During an individual interview, the student said, “The bands have not really helped, maybe they have for some people. The point system in class is what helps me get to class on time. I try not to act up in class. I don’t want to stick out in class.” When asked what drives him to do well, he responded, “Passing classes and earning credits.”

A positive thought about the incentive program in relationship to behaviors was through the parent phone calls made to parents about students earning their first colored wristband or moving up to the next level. Numerous conversations occurred with parents about improvements with students since the beginning of the school year. Making the positive phone calls made it easier to talk to the parent/guardian about other issues. In one case, the parent shared what was explained over the phone with the student and the student has shared back with the teacher. The relationship between the teacher, student and parent improved immensely! It was easier to kid around with each other and laugh about issues and still have a serious conversation about how to get more work done during class.

The incentive-based system had an impact on some students as evidenced by the number of bands given out, but the majority of students did not see the point in doing the incentive. Students may have enjoyed earning a wristband, earning a prize, being recognized in front of their peers, seeing their picture on the wall in the hallway, having additional privileges in class but one students commented,

> I can definitely see the downsides to bracelets, like the teachers are just playing favorites or that there's not even enough emphasis on them in the first place so they're, for the most part, largely ignored. But getting bracelets I think is something to look forward to if you want to keep your phone in your pocket and go to the bathroom without getting points getting taken away.

The student made good points about the incentive-based system but also about teachers not putting enough emphasis on the bands.

The third part of the incentive study addressed whether the number of credits earned per quarter per student increased. The failure rate was calculated

from the historical data. The average was 12.8% +/- 4.2% based on the entire population of the students in the alternative program for each quarter. For Quarter 1, the failure rate was 14.5% and for Quarter 2 it was 14.3%, both slightly higher than the average but within the standard deviation. Besides looking at the data historically (all students in the alternative program have science classes), the failure rate within the science classroom was also calculated. The average failure rate based on each quarter was 21% +/- 6.3% since 2013. During Quarter 1 the failure rate was 22% while it decreased to 19% during Quarter 2 well within the standard deviation. The lower failure rate during Quarter 2 could be linked to the high dropout rate for Quarter 2. Students that had a tendency to be dropped had issues in at least two previous quarters with poor attendance and dropped classes. With fewer students on the roster because of more dropped students, fewer failures could drop the failure rate a small amount. The new incentive-based program still was not making an impact on students' earning more credits per quarter as the number of dropped students was increasing.

The end of the semester post-Likert survey asked point blank about if the incentive systems impacted student's attendance, behaviors and the number of credits earned per student per quarter. An overwhelming 64% responded "no". This question quantified the prevailing attitudes and thoughts of the incentive program.

While some individual students benefited from the incentive, the larger population of students as a whole were not impacted. In an alternative program, it

is imperative to understand that each student is unique. Not every student responds the same or is impacted equally by incentives. The incentives need to be changed often with perhaps bigger prizes to influence more students and all students need to have a green band to start. Some students "buy" into the program faster than others. The key to success is building individual relationships with students and having staff that continues to strive to help each child learn and become successful. The students were not extrinsically motivated from the small incentives offered. Senior students were motivated by their own desire to graduate rather than the incentives motivating them to have good attendance, behaviors and earning their credits. When students are closer to graduation, it is easier for these students to make the connection between school attendance, behaviors and earning their credits towards graduation. According to the data collected from the alternative program overall, the incentive did not have an appreciable or favorable impact on the majority of students.

The staff became more despondent about doing the reward ceremonies especially during Quarter 2. One teacher asked if we had to do the award ceremonies. During PLC meetings, going through the list of students for behaviors and attendance to determine if students would receive a green band or move up was time-consuming and not looked upon favorably. It seemed like a relief to end the study. Due to the data collected from the direct question and the staff's attitudes, it was decided to not continue the program.

VALUE

This research project using incentives with alternative students impacted me as a teacher in many ways. My goal was to improve attendance which did not happen except in a few cases. As an alternative educator for more than 21 years, my dreams of getting students to come to school have not yet been realized. But I also realize that I need to be understanding of the population of students I work with. I am still not convinced that an incentive program would not work if bigger and better incentives were available as it has worked in another large alternative school per a conversation with a principal of an alternative high school this spring at the state alternative conference. For incentives to work, the program needs be set up properly with bigger awards students would work towards. All students entering the program should earn a green band upon entry into the program and then move up as attendance and behavior improve. Students should not have to earn the green band. This will help students feel like a part of the family in the alternative program. As a teacher, our goal is not to encourage extrinsic motivation but if it helps some students to want to be at school, that is a plus. If students then find the need to and want the success of graduating, their extrinsic motivation turns to intrinsic motivation. The incentive program could be modified to use within my science classroom. Incentives for individuals, small groups, or a whole class could be used within my own classroom. Is there a better way besides the extrinsic motivation to encourage students to see the value of finishing their high school education?

An understanding that I have come to terms with is that not all alternative students are ready to learn. Many of these students are at risk and some are wounded students.

Wounded students have emotional pain from abuse, neglect, poverty, violence, and/or the loss or absence of a parent. These students have issues with self-esteem, anxiety, depression, anger, and/or violence. They come from all walks of life from rich to poor, all genders, and all races. I need to understand these students better and learn more about how to build relationships with these individuals. These students need a team of empathetic teachers to foster and encourage students to stay in school, to attend classes, and graduate from high school, thus affording them a chance to be successful citizens. I see the hurt in these students. I sense the anxiety and depression in some students. I have listened to students tell me about the death of their mother. These students are still hurting after several years.

I need to be patient with my students. At-risk and wounded students have their ups and downs taking steps forward and backwards. Our hope for our students is to keep moving forward building self-esteem, confidence, becoming more resilient to challenges, gaining trust, and becoming connected to school so they can be successful.

I have purchased books to investigate how to build relationships with these types of students. The books are, *Reaching the Wounded Student* (2009), and *7 Ways to Transform the Lives of Wounded Students* (2016), both by Joe Hendershott. A third book is Mary Gordon's, *Roots of Empathy* (2009), that discusses how to teach young children to adolescents to build empathy. I want to be become better at working with these students despite my years of experience in the alternative program. I have more to learn to do my part with young people in a society dealing with an increasing number of mental health issues. My goal this summer will be to read and expand my knowledge. How can I

polish my skills to help more students? How can I help move wounded students forward? I am hoping to share my books with my co-workers to help them as well. A book club could be established to discuss during PLC meetings to help our students.

Positive phone calls to parents/guardians created positive relationships with the parents as well as with the students as shown by the study. The alternative staff needs to make the effort to call parents/guardians more often to make connections with the parents. When a student is caught doing something good, a phone call home is appropriate. When the parent/guardian talks to the student, the student feels good. Phone calls and emails needs to be become the norm as often as possible.

I also believe the staff needs to continue to work with students on career education. Most of our students do not attend college or if they start, they do not finish. Job Corp, trade schools, and community college programs would be beneficial to many students with more hands-on training. Internships and job shadowing would help students see first-hand what different jobs entail. If we can inspire students to see themselves in a future job, would that help them to stay focused in school? Another possibility is getting students involved in high school programs with the local community college where students earn high school credits in programs for free. Student are also able to explore different careers at the college. This may help get students more engaged, encourage better attendance and behaviors, and increase their desire to graduate.

Another thought was brought up by a handful of students from the open-ended questions and focus group interviews. Students suggested using different teaching strategies and finding more interesting topics to cover. In the science classroom, the Next

Generation Science Standards (NGSS) are used. I do not follow the same curriculum as the traditional high school so I continually get ideas from the internet that I believe would be interesting to students. Maybe this is not enough. Maybe students could make a list of interesting topics for the next school year, and I can weave topics into the NGSS. I just bought another book, *The Art of Science and Teaching: A Comprehensive Framework for Effective Instruction* (2007) by Robert J. Marzano, on techniques to use in the classroom that are proven to be more engaging. Another recommended book to read is Tik Liems' book, *Invitation to Science Inquiry, 2nd Edition* (1987), using discrepant events to engage all students in the science classroom. These are all possibilities to encourage more interest in the science classroom.

I also believe the short-term incentive works but the Friday morning make-up is not working as it was intended. Continued work with individual students is essential to the alternative program. The staff touches one student at a time and not all students respond at the same time. These students deserve the best we as staff can give. Patience, a caring attitude and flexibility are crucial attributes of an alternative teacher. Could more community and service projects be incorporated to build relationships with students in place of Friday make-up at least once or even twice a month? Could more service projects be implemented within classrooms? What if a coordinated effort was made next school year to include more team building with students through various activities by all teachers in the alternative program?

A simple effort as the staff works with at-risk and wounded students is to remind ourselves and co-workers each day of positive successes that we have had. End the day

with teachers gathering after students leave the building to share the good things of the day. My former principal always said, “Focus on the good things that happened in your day and do not dwell on the negative things.” Alternative educators need to remember we are touching lives each day and making a difference with our students. We need to model good behavior, be forgiving, show grace, build relationships and start each day without grudges. Each day is a new day!

In conclusion, teachers working with alternative students, need to be accepting of the students we work with, be empathetic, patient, flexible, caring, and stay focused on the positive work that occurs in the program. Take time to work as a PLC team to understand the at-risk and wounded students. Building relationships with these students and breaking the barriers between teacher and student is the key to students being ready to work and learn in class. Relationships can be developed through working and communicating with individual students, asking questions in the right way, using positive feedback, and making positive phone calls to parents. Another relationship building activity is to actualize a community and service component to the program. Involving students in choosing topics for study in classes, using different teaching techniques, and using discrepant events may help in strengthening student’s involvement in classes. Improving options for career education for students both while in high school and preparation for life after graduation would benefit our students. Together, our goal may be realized to increase student attendance, students with more adult-like behaviors, and ultimately to students earning more credits to move them beyond graduation.

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APPENDICES

APPENDIX A

THE BASICS OF THE ALTERNATIVE PROGRAM

The alternative program within the traditional public high school, services students that are in grades ten to twelve with no grade level distinctions within classes. Students are mixed up by grade level within content areas because of having only four core teachers and scheduling 40 plus students utilizing an 8-period day with 40-45 minutes in each class. The alternative program is a no homework program with classes from 8:45 to 3:01 each day Monday through Thursday. Friday mornings are reserved as a "make-up" day. Students who miss school during the week are required to attend on Friday.

The alternative students are at-risk for various reasons. Most of the students are credit deficient and have had poor attendance in the traditional high school. The traditional high school counselors, the administrators, and the alternative counselor work together to consider each individual student's needs to enroll in the program.

Most students are full-time students with a few students just attending during the morning or afternoon because of needing only a few more credits to graduate or because they are trying out the alternative program before becoming full-time. These part-time students take classes in the traditional high school for either their morning or afternoon classes opposite their alternative program schedule. Eleven is maximum number of students in a classroom to afford our students more individualized instruction and personalization to keep students in school and keep the dropout rate low. The most recent dropout rate for our school is 1.04% as of the 2015/2016 school year ("2015-2016 Grade 7-12," 2017).

The program is set up on the quarter system with students earning a half credit each quarter. The reason for using the quarter system is it helps keep students in school. If a student is dropped, the student is not out of school as long as compared to being dropped if the program was set up on semesters.

A unique aspect of the alternative program is the afternoon classes. A theme or expedition is utilized in all four core classes of science, math, English and social studies. Some expeditions taught in the past include Baseball, Vietnam War, Iowa, Evolution of the Human Body, Westward Expansion, Crime, Food, and Social Media to name a few. The afternoon is a package deal so if students miss one period, they are counted absent for the entire afternoon reinforcing the need for students to stay in school.

The alternative program is a safe haven for students. Despite differences between students, a kinship develops among the staff and students. With smaller classes, students receive individualized attention in classes, feel comfortable speaking in front of others, and practice reading skills daily. Students realize it is ok to fail at first as long as they learn from their mistakes. The students are expected to do more than they have ever done before, to realize their potential and learn how to learn. The staff encourages self-discipline and perseverance, diversity, stewardship, service to others, and collaboration. The staff builds relationships with students during the day through the classroom, career exploration, Crew period activities, physical education, service projects, and having meals together. A family atmosphere is apparent. Students know the teachers and their backgrounds. The staff choses to stay in the alternative program as the rewards of helping

students reach their potential is amazing. Many students comment on how the program has helped them learn, deal with issues, and make progress toward earning a diploma.

The incentives for attendance include having Friday off from school if the student has been in school from Monday through Thursday and has all work for the week completed. If not, the student attends on Friday morning from 8:45 AM to 11:30 AM.

Another incentive is being able to sign-out earlier at the end of the quarter, thus earning a vacation from school until the following week when the next quarter starts. At the end of each quarter, the staff implements “sign-out week”. Each student receives a sign-out sheet with all the periods listed for their classes. To pass each class, students give their sign-out sheet to each teacher at the beginning of the period and if the student has completed all the requirements set by the teacher, then the teacher signs the sheet to show that the student has passed the class and earned a half credit. As an incentive, students who have missed three or less days in the quarter are able to sign out early if all academic requirements have been met for each class. Early sign-out usually starts on Monday. These outstanding attenders do not have to come back to school until the following Monday when the new quarter starts and earn a “vacation” from school. The following day is regular sign-out day when all other students can sign-out. Again, if sign-out is completed, students have a break until the following Monday. If any student cannot sign-out on Tuesday due to students needing to make up missed time in class and completing required assignments/projects/assessments, students have all day Wednesday and Thursday, and Friday morning to complete their work. If the work is completed

satisfactorily, then students can still get signed out and pass the class at any time during the make-up days and come back the following Monday.

Along with the incentives, a strict attendance policy is adhered to with no excused absences. Students are dropped for the quarter on their 10th absence. This translates to students being able to be absent 20% of the time they are in school. This is much higher than what is considered to be at-risk. Students can be gone one day per week and not be dropped. Students miss school in the alternative program for various reasons including sickness, missing the bus, not getting up, home issues, hospitalization, admission to a group home, incarceration, court dates, death of a friend or family member, pregnancy, being a mom, having a sick child, etc.

Students have the opportunity to work on Friday mornings to make up work missed during an absence during the week. Teachers help students from morning and afternoon classes from various classes at the same time with most students need one-on-one help.

Absences add up if the student does not show up or leaves early on Friday make-up morning; it counts as another absence towards the "10 absences and you are dropped" policy.

Students have the opportunity to come back at the beginning of the next quarter after being dropped due to 10 or more absences. If students are not making progress by earning credits after two quarters, the next quarter will determine if they can continue in the program using a "last chance" agreement. Students who are dropped for three consecutive quarters are then referred to the local community college consortium to take

high school classes independently on their own to earn a diploma. When students move to the local community college or graduate, other students on the alternative program "wait list" have the opportunity to start at the beginning of next quarter. The last option is to earn the adult diploma at the community college through the adult diploma program.

By moving students through the high school alternative program in a more efficient manner by students earning the maximum number of credits each quarter, more students can be served. The staff within the alternative program has a goal to decrease the number of students that are dropped per quarter so more credits can be earned by students towards graduation diminishing the number of consortium students and dropouts for our district. If students do not attend the consortium or make progress, then the student is considered a dropout of our high school.

The staff of the alternative program takes great pride in helping our young people work towards graduation. The program is structured so students see the connection from school to their future by forming habits that will lead to productivity. Getting students to develop these habits now will help them in their future employment and becoming valuable citizens in their community, leading to a productive and successful college, career and civic life.

APPENDIX B

PARENT/GUARDIAN AND STUDENT CONSENT LETTER

Dear Parent/Guardian:

I am conducting a research study with the alternative program to help improve attendance and behaviors within the alternative program. I am interested if using some simple incentives will help improve attendance and more adult-like behaviors. With better attendance, more credits can be earned within the alternative program classrooms towards graduation.

Your child's participation will involve responding to a brief 10-question survey at the beginning of the quarter and at the end of the quarter regarding their thoughts on their own attendance and behaviors. Students will be able to provide feedback following the survey. Students will also be asked to participate in group interviews and individual interviews on the incentive program two to three times throughout the quarter. I will be asking questions about how the incentive program is working for students and using the feedback to aid in understanding students' perceptions and measures to better the alternative program.

If you or your child chooses not to participate, there will be no penalty. It will not affect your child's grade, treatment, services rendered, and so forth, to which you or your child may otherwise be entitled. Your child's participation is voluntary and he/she is free to withdraw from participation at any time without suffering any ramifications. The results of the research study may be published, but your child's name will not be used. Data collected will be kept confidential and will not be shared with anyone. I will destroy all data within one year of completing the study.

I need both parent/guardian and student signatures in order to conduct the research at the bottom of the page. If you have any questions regarding this study or your child's participation in this study, please feel free to contact me at <phone number> or <email>.

Sincerely,

<Name>
Alternative Program Science Instructor
<address>
<phone numbers>
<email>

By signing below, I give consent for my child to participate in the above-referenced study.

_____ _____

Parent Name(Printed) Parent Signature

_____ _____

Student Name(Printed) Student Signature

APPENDIX C

INSTITUTIONAL REVIEW BOARD LETTER

MONTANA
STATE UNIVERSITY

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: Beth Krogh and Walt Woolbaugh

FROM: Mark Quinn Mark Quinn cxj

DATE: June 12, 2017

SUBJECT: *"Implementing an Incentive-Based System in an Alternative Program within the Science Classroom" [BK061217-EX]*

The above research, described in your submission of June 12, 2017, 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:

__X__ (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.

__X__ (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.

APPENDIX D

PARENT LIKERT SURVEY

Parent/Guardian Survey - Please help the alternative program staff by completing the following survey to help us in understanding your perceptions. Please ***circle*** the response that best fits your feelings at the beginning of this school year. Written responses would be appreciated! Thank you.

1. **I feel the attendance and behavior incentives will encourage my child to attend school.**

   Strongly Disagree Disagree Neutral Agree Strongly Agree

   Please explain why you answered the way you did in the above question.

2. **I purposefully plan my student's appointments outside of school time.**

   Strongly Disagree Disagree Neutral Agree Strongly Agree

3. **My student has a daily routine for getting to and from school each day.**

   Strongly Disagree Disagree Neutral Agree Strongly Agree

   Can you give us a brief idea as to what this might be?

4. **My student has a back-up plan in place for transportation to school if their daily routine is not followed.**

   Strongly Disagree Disagree Neutral Agree Strongly Agree

   What is the back-up plan?
   How can you assist in the back-up plan with your student?
   Would you be willing to work with an alternative program student if they are in need of a back-up plan? If so, how?

5. **I recognize that school plays an important role in forming the habits for a successful life now and beyond graduation.**

   Strongly Disagree Disagree Neutral Agree Strongly Agree

   Please explain why you answered the way you did in the above question.

6. **I ask how my student's school day went each day.**

   Strongly Disagree Disagree Neutral Agree Strongly Agree

7. **My student is connected to school and has at least one adult at school with whom they can ask questions or talk to.**

   Strongly Disagree Disagree Neutral Agree Strongly Agree

8. My student has a specific plan for post-graduation.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please write what your student's post-graduation plans are: _____

Parent/Guardian Name _____
Student Name _____

APPENDIX E

PRE-TREATMENT: THE STUDENT LIKERT 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. The attendance incentive of having three or less absences for the quarter encourages me to attend school.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

Please explain what you like or dislike about this plan.

2. I purposefully plan my appointments outside of school time.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

3. I have a daily routine for getting to and from school each day.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

What challenges do you have in doing this?

4. I have a back-up plan in place for transportation if I fail to follow my daily routine.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

What is your back-up plan?

5. I avoid school because I am anxious, depressed, feel a little sick, or have not slept well.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

6. I am easily influenced to skip school if something better comes up.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

7. I recognize that school plays an important part in forming the habits for a successful life now and beyond graduation.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

Please explain why you answered the way you did in the above.

8. I show exemplary behavior in school following the rules and guidelines in the parking lot, in the building hallways and lunchroom, and in each classroom.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

9. My behavior/attitude at school needs improvement.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

10. A behavior/attitude incentive helps me to stay focused on being more adult-like in my actions and thoughts.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

What other comments might you have about your attendance and/or the behavior/attitude incentive?

APPENDIX F

POST-TREATMENT: THE STUDENT LIKERT 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. The attendance incentive of having three or less absences for the quarter and earning a vacation before the start of the next quarter encouraged me to attend school.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

Please explain what you like or dislike about this plan.

The alternative program has another short-term incentive to encourage students to come to class. If you attend Monday through Thursday, have all your work completed, and are passing each of your classes, you do not need to attend Friday morning make-up. Explain how this incentive helps you to succeed in the alternative program.. What did you like or dislike about this plan?

2. I purposefully planned my appointments outside of school time.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

3. I had a daily routine for getting to and from school each day.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

What challenges do you have in doing this?

4. I had a back-up plan in place for transportation if I failed to follow my daily routine.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

What was your back-up plan? Did you need to use your back-up plan during the quarter? If so, did it fall in place as planned?

5. I avoided school because I was anxious, depressed, feel a little sick, or had not slept well.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

What kept you from coming to school when you were absent?

What can the staff do to encourage you to attend school more often?

6. I am easily influenced to skip school if something better comes up.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

If you skipped school, what influenced you to skip school?

What do you think the staff should do to increase attendance since we have a no-homework policy but yet we are required to teach the core standards expected of teachers?

7. I recognize that school plays an important part in forming the habits for a successful life now and beyond graduation.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

Please explain why you answered the way you did in the above Question #7.

How has the alternative program prepared you for life beyond graduation? What positive habits have you formed? What can the staff do to assist future graduates?

8. I show exemplary behavior in school following the rules and guidelines in the parking lot, in the building hallways and lunchroom, and in each classroom.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

9. My behavior/attitude at school needs improvement.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

Please explain why you answered the way you did in the above.

10. A behavior/attitude incentive helps me to stay focused on being more adult-like in my actions and thoughts.

Strongly Disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly Agree 5

What other comments might you have about your attendance and/or the behavior/attitude incentive?

11. Do you think the colored wrist bands and small incentives helped improve your attendance, behavior, and number of credits earned during your time at the alternative program first semester?

Yes or No

Why or why not?

12. Should we continue the wristband and award ceremonies during second semester here in the alternative program?

Yes or No

13. I would appreciate any of your ideas in terms of how we can improve student attendance in the alternative program.

APPENDIX G

FREQUENCIES OF PRE AND POST-LIKERT DATA

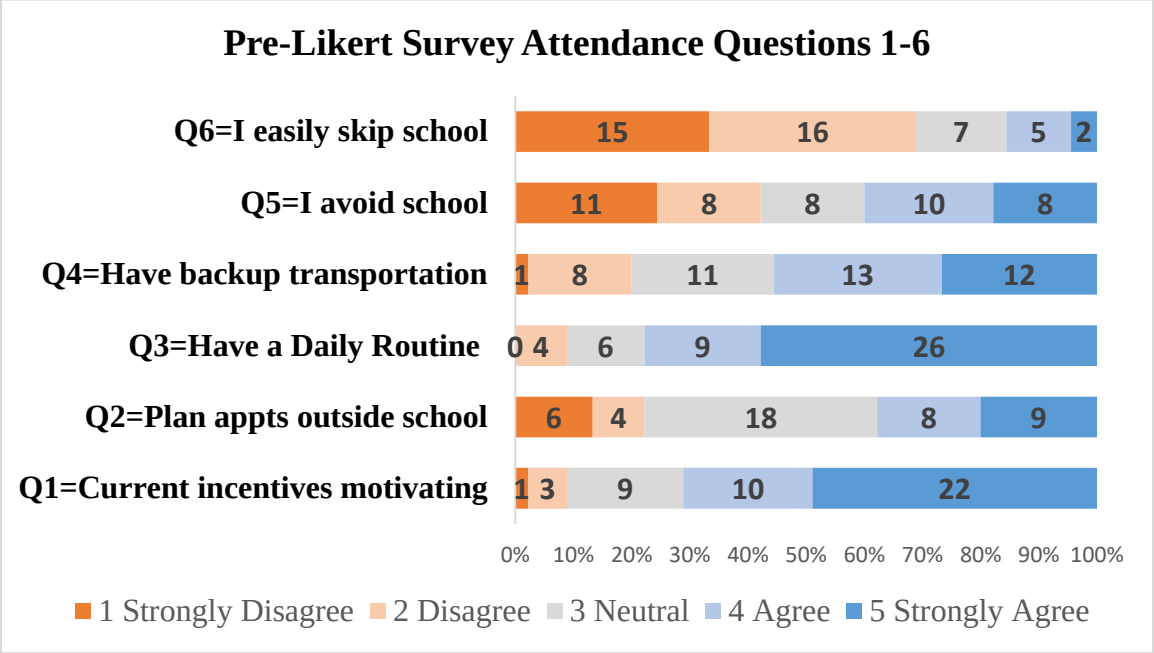

Figure 1. Frequencies of responses for the attendance pre-Likert survey, (*N*=45).

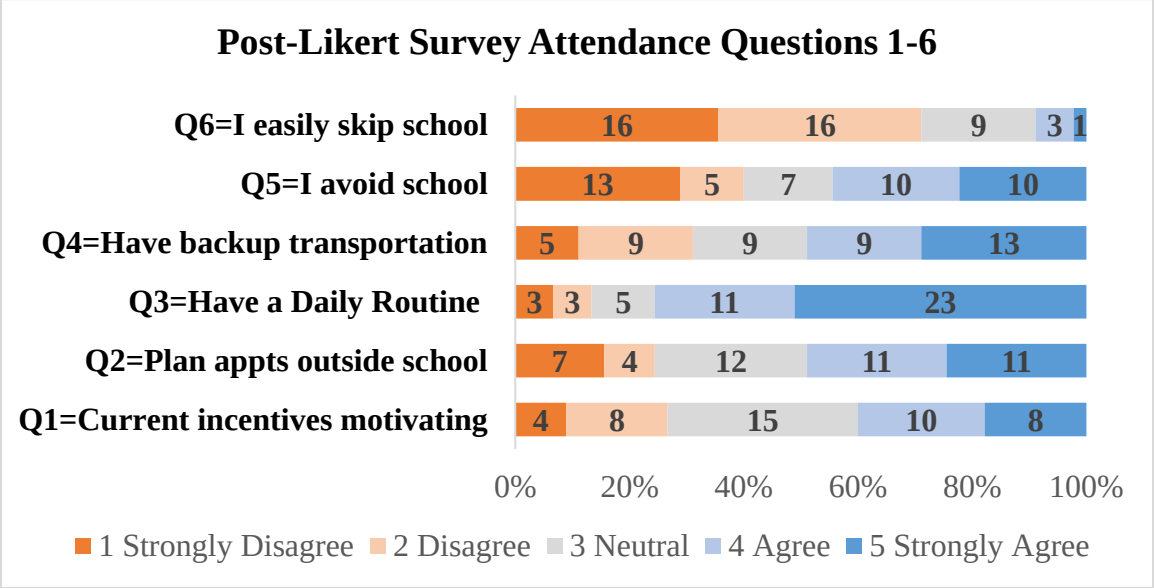

Figure 2. Frequencies of responses for the attendance post-Likert survey, (*N*=45).

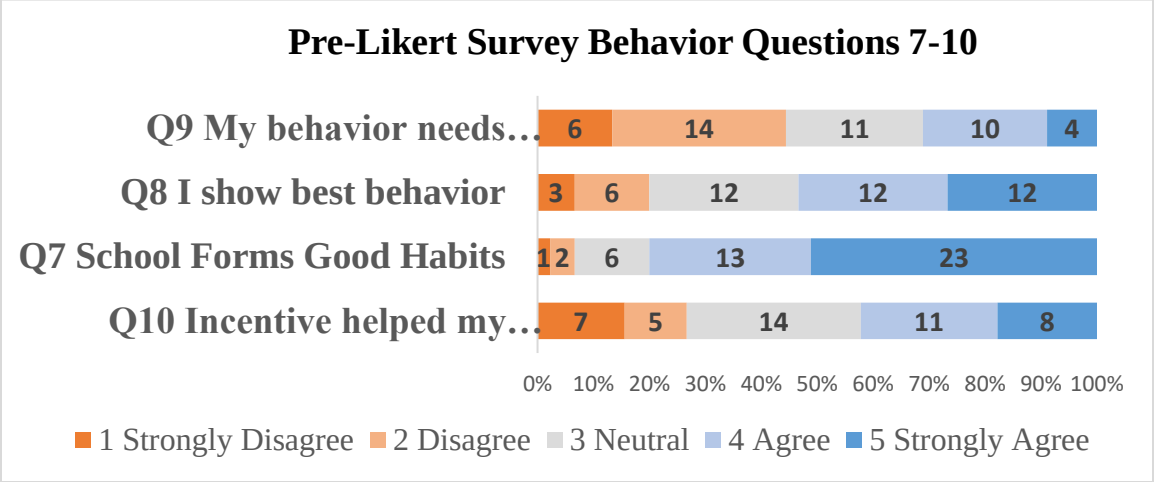

Figure 3. Frequencies of responses for the behavior pre-Likert survey, (*N*=45).

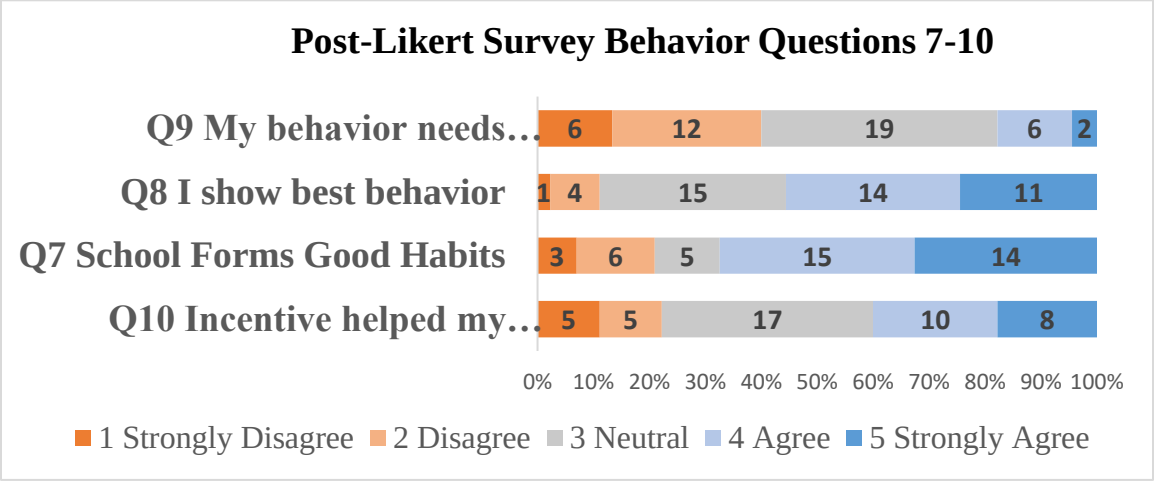

Figure 4. Frequencies of responses for the behavior post-Likert survey, (*N*=45).

APPENDIX H

ANALYSIS OF LIKERT DATA

Are the post-Likert responses significantly different than the pre-Likert responses for Questions 1-10 based on attendance and behavior survey questions?

Dependent t-test for paired mean differences (This test was selected based on de Winter and Dodou 2010 study stating that Likert data can be analyzed through the t-test or the Mann-Whitney or Wilcoxon test. See below for reference.)
Assumptions: The data is normal; ordinal data; paired data.
Null Hypothesis H_0: $\mu = 0$
Alternative Hypothesis H_A: $\mu \neq 0$
The differences of the means will be compared.
Alpha level: 0.05
Critical Value: 2.02, 2 tailed, df=44

See Table 1 below for the statistical t-test values for the Attendance Questions 1-6.

Table 1
T-Test Results from Excel For Pre and Post-Likert Questions 1-6 for Attendance (*N*=45)

	Q1 Pre	Q1 Post	Q2 Pre	Q2 Post	Q3 Pre	Q3 Post	Q4 Pre	Q4 Post	Q5 Pre	Q5 Post	Q6 Pre	Q6 Post
Mean	4.09	3.22	3.22	3.33	4.27	4.07	3.60	3.36	2.91	2.98	2.18	2.04
Observations	45	45	45	45	45	45	45	45	45	45	45	45
Df	44		44		44		44		44		44	
t Stat	3.7247		-0.4582		0.8847		1.1446		-0.2870		0.8458	
P(T<=t) two-tail	0.0006		0.6491		0.3812		0.2586		0.7754		0.4022	
t Critical two-tail	2.0154		2.0154		2.0154		2.0154		2.0154		2.0154	

Discussion:

For Attendance Question 1, the p value was less than the alpha value 0.05 and the t-test value was higher than the critical value of 2.02. The null hypothesis was rejected indicating a significant difference in the means between the pre and post-Likert question. The mean for the pre-Likert survey Question 1 was higher than the post-Likert survey Question 1 ($t, (df=44) = 3.72, p<0.05$).

For Attendance Questions 2 – 6, the p value was greater than 0.05 and the t-test value was much lower than the critical value of 2.02. The statistical test failed to reject the null hypothesis. The means between the pre and post-Likert question are the same with no statistical difference between the means.

See Table 1 below for the statistical t-test values for the Behavior Questions 7-10.

Table 2
T-Test Results from Excel For Pre and Post-Likert Questions 7-10 for Behavior (*N*=45).

	Q7 Pre	Q7 Post	Q8 Pre	Q8 Post	Q9 Pre	Q9 Post	Q10 Pre	Q10 Post
Mean	4.22	3.73	3.53	3.67	2.82	2.69	3.18	3.24
Observations	45	45	45	45	45	45	45	45
df	44		44		44		44	
t Stat	2.5419		-0.8458		0.7463		-0.2722	
P(T<=t) two-tail	0.0146		0.4022		0.4595		0.7868	
t Critical two-tail	2.0154		2.0154		2.0154		2.0154	

For Behavior Question 7, the p value was less than the alpha value 0.05 and the t-test value was higher than the critical value of 2.02. The null hypothesis was rejected indicating a significant difference in the means between the pre and post-Likert question. The mean of the pre-Likert survey Question 7 was higher than the post-Likert survey (t, (df=44) = 2.54, $p<0.05$).

For Behavior Questions 8-10, the p value was greater than 0.05 and the t-test value was much lower than the critical value of 2.02. The statistical test failed to reject the null hypothesis. There is no statistically significant mean difference between the pre and post-Likert surveys means.

de Winter, J.C.F. & Dodou, D. (2010). Five-Point Likert Items: t test versus Mann-Whitney-Wilcoxon, *Practical Assessment, Research and Evaluation*, 15(11), 1-16

APPENDIX I

OPEN-ENDED QUESTION THEMES FROM LIKERT SURVEY

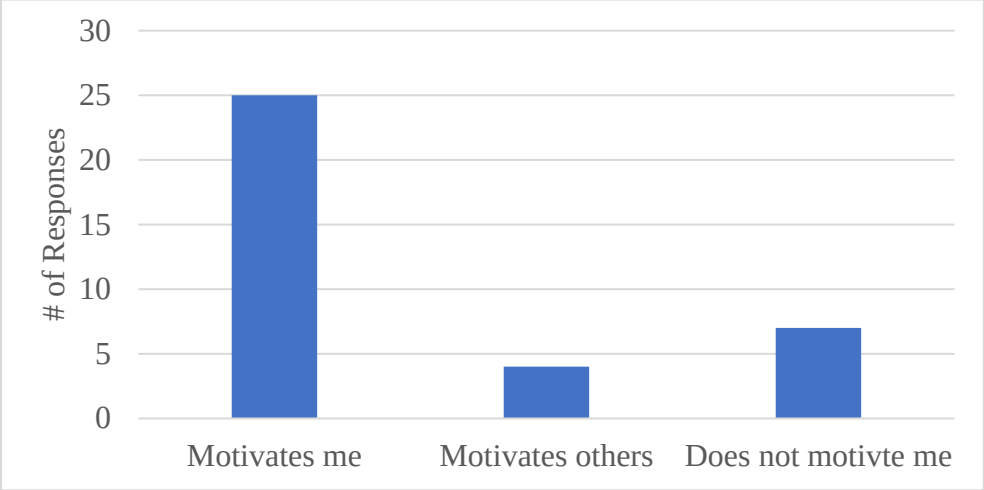

Figure 1. Themes for the current long-term attendance incentive based on the open-ended pre-Likert Question 1, "The attendance incentive of having three or less absences for the quarter encourages me to attend school." (*N*=36).

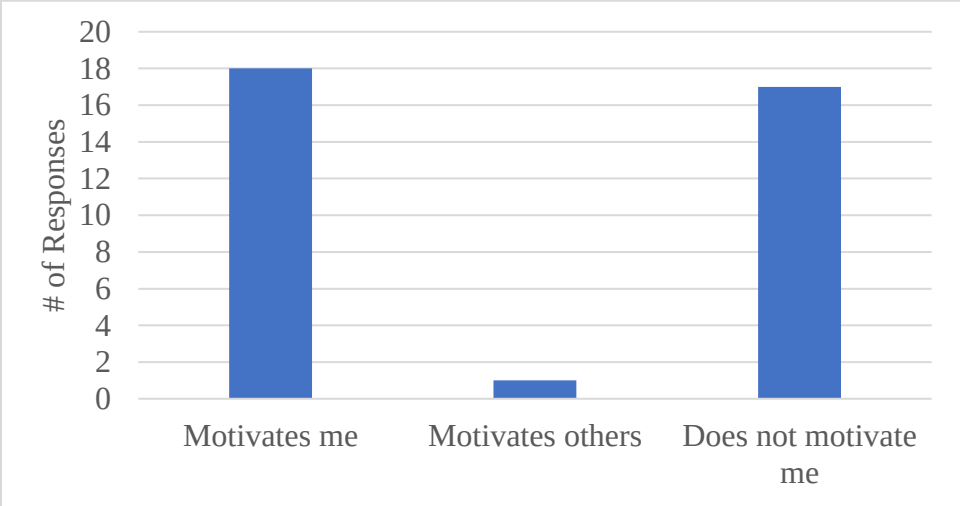

Figure 2. Themes for the current long-term incentive based on the open-ended post-Likert Question 1, "The attendance incentive of having three or less absences for the quarter and earning a vacation before the start of the next quarter encouraged me to attend school." (*N*=36).

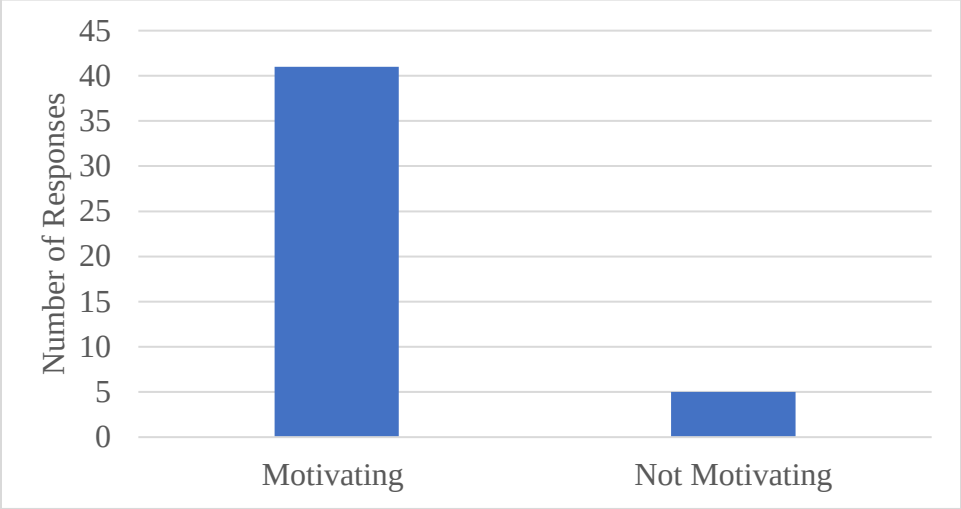

Figure 3. Themes for the current short-term incentive from the post-Likert open ended Question 1, "The alternative program has another short-term incentive to encourage students to come to class. If you attend Monday through Thursday, have all your work completed, and are passing each of your classes, you do not need to attend Friday morning make-up. Explain how this incentive helps you to succeed in the alternative program. What did you like or dislike about this plan?" (*N*=46).

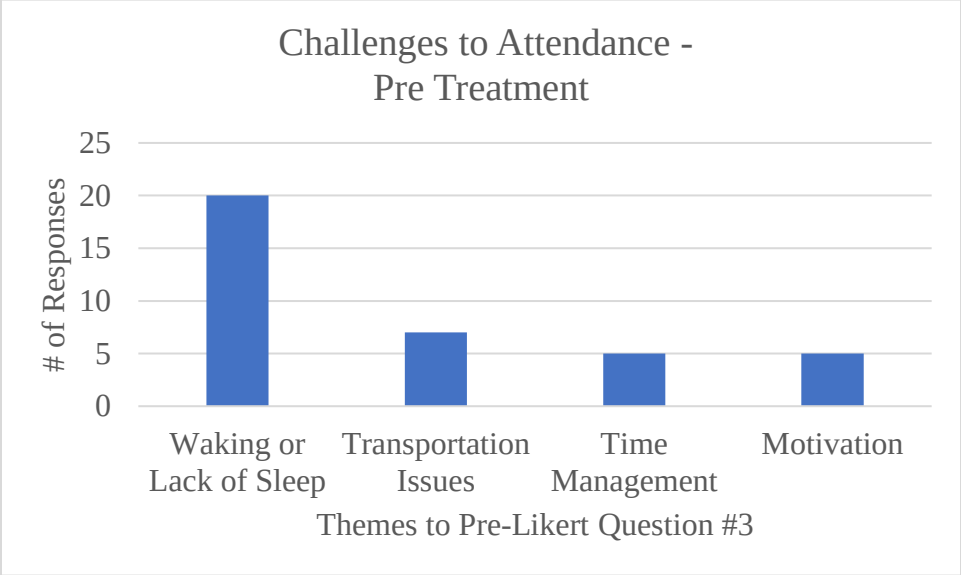

Figure 4. Themes from the pre-Likert survey open-ended Question 3, "I have a daily routine for getting to and from school each day. What challenges do you have in doing this?" (*N*=37).

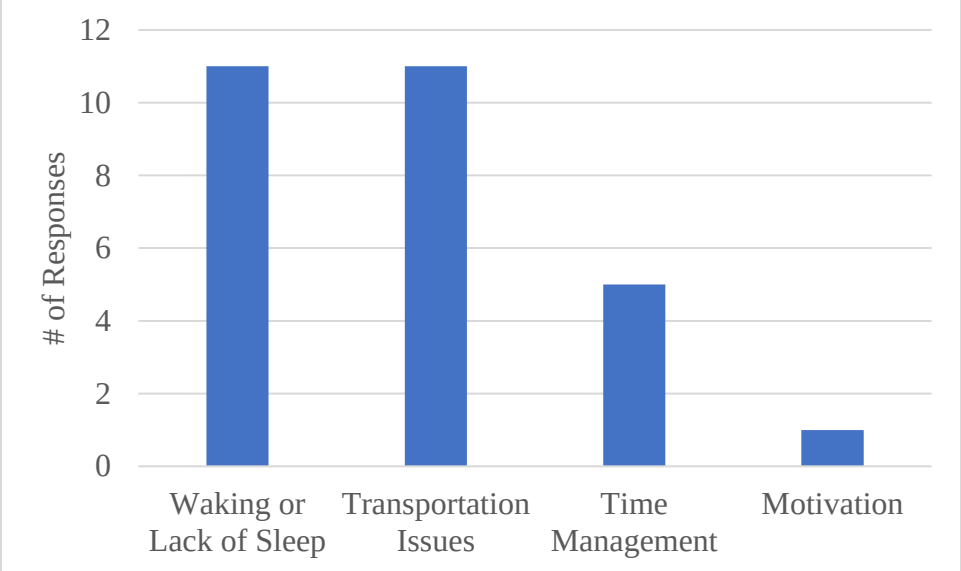

Figure 5. Themes from the open-ended post-Likert Question 3, "I have a daily routine for getting to and from school each day. What challenges do you have in doing this?" (*N*=28).

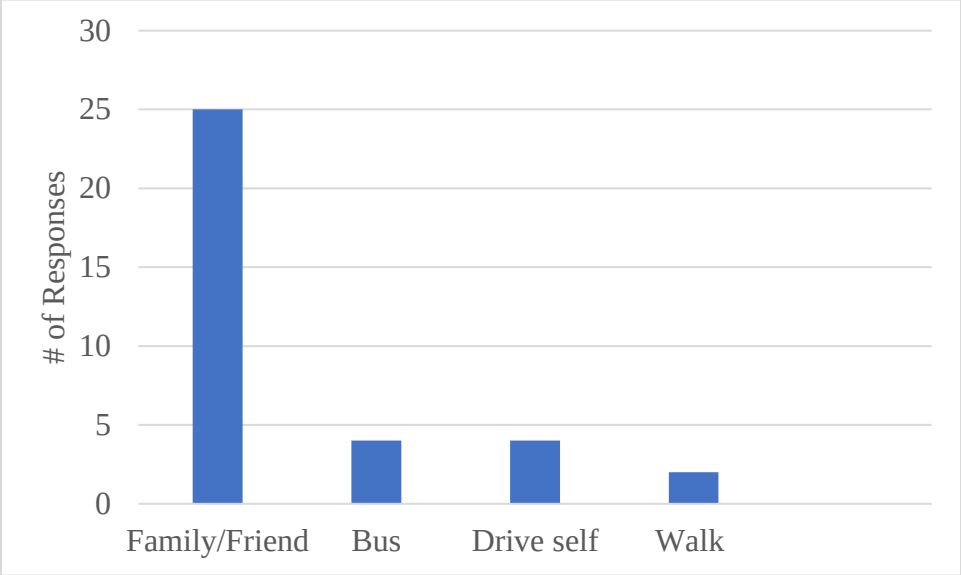

Figure 6. Theme from the open-ended pre-Likert Question 4, "I had a back-up plan in place for transportation if I failed to follow my daily routine. What is your back-up plan?" (*N*=35).

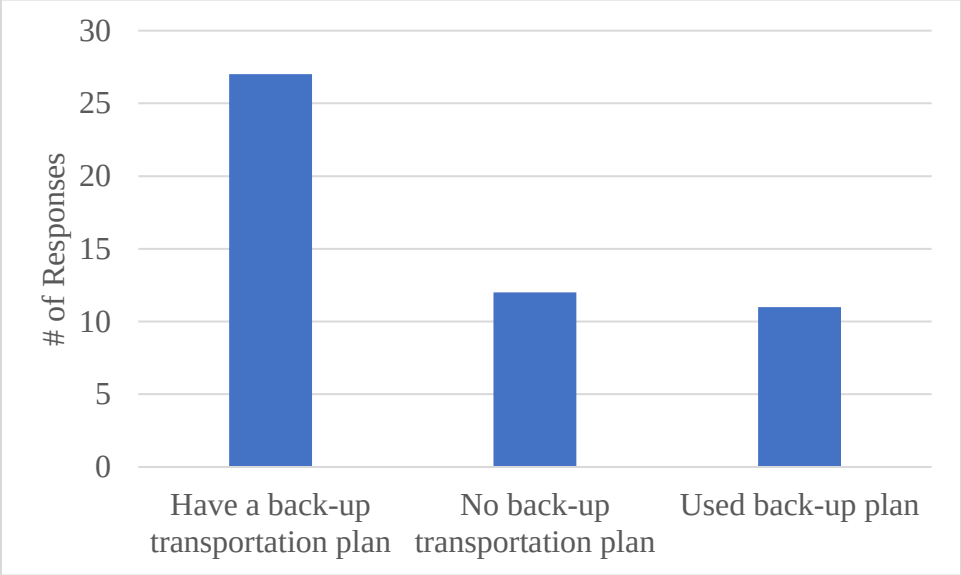

Figure 7. Theme from the open-ended post-Likert Question 4, "I had a back-up plan in place for transportation if I failed to follow my daily routine. What was your back-up plan? Did you need to use your back-up plan during the quarter? If so, did it fall in place as planned?" (*N*=40).

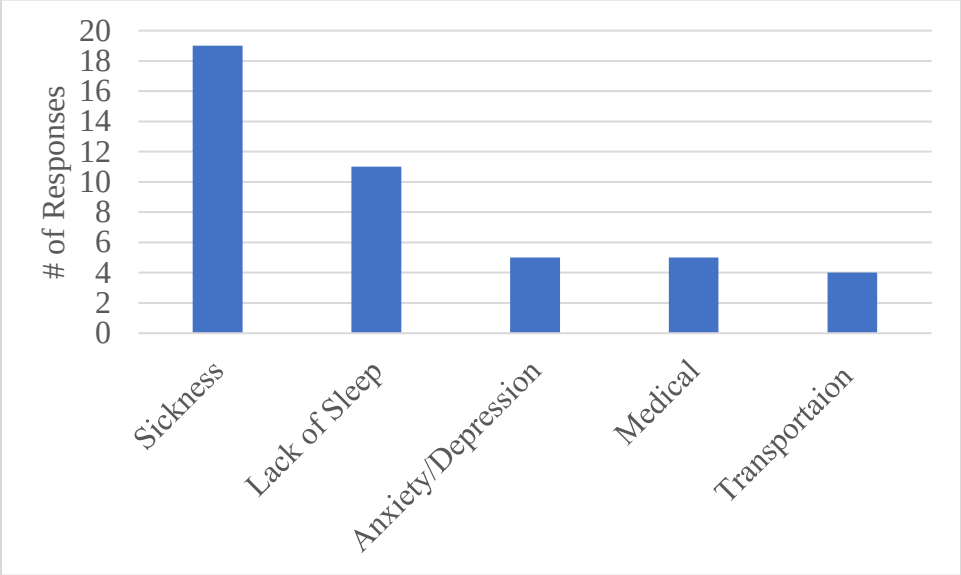

Figure 8. Themes from the open-ended post-Likert survey Question 5, "What kept you from coming to school when you were absent?" (*N*=44).

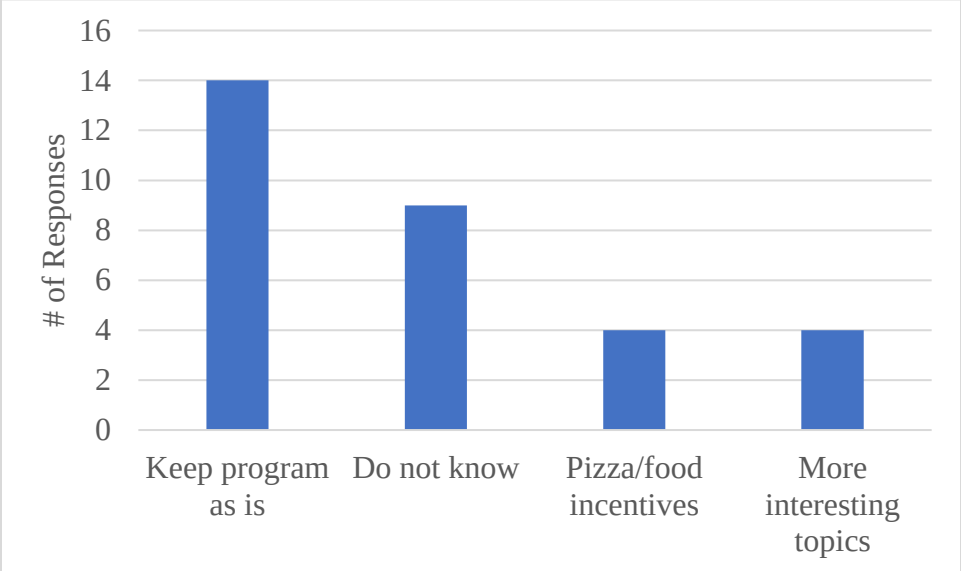

Figure 9. Themes from the open-ended post-Likert survey Question 5, "What can the staff do to encourage you to attend school more often?" (*N*=31).

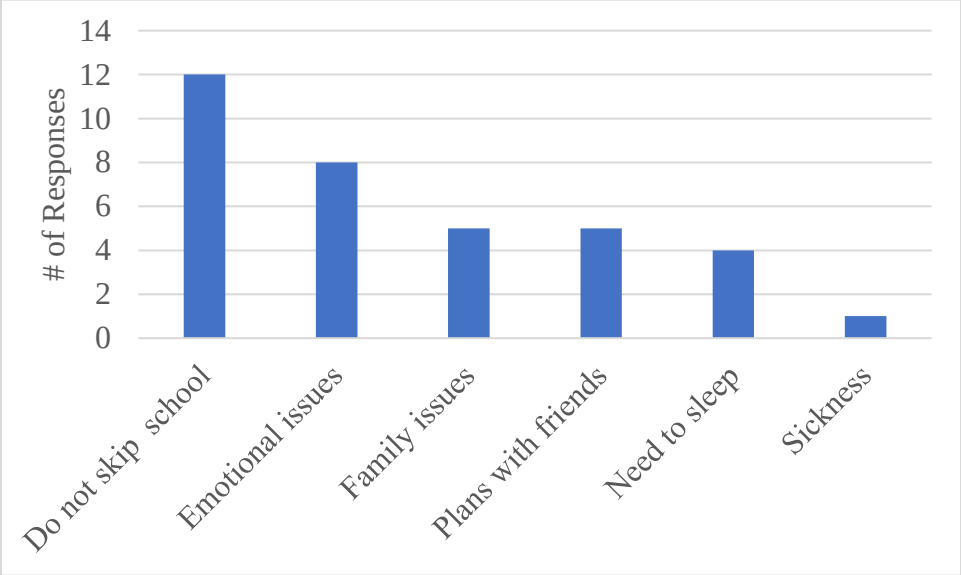

Figure 10. Themes for open-ended post-Likert Question 6, "I am easily influenced to skip school if something better comes up. If you skipped school, what influenced you to skip school?" (*N*=35).

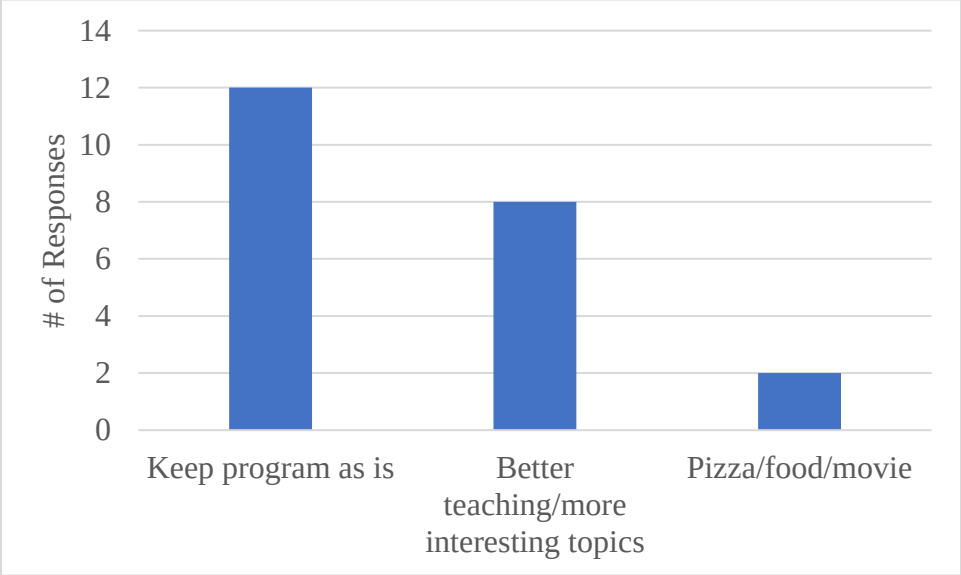

Figure 11. Themes form open-ended post-Likert the second part of Question 6, "What do you think the staff should do to increase attendance since we have a no-homework policy but yet we are required to teach the core standards expected of teachers?" ((*N*=22).

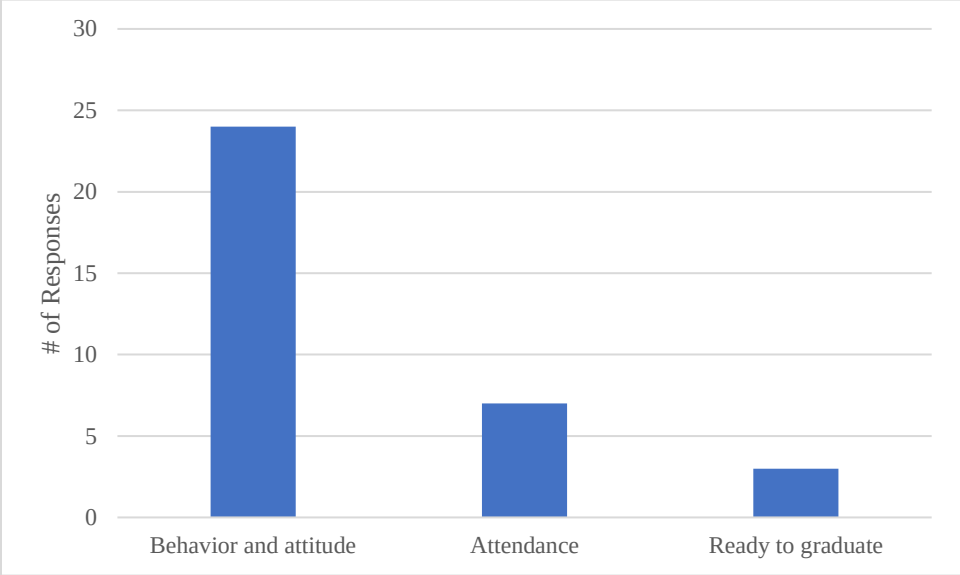

Figure 13. Themes from the open-ended post-Likert survey Question 9, "My behavior/attitude at school needs improvement. Please explain why you answered the way you did in the above." (*N*=34).

APPENDIX J

HISTORICAL DATA TABLE

Table 1
Historical Data for percent of dropped students, average number of absences per student and the percent of failure rate based on credits attempted and credits earned per quarter.

School Year and Quarter	Dropped Students %	Average # of Absences/Student/Quarter	Failure Rate %
2014-2015 Qtr 1	14.4	4.5	6.7
2014-2015 Qtr 2	13.7	5.2	16.1
2014-2015 Qtr 3	20.2	6	9.9
2014-2015 Qtr 4	18.3	5.8	13.5
2015-2016 Qtr 1	3	5.3	6.4
2015-2016 Qtr 2	17.8	7.4	11.6
2015-2016 Qtr 3	14.9	4.5	9.3
2015-2016 Qtr 4	14.4	3.6	9.3
2016-2017 Qtr 1	20.3	5.5	16.7
2016-2017 Qtr 2	11	6.5	12
2016-2017 Qtr 3	26.6	5.9	18.3
2016-2017 Qtr 4	14.4	6.1	20.5
2017-2018 Qtr 1	10.9	5.3	14.5
2017-2018 Qtr 2	21.5	7.1	14.3
Standard Deviation	5.690593743	1.022950913	4.246530581
Mean	15.8	5.62	12.8
Mean and Standard Deviation	15.8+/- 5.7	5.62 +/- 1.0	12.8 +/- 4.2
Red = outlier			

APPENDIX K

STUDENT FOCUS GROUP INTERVIEW QUESTIONS AND SUB QUESTIONS

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. At this point, the alternative program has expanded our incentive program, how do you think it is going?
    a. Is it working and why do you think that?
    b. What could be done to help it work better?
    c. Is the incentive program encouraging to help you get to school?
        i. What can the staff do to help more students get to school every day?
    d. Do you think the incentive program is fair or unfair? Why?
2. What are characteristics of becoming more adult-like?
    a. What characteristics do you think you need to work at as you get closer to graduation or at this point in your life?
    b. How does this affect your life outside of school?
3. Why do you think the alternative program staff puts a strong emphasis on attitude and behavior?
    a. How do you think attitude and behavior impact you as a student here in the alternative program?
    b. In what ways does the incentive program increase awareness about showing positive behaviors?
4. The staff is encouraging about making little changes in behavior this quarter. What are the advantages of making positive changes?
    a. What does it take to go from an "average student" to "going above and beyond"?
    b. How does this apply to you here at school if you are just trying to get by?
    c. How does this affect your success in life?
5. What is meant by "owning up"?
    a. In what ways do you "own up" to things that happens in your life?
    b. How do you "own up" to issues here at school?
    c. How do you earn the ultimate respect of teachers here at school?
6. What are your thoughts of the Gold Club?
    a. What would be the impact of being in the Gold Club?
7. What are the impacts of using green, blue, purple and gold incentive system?
    a. How does this relate to becoming an adult?
    b. How does the incentive program make you think before you speak and/or act?
8. The ultimate goal of the incentive program is to help students earn more credits each quarter staying caught up in work throughout the quarter to alleviate the stress, anxiety, the procrastination factor, and frustration during sign-out week and increase learning by all students in the alternative program. How is this working for you?
    a. What are the benefits being in school every day? How does it help you stay on track?

b. How much effort do you put towards staying caught up when you are absent?
    i. What are your thoughts on coming in early to school, having a working lunch, or staying after school to make-up work?
    ii. What difference do you think it would make if you used your time wisely throughout the quarter to get your work completed daily and weekly on sign-out week?
c. Another fear that some students face is losing classes due to missing too many days of school. Is the incentive program making a difference for students on the “edge”?
    i. What can students do to help promote better attendance?