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The Effects of Video Self-Modeling on Elementary Students' On-Task Behavior as a Response to Intervention

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ABSTRACT

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Effective interventions are imperative for students who are at-risk for academic failure. Response to Intervention (RTI), a service delivery framework, is gaining momentum in schools as it aims to provide effective and appropriate interventions of varying degrees. Frequently used in the form of a three-tier process, RTI addresses academic and behavioral deficits for students first at a school-wide level; next, at an individualized level; and finally, at a more intense individualized level. This study examined the effects of video self-modeling (VSM) as a Tier 2 RTI for two students in general education classrooms. Both students exhibited low rates of on-task behavior and were considered at-risk for academic failure. The first participant received intervention prior to his general education first grade math lesson. The second participant received intervention prior to his general education sixth grade writing lesson.

The results of the study indicate that this method of intervention has potential. In spite of uncontrollable confounding variables, both participants' average on-task behavior minimally increased (by 6 and 3 percentage points respectively) over the course of intervention. Neither student was referred for Tier 3 interventions nor was classified as having a disability. Video self-modeling as a Tier 2 intervention may provide substantial instruction for students with learning deficits, thus reducing the number of individuals referred for special education services.

Keywords: video self-modeling, response to intervention, on-task behavior, inclusion, tier 2 intervention

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Percent of on-task behavior for participants and comparison peers

INTRODUCTION

The American education system has a unique goal to provide a free appropriate public education (FAPE) to all students, including students with disabilities (U.S. Dept. of Education, 1999). School districts not only have the obligation to serve individuals from all backgrounds but the responsibility to successfully teach them. The 2004 stipulations in the No Child Left Behind Act (NCLB) hold teachers and schools accountable for student learning outcomes with the hope that students of all backgrounds will advance through common expectations (U.S. Dept. of Education, 2004). Recent legislation from the Individuals with Disabilities Education Improvement Act (IDEIA, 2004) calls for a process of intervention and data-driven driven assessment known Response to Intervention (RTI) for students who are lagging behind academic and behavioral expectations. Educators must follow federal legislation to apply these interventions in the least restrictive environment (LRE) to help students stay integrated with their peers and receive instruction in the same core curriculum.

RTI efforts focus on preventative approaches to student deficits through a series of interventions that identify and target specific skills (Vaughn & Fuchs, 2003). Interventions are data driven and require analysis throughout implementation to ensure student progress. The RTI framework establishes a versatile plan of action that is designed to evaluate and target various academic subjects and behavioral areas (McCook, 2006). The purpose of these interventions is to support student achievement by taking early preventative educational measures before a discrepancy between ability and achievement becomes too wide for students at-risk of school failure (Johnson & Smith, 2008).

Reading is a primary focus of RTI in schools. Federal legislation and government programs such as Reading First have placed an increased emphasis on improving reading skills.

This emphasis grew out of preceding federal legislation for which many of the same policymakers are responsible (Fuchs & Fuchs, 2006). RTI school-wide screening measures identify students who are at-risk for reading difficulties. Students receive reading instruction with increasing intensity through the use of small groups, additional time and lengthier interventions. Efforts to remediate reading difficulties are most successful in younger grades (e.g. kindergarten and first grade; Simmons, Coyne, Kwok, McDough, Harn, & Kame'enui, 2008), and focus on helping students to strengthen areas of decoding, including phonemic awareness and word attack (Lane, Fletcher, Carter, Dejud, & DeLorenzo., 2007) and comprehension (Wanzek & Vaughn, 2008).

School professionals use RTI methods to develop other student abilities. Like reading interventions, math interventions are also most successful when applied to early grade levels (Ketterlin-Geller, Chard, & Fien, 2008). Educators help students improve math computation and math reading skills by using a framework similar to that of reading intervention; that is, identifying student needs, creating plans for intervention and assessing student progress (Fuchs, Compton, Fuchs, Paulsen, Bryant, & Hamlett, 2005).

In developing appropriate interventions, cultural context is also an important factor to consider. Over-identification of students from diverse racial backgrounds with learning disabilities has led researchers to question classification criteria and to re-evaluate remedial methods (Klingner & Edwards, 2006). Interventions are likely to have greater impact on student performance when they are culturally sensitive towards specific populations (Cartledge & Kourea, 2008).

The Response to Intervention framework also plays an important part when addressing the challenging behavior of students. Commonly structured as a three-tier framework, RTI

evolved out of the three-tier intervention methods of Positive Behavior Supports (PBS). Under PBS, students receive specific instruction with varying intensities (Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008), while school-wide preventative plans help to establish far-reaching expectations. Educators identify students in need of additional support, then plan and implement specific instruction in the area of concern. The PBS interventions are intended to help each student appropriately interact in school social contexts, which allows them to more fully participate in instructional processes that increase academic understanding and ability (Sugai & Horner, 2002). RTI takes these principles and applies them to both academic and behavioral areas (McCook, 2006).

Many interventions applied in the context of RTI can enhance student success through visualization techniques that help children to better conceptualize the rational process to achieving a desired academic or behavioral outcome. Several researchers have demonstrated the importance of modeling and visualization in the learning process. These principles should be considered when designing appropriate student interventions, as learning is directly associated with these principles regardless of instructional setting. A summary of the researchers mentioned and their contributions to learning theories are provided below.

Vygotsky's (1978) "zone of proximal development" bases individual developmental levels on individual problem solving abilities and suggests that people have the potential to develop further only through guidance from social interaction with others. For example, children learn specific behaviors by first observing the actions of their parents and gradually developing similar behaviors. The zone of proximal development is the difference between that which an individual can do independently and that which they can do with support. Ideally, students in

school settings are in this zone as they interact on their level with others and improve abilities by observing more mature examples.

Bandura (1969) developed social learning theory that suggests that individuals develop through observational learning. By watching someone perform a certain act and desiring to attain the same outcome that the original agent attained, people are more likely to imitate and model the behavior. This is to say that through observation, imitation and modeling, individuals learn and develop their social performance skills. Because social learning theory acknowledges the function of attention, memory and motivation, it has gained recognition for bridging behaviorist and cognitive learning theories.

Video Self-Modeling as a Response-to-Intervention Strategy

These theories of human behavior, in conjunction with the idea of future imaging (Dowrick & Raeburn, 1977), suggest that individuals learn behaviors best through observation but even more through observing themselves. One method that has the capacity to facilitate versatile interventions for the purpose of teaching or strengthening a behavior using self as a model is video self-modeling (VSM). This study seeks to utilize the visual learning methods described above by showing videos of model behavior to students as a form of intervention.

VSM uses the individual to model a desired outcome through the use of video. For example, a student is filmed participating in a specific activity, and scenes are edited from the footage to give the appearance that the student is performing the task with accuracy. Students watch the video prior to the task after which he or she performs the task with increased accuracy (Parsons, 2006). VSM may be a successful teaching tool because in some studies students easily maintained positive changes after the intervention was discontinued (Buggey, 2007).

Although never used explicitly as an Response to Intervention method in the research literature, VSM has demonstrated effectiveness for a variety of settings, including reading acquisition, writing, math, social skills, functional skills and communication (Bellini, Peters, Benner, & Hopf, 2007; Hitchcock, Prater, & Dowrick., 2004; Mechling, 2005). In the context of RTI, video self-modeling should be a viable Tier 2 intervention: it establishes individualized instruction and is appropriate for use in general education classroom settings, helping to maintain the least restrictive environment for struggling students.

Problem Statement

Individualized interventions are important in helping to address the specific deficits for students of all ages and populations. Due to the diversity of student needs, additional types of investigations are needed to analyze the effects of varying interventions when applied to areas not typically addressed in the general education curriculum. Students requiring specific instruction for appropriate behaviors may benefit from behavioral interventions tailored to fit the dynamic circumstances unique to them. This would potentially allow these students to focus their attention toward improved academic achievement in familiar settings and circumstances.

Given that video self-modeling (VSM) has been demonstrated to be effective in improving a variety of skills in students, it appears to be a viable Tier 2 intervention. Yet, no research was located in which VSM has been used in this context.

Statement of Purpose

The purpose of this research is to examine the effects of video self-modeling (VSM) on the percentage of on-task behaviors for two elementary school students in general education classrooms as a Tier 2 Response to Intervention (RTI). Both students have adequate academic ability, but both have behavioral concerns.

Investigating the Effects of VSM

This research study investigates the following research question: What is the effect of video self-modeling when used as a Tier 2 Response to Intervention strategy as measured by the percentage of on-task behavior for a first grade student and a sixth grade student in general education classroom settings?

Definition of Terms

The following terms and definitions are important to the present study:

- Adequate Yearly Progress (AYP) - The annual academic performance targets which each state, school district and school must reach in the areas of reading and math by the academic year 2013–2014 to be considered proficient as defined by the United States federal No Child Left Behind Act (NCLB).

- Free Appropriate Public Education (FAPE) - The rights of individuals with disabilities are protected under Section 504 of the Rehabilitation Act of 1973, which states that "No otherwise qualified individual with a disability in the United States…shall solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

- Inclusion - The practice of educating students with disabilities in general education classes rather than in separate, special classes.

- Individuals with Disabilities Education Improvement Act (IDEIA) – A federal law signed by President George W. Bush on December 3, 2004, that mandates accountability, equity and excellence for students with disabilities. The Act was revised in 2006.

- Individual Education Plan (IEP) - A written plan or program for students classified as having disabilities. The IEP is developed by the school's special education team that

consists of the general and special education teachers, parents/guardians, a representative of the local education agency and other relevant participants (e.g. speech therapist, school psychologist). The plan includes goals for the student's academic progress.

- Least Restrictive Environment (LRE) - Part of the Individuals with Disabilities Education Improvement Act which requires that students with disabilities be educated with non-disabled peers to the greatest extent appropriate.

- No Child Left Behind Act (NCLB) - A U.S. federal law proposed by President George W. Bush in 2001 which aims to improve student and school performance through standards-based assessment.

- Positive Behavior Support (PBS) - A system for identifying and planning intervention for students' problem behavior.

- Response to Intervention (RTI) - A method of intervention which encourages effective instruction for students at-risk for academic failure. Through IDEIA, RTI is allowed as an alternative to the IQ-discrepancy method of identifying students with specific learning disabilities (SLD).

- Specific Learning Disability (SLD) - A disability which manifests itself through a severe discrepancy between intellectual ability and academic achievement.

- Tier 1 Intervention - Whole class instruction is developed from the result of school-wide screening measures to explicitly teach skills and knowledge and foster expected rates of student growth.

- Tier 2 Intervention – Interventions developed for students identified as not meeting grade level benchmarks for academic and behavioral issues in their general classroom settings. These students return to general classroom settings (Tier 1) for all instruction if the Tier 2

intervention boosted ability, or the student is referred for more specialized instruction at a
Tier 3 level.

- Tier 3 Intervention – Interventions developed for students who exhibit a need for more
intense, frequent support after having received intervention at a Tier 2 level.

- Video Self-Modeling (VSM) - The use of video footage to display a desired skill or
behavior by filming a participant and editing the video to show the participant performing
the skill or behavior with accuracy. The video is then shown to the participant which
often results in an increase of accuracy for the participant when performing the skill or
behavior.

REVIEW OF THE LITERATURE

Student performance is a high priority for schools. Efforts are made at federal, state, district and individual school levels to encourage best practices for teaching and learning. Federal funding provides incentives to schools who comply with legislation aimed to improve these practices (Springer, 2009). States ensure measurable progress for schools, teachers and students through specific qualifying criteria. Districts and schools respond to the academic and behavioral needs of the students through effective instruction (McCook, 2006). Though the perfection of these processes is still in the making, American educational trends continue to unfold with increasing awareness, fairness and accountability (Blanchett et al., 2005). This literature review will provide a historical perspective of how individuals not meeting grade level expectations receive additional support, and how Response to Intervention (RTI) and Video-Self Modeling (VSM) contribute to student progress.

Response to Intervention

Historical Perspective

The introduction of the resource room as a service location for special education students took place in the 1970s. Students identified with disabilities were not expected to meet grade-level benchmarks and were taught in alternative locations away from their non-disabled peers. Often placed in small groups or taught one-on-one, students with disabilities received instruction based upon Individual Education Program (IEP) goals. Teachers were often under-qualified and accountability measures for student progress was loosely measured (Clinton, 1998). Educational efforts were intended to be sensitive to the special needs of the population of individuals with disabilities, yet these efforts proved insufficient to boost student abilities to expected grade equivalents (Blanchett, Branlinger, & Williams-Shealey, 2005). Consequently, students

identified as having disabilities were generally not expected to perform as well as their peers and, as a result, fell further behind in academic skills and knowledge. This period lacked the educational infrastructure to reliably prevent further failure while fostering academic acceleration. In spite of these flaws, the resource room continued to be widely accepted with little accountability.

During the 1980s, pre-referral interventions became part of the process of identifying students with disabilities (Gersten & Dimino, 2006). Due to concerns regarding potential over-identification based on early assessment measures, educators waited to determine whether individual student deficits met special education classification criteria. This wait-to-fail method resulted in a delay of identification and services often until the second and third year of schooling or longer (Gersten & Dimino). This delay was meant to allow for a history of evidence to develop for the purpose of verifying claims that a student was not performing at the same level as peers. These methods for identifying children with learning disabilities led to the discrepancy identification procedures whereby a student's IQ score (ability) was compared with academic achievement scores (achievement). If the student was performing below his or her potential (IQ) and there were no other explanations (e.g. other disabling conditions, cultural or linguistic differences), then he or she could be identified as having a Specific Learning Disability (SLD) through a referral process. After the student was individually tested, these results and all other factors were discussed by a school team before determining whether the student had a disability. Unfortunately, as schools across the nation used this model, many students fell through the cracks. It took time to process the referral, test the student and then meet as a team. In addition, students were often not receiving timely and effective interventions before being referred. Others were classified as having an SLD and then received instruction in restrictive

environments which kept them from making adequate improvement in the general curriculum. Overall accountability for student progress was lacking.

Although educational laws are far from perfect, they have evolved to mandate specific practices which intend to hold schools more accountable for student learning outcomes. In 2001 the No Child Left Behind Act (NCLB) led to an emphasis on student performance, requiring the use of evidence-based interventions. Soon after, in 2004, the Individuals with Disabilities Education Improvement Act (IDEIA) was reauthorized, which incorporated many of the same provisions of NCLB and stipulated that all students have access to the general education curriculum. One substantial change in the law was the incorporation of the Response to Intervention framework, which has shown to have significant impact on student achievement (Fuchs & Fuchs, 2006).

Purposes and Implementation

Response to Intervention (RTI) is an innovative model of service delivery used to prevent and remediate academic and behavioral systems in educational settings (Barnes & Harlacher, 2008; McCook, 2006). RTI has two purposes. The first purpose is to support student achievement by taking early preventative educational measures before a discrepancy between ability and achievement becomes too wide for students at-risk of school failure (Johnson & Smith, 2008). This is done through initial school-wide screening assessments which determine early academic difficulties. These problem areas are identified in measurable terms, and considerations are made regarding whether the deficits are curriculum based or student based and whether the problem areas are affected by skill or performance deficits (McCook, 2006). Data are then collected to determine baseline achievement, and a plan is written which describes the specific intervention, including duration, setting, schedule and persons responsible. A progress

monitoring system is selected to appropriately track student performance, and data are compared to baseline throughout intervention to evaluate the accountability of the plan's effect. Advantages of RTI in this capacity include earlier identification of students at risk for school failure, a greater emphasis on prevention and the use of assessment to determine and evaluate appropriate intervention (Vaughn & Fuchs, 2003).

The second purpose of RTI is to identify students as having an SLD, as an alternative to the IQ-achievement discrepancy method once reliable interventions show that the student is not making significant gains (Burns, Jacob, & Wagner, 2008; Fuchs & Fuchs, 2006). Other disability classifications may be identified in struggling students through the use of RTI practices; however, all other types of disabilities require additional assessments to support each disability's criteria. This makes the second purpose of RTI unique to SLD classification requirements. Prior to 2004, students were identified using the discrepancy model which compared intellectual ability to academic performance. Students with a significant difference between the scores qualified for an SLD classification and were provided special education services. This helped to secure a means whereby all SLD students were identified under a common method. The accuracy and ethical nature of this method are currently in debate (McCook, 2006).

Approximately 80% of students with an SLD classification have a reading disability (Lyon, 1995). In response to this high percentage, RTI research focuses much attention on reading interventions (Fuchs & Fuchs, 2006). Additional areas, including other academic subjects (e.g. writing, math) and behavioral skills are also addressed using interventions under the RTI framework.

Various models are prescribed and used within the general RTI framework. Most models consist of multiple tiers of intervention which address student needs from low to high levels of

support. The most widely accepted model is a three-tiered prevention framework recommended because it most clearly designates expectations for general and special education interventions (Fuchs & Fuchs, 2007). Each level in the three-tier model has a specific function as an RTI strategy.

The first tier of RTI, also referred to as primary prevention, refers to core instruction provided in general education settings. Here all students take part in universal screening processes to determine their ability levels. These screening processes may include the use of the previous year's state assessment scores or an alternative achievement test, both of which should identify at-risk students—those scoring below the 25th percentile in reading or math (Fuchs & Fuchs, 2005). General education teachers are responsible to develop and implement Tier 1 instruction in their classrooms using evidence-based practices based on NCLB and the Adequate Yearly Progress (AYP) provisions. At-risk student progress is monitored over the following eight weeks for the student's specific areas of concern (e.g. reading, math). Students scoring above the 16th percentile by the end of intervention are considered to have made adequate progress (Fuchs & Fuchs, 2005). Students below the 16th percentile are referred for Tier 2 intervention. In the case that a student's percentile ranking is higher than the 16th percentile prior to intervention, but the student clearly needs additional support in a particular area, the individual school team should provide interventions. Documentation of the level of performance before intervention is necessary to support future analysis of subsequent data collection that will ensure more accurate measurements of growth throughout the intervention phase.

Tier 2 intervention, or secondary prevention, is supported by both general and special educators. Tier 2 regularly involves personnel such as the school psychologist and the speech/language pathologist. A collaborative plan of action is developed that will target an

individual student's needs. This plan is carried out by the general educator, or if available, a specialist or para-educator under the supervision of the general classroom teacher. The plan will most likely take place in a small group or one-on-one. Core instruction is provided to the student, and data are collected to help determine whether the plan of action has a positive effect on the student's performance. According to Fuchs and Fuchs (2005), students performing above the 16th percentile are generally considered by the school's team to have made adequate progress, but ultimately the team decides when an intervention is no longer appropriate in assisting the student and when additional support is necessary. Individuals still exhibiting low levels of achievement are referred for intensified remediation plans in the third tier.

The third and final level of intervention, often referred to as tertiary prevention or Tier 3, addresses the most challenging student deficits. General and special educators and other qualified professionals work together to develop individualized programming for Tier 3 students. The panel of educators evaluates each student after obtaining parental consent using formal assessment measures (Fuchs & Fuchs, 2005). They consider specific disability categories and make decisions regarding classification, such as an SLD or other disability and prepare an IEP for the student if the student is eligible. An IEP may also be written for a student with a disability at any time during any intervention tier, but a student without a disability classification will typically receive all three tiers of support before educators conclude that she or he has a disability.

The team develops interventions to target specific deficits including academic, behavioral, linguistic, motor, social, and emotional needs. Academic interventions are most widely acknowledged under the RTI framework; however, the other mentioned categories of RTI interventions are gaining greater recognition in schools today (McCook, 2006). Data collected

guide the implementation of specific programming and assess its effectiveness. Additional goals and plans are developed for each student if they show a lack of progress, or if their achievement of a desired level of response is merely a benchmark in a greater set of skills.

RTI holds great promise for students of all abilities because it enacts a plan for instructional attention and eliminates cumbersome bureaucratic processes (Gersten & Dimino, 2006). In place of bureaucratic processes, direct measures can be used and compared to local and national norms to determine whether each student is progressing in response to typical classroom instruction and at what rate. Because classroom instruction involves far more than reading alone, it is natural to apply the process of RTI to additional areas of need. Interventions at each tier support student success through a diagnostic and prescriptive approach. This framework is applied to various contexts including academic (e.g. reading, math) and behavioral supports, as well as cultural influences.

Reading Interventions

Response to Intervention (RTI) has been used in recent years to identify and remediate various academic deficits for students of which reading has received the greatest attention in practice and in the literature (Fuchs & Fuchs, 2007). Whereas the majority of students classified with SLD experience great difficulty reading, this area has become a natural focus for researchers interested in determining the most valid and credible means of identifying learning disabilities (McCook, 2006).

Many reading interventions successfully remediate student deficits when used as RTI, and they boost student performance to grade level expectations or beyond (Menzies, Mahdavi, & Lewis, 2008). These interventions are especially effective when used with young populations (Simmons et al., 2008). Fuchs, Fuchs, Compton, Bouton, Caffrey, and Hill (2007) emphasize the

need for early identification for students at risk, and they propose using dynamic measures to prevent prolonging interventions. Various school-wide screening measures (e.g. DIBELS) help to identify these students as at-risk and help to predict reading outcomes for students from diverse backgrounds (Roehrig, Petscher, Nettles, Hudson, & Torgesen, 2008). Through RTI students are able to develop important reading skills, such as phonological awareness and word attack, sometimes through relatively brief interventions (Lane et al., 2007). Wanzek and Vaughn (2008) compared student responses to varying amounts of reading intervention and determined that students receiving a single intervention and students receiving two interventions had similar results over time, and both attained accelerated reading ability as compared to students who did not receive intervention.

Mathematics Interventions

Interest in RTI for mathematics is gaining momentum through the use of research-based interventions. Students at-risk for math difficulties are identified through similar processes as students at-risk for reading difficulties. Curriculum-based measures (CBM) are important for sifting out students in need of more intensified interventions (Clarke et al., 2008) by identifying low and high performers (Foegen, 2008). Reliable progress-monitoring data are vital to supporting the measure of student performance throughout interventions (Crawford & Ketterlin-Geller, 2008).

Bryant et al. (2008) found intensified interventions help students to make gains through improved number sense and arithmetic. Gains in mathematic abilities from various interventions are made by students ranging from primary through secondary grade levels (Fuchs et al., 2005; Ketterlin-Geller, 2008). Fuchs et al. (2005) studied the effects of tutoring on first grade students at-risk for math difficulties and found that through the use of small-group tutoring and computer

work, student performance on math computation and math reasoning was enhanced on end-of-level tests. This research demonstrates the effectiveness associated with varied intensities of interventions with a large spectrum of students.

Cultural Factors

In addition to the attention given to RTI processes and academic interventions, it is important to acknowledge how diverse populations may be affected during intervention implementation. Cartledge and Kourea (2008) discussed the need for classrooms that respond with appropriate interventions that are culturally fair and that enable teachers to make quality changes that will increase student outcome. Klingner and Edwards (2006) described the components of a three-tiered model for response to intervention and suggested that this model has potential to reduce the disproportionate representation of culturally and linguistically diverse students in special education. Indeed, quality classroom instruction can sufficiently reduce the number of minority student referrals and placements in special education (Gravois, 2006).

Specific notice to reading and math interventions has led to the creation of individualized programs which cater to specific cultural preferences (Freeman, 2008; Lilan-Thompson, 2005; Richards, 2006). The creation of Intervention Assistance Teams (IAT) also helps to create culturally responsive interventions and to accurately interpret data throughout baseline, intervention and maintenance phases (Ortiz, 2006).

Behavioral Interventions

Behavioral intervention, under the RTI framework, was in existence prior to RTI's birth. This framework spawned as positive behavior supports (PBS; Bradshaw et al., 2008; Chitiyo & Wheeler, 2009; Weigle, 1997) and is heavily responsible for the three-tier model approach now adopted widely in RTI. PBS gained momentum in numerous settings following the amendments

of the 1997 Individuals with Disabilities Education Improvement Act (Sugai & Horner, 2002). The culmination of more than thirty years of Applied Behavior Analysis (ABA) research, PBS has taken on its own identity as it has been used in a variety of settings (Carr, 1997; Sugai & Horner, 2002). Positive behavior supports are often applied through a three-tier framework in which universal prevention methods target large quantities of students and more individualized interventions support students at-risk. A current challenge within PBS is the lack of a behavioral screening tool to be used in an overall screening procedure. Instead, individual screening tools are used to identify specific categories of behavior deficits.

Embraced in home, school and community settings, PBS has expanded as a systems-based approach for individuals of all ability levels (Sugai & Horner, 2002). A successful approach in educational environments, PBS uses a broad range of individualized strategies to prevent problem behaviors and promote social and learning achievements for all (Chitiyo & Wheeler, 2009; Little & Akin-Little, 2008; Safran & Oswald, 2003; Sugai & Horner, 2002). Among the greatest benefits of PBS are that interventions are designed to address problem behaviors in the setting where they typically occur, with assistance from a typical intervention agent and to support an activity for its entire duration (Carr, 1997). PBS also serves as a measure of accountability for schools to create environments conducive to learning (Sailor, Stowe, Rutherford-Turnbull, & Kleinhammer-Tramill, 2007). As educators instruct and acknowledge appropriate student behavior, the overall climate of the school improves and problem behaviors decline (Skiba & Sprague, 2008). This shift toward a positive and preventative approach to violent action and discipline problems has had more success than exclusionary enforcement and alternative placements that often result in increased frequency and intensity of the unwanted behavior (Lassen, Steele, & Sailor, 2006; Martin, Linfoot, & Stephenson, 1999; Mayer, 1995).

Despite effective problem identification and program implementation, punitive measures will likely continue to be temporary solutions until PBS methods are better established (Mayer, 1995).

Sugai & Horner (2002) defined the key features of PBS: "(a) a prevention-focused continuum of support, (b) proactive instructional approaches to teaching and improving social behaviors, (c) conceptually sound and empirically validated practices, (d) systems change to support effective practices, and (e) data-based decision making" (p. 2). PBS is not to be mistaken as a curriculum but rather an organizational framework based on unique features of a specific environment (Scott & Martinek, 2006). When applied to a three-tier approach in educational settings, these key features support behavior change for a wide range of students.

Intervention at the first tier is the most efficient first step because it targets the broadest number of students through preventative measures (Kern & Clemens, 2007). Tier 1 PBS strategies are organized as school-wide or classroom-wide discipline practices which focus on decreasing the number of new problem behaviors and maintaining effective practices for all students (Sugai & Horner, 2002). These measures are imperative for fostering successful learning environments as problem behavior directly impacts learning by taking focus and attention away from instruction (Murphy, Theodore, Aloiso, Alrie-Edwards, & Hughes, 2007; Reinke, Splett, Robeson, & Offett, 2008). Additionally, pre-existing student risk factors are often exacerbated in school settings, but, through PBS strategies, risk factors can be modified and reduced (Reinke & Herman, 2002).

Positive response to Tier 1 behavior intervention is estimated at approximately 80–90% (Bradshaw et al., 2008; George, White, & Schlaffer, 2007). Implementation of PBS at a school-wide level requires that expectations are stated positively, instructional practices are in place for teaching these expectations, procedures for encouraging these expectations are enforced, as are

procedures for violating these expectations, and that a plan to monitor and enhance these expectations exists (Sugai & Horner, 2002). When implementing PBS at a classroom level, management must maximize instructional time, instructional activities must engage and maximize student achievement (e.g. enhancing intrinsic motivation; Rogers & Renard, 1999), and proactive behavior management tactics must be used (Kern, Hilt-Panahon, & Sokol, 2008; Sugai & Horner, 2002).

When students fail to meet these behavioral and academic expectations at a broad level, a second tier of intervention is engaged, and students receive a common set of specialized interventions in small groups or individually (Kern & Clemens, 2007). These interventions become setting-specific and include active supervision, positive reinforcement at high rates, clear teaching of consequences associated with rule violations and pre-teaching for problem situations (Sugai & Horner, 2002). An estimated 5–10% of students are projected to respond to Tier 2 supports (Bradshaw et al., 2008).

The third tier of intervention is engaged when individual students exhibit high risk behaviors for emotional, behavioral and social failure. Approximately 1–5% of students will exhibit such significant skill deficits and require intensified intervention (Bradshaw et al., 2008). Tier 3 interventions are customized using function-based data and are team-based. Highly intensive and individualized, these interventions focus on pro-social replacement behaviors that attempt to decrease the effectiveness, relevancy and efficiency of the problem behavior (Sugai & Horner, 2002). This level of intervention is typically based upon information gathered from a Functional Behavioral Assessment (FUBA) and is constructed using a Behavioral Intervention Plan (BIP; Chitiyo & Wheeler, 2009; Weber, Killu, Derby, & Baretto, 2005).

The three-tier model effectively addresses school-wide and individual student behavioral needs whether used as part of RTI or PBS. Students are identified and provided with appropriate interventions in specific areas at varying intensities. Skills are improved through use of interventions in each tier. The RTI literature shows positive academic and behavioral effects from early responses to intervention, and PBS literature shows positive effects from behavioral interventions.

Video Self-Modeling

One intervention strategy that is recommended but has not received attention in the literature, within the three-tier framework is video self-modeling (VSM). Students whose behaviors inhibit their academic progress may benefit from this explicit instructional technique. VSM as an intervention has shown significant impact in various areas including: academic, social, behavioral, communication and functional skills. The method of VSM has the potential of providing students with individualized instruction through self-observation and modeling of appropriate behavior. VSM has a versatility that supports a wide range of behaviors in various settings, including the general education classroom. This potential specifically lends itself to providing specialized instruction for a student while allowing the student to remain in general education settings. Interventions at this level are considered to be Tier 2. Therefore, VSM is a viable support to LRE because it helps students to learn necessary skills for general classroom use.

As early as the 1970s the technique now referred to as VSM began to influence individuals' academic and behavioral skills by showing a preferred method for a specific action through use of themselves as a model (Buggey, 2007; Hitchcock, Dowrick, & Prater, 2003). Using video feedback, video-taped segments of an individual's performance are edited to present

a child performing a desired skill without error. The edited video is then shown to the participant (McCoy, 2007). Video footage has the ability to captivate individuals while providing them opportunities to evaluate themselves (Parsons, 2006).

Accelerating acquisition of a variety of academic and behavioral tasks, VSM has been shown to be an effective intervention for many individuals across settings, ages and ability levels (Bellini, 2007; Hitchcock et al., 2003; McCoy, 2007; Mechling, 2005). The techniques of VSM are built upon the theoretical foundations of social learning theory (Bandura, 1969), the zone of proximal development (Vygotsky, 1978) and upon the idea of future imaging (Dowrick & Raeburn, 1977). In addition to providing effective instruction, VSM is easily maintained and generalized across settings (Buggey, 2007).

A number of studies show that VSM has a positive effect on participants in educational settings in academic areas including: reading fluency, reading comprehension and writing; and in behavioral areas including: social skills, functional skills and communication skills. Specific examples of VSM for these purposes are further described below.

Reading Skills

Video self-modeling (VSM) has been shown to be effective in a number of academic skill areas including reading. In one study conducted by Hitchcock et al. (2004), four first grade students with mild-to-moderate disabilities made significant reading progress through use of VSM. Three out of the four students' reading fluency doubled, while fluency for the fourth participant quadrupled. This progress was maintained over the following six months in both school and home settings. In another study, Dowrick and Kim-Rupnow (2006) concluded that video images enhanced the acquisition of reading skills for six- and seven-year-old students at-risk for academic failure through a multiple baseline intervention involving tutoring plus video

feed-forward, tutoring only and follow-up. Nine out of the ten participants showed rates of improvement, especially during the feed-forward intervention.

Greenburg (2002) conducted research with three third-grade students who were below grade level in oral reading fluency and simultaneously examined their perceptions of themselves as readers. He found that through the use of VSM all students made oral reading fluency gains and, at the same time, improved their perceptions of themselves as readers. Conversely, Edl (2008) discovered that VSM did not make a significant impact on the correct number of words read aloud by seven upper elementary and middle school students with reading disabilities; however, several limitations of the study, including a breach in treatment fidelity, leave these results in question.

Writing Skills

VSM has also been effective in accelerating student performance in writing. The use of VSM and written language performance was examined in a study of three adolescents with Asperger's syndrome (Delano, 2007). Individual student essays were evaluated for the number of words written and the number of functional essay elements used. All three students made gains in each of the required areas of composition and, as a bonus, they also increased the time they spent writing.

Behavioral Skills

Video self-modeling has been used to improve participants' behavior, including social and communication skills. For example, four children with autism spectrum disorders between the ages of 6 and 9 participated in a study that taught verbal initiations (Murdock, 2007). Two of the participants increased their verbal initiations during play, and all four reduced their verbal initiations when VSM was removed. Additionally, Wert and Neisworth (2003) found VSM to

positively support the acquisition of spontaneous requests in school settings by four young children with autism spectrum disorders. Three of the four participants from this study showed adequate maintenance. The fourth child did not participate in the study through the maintenance phase. In a third study, Neisworth and Wert (2002) studied the effects of VSM as a training technique for communication with four preschool students with autism. Upon viewing edited videos of themselves making spontaneous requests in the preschool environment, all participants' communication accelerated, and three of the four participants' communication remained stable throughout maintenance.

Santini (2007) used VSM to teach conversational skills to three high school students with severe disabilities in a self-contained setting. VSM had a positive effect on two of the three students' correct responses to conversational questioning. Sherer, Pierce, Paredes, Kisacky, Ingersoll, and Schreibman (2001) explored the effects of VSM on correct responses to conversational questioning with five children with autism between the ages of 4 and 11. Three children performed with 100% accuracy after VSM intervention. The researchers observed that students with the highest rates of success using VSM are likely visual learners.

In another study, Buggey (2005) noted that VSM constituted a positive behavior change for five individuals with autism ages 2 to 14. These behaviors involved social initiations, pushing classmates, language production and tantrums. In a study conducted by Bernad-Ripoll (2007), a 9-year-old boy with Asperger's syndrome was taught to better understand his emotions through the use of VSM and social stories. Upon recording the subject across settings exhibiting a range of emotions, social stories were constructed using the video footage and were shown to the participant. The subject was successful at recognizing his emotions and was able to generalize that learning to other settings.

Functional Skills

Three high school students with developmental disabilities were taught to increase their compliance rates through the use of VSM (Figuera, 2007). Students participated at higher rates during class activities, and two of the three students showed strong retention of these skills over time.

Mcgraw-Hunter, Faw, and Davis (2006) successfully taught young adults with traumatic brain injury to perform cooking tasks using VSM. During the maintenance phase, three of four participants were accurately able to follow the necessary cooking steps for up to four weeks following intervention. The fourth participant made only minor gains during intervention and requested to discontinue the intervention before conclusive data could be gathered.

Although much research has focused on skill acquisition in educational settings with students, VSM has also been used for training staff. In a study conducted by Moore and Fisher (2007), three staff members were taught to conduct functional analysis sessions through the use of lectures and VSM. The effects of VSM were successful as all participants showed accurate ability conducting analysis sessions. A limitation of their study was a lack of comparison to staff trained without VSM, but the overall message of the study could not be disputed: VSM works.

Overall, VSM has been shown to have significant effects across a variety of settings and for a variety of individuals. Additional investigations of VSM will help to further validate its use for situations where alternative interventions do not have the flexibility to meet specific criteria affiliated with unique academic and behavioral concerns.

METHOD

The purpose of this research was to examine the effects of video self-modeling (VSM) on the percentage of on-task behaviors for two elementary school students in general education classrooms as a Tier 2 Response to Intervention (RTI) strategy. The research question was: What is the effect of video self-modeling as a Tier 2 Response to Intervention strategy as measured by the percentage of on-task behavior for a first grade student and a sixth grade student in general education classroom settings? The following section describes the participants, setting, instruments, research design, procedures, data collection, dependent and independent variables and observer training.

Participant Selection Process

Students were selected by the researcher based on information that was gathered by the RTI Team. An e-mail message was sent to the elementary school faculty regarding the study, which included brief details. Teachers were asked to refer students who were able to perform grade level tasks with accuracy but exhibited off-task behavior that inhibited work completion. Six students were referred, three of which met the criteria mentioned. Two of these students acted as participants in the study. A Functional Behavior Assessment (FUBA; see Appendix C) was used to collect information from individual teachers regarding specific off-task behavior, but no direct observations were conducted by the researcher or RTI Team prior to baseline data collection. This information identified setting events and consequences resulting from the off-task behavior. The teacher also provided information about initial Tier 1 interventions tried, and the results of those interventions, all of which were inadequate to significantly improve the off-task behavior. Accountability for Tier 1 interventions implemented by individual classroom teachers was minimal. Teachers verbally shared the specific details regarding the Tier 1

interventions attempted in their classes for each participant; data presented was kept only through the use of anecdotal notes and grade calculations. The RTI Team determined that this information from teachers was sufficient for the team to meet and develop Tier 2 interventions. Details of this information will be explained later in this section.

The RTI Team next created a Behavior Intervention Plan (BIP) to specify the process and use of VSM as an intervention to increase on-task behavior for each participant (see Appendix D). Preparations were made to begin the first intervention, and school personnel were designated to assist in the process. Details about these BIPs are shared later in this section.

Two students were selected by the researcher to participate in the study based upon information supporting a need for explicit behavior intervention. Each student was referred to the school's RTI Team based on excessive off-task behavior as informally documented by the general education teacher. These two students were selected to participate in the study and others were not because teacher information from interviews and FUBAs suggested that their academic abilities were not responsible for their behavior, but rather their behavior was inhibiting their academic performance. The selection of the participants was finalized when written permission from parents and guardians was received (see Appendix A).

In addition to the participation of the two students receiving VSM behavior intervention, two comparison peers, one from each classroom, were selected by each classroom teacher. These comparison peers were of the same gender and, in the teacher's opinion, demonstrated typically acceptable behavior. The comparison peers did not receive any type of intervention but were observed while on-task data was collected in order to validate and analyze the data collected for the on-task behavior of the participants.

Participant 1

The first participant, Chase, was a 7-year-old Caucasian male when baseline data collection began. He was the younger of two boys in his family and lived with his mother and brother. Chase had attended kindergarten in the same elementary school the previous year. His family was considered low income, and Chase was receiving reduced lunch. Chase's father was not living with the family during the school year that the intervention took place, but it was brought to the school's attention that his father was sentenced to prison during the final week of VSM intervention.

Chase was referred to the school's RTI Team by his current first grade classroom teacher. She reported that "in 24 years of teaching I have never had a child who just sits, lays on [his] desk and will not even try to do seatwork to the extent Chase does." She elaborated on his off-task behavior by explaining that he cuts paper into bits, doodles with crayons and draws on his desk. His teacher reported that he did not complete his work for any subject. She sent him to detention many times to work on his assignments. She said that he was often in detention for two to four hours working on only one page of seatwork. Chase's off-task behavior was reported to persist throughout the day but was especially pronounced during math and writing.

Individuals present during these prolonged episodes of off-task behavior included his classroom teacher and classroom peers. "He is just distracted 24/7," his teacher reported. When asked when the off-task behavior was least likely to occur, the classroom teacher noted that his on-task behavior increased when she sat with him one-on-one to work on individual work.

Consequences of Chase's off-task behavior included that he gained teacher and peer attention, as well as escape from the task or instruction at hand through daydreaming. One consistent "payoff" was that Chase was sent away to detention, which helped him to avoid difficult tasks and frustrating situations, as well as non-preferred activities, tasks and settings.

Tier 1 interventions included the implementation of rules and consequences for behavior as posted; implementation of behavior contracts; implementation of a home–school communication system via telephone; one-on-one help and adapted curriculum through the use of detention as a means of providing him extended time; peer teaching in the classroom; and conferences with parents in October, January and March.

Rather than avoiding class work, Chase's teacher reported that she wanted him to complete seatwork while staying focused and alert, without getting distracted (e.g. playing with pencils, crayons, scissors) while participating specifically in math instruction for the hour just after lunch recess.

Participant 2

The second participant was 12-year-old Kendall, a Caucasian male in the sixth grade. He had attended grades K through 6 in this elementary school. He lived with his stepmother and spent a lot of time with his biological grandparents. His mother was in prison and had a history of drug abuse. His father had more recently been sentenced to prison. Overall, Kendall's family was considered to be middle class, and he did not qualify for reductions in lunch or other costs.

Kendall was well-liked by his general education teacher and peers. His teacher brought his name to the school's RTI Team because she felt that the interventions she had tried at a Tier 1 level were not sufficient in helping him to remain on-task. She described his off-task behavior as walking around the classroom during seatwork, fixing the soap dispenser, bothering his neighbors by poking or chatting, going to the teacher to talk about off-topic issues and leaving the classroom without permission.

Kendall's teacher felt that he demonstrated off-task behavior in order to attain teacher and peer attention while avoiding a non-preferred activity, task or setting or a difficult task or

frustrating situation. Kendall was most likely to exhibit off-task behavior during independent seat work in spelling, reading and writing. Individuals present during these times included his general education teacher and his classroom peers. His teacher believed his off-task behavior was fueled by his desire to avoid working. The teacher noted that Kendall was most likely to remain on-task when given rewards continuously throughout independent work time.

Previous Tier 1 interventions in Kendall's general education classroom included the implementation of rules and consequences for behavior as posted; and implementation of a home–school communication system. Kendall's teacher hoped that rather than exhibiting off-task behavior by wandering the room, staring into space, bothering others and fidgeting, he would stay in his seat, manage his time, keep his hands to himself and complete assigned work with quality and efficiency.

Observers

Two undergraduate students from a nearby university's Special Education: Severe Disabilities Program were hired as observers. The study was conducted double-blind, as the observers were not explicitly aware who was a participant and who was a comparison peer. The specific intervention and intervention schedule were also unknown to the observers. This provided the researcher with the greatest potential of analyzing unbiased data, which will be shared later in the results section.

Each observation session lasted for 20 minutes and used a 10-second whole interval recording method. Observers synced their timers at the beginning of each observation. MotivAider® timers signaled the end of each minute signaling the observers to shift focus between the participant and the comparison peer. Classroom clocks were used to signal each 10-second whole interval, after which time the observer marked the behavior as "on-task" if the

student had remained on-task for the full duration. Each student, participant and then comparison peer, was observed for the full 10-seconds before the observers alternated focus. To indicate that the behavior was on-task, a backslash was placed in the interval box. A zero was written for off-task if the student did not remain on-task for the entire 10-second whole interval. If unsure of the behavior, the observer placed a straight line vertically through the interval box.

The observer plotted data taken from the twenty minute observation period for both the participant and the comparison peer. Information on students' on-task behavior was plotted daily on a graph to help interpret effects and guide intervention decisions. The researcher referred to each observation sheet for all daily data and created a secondary graph for each student to ensure accurate data mapping.

Setting

School Demographics

The principal investigator conducted this study in a suburban, public elementary school in a Western state in the U.S. Approximately 721 students were enrolled in the school, 51% of which were male. Students received instruction beginning in pre-kindergarten and matriculated through sixth grade. Twenty-eight teachers divided the overall caseload, which brought the average ratio of teachers and students to 1 to 22. Of the student population, 96% percent were considered White, 2% Hispanic, 1% Asian and 1% unknown. There were no students attending the school who were considered Native American or African American. Each grade level shared a fairly equivalent number of students (see Table 1). Fifteen percent of the student population was eligible for free lunch and 9% of students were eligible for reduced lunch. This school had an average daily attendance of 95%, a school mobility rate of 21% and no migrant population.

Table 1

Elementary School Student Population by Grade Level

$N = 611$

Grade	Pre-K	K	1st	2nd	3rd	4th	5th	6th
Population	25	111	91	93	104	86	101	110

School Support

The school district had identified this elementary school as an RTI pilot school for the 2008–2009 school year. Five other schools in the district were also participating, three of which were selected as pilot schools for RTI the previous school year.

The primary interventionist on the RTI Team was the school principal, who created the team from school personnel to help guide and direct RTI implementation. The team consisted of the principal, school psychologist, special education teacher, reading specialist, a facilitator and general education teachers who rotated in as team members based on the grade level of the students referred, as well as teacher expertise. The team had two purposes. First, members met to plan appropriate action for school-wide implementation of RTI using a three-tiered model. Second, the team met and advised general education teachers on individual students who experienced academic or behavioral deficits in the general education environment, and they helped to develop intervention plans that targeted each student's problem. Teachers were expected to implement the prescribed plan, collect data (support for this was often provided) and return to the RTI Team to evaluate the plan's effectiveness. Additional revisions or alterations were then made to the plan to increase effectiveness, unless the desired effect was resolved through the initial plan.

Classroom teachers made student referrals. The RTI Team scheduled individual meetings with teachers for 20–30 minutes one day before school each week to discuss classroom interventions and their effects and to create additional plans. Student deficits were categorized as academic or behavioral in nature and interventions were suggested based upon the specific details of each student and setting. The RTI Team's goal was to help establish effective interventions at both Tiers 1 and 2 and eventually at Tier 3. Because this was the first year that RTI was emphasized in this school setting, intervention planning procedures were still in progress.

Tier 1 behavior interventions were established in the school through use of school-wide prevention methods and by each general education teacher. One school-wide system acknowledged students individually when they were seen in the act of a positive deed or behavior. A card was awarded to a student by a faculty or staff member for doing a positive action. One half of the card was sent home to notify the student's parents of the positive behavior. The other half of the card was entered into a drawing for a prize from the principal's treasure box. Each student's name was read over the intercom during morning announcements. Similar school-wide methods are used when formally implementing Positive Behavior Supports (PBS). However, the established methods in this elementary school for behavior RTI came from a grass-roots approach via the school principal and were not specifically implemented as a PBS from an outside organization or from the school district.

Another Tier 1 behavior RTI established in the school was a bullying prevention program. Posters and social skills lessons provided by the school counselor at the classroom level supported positive student-to-student interaction. Students who violated school rules were given "tickets," which were sent home to parents and became part of the student's cumulative file.

Students who violated school rules also spent time in a detention room completing assigned work when determined appropriate by the classroom teacher or principal.

Individual teachers were responsible for identifying students in need of intervention and providing classroom solutions in an effort to remediate academic and behavior problems at a Tier 1 level. Not all teachers actively participated in developing plans for the students in their classrooms. Although the RTI Team was aware of the importance of strengthening instruction and support at this level, no formal plan addressed the expectations for teachers during this first year of RTI team support.

Aside from the VSM interventions from this study, Tier 2 RTI received little attention from the RTI Team this school year. The team hopes to more firmly establish these measures in the future to provide students with the specialized interventions needed to overcome the challenges that prevent their success. VSM is a promising candidate, as it showed versatility through behavioral applications.

Classrooms

The principal researcher used the general education classrooms of each student as the primary location for gathering data. Students were filmed in their classroom environments by the researcher to create the VSM videos. The video footage was later edited by the researcher in the principal's office, where the editing software was located. Each student viewed the VSM video daily in the same separate location from their general education setting. These two locations included a small teacher workroom and a conference room. Each student left their class 5 to 8 minutes prior to the specific subject and the VSM videos were shown by the same para-educators each time. Students returned promptly to their classes upon viewing their VSM video. The videos were each approximately 4 minutes in length, with similar dialogue, although they

depicted the two different students working in subject areas targeted in this intervention: math for Chase and writing for Kendall.

Instruments and Materials

Functional Behavioral Assessment (FUBA) forms, Behavior Intervention Plan (BIP) forms and behavioral observation forms served to document data prior to intervention for each participant (see Appendix C and D). The observers synchronized MotivAider® timers using each classroom clock to signify the data collection intervals. The timers designated when to change focus to and from the participant and the comparison peer. The classroom clocks signaled the duration of each 10-second interval. Data were gathered using the Alternative Response Discrepancy Observation Form and were plotted daily on graphs to display rates of on-task behavior (see Appendix E). Post intervention, a brief questionnaire was administered to the participants through an interview with the researcher.

A video camcorder was used by the researcher to record student behavior in classroom settings, and a MacBook® computer editing program served to edit and prepare videos with verbal and audio enhancements.

Procedures

The following procedures were followed for VSM behavior interventions to provide the participants with the least invasive and most effective video products. Additional personnel (e.g. para-educators and observers) involved in the study helped to create a safe and secure environment in which the interventions took place.

Consent

The parent or guardian of each participant selected provided written consent prior to the child's involvement in the study (see Appendix A). The researcher phoned the parents and

guardians before sending the permission slip home to explain the selection of the participants and the aim of the RTI Team in recommending the students for VSM behavior intervention. The invitation was met with an enthusiastic response. For each participant the written consent form was returned promptly with signatures from the parent/guardian and the student.

Data Collection

Two observers were trained by the researcher to collect on-task data. Data were gathered in the form of probes throughout the study in each general education classroom setting by the undergraduate observers. The study was double-blind, as the observers were unaware of when the interventions began, what the interventions were and which students served as the participants.

Two different para-educators participated by retrieving the same student each day and administering the VSM intervention in a separate location. Para-educators were selected to participate by the researcher in order to better ensure that the observers remained unaware of when intervention began for each student, as they were unfamiliar with the para-educators but familiar with the researcher. The students typically completed intervention 10 minutes prior to the observers' entering their classrooms for data collection, which helped to keep the study double-blind. Each student was retrieved from his room and walked down to the respective viewing area where the VSM video was shown. Both para-educators were instructed to have minimal verbal exchange with the student, including the absence of any statements referring to the intervention. When reporting to the researcher, both para-educators claimed to have limited verbal interactions with the students and said phrases such as, "Thanks, buddy," and "We'll see you later," but never spoke of the specific intervention, even when asked about it by the student.

This information was collected informally over the course of each student's intervention by the researcher using verbal questioning.

Inter-observer Agreement

Inter-observer agreement measurement was based on the following equation: the number of agreements divided by the number of agreements plus disagreements, multiplied by 100. This study required that over the entire course of study, inter-observer agreement reach a minimum total of 80% in order to establish consistent measurements. This percentage of agreement was calculated following the end of each observational period and then totaled at the conclusion of the study. The researcher was prepared to provide re-teaching of on- and off-task definitions and data collection procedures if inter-observer agreement fell below 80%; however, this situation never presented itself. A 30% minimum of joint observational time made possible this calculation of inter-observer agreement.

Dependent Variable

The dependent variable was defined as on-task behavior of students in general education classrooms based on information provided by each teacher through the use of a FUBA. The definition encompassed all characteristics noted as on-task in these classroom settings. On-task behavior was specifically defined as a student sitting on his chair at his desk, with his feet under the desk and hands in view. The student's hands were to be (a) resting when listening to directions or thinking about a task at hand, (b) raised if questioning, or (c) gripping a pencil or appropriate object if engaged in a particular activity. The student's eyes were to be appropriately focused, whether on the teacher, white board or projector, in a book, on their paper or on another object. The student was to be engaged in the activity at hand.

The behavior was defined as off-task if the student's focus was on anything other than the activity or instruction at hand. The student was off-task if he was out of his seat, if his hands were inside his desk or in his pockets or if he was fiddling with objects on his desk. If the student was talking to a neighbor, talking out or daydreaming, the behavior was noted as off-task.

The greatest emphasis for the on-task definition was placed on focus, and exceptions to the written definitions were permitted if the student exhibited significant on-task behavior through other means. An example of this occurred when a student was watching and listening to his teacher but had his hands in his pockets until he raised one to ask a question. Similar exceptions were repeated and counted as on-task.

Independent Variable

The independent variable was the use of video self-modeling for the purpose of teaching individual students the appropriate manner in which to remain on-task in their given classroom settings. Videos for each student used footage from each classroom during a specific time of day and subject. These times were chosen because they were reported to be during subjects of greatest concern according to the respective general education teacher.

VSM videos for this study were created from approximately 20 minutes of video footage for each participant. On-task behavior was spliced together after off-task behavior was edited out to give the appearance that the student was participating on-task during instruction and activities. A chronological approach to the student's subject area was followed in the video by introducing the student in each typical phase of learning in his particular environment. Each general education teacher provided a typical description of what occurred during the learning time, including instruction, guided practice and independent practice. The video focused on the

appropriate behavior for each portion of learning, and it included segments of the student asking

questions, correcting assignments and turning in assignments appropriately.

Verbal praise and audio sounds accompanied the video footage to identify and encourage

the specific on-task behaviors and attempt to make viewing more engaging to each student (see

Appendix B). Each general education teacher's voice was recorded saying positive remarks. The

remarks were placed throughout the VSM videos to provide each student with a familiar context

from which to envision future verbal feedback.

VSM videos were shown at the same time each day of intervention to students in separate

settings near each classroom. The first participant, Chase, viewed his VSM video in a small

teacher workroom around the corner from his classroom. The second student, Kendall, viewed

his VSM video in the school's conference room, which was located a couple of doors down from

his classroom. These locations consistently provided a separate, private location for each student

to view his video.

Observer Training

Observers were trained to collect on- and off-task data by the researcher. Using direct

instruction, the researcher explained the definition of on-task behavior as a student remaining

seated, with feet under desk, hands above the desk; hands appropriately active (if writing,

holding a pencil; if listening, folded, or steady); eyes on the teacher, classmates, or assignment as

appropriate; and focus on the teacher-directed object or activity. The researcher explained the

importance of on-task behavior in classroom settings and demonstrated on-task behavior through

use of verbal and physical examples and elicited observer verbal responses as guided practice.

Once observers demonstrated that they understood the meaning of on-task behavior through

verbal response, the researcher presented the Alternative Response-Discrepancy Observation

Form (see Appendix E). The proper use of this form was explained and modeled to the observers. The researcher showed the observers how to note each student's behavior; total the results, including on- and off-task percentages; and find a percentage for inter-observer agreement.

Guided practice was conducted in two live classrooms, grades 5 and 1, while math and writing were taught by general education teachers. The researcher identified two students for the observers, and they observed and recorded data in the first classroom for five minutes. After this initial practice, the observers and researcher met in the hallway to discuss questions regarding data collection procedures and the on-task behavior definition. The observers and researcher spent 15 minutes in the second live classroom, following which they totaled inter-observer agreement and found their observations to be 92% in agreement.

Independent practice took place in two other general education classrooms, grades 3 and 6, for the duration of 20 minutes each. The observations resulted in a 90% inter-observer agreement. The following day, two additional classes were observed in grades 5 and 4. Inter-observer agreement was at 88%. The third day of independent practice took place for 20 minutes in grades 1 and 5. Inter-observer agreement was at 95%. Because inter-observer agreement was greater than 80% on all practice occasions the observers then began collecting baseline data.

The observers were assigned to the specific classrooms and students who participated in the study. Baseline data collection began and daily results were plotted on graphs. The materials used to collect data were stored in the main office in a locked cabinet to ensure safety and accessibility. The researcher simultaneously created graphs from the data provided by the observers to ensure accuracy. The names of the participants and comparison peers were limited to first names only on all data-collection materials. The names of the participants were later changed to pseudonyms for the purpose of providing anonymity in these written results.

Experimental Design

This study used a multiple baseline across subjects design to collect information on students' on-task behavior. This was the most appropriate design for this study as a reversal of effects was not feasible once students were taught correct behavior through the use of VSM.

Baseline

Baseline data preceded VSM intervention and reflected the participants' behavior after Tier 1 interventions overseen by respective classroom teachers. The data collected at this phase for each participant and a comparison peer in each classroom helped to differentiate between on-task behavior for a typical peer in the same classroom and the on-task behavior for the participant. Observers began collecting data during the middle of the second semester of the school year. On occasion teachers rearranged their classroom schedules to accommodate alternative activities and re-teaching. They did not provide notice for these changes, and the participants were observed during these occasions. These data were not used to determine the initiation of VSM interventions but were analyzed to see how VSM intervention might be influencing other areas. Once behavior showed consistency in variability, level and trend, VSM as a Tier 2 RTI began for the first participant. The second participant did not begin to receive VSM intervention until the first participant's behavior showed a slight upward trend.

Intervention

Intervention began for 7-year-old Chase after VSM videos were completed for both participants. The footage gathered and the verbal praise recorded from the respective classroom teachers helped to keep the settings consistent with probable future feedback in their classrooms, thus allowing participants to more accurately use future imaging techniques (Dowrick, 1977; see Appendix B).

Video footage was collected in the middle of baseline data collection to allow for time to compile VSM videos and to adequately prepare for immediate intervention once baseline data was determined sufficient to analyze. Chase's VSM video was made during his math class, and was shown to him directly prior to his receiving instruction and participating in math-related assigned tasks. It was approximately 3 minutes and 41 seconds in length. Kendall was filmed during writing. He viewed his video immediately prior to participating in writing instruction and independent writing activities. This video was approximately 4 minutes and 4 seconds in length.

Maintenance

Intervention for both participants was conducted up to the end of the school year in each classroom setting. Adequate time to observe and gather data post intervention was not feasible due to school completing for summer break. Maintenance data are therefore not included in this research.

Treatment Fidelity

Treatment fidelity was ensured as videos were introduced to the participant by a designated individual, one of two para-educators and subsequently shown by that individual during a specific time of day, 5 to 8 minutes prior to specific instruction. Additional access to the videos was not permitted beyond this setting. Instructions regarding how to watch each video were given by the designated individual, and data were collected for student on-task behavior by an observer directly following the participant's viewing of the video. Para-educators were instructed to limit verbal communication with each student. If participants asked questions, the para-educators were instructed to refer them to the researcher for answers. This occurred twice; once when the 5th grade participant asked about beginning intervention; and once when the 6th grade participant asked the researcher how long the intervention would last.

Social Validity

Post intervention, participants were asked to report on their experience with VSM videos. Three questions were posed via interview with the researcher.

1. Did you enjoy having a video of you made in class? Why or why not?

2. Did you enjoy watching the video of yourself? Why or why not?

3. Do you think watching the video helped you to stay focused or on-task during your class?

The researcher recorded participant feedback in writing during brief interviews, asking the follow-up statement, "Tell me more," if the participant did not offer a concrete response.

RESULTS

This study examined the effects of video self-modeling (VSM) on the on-task behavior of two general education students referred for Tier 2 behavior intervention in an elementary school. Specifically, it measured the percentage of on- and off-task behavior prior to intervention and analyzed the effects of the intervention using data on the participants' behavior that were collected during academic subjects of greatest concern. The first participant received intervention for math; the second participant received intervention for writing. Following are the specific results for each participant.

Effects of Video Self-Modeling on On-Task Behavior

Data gathered for each of the participants' on-task behavior percentage are displayed across phases including baseline and intervention, in Table 2. Included are the mean percentage, high percentage and low percentage for each phase.

Participant 1

Baseline collection began during the middle of the second semester of the 2008–2009 school year. Chase was observed five days over the course of a two-and-a-half week period in his first grade classroom during math instruction. Two other observations occurred at this same time but were not counted as they took place during writing instruction after the teacher made changes to the typical daily schedule. During baseline data collection, Chase was absent two days.

Overall, Chase was on-task an average of 57% of the time prior to Tier 2 intervention. This average result was 34 percentage points lower than the comparison peer in the classroom. Data for Chase indicated that time spent in his off-task behavior was nearly equivalent with time spent in his on-task behavior. This clearly justified behavior intervention from a Tier 2 support.

Table 2

Mean Percentage and Range of On-task Behavior for Participants and Comparison Peers in

Specific Classroom Settings

Participant	Baseline	Intervention
Chase	m = 57	m = 63
	h = 73	h = 88
	l = 20	l = 48
1st Grade Comparison Peer	m = 91	m = 86
	h = 100	h = 100
	l = 82	l = 57
Kendall	m = 58	m = 51
	h = 83	h = 77
	l = 29	l = 25
6th Grade Comparison Peer	m = 87	m = 95
	h = 98	h = 100
	l = 74	l = 90

Note. m = mean percentage, h = high percentage and l = low percentage of on-task behavior

during data collection periods.

Intervention began in the fourth week of observations after the data showed a consistent trend, level and variability. Eight days of intervention data were collected during math instruction. Four additional observations occurred at the same time of day but during different academic instruction, including reading, writing and instructional movies. These schedule changes were made by the classroom teacher and were not calculated in the overall on-task behavior data. Chase's average on-task behavior increased 6 percentage points over the course of two weeks, or 13 days. The average on-task behavior for the comparison peer was higher than Chase's during intervention by 23 percentage points, indicating that Chase was still on-task significantly less than the comparison peer in his classroom.

The results of the Tier 2 intervention described were in relation to the effects of VSM in the subject area of math, which the video specifically targeted. However, it may be beneficial to note that the overall percentage of on-task behavior during VSM intervention in alternative settings did increase from baseline (see Figure 1).

Participant 2

Kendall was observed for the purpose of collecting baseline data for four days during writing over a three-week period. His average on-task behavior was 58%, which was 29 percentage points below the on-task behavior of the comparison peer in his classroom. Kendall's class experienced significant scheduling changes due to end of level state testing, as well as practice for the end of year sixth grade program.

VSM intervention began the fifth week of observations. Again, the class schedule changes prevented a thorough investigation via observation of the effects of VSM on Kendall's on-task behavior during writing. Three days of data provided an average of 61% on-task

behavior. The results showed that VSM intervention had a slightly positive effect on the behavior of the participant, an increase of 3 percentage points. When measured against the comparison peer in the classroom, Kendall's average was lower by 34 percentage points. The days of observation affecting this percentage were consecutive; however, Kendall's behavior dropped to 25% on-task for the second observation probe, his lowest during observation, before again rising to 81%. Too few days of writing observations occurred to provide substantial evidence of the effects of VSM for this student. Additional data is needed to conclude that the effects would remain positive over time.

Kendall was observed seven additional days, from which the data were neither calculated into the baseline average nor considered for purposes of initiating intervention. These data were analyzed to see if a positive effect was manifest through increased on-task behavior in alternative settings due to VSM intervention. Overall results indicate that Kendall's on-task behavior rose 7 percentage points when considering all settings during which he was observed (see Figure 1).

Results of Social Validity Measures

Social validity was measured in this study using two instruments. The first was the use of the Alternative Response Discrepancy Observation Form (see Appendix E), which served to record on-task behavior for a typical peer from the participant's classroom. This comparison peer was selected by the general education teacher because of the teacher's perception that this student's behavior was acceptable, yet typical. Data from the comparison peer were compared to the participant's data, which allowed the researcher to analyze the participant's behavior and understand to what degree it was less than acceptable. The data also allowed the researcher to create expectations of an appropriate level of on-task behavior for the participant throughout

intervention, which ultimately determined whether VSM was an effective method of improving behavior in these settings and under these circumstances.

The second measure of social validity was the use of a three-question survey that was administered by the researcher to the participants through a post intervention interview (see Appendix F). This tool provided insight into the personal experience of the participants during the making of the VSM videos and throughout the intervention.

It is interesting to note that Chase, the participant who showed the greatest improvement over the course of VSM intervention, also responded positively when interviewed, see Table 4. When asked if he enjoyed having the video made in his classroom, he responded affirmatively. He expressed enjoyment about watching the video and when asked why he responded, "Cause I was following the directions and I was ignoring the interruptions of [a classmate]." He said that he felt the video helped him to remain on-task.

As shown in Table 4, the participant who showed less significant gains did not respond positively to the questions during the interview. Although polite, Kendall expressed that he did not enjoy making the videos because, "I'm just shy—stage fright." Although other classmates were uninformed regarding the video-taping, Kendall had signed the permission slip to participate in the study and therefore knew that he was being filmed. Kendall also expressed that the video was not enjoyable to watch because he had to view it "too many times." When asked if the VSM video helped him to remain on task he responded, "I don't know." The researcher followed his statement up with, "Tell me more," but Kendall had nothing else to say and shrugged his shoulders.
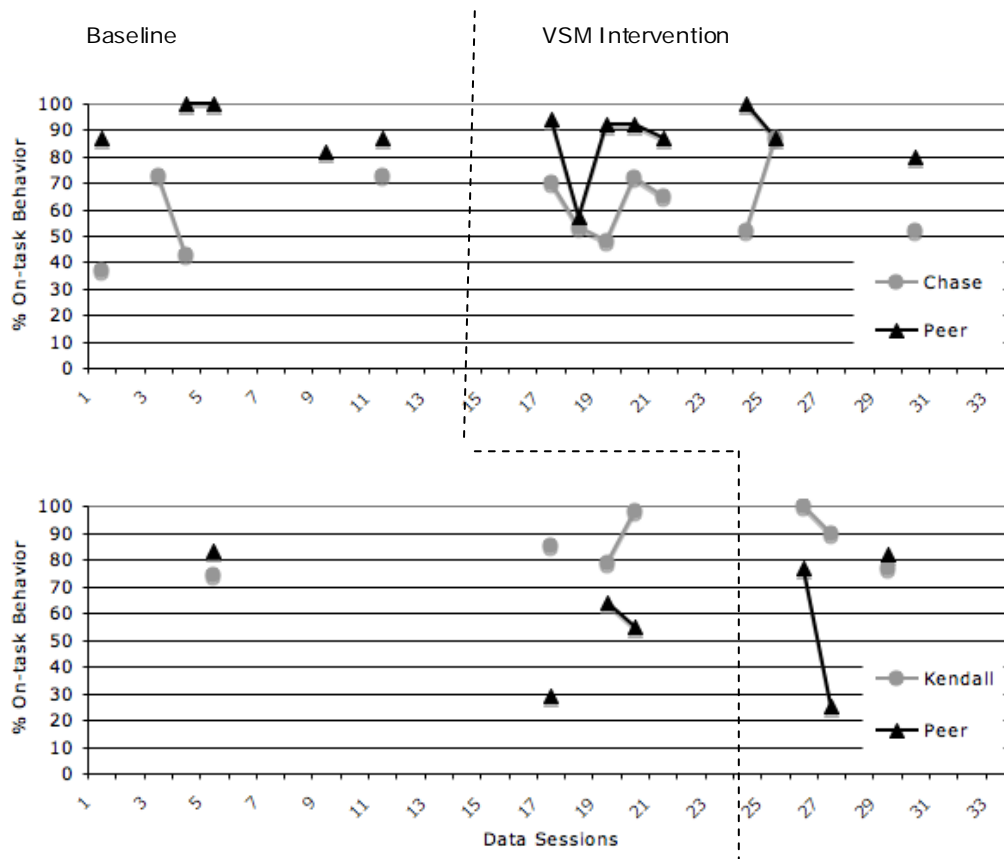
Figure 1. Percent of on-task behavior for participants and comparison peers.

Table 3

Mean Percentage and Range of On-task Behavior for Participants and Comparison Peers During the Same Time of Day in Multiple Settings

Participant	Baseline	Intervention
Chase	m = 57	m = 72
	h = 92	h = 100
	l = 23	l = 48
Kendall	m = 58	m = 65
	h = 90	h = 98
	l = 29	l = 25

Note. m = mean percentage, h = high percentage, and l = low percentage of on-task behavior during data collection periods.

Table 4

Participants' Enjoyment of Intervention and Perception of Effectiveness

Student	Enjoyed Filming	Enjoyed Viewing	Felt VSM Effective
Chase	Yes	Yes	Yes
Kendall	No	No	Don't Know

DISCUSSION

This study examined the effects of video self-modeling (VSM) as a Tier 2 intervention on the on-task behavior of students at-risk for academic failure in their general education classroom settings. The study measured the effect of VSM intervention on the mean percentage of on-task behavior for two participants and data were also collected on two comparison peers. The results of the study are discussed below.

Summary of Results

Video Self-Modeling

This study posed the question, Is video self-modeling an effective Tier 2 Response to Intervention strategy as measured by the percentage of on-task behavior of elementary students in general education classrooms? The VSM intervention appeared to improve the mean percentage of on-task behavior for the first participant by 6 percentage points and the mean percentage of the second participant by 3 percentage points. Although modest, these small gains suggest that VSM may be an even more effective intervention under more accommodating circumstances. In future studies, a longer duration might significantly affect the outcome of student on-task behavior; greater consistency in classroom schedules would allow for more opportunities to model the on-task behavior; and individual student preference toward the experience of being filmed could impact the overall effort required to make VSM a success. The present findings are significant because they endorse VSM as a strategy for increasing on-task behavior, as suggested by the Least Restrictive Behavior Interventions handbook (Utah State Board of Education, 2001). These treatments need to be further investigated through research to qualify the effects of VSM as a viable long-lasting intervention for increasing student on-task behavior as a Tier 2 intervention.

High levels of success have been found in various settings and populations in previous VSM studies (Buggey, 2005; Lasater & Brady, 2005; Hitchcock et al., 2004). This study did not show a similar significant impact on the participants receiving VSM intervention; however, the confounding factors limited intervention fidelity, thus emphasizing the importance of consistency in scheduling when conducting this form of intervention.

Social Validity

The social validity of this study was measured using two methods: data comparison from a peer who is considered to exhibit socially appropriate on-task behavior; and a questionnaire aimed to discover the participants' emotions associated with the intervention. The comparison of participant and peer data provided a reliable means of identifying whether the participant's on-task behavior was accelerating to an acceptable degree for a particular classroom setting over time, and at what rate. This rate helped to predict the future performance of VSM for each participant if they were to continue to receive the intervention in the same setting under the same circumstances. These predictions could be very beneficial to school RTI Teams for the purpose of gauging the necessary duration of school support before the a student exhibits acceptable on-task behavior, or until an alternative intervention is selected due to a predicted failure of off-task behavior remediation.

The second measure of social validity was the use of a three question survey, which helped to identify the underlying emotions and attitudes of the participants in regard to VSM intervention. The first question, "Did you enjoy having the video made of you? Why or Why not?" solicited opposite responses from the participants. The first participant, Chase, responded with, "Yes" while the second participant, Kendall, responded, "No," and elaborated that he felt shy or experienced stage fright during the filming. An interesting point to note is that neither

participant was described as shy by the classroom teachers when interviewed during the collection of information for the Functional Behavioral Assessments (FUBA), nor were they described by their teachers as attention-seeking. Kendall's description of feeling shy and experiencing stage fright may indicate that his discomfort lay within his consciousness of being filmed and not in his fear that others would know that he was being filmed.

The second question from the survey asked, "Did you enjoy watching the video? Why or Why not?" Chase indicated that he did enjoy watching the video, an attitude that is significant when considering that, of the two participants, he made the greater on-task behavior gains. Kendall expressed that he did not enjoy watching the video because he had to view it "too many times." Kendall did not make on-task behavior gains, a result that may be associated with his attitude toward the intervention. The participants may have responded to the intervention in the fashion that they did due to their attitudes towards the intervention. It is also possible that after participating in the intervention, Chase began to associate his experience with positive emotions because he felt the benefits from his increase of on-task behavior and more fully believed the positive statements made by his classroom teacher on the video because it became part of his actual environment. The negative emotions expressed by Kendall could be the result of a sense of lack of progress through the use of VSM. Kendall did not have the appropriate class schedule to support his intervention, and therefore, he may have felt that the intervention was ineffective. If this was the case, he would not have received the verbal praise in his classroom setting as portrayed in the video and he may have become discouraged as a result. In future investigations of the effectiveness of VSM as an on-task behavior intervention in general education classroom settings, it would be interesting to monitor teacher praise statements before and during intervention and to analyze their effect in association with the changes in student behaviors.

An additional factor to consider regarding the emotional responses exhibited by each participant is their ages. Chase was much younger than Kendall, and the VSM intervention may have affected him differently due to age-relevant conditions. This may include peer attitudes and student's perception of peer attitudes. Additional investigations of age as a relevant contributing factor could help to identify VSM as a conditional intervention tool (Bellini, 2007; Hitchcock et al., 2007; McCoy, 2007; Mechling, 2005).

Creation of Videos

The creation of VSM videos for this study and others may have significant implications toward the results. Particularly, this VSM study focused on student behavior and not skill, which may have affected the participating students in ways not observed in studies where academic skill is emphasized. As mentioned previously, for each video one participant's on-task behavior was portrayed—a process that required significant editing after filming. In other words, the videos portrayed skills of staying on-task that the participants had not yet achieved—a portrayal that seemed to contribute to frustration for the older student. By contrast, videos portraying academic skills cannot be created solely through this type of editing: the student must actually perform the skill during filming. In math or reading VSM interventions, for example, students viewing themselves will be able to recognize that the video represents their actual successful performance rather than a manipulated version of their performance. For older students especially, this recognition may be important for positive outcomes. A future study might focus on the behavioral influence of VSM intervention that focuses on successful academic performance rather than on successful on-task behavior. Could observing themselves succeed in math or reading encourage students to stay on-task during math and reading studies better than observing themselves succeeding in staying on-task?

Limitations of this Research

This research had several limiting factors which should be considered when evaluating the effectiveness of VSM as a Tier 2 behavior intervention. First of all, the time of implementation in the middle of the second semester meant changes in class schedules due to activities frequently associated with the end of the school year. These schedule changes interfered with consistent opportunities for participants to view the VSM videos prior to the setting for which they were specifically created. Data were collected in the form of probes rather than collected daily because of irregularity in specific instruction due to fieldtrips, program practices, year-end testing and alterations to daily subjects, including reading, writing and math. Without consistent classroom settings, the participants were unable to effectively associate on-task behavior from the VSM videos with general classroom activities.

A second factor of limitation is that the shortened duration of the intervention inhibited natural outcomes of VSM to take effect for the second participant. The opposition of the results for both participants indicates the need to study the effects of VSM as a Tier 2 intervention for a greater length of time. Maintenance and generalization of the effects of VSM were not addressed in this study but will be crucial in fully evaluating the effectiveness in general education classroom settings.

An additional limitation of the study is that the original planning included weekly academic probes for each participant; however, classroom teachers did not supply regular and concrete information about the students' completed work during baseline and intervention. It was hoped that the collection of academic data would help to support the validity of VSM for on-task behavior, as the completion of work could be associated with an increase of on-task behavior. Unfortunately, teachers were not cooperative in this regard: the first grade teacher seemed apprehensive about working with the researcher, and the sixth grade teacher was not

consistent about recording student scores. Future research would benefit from comparing completed class work to the on-task behavior of participants (Bellini, 2007; Hitchcock et al., 2007).

During the preparation for and implementation of the VSM interventions, the majority of faculty and staff were still in the initial phases of learning the principles that guide RTI interventions. An inhibiting factor of these interventions' success was the lack of follow-up by the RTI Team. Although the team had on occasion asked the general education teacher to return in a matter of weeks to report the changes for a referred student after intervention, this was not instituted as a regular practice. In fact, after the team understood that these particular VSM interventions would be conducted by the researcher for the purpose of a formal study, they dismissed the need for further intervention entirely, assuming a positive outcome for both participants would be taken care of. In the future, the RTI Team should continue to be involved throughout the process of implementation so that the participants are guaranteed an audience should interventions fail and alternative planning be needed.

The individual student participants in this study may have responded differently to intervention based on a number of factors. One factor is outside circumstances. Both participants experienced regular problems at home, as indicated through parents' problems with the law, previously mentioned. Near the end of the intervention phase it was discovered that Chase's father had been sent to prison. The events leading up to this were likely occurring simultaneous to the school intervention, which may have affected the results of the study. Also, during intervention Kendall was living with his stepmother, who told with the classroom teacher about the regular dramatic exchanges that occurred in the family. These circumstances surrounding

Kendall's home situation may also have affected the outcome of the study due to outside, uncontrollable variables.

A look into the VSM products is necessary to evaluate possible reasons for the participants' reaction to the videos as intervention tools. Both participants were filmed during typical activity in the classroom. The first participant, Chase, was off-task during the video to such a degree that in order to provide a long enough sample of on-task behavior, a segment of his on-task behavior was repeated three times. The second participant, Kendall, was obviously more aware of the video taping and immediately pretended to get to work on assignments when filming began. His VSM video took on a more thorough on-task feel as he seamlessly participated in his writing instruction; however, he was not actually completing his work and more or less put on a show for the film. It is possible that his on-task behavior did not increase because he continuously watched himself pretending to be on-task rather than truly being on-task. This may have inhibited his perception and motivation and was a probable cause for his lack of behavior improvement.

The administration of the videos themselves may add to the confounding factors of this study. Two different para-educators administered the interventions to the participants. The para-educator who administered VSM to Chase was previously unknown to the student. The para-educator who administered VSM to Kendall was well known to the sixth grade students for working with a student with autism in general education settings. This para-educator worked in many other areas of the school as well, but Kendall may have felt uncomfortable due to this association.

Each student watched one VSM video over the course of intervention. Kendall mentioned during the interview with the researcher that he disliked watching the same video over and over,

which may be another confounding variable in the research. Future practitioners should consider making multiple videos for a student if the VSM intervention is expected to take place over the course of a few weeks. Particularly effective might be showing up-to-date footage that demonstrates actual student progress over time—although collecting such footage would be time-consuming and potentially expensive or disruptive to the classroom.

The aim of this study was to examine the effectiveness of VSM intervention on the on-task behavior of students at-risk for academic failure due to off-task behavior and not academic deficits. This study is a representation of a Tier 2 Response to Intervention (RTI) made by an elementary school's RTI Team. The results of the study reflect the outcome of VSM intervention under irregular circumstances, including end-of-year disruptions in scheduling; however, they do not reflect the outcome of VSM intervention during regular, typical instruction in general education settings. Due to these circumstances, the results of this study should be analyzed with caution.

Another possible confounding variable may be that of participant selection and comparison peer selection measures. Neither participant was selected at random but rather chosen because academic ability was ruled out as a factor influencing these students' off-task behavior. The participant peers were selected by the classroom teachers under the premise that they represented acceptable and typical behavior and achievement in the class. This selection process may be more effective in the future by using more scientific measures to ensure the comparison peer selected matches the criteria. Additionally, the selection of participants for Tier 2 intervention early in an academic year (perhaps based on referrals to the RTI Team from the prior school year), may offer a less challenging atmosphere for intervention; in particular, VSM

interventions may be more effective when implemented before teacher–student interactions and classroom behaviors have become ingrained.

Implications for Future Research

Future research in the area of evaluating VSM intervention as a Tier 2 RTI should consider more appropriate intervention timelines which will allow for more stable and frequent data measurements to be gathered. The length of individual interventions may also affect the maintenance and generalization of on-task behavior skills when applied to students of different elementary ages, grades and personality types, which were not well investigated in this research.

Although the making of VSM videos for previous studies was described in the literature, no consensus on what constitutes an effective video has been determined (Dowrick et al., 2007; Hitchcock et al., 2003). Both VSM videos in this particular study were created in the same manner with the same layout and included the same verbal statements. However, each video had its own unique style due to individual student behavior, class instruction, teacher voice and class atmosphere. These differences should be evaluated to more definitively rule VSM intervention as useful.

Information collected in future VSM intervention research regarding video production would be invaluable. A focus on identifying specific criteria required for creating an effective VSM video (i.e. setting, population, video length) would help to establish universally effective techniques. This would include an analysis of how the features of the film shape student performance (e.g. which praise statements have the greatest influence when verbalized by general education teachers; what constitutes effective verbal praise recordings; how does the video-taping and editing effect the overall production?)

Also important is the investigation of what makes the VSM video engaging in overall video production and how student opinions of themselves over time influence the outcome of the intervention. Because the filming and editing of VSM videos affect the quality of the overall product, the participants are likely to respond according to the videos' effectiveness. Additionally, when the duration of a VSM intervention is intended to take place over time, future practitioners may consider creating multiple videos of the same setting but of different clips and verbal praise to help provide variety to participants' intervention routines (Figueira, 2007; Hitchcock, 2003). Because children are increasingly exposed to videos of themselves and to visual media in general, a helpful addition to the literature would be a study comparing the effects of VSM videos created with typical equipment versus videos created with professional-grade recorders and editing.

Teacher opinion regarding the effects of the intervention will also be important to consider in future investigations. The classroom teachers in this study were originally excited to have their students participate in the study, as voiced during RTI Team meetings. But they did not feel that the Tier 2 intervention was a responsibility of their own, and they were found to be unhelpful in providing important academic information through weekly probes. This inhibited the researcher from fully evaluating the completion of the participants' work in class. Such information would be extremely beneficial to future research of VSM in relation to on-task behavior (Hitchcock et al., 2003).

Implications for Practitioners

This research has implications for future practitioners and researchers, especially those involved in pre-referral interventions for students at-risk for academic failure due to behavioral concerns. Fertile circumstances for VSM on-task behavior interventions include a classroom

setting where the teacher has tried and documented Tier 1 behavior interventions and has noted the factors associated with their lack of success. These notes will help to determine an effective design for a VSM video, which will include unique instruction based on student deficits and failed response to previous interventions and will guide in the selection of an appropriate time of day and setting specifically associated with the student's off-task behavior.

Practitioners and researchers will also find that consistency in class schedules will provide frequent opportunities for students to view themselves as on-task behavior models using VSM and to associate those behaviors directly to classroom settings for which the video was created. Measures of student on-task behavior and work completion throughout baseline and intervention will provide evidence of the effectiveness of VSM as a Tier 2 behavior intervention. Together, consistent VSM administration and weekly monitoring of academic work completion will allow for a more thorough evaluation of this intervention's effects than was discovered in this study.

Video self-modeling (VSM) has now been demonstrated as a potential behavior intervention for general education students at-risk for more restrictive instruction. Although the results of this study cannot conclude that VSM will effectively and efficiently remediate off-task behavior in general classroom settings, the participants showed a slight positive effect in spite of a number of previously described confounding factors. This may indicate that VSM is a viable Tier 2 intervention tool for students who receive consistent opportunities to conceptualize themselves as on-task behavior models.

Conclusion

The results of this research study indicate that video self-modeling (VSM) may be an appropriate and effective means of increasing the on-task behavior of students at a Tier 2 level,

by briefly providing instruction and then allowing for opportunities to practice and improve behaviors in general education classroom settings or in the least restrictive environment.

The two participants in this study showed minimal gains in on-task behavior over the course of intervention. The absence of ample time to implement the interventions did not meet initial expectations for consistency of this study. This suggests that when used during feasible durations, VSM video intervention may be an appropriate means of teaching more effective behaviors through the use of self as a model (Buggey, 2007; Hitchcock et al., 2003). The first participant also expressed interest in the making and viewing of the VSM video and believed it to positively affect his on-task performance in mathematics.

Observations of a comparison peer in each classroom helped to define expectations for appropriate behaviors of the participants. These data showed that the effects of VSM did not produce significantly more on-task behavior over the weeks of intervention, a socially valid measure of performance.

The student survey helped to identify the VSM intervention as socially valid for the first participant, including student perception that the intervention was working. The survey also revealed that certain temperaments and attitudes likely influence the effectiveness of VSM as a treatment.

This study extends the existing VSM literature to consider the potential for effective results under consistent classroom settings and circumstances in general education classes. The versatile nature of this intervention is appealing because it can be tailored to fit the unique needs of students involved. For students at-risk for school failure in elementary school settings, VSM as a Tier 2 intervention is a likely candidate for off-task remediation. The use of this intervention

at a Tier 2 level is appropriate in that it provides a more intense support to students while keeping them in their general classroom settings.

Interventions for individuals at-risk for academic failure due to off-task behavior are in demand as practitioners search for more scientific designs of effective instruction. Rather than removing students with off-task behavior to an alternative setting for academic instruction, practitioners can work together to increase the likelihood that these individuals will succeed in typical settings. Using the Response to Intervention (RTI) framework, practitioners may plan specific interventions for individual student needs. VSM continues to be a viable option for providing these interventions because of its flexible nature across settings, uses and participants.

The future of VSM as a Tier 2 intervention includes many exciting possibilities and effective applications. Researchers must develop a more robust standardization for video production. Also, further research must shed light on the influence of cultural factors and personal temperaments and on the optimum time periods of use. Clarifying these additional components of VSM will continue to enhance VSM as an effective intervention and augment the educator's skill set in helping students to make positive academic and behavioral advances.

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APPENDICES

Appendix A

Participation and Consent to be a Research Subject
Brigham Young University

Increasing On-Task Student Behavior Through Video Self-Modeling
Consent to be a Research Subject

Introduction
This research study is being conducted by Anika Kronmiller Bales and Mary Anne Prater at Brigham Young University to determine the effects of video self-modeling on students' on-task behavior in their general education classroom settings. Your child was selected to participate because s/he has been referred to Art City's intervention team for assistance in this area.

Procedures
Your child will be video-taped in their general education classroom setting for one twenty minute session, during one subject. A video will then be created from the footage to promote your student's on-task behavior. Each video will include segments of your child and will be accompanied by verbal praise to provide encouragement. Your child will view the video daily prior to the subject that is featured in the video. Your child will participate for the duration of one to two months.

Risks/Discomforts
There are minimal risks for participation in this study. However, your child may feel some discomfort when s/he leaves the classroom setting for five minutes daily to view his/her personal video. Your child may also feel discomfort during the video-taping in his/her classroom setting, however, those involved in taping these segments will not make the class peers aware of their purpose during any time.

Benefits
There are no direct benefits to subjects. However, it is hoped that through your child's participation, his/her off-task behavior will be replace with on-task behavior, and s/he will enjoy the benefits of completing assigned work, and will increase understanding.

Confidentiality
All information provided will remain confidential and will only be reported though the use of pseudonyms, including the location of the school and classroom teacher. All data, including videos, will be kept in a locked storage cabinet and only those directly involved with the research will have access to them. After the research is completed, the data and video taped segments will be destroyed.

Participation
Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely.

Questions about the Research
If you have questions regarding this study, you may contact Anika Kronmiller Bales at (801)489-2820, anika.bales@nebo.edu, or Mary Anne Prater, PhD, at (801)422-3857, prater@byu.edu.

Questions about your Rights as Research Participants
If you have questions regarding your rights as a research participant, you may contact Christopher Dromey, PhD, IRB Chair, (801)422-6461, 133 TLRB, Brigham Young University, Provo, UT 84602, Christopher_Dromey@byu.edu.

I have read, understand, and received a copy of the above consent and desire of my own free will to allow my son/daughter to participate in this study.

Print Name: _____ Date:_____

Signature:_____

Explanation of Study for Student Assent
A video will be made of you in your classroom listening to your teacher instruct you, and working on your assignments. You will watch the video everyday at a certain time in a room near to your classroom, and then you will go back to class for your regular lesson.

By signing your name you agree to have a video made of you in your class, and agree to watch the video daily.

Print Name: _____ Date:_____

Signature:_____

Appendix B

On-Task Behavior Video Self-Modeling

Teacher Praise Statements

The following statements were recorded by each classroom teacher and are in the

chronological order used in each VSM video.

1. *(student name)* is a great student.

2. *(student name)* listens carefully to directions.

3. *(student name)* gets to work right away.

4. *(student name)* works hard on assignments during class.

5. If *(student name)* doesn't understand he asks for help by raising his hand.

6. *(student name)* ignores interruptions.

7. Great job!

8. *(student name)* is a smart student and always does great when he sets his mind to it!

9. Nice work staying focused, *(student name)*!

10. I knew you could do it!

Appendix C

Functional Behavioral Assessment (FUBA)

Student: _____ Grade: _____ School: _____ Date: _____

FUBA/BIP developed for: ☐ Tier 2 (Program purposes) ☐ Tier 3 (IEP requirement) Participants: _____

In your own words, describe the behavior that prompted this FUBA.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

PROBLEM BEHAVIOR

If the above explanation addresses multiple behaviors, identify the ONE BEHAVIOR to be targeted for intervention:

_____
_____
_____
_____
_____

The behavior I have targeted for intervention is:

☐ Observable   ☐ Measurable

ANTECEDENTS

Ask yourself: What is likely to "set off" (precede) the problem behavior?

WHEN is the problem behavior most likely to occur?

☐ Morning   Approximate time(s) _____
☐ Afternoon Approximate time(s) _____
☐ Before/after school   ☐ Lunch/recess
☐ _____

WHERE is the problem behavior most likely to occur?

☐ Reg. Ed. classroom   ☐ Hallway
☐ Spec. Ed. classroom   ☐ Cafeteria
☐ _____

During what SUBJECT/ACTIVITY is the problem behavior most likely to occur?

☐ Subject(s) _____
☐ Seatwork   Transitions
☐ Group activities   Unstructured activities
☐ Lesson presentation   Task explanations
☐ _____

The PEOPLE that are present when the problem behavior is most likely to occur include:

☐ Teacher   ☐ Classmates
☐ Other staff   ☐ Other peers
☐ _____

Are there OTHER EVENTS or CONDITIONS that immediately precede the problem behavior?

☐ A demand or request
☐ Unexpected changes in schedule or routine
☐ Consequences imposed for behavior
☐ Comments/teasing from other students
☐ _____

When is the student most successful? When DOESN'T the problem behavior occur? _____

_____

CONSEQUENCES

Ask yourself: What "payoff" does the student obtain when she/he demonstrates the problem behavior?

The student GAINS:

☐ Teacher/adult attention
☐ Peer attention
☐ Desired item or activity
☐ Control over others or the situation
☐ _____

The student AVOIDS or ESCAPES:

☐ Teacher/adult interaction
☐ Peer interaction
☐ Non-preferred activity, task, or setting
☐ A difficult task or frustrating situation
☐ _____

What has been tried thus far to change the problem behavior?

☐ Implemented rules and consequences for behavior as posted
☐ Implemented behavior or academic contract
☐ Implemented home/school communication system
☐ Adapted curriculum How? _____
_____
☐ Modified instruction How? _____
_____
☐ Adjusted schedule How? _____
_____
☐ Conferenced with parents
Dates: _____
☐ _____

FUBA page 1 of 2

Functional Behavioral Assessment (FUBA)

FUNCTION OF THE PROBLEM BEHAVIOR	REPLACEMENT BEHAVIOR
Ask yourself: Why is the student behaving this way? What function/need is being met by the student's behavior?	Ask yourself: What alternative behavior would meet the same function/need for the student?

FUNCTION OF THE PROBLEM BEHAVIOR

Ask yourself: Why is the student behaving this way? What function/need is being met by the student's behavior?

Complete the following preliminary analysis by summarizing information from the three columns on part of one of the Functional Behavior Assessment.

When (summarize antecedents): _____
_____
_____
_____

This student (identify problem behavior): _____
_____
_____
_____

In order to (summarize "payoffs"): _____
_____
_____
_____

Examples:

1. When in the halls before school, after school, and during transitions, this student pushes other students and verbally threatens to beat them up in order to gain status and attention from peers.

2. When working on independent seatwork during his regular education math class, this student puts his head on his desk in order to escape work that is too difficult/frustrating.

REPLACEMENT BEHAVIOR

Ask yourself: What alternative behavior would meet the same function/need for the student?

Complete the following:

Rather than (identify the problem behavior) _____
_____
_____
_____

I want this student to:
_____
_____
_____
_____
_____
_____
_____
_____

This definition is:

☐ Observable   ☐ Measurable

Examples;

1. Rather than pushing students and threatening to beat them up, I want this student to walk in the halls with his hands to his side and say "hello" to those with whom he wishes to interact.

2. Rather than putting his head on his desk because he doesn't know how to do the problem, I want this student to raise his hand for help and move on to the next problem while waiting for my assistance.

Behavior Intervention Plan (BIP)

PRELIMINARY STRATEGIES	INSTRUCTIONAL STRATEGIES
Ask yourself: Can I figure out how to correct the problem - to change the context somehow so the problem behavior doesn't occur in the first place? (**Refer to the Antecedent column on page one**.)	Ask yourself: What skills will the student need to be taught in order to successfully demonstrate the replacement behavior identified in column two of page two.

PRELIMINARY STRATEGIES

☐ I could make adjustments as to **WHEN** the problem behavior is likely to occur by: _____

☐ I could make adjustments as to **WHERE** the problem behavior is likely to occur by: _____

☐ I could make adjustments as to the **SUBJECT/ACTIVITY** during which the problem behavior is likely to occur by: _____
_____

☐ I could make adjustments as to the **PEOPLE** present when the problem behavior is likely to occur by: _____
_____

Other adjustments that might make the problem behavior less likely to occur include:

☐ Clarifying and/or reteaching expectations/routines. How? _____
_____

☐ Modify task/assignment/curriculum. How? _____

☐ Modify instructional methods. How? _____
_____

☐ Increasing supervision. How? _____

☐ Utilizing specialized equipment. How? _____

☐ Other: _____
_____
_____
_____

INSTRUCTIONAL STRATEGIES

☐ Social skills: _____
_____

☐ Communication skills: _____
_____

☐ Study skills: _____
_____

☐ Academic skills: _____
_____

☐ Other: _____
_____
_____

Ask yourself: How will these skills be taught?

☐ Individual instruction   ☐ Group instruction
☐ Demonstration/modeling   ☐ Role play
☐ Guided practice   ☐ Independent practice

Who will provide the instruction? _____
When will instruction take place? _____
Where will instruction take place? _____
How often will inst4ruction take place? _____
How will opportunities for practice/rehearsal be provided? _____
_____

How will I prompt the student to utilize his/her newly acquired skills? _____
_____
_____

Behavior Intervention Plan (BIP)

REINFORCEMENT PROCEDURES	CORRECTION PROCEDURES	IMPLEMENTATION DETAILS

REINFORCEMENT PROCEDURES

Ask yourself: What will I do to **increase** the occurrence of the replacement behavior?

IDENTIFY POTENTIAL REINFORCERS:
What preferred items, activities or people might be used as incentives in an intervention for this student?
_____   _____
_____   _____
_____   _____

ESTABLISH SPECIFIC BEHAVIOR CRITERIA:
What exactly must the student do to earn the above reinforcers? _____
_____
_____
_____

DETERMINE SCHEDULE OF REINFORCEMENT:
How frequently can the student earn the above reinforcers? _____
_____
_____
_____

IDENTIFY DELIVERY SYSTEM:
What intervention components will I use to monitor the student's behavior and deliver reinforcement?

☐ Self-monitoring system   ☐ Point system
☐ Behavioral contract   ☐ Token economy
☐ Group contingency   ☐ Beep tape
☐ Home note system   ☐ Chart moves
☐ Lottery/raffle tickets   ☐ Tracking system
☐ Other: _____
_____
_____

CORRECTION PROCEDURES

Ask yourself: What will I do to **decrease** the occurrence of the problem behavior?

☐ I will **ignore** any/all occurrences of the problem behavior, meanwhile attending to the appropriate behavior of other students.

☐ I will verbally **stop, then redirect** each occurrence of the behavior by:
  ☐ Utilizing Precision Requests
  ☐ Completing a Teaching Interaction
  ☐ Sayting the following,
     "_____
     _____."
  ☐ Other: _____
     _____

☐ I will **apply a minimal consequence/penalty** for the problem behavior as follows:
  ☐ Loss of incentive/privilege. Describe: _____
     _____
  ☐ Loss of _____ minutes of _____.
     Positive practice. Describe: _____
     _____
  ☐ Phone call to parent(s)
  ☐ Complete behavior essay

☐ I will implement **time away from opportunity for** reinforcement. Describe: _____
  _____

☐ I will implement a **level system** including a hieracrchy of consequences for inappropriate behavior (attach description of level system).

☐ Other: _____
  _____

IMPLEMENTATION DETAILS

Ask yourself: How will I keep track of how often the student actually receives the identified reinforcer(s) or correction procedure(s)?
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Ask yourself: Are the reinforcement and correction procedures I've outlined self-explanatory? If not, what details/explanations would help another person implement this plan accurately and consistently? (Continue on back if necessary.)
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Behavior Intervention Plan (BIP)

Ask yourself: How can I monitor the student's behavior so I have a reliable record of progress?

Method of data collection:

☐ Frequency count across the day

☐ Frequency count from _____ to _____
(time of day)   (time of day)

☐ Interval recording every _____ seconds or
(circle one)
minutes across the day

☐ Interval recording every _____ seconds or
(circle one)
minutes from _____ to _____
(time of day)   (time of day)

☐ Other: _____

_____

_____

Describe exactly how data will be collected/recorded. **Attach copies of any forms utilized.**

_____

_____

_____

_____

_____

_____

_____

Daily Data

Behavior being measured/Unit of measurement

Dates

Days

ANALYSIS (Date: _____)

☐ Desired decrease in problem behavior ☐ Desired increase in replacement behavior

☐ Undesired increase in problem behavior ☐ Undesired decrease in replacement behavior

Action to be taken: ☐ Continue ☐ Modify ☐ Plan for generalization

Plan for action: _____

_____

_____

Behavior Intervention Plan (BIP)

Daily Data (continued)

Behavior being measured/Unit of measurement

Dates

ANALYSIS (Date: _____)

☐ Desired decrease in problem behavior   ☐ Desired increase in replacement behavior

☐ Undesired increase in problem behavior   ☐ Undesired decrease in replacement behavior

Action to be taken: ☐ Continue   ☐ Modify ☐ Plan for generalization

Plan for action: _____

_____

_____

_____

ANALYSIS (Date: _____)

☐ Desired decrease in problem behavior   ☐ Desired increase in replacement behavior

☐ Undesired increase in problem behavior   ☐ Undesired decrease in replacement behavior

Action to be taken: ☐ Continue   ☐ Modify ☐ Plan for generalization

Plan for action: _____

_____

_____

_____

Appendix E
ALTERNATIVE RESPONSE-DISCREPANCY OBSERVATION FORM

OBSERVER _____

STUDENT 1 _____   GRADE _____   SCHOOL _____

STUDENT 2 _____   DATE _____   SUBJECT AREA _____

ON-TASK BEHAVIOR DEFINITION:	OFF-TASK BEHAVIOR DEFINITION:
• seated in chair at desk, or at other location if directed by teacher • eyes on the teacher or book • engaged in lesson or assignment • complete classwork in timely manner (not too fast or too slow) • raise hand to speak, or speak out if appropriate	• out of seat, wandering the classroom • eyes looking around, down, or closed • engaged in activity other than classwork (playing with items in desk) • avoidance of the expected task ("zoned out") • talking out, talking to self

Please use the following marks to identify the behavior for each 10-second whole interval.

On-Task [/]   Off-Task [O]   Unknown [ ]

Start Time _____ : _____

	Minute1	Minute 2	Minute 3	Minute 4	Minute 5
Student 1					
Student 2					

	Minute 6	Minute 7	Minute 8	Minute 9	Minute 10
Student 1					
Student 2					

	Minute 11	Minute 12	Minute 13	Minute 14	Minute 15
Student 1					
Student 2					

	Minute 16	Minute 17	Minute 18	Minute 19	Minute 20
Student 1					
Student 2					

End Time _____ : _____

STUDENT 1	STUDENT 2	INTEROBSERVER AGREEMENT
On-Task % ___/___ _____	On-Task % ___/___ _____	___ / ___ _____ %
Off-Task % ___/___ _____	Off-Task % ___/___ _____	

Page 1 of 2

Student Behavior Data

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7

Behavior Percentage (y-axis: 100, 95, 90, 85, 80, 75, 70, 65, 60, 55, 50, 45, 40, 35, 30, 25, 20, 15, 10, 5, 0)

Date

Daily Trials
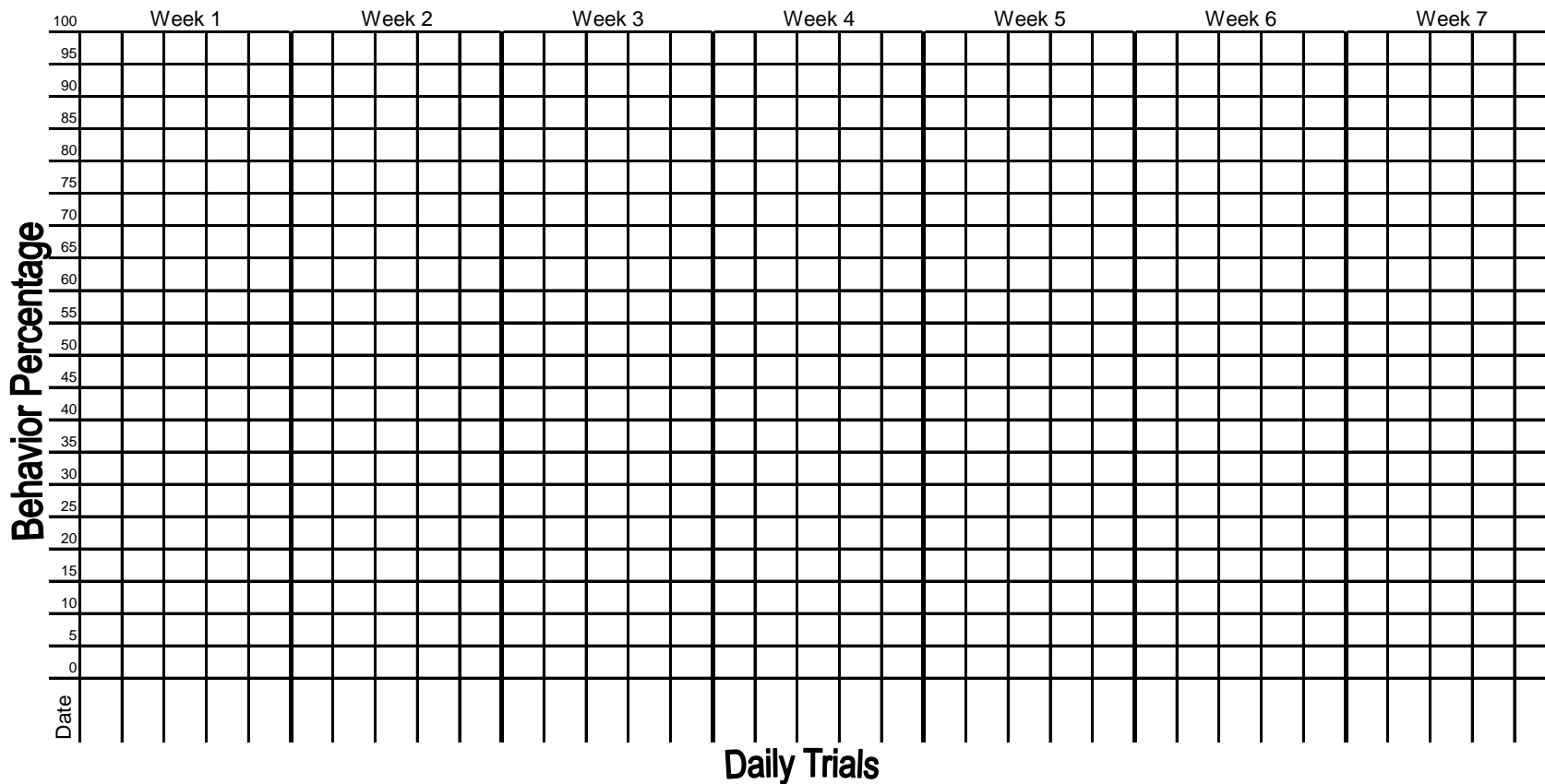
Key	STUDENT 1:
	On-Task
	Off-Task
	STUDENT 2:
	On-Task
	Off-Task

Notes:

Appendix F

Participant Social Validity Questionnaire

Please answer the following questions about the videos made of you in your class.

1. Did you enjoy having a video made of you in class? Why or why not?

2. Did you enjoy watching the video of yourself? Why or why not?

3. Do you think watching the video of yourself helped you to stay on-task better?