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Impact of a Contingency Cell Phone Plan on Secondary Students' On-Task Behavior

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Table of Contents

Abstract

Use of technology as a tool for reinforcement to increase on-task behavior is imminent given the role of technology in society. This study utilizes the implementation of a contingency cell phone plan designed to increase on-task behavior. An ABAB design was employed with at-risk, secondary students receiving special education services in a continuation high school. Three male students, ages 16-18, with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) were selected due to difficulty with on-task behavior. Participants were granted access to their cell phone after demonstrating 5 minutes of on-task behavior. On-task behavior was defined as any behavior that did not include looking at their cell phone. The results indicated a significant increase in on-task behavior when using a contingency cell phone plan as a tool for reinforcement. Given the scant research on technology as a tool for reinforcement, this study and future studies will provide meaningful data into use of this strategy in the educational setting.

Key words: on-task, secondary, reinforcement, technology

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Literature Review

On-task Behavior

On-task behavior is a construct. That is, researchers have defined it differently depending on their purpose or task (Galton, Hargraves, Comber, Wall & Pell, 1999; Gill & Remedios, 2012; VandenBerg, 2001). For example, VandenBerg (2001) used on-task behavior to represent engagement with the learning materials. Engagement indicated that if students were interacting with the learning materials (e.g., book, graphs, etc.), then they were considered on-task. On-task behavior could include using the materials appropriately along with engaging in task-related conversations (Gill & Remedios, 2012). Furthermore, Galton and colleagues (1999), included requiring the student to be fully involved with the assignment to be counted as on-task behavior. These varying definitions allow for a flexibility in research and for interested individuals to clearly identify which academic behaviors they are interested in measuring; as it is clear that on-task behaviors can range from interaction with materials to correct responses on an assignment within a given time.

This range of behaviors clarifies the importance of the on-task construct. The scope of on-task behavior is often correlated with academic success (Heering & Wilder, 2006). For example, on-task behavior increases a student's grade point average (GPA), decreasing the student's risk of school dropout. Given that many students, who do not successfully complete high school with a diploma remain unemployed, their chances of incarceration and dependency on social services escalate dramatically (Appleton, Christenson, & Furlong, 2008). For at-risk students, improving their GPA and decreasing their risk for dropout helps prepare them to be successful in school as well as in their professional life. Therefore, it is important to help

students develop the skills to be on-task in an academic environment (Wills & Mason, 2014). Teaching on-task behaviors to students is a well-researched topic and a myriad of interventions to improve on-task behavior have been successful for various student populations.

Behavioral Interventions

Many studies have identified interventions that increase on-task behavior for students in the general education and special education settings. Research has shown that interventions have been proven effective for students in whole class settings as well as for individual needs (Allday & Pakurar, 2007; Appleton, Christenson, & Furlong, 2008; Bedesem & Dierker, 2014; Bonus & Riordan, 1998; Calderhead, Filter, & Albin, 2006; DuPaul & Weyandt, 2006; Galton, Hargraves, Comber, Wall & Pell, 1999; Heering & Wilder, 2006; Moore, Anderson, Glassenbury, Lang & Didden, 2013; Panahon & Martens, 2012; Skinner, 2002; VandenBerg, 2001; Wills & Mason, 2014). Whole-class interventions tend to focus on increasing attentive, engaged behavior amongst all students while individualized interventions target a specific behavior for an individual student.

Teachers utilize whole-class interventions for on-task behavior to create positive learning environments. Allday and Pakurar (2007) examined the effect of teacher greeting on students on-task behavior. Using antecedent manipulation, a secondary classroom teacher greeted students as they entered the general education classroom. In addition to the greeting, a personalized comment was made. The researchers found a mean increase of 27% of on-task behavior during the intervention phase, suggesting that students are more likely to demonstrate on-task behavior when presented with a positive antecedent event (Allday & Pakurar, 2007). For many students a warm, welcoming teacher provides students the confidence and inspiration to meet academic expectations.

Another whole-class intervention often used within the classroom is seating arrangements. Teachers use seating to diffuse social tension, encourage academic support among peers and foster productive learning environments. For example, Bonus and Riordan (1998) investigated the use of specific seating arrangements as an intervention to increase on-task behavior. Findings from this study demonstrated that dependent upon the type or format of instruction, whole class seating arrangements were influential in increasing on-task behaviors (Bonus & Riordan, 1998). Teachers can implement the use of varying seating arrangements; however, this strategy does not ensure on-task behavior.

Even within a perfect classroom setting, typically at least one student's behavior disrupts the learning environment. To address these classroom behavior issues teachers often use contingency-based systems to redirect or address target behaviors. Using independent, interdependent or dependent group contingencies, teachers can provide students with the same reinforcer dependent upon the contingency in place. Independent group contingencies address one target behavior for all students, where the student earns the reinforcement based upon his or her behavior. Interdependent group contingency systems allow a group of students to earn the reinforcer given the group behavior. Dependent group contingencies provide reinforcement to the whole group dependent upon on or a few students meeting the target behavior. Heering and Wilder's (2006) research with elementary students on increasing on-task behavior through dependent group contingency systems indicated extremely positive results. That is, on-task behavior rose from a mean of 36% to 83% in a third grade classroom and from 50% to 85% in a fourth grade classroom. Follow-up levels conducted during the study continued to show that high levels of on-task behavior were maintained with a mean of over 90%. This research points to the importance of group contingency systems and their effectiveness within the classroom.

While whole group or classroom based interventions are extremely beneficial to students, individualized interventions must be implemented for students who are identified at-risk or have severe behavior needs.

For students with more challenging or prominent behaviors, identifying the function of the behavior is imperative for choosing the appropriate intervention. For secondary students, the function of the behavior is often to avoid tasks or a paucity of executive functioning skills. Many students who engage in off-task behavior due to learning challenges have found success in interspersed requests or stimulus variation of instructional tasks (Calderhead, Filter, & Albin, 2006). For example, a student with Attention Deficit Hyperactivity Disorder (ADHD) who loathes division may be more successful in completing the assignment when a few addition or subtraction problems are mixed also included in the assignment. Perhaps the student is more inclined to finish the task because they are less frustrated or they may find the easier, preferred item fun and rewarding.

Skinner (2002) proposed that interspersing preferred tasks with more challenging tasks increases the rate of reinforcement for task completion. Completion of the easier, or preferred task, becomes a conditioned reinforcer, thereby increasing on-task behavior (Skinner, 2002). Along with interspersing modified tasks within an assignment, many teachers find allowing students with behavior challenges to choose an assigned academic activity is an effective intervention.

Choice-making interventions provide students with teacher approved task options within an area of study. For example, a student who finds writing aversive may choose to make a picture collage instead. The student avoids the act of writing, but illustrates mastery of the concepts in a different way. Students who are allowed choice making within their classroom

have been shown to have increased rates of on-task behavior (DuPaul & Weyandt, 2006). In addition to making choices, modifying assignments to increase accessibility has also been shown to be effective. Modification may include a reduction of assigned tasks, creating sub-units, or providing a brief break after task completion. Many students struggle with both academic needs and, or executive functioning skills. For these students, self-management strategies are vital to increasing on-task behavior.

Self-management strategies have been proven very effective to increase on-task behavior for secondary students (Moore, Anderson, Glassenbury, Lang & Didden, 2013). Strategies for self-management include "self-monitoring, self-recording, self-evaluation, goal setting and self-reinforcement" (Moore et al., 2013, p. 302). Teaching students these skills early can promote educational success as well as generalizing to future employment. Furthermore, Wills and Mason (2014) describe self-monitoring as a multi-step process in which students observe and record the presence of the target behavior. Students may use visual calendars or charts to regulate and reinforce on-task behavior. For example, a high school student with ADHD, may record the number of paragraphs he read every five minutes to determine whether he remained on-task during the class period. These types of visual strategies often aide students with their self-management skills.

In addition to visual strategies, tactile or audio prompts are often used in self-management interventions to cue the student's behavior. Moore and colleagues (2013) studied the use of a tactile prompt for self-management of general education secondary students. In this study, the use of an electronic beeper that vibrates re-directed students to remain on-task. The mean increased on average by 39.1% during the intervention phase suggesting the use of a tactile prompt to be very effective for increasing on-task behavior (Moore et al., 2013). Use of

electronics or technology in self-management has increased greatly over the past decade with the surge of classroom access to tablets, small computers or handheld devices (Wills & Mason, 2014). For secondary students where assimilating with peers is essential, the use of technology as an intervention is an appropriate tool.

Furthermore, technology as a potential intervention was investigated by Wills and Mason (2014) using an android application that allows students to self-evaluate through text cues and response. Both participants demonstrated an increase of over 40% of on-task behavior with the use of the application, indicating an extremely effective intervention for these students (Wills & Mason, 2014). In addition, the use of a cell phone as a self-monitoring tool has been determined to increase on-task from 44% to 99% (Bedesem and Dierker, 2014). Researchers attributed this, at least partially, to the level of acceptance of cell phones amongst students. Providing students with a strategy that facilitates autonomy in self-regulation of their on-task behavior can be a powerful experience (Appleton, Christenson, & Furlong, 2008). Modifying academics, providing choice activities and implementing self-management strategies are fundamental interventions for increasing on-task behavior. In addition to the aforementioned interventions, consequent based systems play in important role in behavior interventions.

Contingency based consequence systems, such as providing a reinforcer following a target behavior, have a long history of empirically based evidence supporting practice in the classroom (DuPaul & Weyandt, 2006). For example, if a student demonstrates on-task behavior by engaging with the lesson material or discussing the academic task with a peer the student receives a ticket. The ticket acts as a reinforcement, or acknowledgement of the student displaying appropriate on-task behavior. Given the student understands the value of the ticket, she is more likely to continue to engage in on-task behavior. For at-risk secondary students and

those in a special education program, contingency based interventions increase motivation along with decreasing the target behaviors (Appleton, Christenson, & Furlong, 2008). To have an effective contingency based, consequent strategy identifying effective reinforcement is imperative.

Research has shown that an intervention is only as successful as the reinforcement it provides to the student (Fielder, 2007). For many educators this is a difficult concept to understand. Herrnstein's (1961, 1970) matching law explains the construct of reinforcement as the amount of time a student engages in a behavior as a function relative to the rate the behavior is reinforced. Using this construct, educators can increase the rate of appropriate behavior by supplying an adequate quantity of positive reinforcement. Fielder (2007) explains that positive reinforcement is the presentation of a stimulus which increases the frequency of the target behavior. When selecting the type of reinforcement, one must also consider the schedule of reinforcement and the delivery system.

Interval schedules of positive reinforcement have been used to control on-task behavior with affirmative results (Skinner, 2002). Interval schedules of reinforcement can be provided through fixed or variable intervals. For example, a student who has challenges remaining in their seat may receive a reinforcer after every five minutes, which is a fixed interval schedule, or at randomly selected times throughout the session, a variable interval schedule. Along with a time schedule, interventions are constructed with specific delivery systems. The reinforcement can be delivered through non-contingent or contingent based systems. Non-contingent systems deliver stimuli at a fixed time interval regardless of student behavior. For example, every 20 seconds the teacher gives the student a ticket whether or not the student is demonstrating the target behavior. Panahon and Martens (2012) found that contingent based systems, or delivery of stimuli

contingent upon student behavior, are a more effective delivery method compared to non-contingent systems. Contingent systems require the student to meet an objective prior to receiving the reinforcement. For example, if the target behavior was task completion, once the discrete task was completed the student is reinforced through use of a preferred item for a fixed time (Skinner, 2002). While the schedules and system of reinforcement are the foundation of an intervention, the most essential piece is selecting the appropriate reinforcer for the individual student or group of students. For the educator it is critical to recognize the importance of extrinsic motivation and utilize student choice in stimuli, which will establish student engagement in the task, increasing the magnitude of reinforcement (Appleton, Christenson, & Furlong, 2008; Hoffmann, 2014). Using contingent based systems of reinforcement with highly preferred items as the reinforcer has been shown to be extremely effective in increasing on-task behavior (Skinner, 2002).

Highly preferred reinforcers for secondary students can vary greatly from those of younger children. Providing specific, valued, reinforcement becomes paramount to the success of the intervention as the individuality of favored items increases, with maturation of students (Fielder, 2007). Given the variation of preferred reinforcers among individuals and ages, determining choice items for the student is paramount. Using stimulus preference assessments can be useful in identifying highly preferred reinforcers for secondary students. Fielder's (2007) research maintained that teacher and student preference varied in each stimulus preference assessment, concluding that selecting the appropriate reinforcer is not always obvious and requires student input. Given that the most successful interventions are easy and quick to implement, finding a highly preferred reinforcer that falls under those same conditions and is socially acceptable is fundamental. For secondary students, using a reinforcer that does not stand

out is key. Using technology as a reinforcer for more mature students enables them to remain inclusive with their peers, while accessing a highly preferred item.

In the past decade, high-tech stimuli have become a highly preferred reinforcer for students (Hoffmann, 2014). High-tech devices, defined as using batteries or electricity, with sophisticated computer components, consist of items such as personal gaming devices, laptops, tablets, cellphones, etc. (Hoffmann, 2014). High-tech devices, specifically cell phones, have become easily accessible in the United States, providing opportunity for use as a reinforcer for secondary students. A recent study by Pew Research Center, states 88% of teens in the United States have or have access to a cell phone and it is their preferred form of communication (Lenhart, 2015). In her research on high tech stimuli as a reinforcer, Hoffman (2014) attributed the production of response-dependent and response-independent changes in high-tech devices such as cell phones, as the rationale behind the high rate of reinforcement provided by technology for students.

Furthering the discussion of cell phones as a reinforcer, Wei and Wang (2010) used the gratification model to provide rationale for cell phone use in the classroom stating that cell phones provided reinforcement in the constructs of "pleasure, relaxation, escape, inclusion and affection" (2010, p. 481). While there is scant research specifically on the use of cell phones as a reinforcer in the classroom, as students are innately drawn to the use of technology, exploration of this area is imminent. Given that 75% of students' report carrying their cell phones to class (Froese, et al., 2012) and over 90% of students reported sending text messages during class (Ali, Papakie, & McDevitt, 2012), it would be reasonable to say, further study in this area is essential. Use of a cell phone as a reinforcer for at-risk, secondary students in a special education program

increases the sustainability of the intervention, by being a highly preferred item, easily accessible and socially acceptable amongst peers (Wills & Mason, 2014).

This study will examine how the implementation of a cell phone use contingency plan will affect the rate of on-task behavior of at-risk, secondary students, in a special education program. Currently, there is a plethora of research around interventions for general education and special education of various ages, however there is little research specifically looking at interventions to increase on-task behavior for secondary students using technology as the reinforcer, not a tool for the intervention. The data gathered throughout this study will be highly beneficial to administrators, teachers and students in the secondary setting by providing a strategy to use cell phones to increase student motivation.

Research Question

How does the implementation of a cell phone use contingency plan affect the rate of on-task behavior of at-risk, secondary students, in a special education program?

Methods

Setting

The study took place throughout 19 sessions lasting in a guided studies classroom that lasts 50 minutes in a continuation high school in Santa Clara County. The high school serves students who have not previously been successful in a comprehensive high school setting. The school capacity is approximately 180 students, ages 16-19, with 12% of its population receiving Special Education services (Bowen, 2015). The high school is in a suburban community, with 30% of its 52,000 inhabitants under the age of 18. Approximately 57% of its population identifies itself as Hispanic or Latino in origin with 15.5% of the population reported as below poverty level (United States Census, 2014).

The school district board policy states cell phone use is prohibited during instructional minutes, including passing periods. Students may use their cell phones during brunch and lunch. If a student uses their cell phones during instructional time, they are instructed to put the device away. If a student refuses or uses the phone again, parent contact will be made and additional consequences may ensue. If the behavior becomes habitual, office discipline referrals are given and severe consequences may be warranted.

Participants

Three males ages 16-18, with a diagnosis of attention deficit hyperactivity disorder, combined type, participated in this study. Each participant was assigned a pseudonym to ensure confidentiality and anonymity. Participants received special education services through mild/moderate specialized academic instruction. Participants were selected based on teacher nomination due to chronic use of their cell phone during class time. Each participant had received a minimum of three office discipline referrals due to cell phone use. All three students attended a full five-and-a-half-hour day at school, with one period of special education support through their Guided Studies class.

Alfonso was 17 years old and has received Special Education services since 2011. Since attending the current school, Alfonso had earned 12 credits and is not on track for graduation.

Austin was 18 years old and has received special education services since 2006. He is on track for graduation in June of 2016.

Jacob was 16 years old and has received Special Education services since 2014. Jacob has earned 83 credits and is on track to return to his comprehensive high school for his senior year.

Materials/Instruments

The materials used for this study were the participant's cell phone, data collection form, timer, teacher survey, and a participant self-assessment. The cell phone is the property of and provided by the participant. The data collection form included the participant's pseudo name, date of observation, five rows indicating the start and end time of the observation period and five columns representing each day of the week. The researcher used an online timer with an automated alert set for five-minute intervals.

Measurement

Direct observation of the on-task behavior was observed at least four days a week using a five-minute partial interval recording system (Todd, Campbell, Meyer, & Horner, 2008). Observations were consistent across class periods. The researcher used an online timer to time the five-minute intervals. The first interval started approximately five minutes after the class period began. There were five intervals per class session. On-task behavior was defined as the participant not looking at or using their cell phone. Researchers noted their observations and marked the number "0" if a participant used their cell phone at any point during the interval. If the participant did not use or look at their phone, the researcher noted the observation with the number "1" to indicate on-task behavior. Researchers received training in identifying on-task behavior, completion of the data collection sheet, and use of the online timer.

Design and Procedures

To investigate the impact of a contingency cell phone plan as a reinforcer for on-task student behavior, the research team developed a study using an ABAB design. Throughout all phases of the study, participants were instructed to place their cell phone in the top left hand corner of their desk or table. During baseline, participants were observed in five-minute

intervals during their classroom environment. During each interval, the researcher documented cell phone use by the participant. The school policy of no cell phones allowed during class was enforced.

During the intervention phases of the study, a contingency use plan was in place. Participants were instructed that if they demonstrated on-task behavior for five minutes, defined for this study as not looking at or touching their cell phone, they could use their cell phone for a two-minute period at the conclusion of each five-minute interval. Participants who did not demonstrate on-task behavior during the five-minute interval did not have access to their cell phone during the two-minute interval and it remained at the top left corner of their desk. Each series of intervals, the five-minute and two minute, acted independently of one another. For example, a participant that did not earn the two-minute cell phone time after the first interval had the opportunity to earn the second segment of cell phone time if they demonstrated on-task behavior during the second five-minute interval. Participants were moved from baseline to intervention after three stable data points. Participants returned to baseline after an increase of 25% or more of on-task behavior. Participants entered the second intervention phase after at least three stable data points.

Interobserver Agreement

During the data collection process, a second researcher collected data for 25% of the sessions. The second researcher was trained on how on-task behavior was defined for this study, how to complete the data collection sheet and use of the online timer. The second researcher collected data independently of the other researcher. Interobserver agreement was calculated by dividing the total number of agreements by the total number of agreements plus disagreements

and multiplied by 100%. Alfonso's mean IOA was 94%. Austin's IOA recorded on-task behavior with a rate of 95% accuracy. Jacob had a mean IOA of 95% as well.

Procedural Fidelity

For 25% of sessions, an independent observer checked to see that the primary researcher consistently implemented the cell-phone contingency. The second researcher determined procedural fidelity by dividing the total number of correctly implementations by the number of opportunities to implement the procedure and multiplied by 100 to determine percentage. The contingency intervention was implemented correctly with 100% accuracy.

Social Validity

Social validity results were measured through teacher and student surveys. Social validity was addressed by 12 teachers through the completion of a three-question survey prior to participants entering baseline. The three questions were:

1. Are cell phones a distraction in your classroom?

   YES NO

2. Is the current school policy of banned cell phones during instructional time effective?

   YES NO

3. Would appropriate cell phone use strategies be beneficial in your classroom?

   YES NO

Overall, teachers agreed that cell phones were a distraction in the classroom. Of the 12 teachers surveyed, 95% of them answered yes to the survey question of "Are cell phones a distraction in your classroom?" All of the teachers concurred that current policies of banning cell phone use during instructional time was ineffective. When asked if appropriate cell phone use strategies be beneficial in the classroom, 100% of the teachers surveyed said "yes."

Participants addressed social validity through self-assessment surveys answered prior to entering the initial baseline and after the final intervention. Participants were instructed on the terms used in the questions and provided with an opportunity to ask questions about the self-assessment survey. The three questions were:

1. Does use of your cell phone distract you during class?

   YES NO

2. Do you accomplish more when your cell phone is not being used?

   YES NO

3. Does the possibility of using your cell phone after you've completed work, make you want to work harder?

   YES NO

Participant surveys came back with mixed results. During baseline, when asked if the use of their cell phone distract them during class two out of three participant said "no." When answering whether they accomplished more when their cell phones were not being used again, all participants responded "no." For the final question of "Does the possibility of using your cell phone after you've completed work make you want to work harder," two participants marked "yes" and one answered "no" to this question. Post intervention phase student surveys were all returned with participants answering "yes" to all questions.

Results

The impact of a cell phone contingency plan on on-task behavior is depicted in Figures 1, 2 and 3. The y-axis is the participants' percentage of on-task behavior. Sessions are displayed on the x-axis.

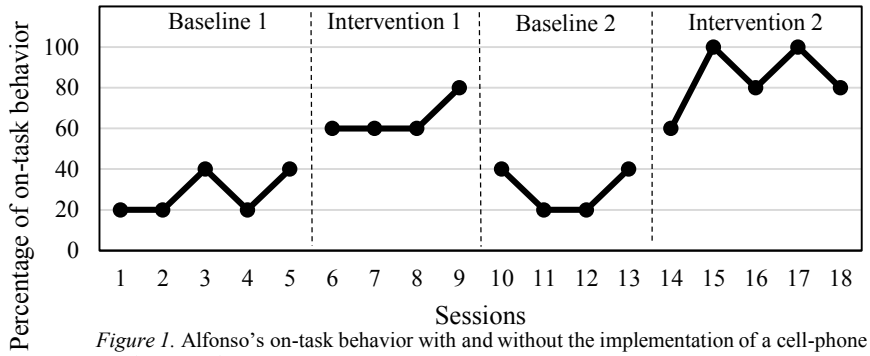

Figure 1. Alfonso's on-task behavior with and without the implementation of a cell-phone contingency plan.

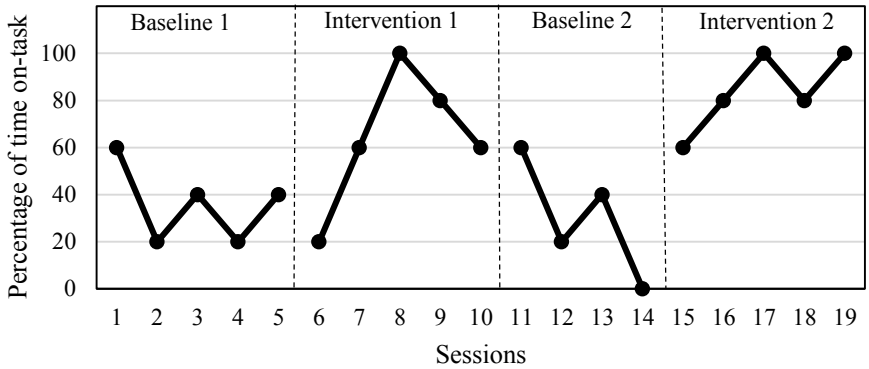

Figure 2. Austin's on-task behavior with and without the implementation of a cell-phone contingency plan.

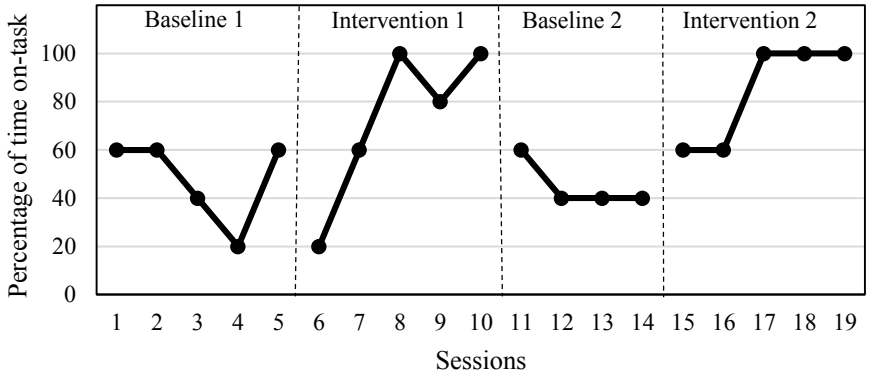

Figure 3. Jacob's on-task behavior with and without the implementation of a cell-phone contingency plan.

Figure 1 displays the results from Alfonso. Alfonso's mean of on-task behavior during Baseline 1 was 28% (range 20-40%). During Intervention 1 his average of on-task behavior increased to 65% (range 60-80%). During Baseline 2, Alfonso's on-task behavior decreased to a

mean of 30% (range 20-40%). At the end of Intervention 2, Alfonso's on-task behavior rose to an average of 84% (range 60-100) of time on-task.

Austin's mean of on-task behavior during Baseline 1 was 36% (range 20-60%). During Intervention 1 his average of on-task behavior increased to 64% (range 20-100%) (see Figure 2). During Baseline 2, Austin's on-task behavior decreased to a mean of 30% (range 0-60%). At the end of Intervention 2, Austin's on-task behavior rose to an average of 84% (range 60-100) of time on-task.

Figure 3 displays the results from Jacob. Jacob's mean on-task behavior during Baseline 1 was 48% (range 20-60%). During Intervention 1 his average of on-task behavior increased to 72% (range 20-100%). During Baseline 2, Jacob's on-task behavior decreased to a mean of 45% (range 40-60%). At the end of Intervention 2, Jacob's on-task behavior rose to an average of 84% (range 60-100) of time on-task.

Discussion

The results of this study suggest that a contingency use cell phone plan is beneficial for increasing on on-task behavior for secondary students in a special education program. Throughout the study participants increased their on-task behavior by 26% to 56% from the initial baseline to the final intervention phase. These results are comparable to previous studies on on-task behavior using contingency based systems (Heering & Wilder, 2006). All participants demonstrated significant improvement of their on-task behavior with the implementation of the contingency use cell phone plan.

The first participant's data demonstrate a functional relation with no overlapping data points, Alfonso displayed a more stable trend line which may be explained by his tendency to be less emotional or impulsive than the other participants. Alfonso has shown to be more

intrinsically motivated, completing tasks and demonstrating self-advocacy, over time in comparison to the other two participants. Given these personality traits, his trend line could be attributed to his level of motivation and demonstration of stronger executive functioning skills. While Alfonso appears to have the least amount of drastic movement amongst data points compared to the other participants, he displayed the greatest gain in time on-task change from baseline to intervention over the course of observation has the out of the three participants. This was an interesting find for the researchers and potentially points to the impact emotional regulation has on intervention results.

The researchers attributed much of Austin's data to his highly emotional state in which he typically displays impulsive behavior with significant mood changes. Both Austin and Jacob had 60% of overlapping data points. When including the overlapping data points for Austin and Jacob, their percentage increases to 90% leading the researcher to conclude the intervention was highly effective for these participants as well.

While Jacob also demonstrates high rates of impulsivity, he tends to be less emotionally oriented than Austin. However, Jacob required more "buy-in" when it comes to reinforcement stimulus then either Alfonso or Austin which was apparent in his results.

However, even with fluctuating emotional needs, given the high rate of reinforcement a cell phone provides, both Austin and Jacob made significant improvement in their rate of on-task behavior. The value of a cell phone as a reinforcement tool can be seen as conclusive given all three participants answered positively to this effect in the post intervention student survey. This was very clear to see in Jacob's data points in the final sessions of each intervention phase once he decided the contingency of work production was worth the payoff of cell-phone time.

Each participant was able to move from baseline to intervention at the same time for each phase as this was not the expectation. These three participants have a history of truancy; therefore, the researchers expected absences to impede the transition between each phase. However, during the research period, the participants were present for each day of school with the exception of Alfonso who missed one day. Additionally, the researchers found it interesting that each participant had a mean of 84% of on-task behavior in the final phase of Intervention. There is no explanation for this consistency, however it is interesting to note. The survey data provided the participants post intervention was a significant demonstration in how the participants were able to identify both the detriment of cell phones as distractors, but also the value of use of cell phones as reinforcer for task completion. Their consensus regarding cell phones as a valuable tool as a reinforcer coincides with Hoffman (2014) and Lenhart's (2010) research on secondary students and their adoration of technology.

Contingency based consequent intervention systems are extremely effective (DuPaul & Weyandt, 2006) and identifying the appropriate reinforcer for the student/s ensures success of the intervention (Fielder, 2007). In this current study the contingency based consequent system of cell phone use post work completion proved successful. Given the cell phone is likely the most highly preferred item of a secondary student at this time, the rate of reinforcement was significant (Hoffmann, 2014). All three participants indicated that knowing they would have the opportunity to access their cell phone after work competition was extremely motivating. Thus student on-task behavior increased by utilizing the cell phone as a tool for reinforcement which is an easily applicable strategy in the classroom.

The results of this study are an important contribution to current research and practice. The use of cell-phones in secondary general education and special education classrooms as a

means of reinforcement could significantly impact school climate addressing student, teacher and administrative needs by providing an effective, practical, and socially acceptable intervention strategy.

As students become accustomed to cell phones as a tool, they will have the ability to utilize cell phones as a tool for implementing free choice activities, for tactile prompting and eventually for self-management and increasing executive functioning skills. Appropriate cell phone use strategies could have a significant impact on increasing on-task behavior for secondary students across settings. As we know from current literature, higher rates of on-task behavior and student engagement has a positive impact on graduation rates, post-secondary options and an increased likelihood of becoming a successful member of society (Appleton, Christenson, & Furlong, 2008).

All teachers reported that the current policies regarding cell phones were ineffective and 95% of teachers agreed that cell phones were a distraction in their classrooms. Therefore, the use of a contingency cell phone plan provides general education teachers a reinforcement that would increase appropriate behaviors for the general education students as well as their students participating in special education programs. Additionally, teachers and administrators would have the advantage of providing cell-phone time for expected behavior versus the more common strategy of removing cell phone use as a punishment. Policy changes allowing use of cell phones as tools for reinforcement would allow administrators and teachers to implement effective interventions for all students in the classroom.

Although the data showed positive results, the researchers found limitations with the study and suggest alterations for future implementation. For future research it is suggested that increasing the sample size and implementing the intervention across settings would be useful.

For example, conducting the study in a general education classroom with 30 students including those receiving special education services, could demonstrate the feasibility of the intervention for all students and teachers. In this current study, researchers found the placement of the cell phone to be a distraction to the participants as they could see and in some instances hear their cell phone which impeded on-task behavior. The researchers suggest that participants place their cell phones in a back pack or in a separate location in the room instead of on their desk in future studies. The researchers also concurred, while it is important for the students to come in contact with the reinforcer, the time allotment was too short for the age of the participants. Without the appropriate length of time for reinforcement, the reinforcer may lose its value (Hoffman 2014). It is suggested that the time on-task be increased to 15 minutes and the reinforcement period increased to five minutes. It is reasonable to assume that with such a short time limit, participants were unable to accomplish as much as they would have with a longer time allotment for both task completion and the reinforcement period. With these alterations, the researchers are certain utilizing cell phones as a tool for reinforcement would have a great impact to the greater population.

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