Effects of classwide self-management intervention on second grade students’ social skills in physical education

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EFFECTS OF CLASSWIDE SELF-MANAGEMENT INTERVENTION ON SECOND GRADE STUDENTS’ SOCIAL SKILLS IN PHYSICAL EDUCATION

by

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Bachelor of Education
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2008

A thesis submitted in partial fulfillment of the requirements for the

Master of Science in Sport Education Leadership
Department of Sports Education Leadership
College of Education

Graduate College
University of Nevada, Las Vegas
May 2011
THE GRADUATE COLLEGE

We recommend the thesis prepared under our supervision by

Elian Aljadeff-Abergel

entitled

Effects of Classwide Self-Management Intervention on Second Grade Students’ Social Skills in Physical Education

be accepted in partial fulfillment of the requirements for the degree of

Master of Science in Sport Education Leadership

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December 2010
ABSTRACT

Effects of Classwide Self-Management Intervention on Second Grade Students’ Social Skills in Physical Education
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Maintaining students’ on-task behavior and engagement with learning materials is difficult due to factors such as a large number of students and the increasing occurrences of disruptive behaviors in class. Students’ acquisition of appropriate social skills can increase the teacher’s ability to effectively teach in class and facilitate students’ academic success. Self-management (SM) interventions in which students manage their own behaviors can serve as socially and ecologically-valid strategies for enhancing students’ social skills in the classroom. Self-management programs have wide empirical support that demonstrates their merit for students’ learning of social and academic skills. In school settings, self-management interventions were implemented in various disciplines such as math, reading, writing, social studies and science.

Despite the strong empirical support for SM interventions in general and special education settings and the increasing need for empirically-based behavior-change programs to improve classroom management and instruction, there are no studies of SM interventions in physical education. There is a clear need to validate SM in these settings.

The purpose of this study was to examine the effects of Classwide self-management (CWSM) program on social skills’ learning of second grade students in
physical education. The study was conducted in a K-12 charter school and consisted of 22 lessons of martial arts content. Four target students of two boys and two girls were selected by the classroom and the physical education teachers based on their behavioral deficits. The study concluded with three students due to the withdrawal of one boy from the school.

A multiple baseline across behavior design was employed to examine the effects of CWSM on students’ social skills. The dependent variables were (a) students’ self-control response class, (b) students’ cooperation response class, (c) students’ persistency during challenging task, (d) target students and entire class on-task behavior and (e) students’ accurate self-assessment. Social validity of the study was examined via the students’ and the teacher’s evaluation of the intervention’s goals, procedures, and outcomes. The baseline condition involved the teacher’s typical physical education instruction. The intervention condition included the following CWSM components: students’ self-evaluations of their behavior, public posting of performance and matching with the teacher’s evaluation.

Results show students’ cooperation and persistency behaviors improved from an average of 53% (range, 56-65%) and 33% (range, 32-35%) respectively, to an average of 82% (range, 75-92%) and 84% (range, 78-88%) when the CWSM was in effect. Students’ on-task behavior increased to an average of 84% (range, 79-92%) as well. Social validity reports indicate the students’ and the teacher’s acceptability of the CWSM intervention.

In conclusion, a functional relation was demonstrated between the CWSM intervention and the second grade students’ social skills. The on-task data also suggested
some relation between students’ display of social skills and a collateral improvement in academic performance.

This study extended the literature by: (a) strengthening the validity of CWSM as an effective behavior-change program in an ecologically valid setting, (b) extending the generality of CWSM to physical education settings, (c) establishing an empirically-based intervention for enhancing social skills in physical education, and (d) extending the social validity of CWSM interventions in school settings and in physical education in particular.
ACKNOWLEDGMENTS

I would like to take a moment to thank a number of people whom without their support I probably could have not completed this thesis and the process that preceded it.

My profound gratitude and appreciation goes to my advisor and friend, Dr. Shiri Ayvazo, for her scholarly guidance, encouragement and prodigious support throughout my professional growth. With her immense faith in my abilities, Dr. Ayvazo always pushed me to learn and develop. At times when I had doubts in my abilities to achieve goals, Dr. Ayvazo was the one who assured me that I was able to handle anything by providing me with more opportunities to acquire knowledge. I know that although this phase in my life is about to conclude, my work and friendship with Dr. Ayvazo will never end.

A special thanks is given to the love of my life, my husband Peleg, whom without his care, love and faith in me I would have not reached this phase. Peleg came with me from Israel unconditionally, leaving his family and friends, to support and help me follow my dreams and make them come true. Throughout this journey, in days of joy or during difficulty, Peleg was always there to listen and assist. This intense experience could have been extremely difficult to impossible without Peleg’s love and support.

I wish to extend my gratitude to my committee members, Dr. Watson, Dr. Lough and Dr. Grant for their thoughtfulness and contribution to this thesis. Their doors were always open for me and for that I give my sincere appreciation. Special thanks are due to Dr. Watson who always made me feel an inseparable part of this big family called Sports Education Leadership Department at UNLV. Dr. Watson, I will never forget the big hug I received from you the first day I came.
My work could have not been completed without the support of my colleagues and friends, Stephanie, Veronica and Rachel. I wish to thank them for always being there to provide assistance whenever needed. In addition, thanks to Jessica and Tony for their outstanding collaboration, as they were seminal in making this study as fruitful as it was.

Finally I would like to thank my amazing family, Mami, Papi, Ale, David and Maaian, whom from hundreds of miles away, invariably supported and helped me to achieve my goals. I know my departure from Israel was more difficult for them than for me, yet they never showed objection but rather always asked how they could further help. I love you all immensely.

Hebrew translation of my acknowledgment to my family:

לבסות Брӡ针对性 ללותות למספחת המדהימים של, פמי, פפי, אלזה, וᵈ⁰⁰⁰ שOfString siz שאלフェ
מיילם חמיד תפוקת ו친ר לי הלשיג ארי פורונר. אני יודעת שה밢 התחרות מישריאו החב שוח וחרלח
מאשר לי, וдумים שמעולה לאぶり התכונדה, ל=response, תפוקת שאלכי צידר המ י多层次 וחור יחר. אני אוהבת
את כלכם לאין שיעור.
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Teaching and learning are two dynamic components of educational settings. Teaching should be effective, efficient and optimal for learning to be maximized. Ultimately, teaching or teachers should educate children to learn; that is, to produce desired and long lasting changes in their behavior (Medley, 1979; Greer, 2002). Time is a critical variable for learning, as learning is a function of students’ engagement time in appropriate content (Rosenshine, 1979; Skinner, 1968). Nevertheless, time is compromised in the 21st century’s educational settings. Current research literature suggests teaching and learning time are negatively influenced by students’ off-task and disrupting behaviors such as talking, sleeping and negative student-teacher interactions (Briesch & Chafouleas, 2009; Mitchem, Young, West, & Benyo, 2001; Murphy & Korinek, 2009). These behaviors not only interrupt the disruptive student but also hamper the lesson’s flow and hinder other students’ ability to learn. Furthermore, teaching time is significantly lost when teachers need to manage disruptive behavior ( Mitchem et al., 2001). For example, classroom teachers complain of losing 2-4 hours of teaching time every week as a result of students’ unruly behaviors (Walker, Ramsey, & Gresham, 2003).

In addition to common and typical occurrences of misbehaviors in classrooms, effective teaching and optimized learning have been increasingly difficult to accomplish in the past decade due to the Individual with Disabilities Education Act (IDEA, 1999). IDEA promotes the inclusion of students with special needs and disabilities into general education classes. Despite its educational and social merit, IDEA yields two specific and
interrelated challenges. First, students with behavior deficiencies and who are at-risk for school failure are included in regular classroom settings. They are expected to master content and behaviors and to be able to assume adequate responsibility. Nevertheless, these students have deficits in fundamental behaviors such as the ability to follow directions, come prepared to class and complete assignments as required (Murphy & Korinek, 2009). Second, teachers are ill-prepared to accommodate the needs of diverse students and to provide appropriate individualized instruction. Consequently, they are confronted with higher rates of disruptive and inappropriate behaviors and struggle in managing students’ behaviors (Allsopp, Santos, & Linn, 2000; Eldar & Ayvazo, 2009; Patrick, Ward, & Crouch, 1998; Rathvon, 1999). Evidently classroom management is still an imperative teaching skill for teachers (Mitchem et al., 2001; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008) and even more so for novice teachers who have less teaching experience (Rathvon, 1999).

Managing students’ behaviors to optimize learning is particularly challenging due to class sizes and the content taught. For example, the larger the class size and the greater the teacher-students ratio, the more difficult it is to manage students’ behaviors and facilitate learning (Murphy & Korinek, 2009; Slocum, 2004). Physical education lessons, for instance, are especially prone to accommodate two and sometimes three classes together, occasionally totaling more than 60 students per teacher and one aid. The content taught in physical education also poses difficulties for management. Physical education is considered a less-structured learning environment (Rathvon, 1999). Learning in physical education involves students moving in open spaces, manipulating objects and creating physical contact with one another (Rink, 2010). Such learning
environment is at times extremely difficult to manage and even more so to teach (Rathvon, 1999).

Therefore, there is a clear necessity for interventions that promote appropriate classroom behaviors and social skills that are prerequisites for learning (Briesch & Chafouleas, 2009; Cartledge & Milburn, 1978). Acquisition of appropriate classroom behaviors will increase the teacher’s ability to effectively teach in class and will also facilitate students’ academic success. Research demonstrated that positive classroom behaviors such as academic social skills (e.g., on-task behavior) and self-control skills (e.g., receiving feedback appropriately) positively correlated with students’ academic achievements (Briesch & Chafouleas, 2009; Cartledge & Milburn, 1978; McClelland & Morrison, 2003).

Programs for promoting social skills and positive classroom behaviors can be teacher-managed or student-managed with varying degrees of responsibility for the teacher and the students for managing behaviors. Briesch and Chafouleas (2009) argue that teacher-managed programs are ineffective and unpractical for the following reasons. First, teacher-managed interventions are logistically cumbersome for teachers to implement (Thomas, 1980). Teachers refrain from adopting such interventions as they pose extra workload on them (Briesch & Chafouleas, 2009). Second, in large classes teachers are not able to observe all instances of behaviors of all students and as a result cannot provide timely feedback for performance or prompt reinforcement for desired behaviors (Cooper, Heron, & Heward, 2007; Siedentop & Tannehill, 2000). Briesch and Chafouleas (2009) assert that teacher-centered interventions that rely solely on the teacher’s ability to reinforce students’ behaviors may be ineffective. Third, when the
teacher is the only source of providing cues, feedback and reinforcement for the student’s desired behavior, the probability that the desired behavior will generalize over settings decreases (Briesch & Chafouleas, 2009; Cooper et al, 2007; Mickler, 1984). Finally, in teacher-managed interventions the locus of control is remote from the student. Thus these interventions fail to promote life skills such as independence (Briesch & Chafouleas, 2009).

The shortfalls of teacher-managed interventions require effective alternatives for enhancing students’ positive classroom behaviors (Briesch & Chafouleas, 2009; Murphy & Korinek, 2009). Self-management (SM) interventions in which students manage their own behaviors can serve as a more socially and ecologically valid solution (Mitchem et al., 2001).

Self-management interventions are those that provide students with skills to manage and be responsible for their own behaviors. In SM, students behave in particular manners to produce change in other behaviors. For example, students are taught how to self-set goals in a math class to increase the number of math problems they answer accurately (Stevenson & Fantuzzo, 1984).

Self-management interventions involve procedures such as self-monitoring, self-evaluation, goal-setting and self-reinforcement (Briesch & Chafouleas, 2009; Mooney, Ryan, Uhing, Reid, & Epstein, 2005). The most prevalent procedure in school-based SM interventions is self-monitoring (Briesch & Chafouleas, 2009; Mooney et al., 2005). For example, Davies and Witte (2000) conducted a SM study to decrease inappropriate verbalization of 4 third grade students diagnosed with ADHD. Students were required to self-monitor their inappropriate verbalization by moving dots on a table from one column
to another, contingent on talking-without-permission behavior. If the students were not prompt and accurate in moving the dot upon talking without permission, the teacher moved it for them to a column further away from the desired column for accumulation points. Students who accumulated the most dots under the desired column (which demonstrated low occurrences of talking without permission) received a reward of their choice such as tangibles or social activities. Students’ inappropriate verbalization decreased substantially during SM intervention.

Self-management programs have wide empirical support that demonstrates their merit for students’ learning of social and academic skills. Self-management interventions were effective in: assisting students to learn and/or maintain appropriate and desired behavior (e.g., Connell, Carta, & Bear, 1993; Peterson, Young, Salzberg, West, & Hill, 2006; Wehmeyer, Yeager, Bolding, Agran, & Hughes, 2003), increasing academic success of students in all ages and levels of abilities and reducing students’ destructive behavior (Briesch & Chafouleas, 2009; Cooper et al., 2007; Lakes & Hoyt, 2004). Moreover, SM skills are effective in controlling many human behaviors in addition to those learned during the intervention (Cooper et al., 2007). Self-management interventions promoted generalization of behaviors over settings and time without the presence of external agents (Cartledge & Milburn, 1978; Cooper et al., 2007). Lastly, SM interventions are socially valid as students and teachers find them acceptable, feasible and effective interventions (Mitchem & Young, 2001).

Self-management interventions in school settings were implemented in various disciplines such as math, reading, writing, social studies and science (Mooney et al., 2005), and demonstrated positive outcomes of social skills and academic achievements.
Unfortunately, such interventions were never applied and investigated in physical education settings. The lack of research on the effects of SM interventions on achievements and social skills in physical education is striking considering the challenges that characterize such less structured, dynamic and large settings.

This noticeable absence is further surprising considering Eldar’s and Ayvazo’s (2009) conceptualization of physical education as an effective context for behavioral change and the promotion of prosocial behaviors. In this study, the designated school site had adopted martial arts to be the physical education curriculum, as it is considered to be a favorable context for learning social and self-regulating skills. Martial arts inherently accentuate character building and the importance of concepts such as self- and body-control and discipline (Lakes & Hoyt, 2004). Martial arts essentially emphasize SM elements to foster character building.

**Statement of the Problem**

If interventions for improving social skills are to be used by teachers with confidence, at least two dimensions of validity must be achieved. First, studies must be discernibly effective and therefore validated in terms of student SM and social skills’ learning. Second, studies must be ecologically valid providing evidence that SM interventions can be implemented in various educational settings while demonstrating similar desired behavioral changes. Despite (a) the strong empirical support for SM interventions across various age levels and in general and special education settings (Mitchem et al., 2001; Ninness, Fuerst, Rutherford, & Glenn, 1991) and (b) the increasing need for empirically-based behavior-change programs to improve classroom
management and instruction, there are no studies of SM interventions in physical education. There is a clear need to validate SM in physical education settings.

The preceding discussion in this chapter has reported that SM school interventions are effective in enhancing students’ social skills, decreasing disruptive behaviors and promoting skill generalization. The purpose of this study was to examine the effects of Classwide Self-Management (CWSM) program on social skills’ learning of second grade students in a martial arts physical education curriculum. The following social skills were examined: (a) cooperation, (b), persistency time and (c), self-control. The intervention effects on students’ on-task behavior and correct performance was also examined. In addition, students’ accurate self-evaluation and the social validity of the study were assessed.

**Experimental Questions**

1. What is the effect of CWSM intervention applied in martial arts physical education curriculum on second grade students’ cooperation behaviors?
2. What is the effect of CWSM intervention applied in martial arts physical education curriculum on second grade students’ persistency during challenging tasks?
3. What is the effect of CWSM intervention applied in martial arts physical education curriculum on second grade students’ self-control?
4. What is the effect of CWSM intervention applied in martial arts physical education curriculum on second grade students’ on-task behavior?
5. What is the effect of CWSM intervention applied in martial arts physical education curriculum on second grade whole-class on-task behavior?
6. To what extent can second grade students accurately evaluate their behavior when participating in CWSM program in the physical education?

7. How acceptable are the intervention's goals, procedures, and outcomes to the students who participated in the study?

8. How acceptable are the intervention's goals, procedures, and outcomes to the physical education teacher?

**Significance of the Study**

This study extends the literature in four ways. First, it strengthens the validity of CWSM as an effective behavior-change school program by demonstrating its positive effects on students’ social skills learning in an ecologically valid setting. This is demonstrated by conducting the study in a charter school setting and applying the intervention to the entire class and not only to few target students. Second, this study extends the generality of CWSM to physical education settings. This is the first study to examine CWSM in physical education environment. Third, the study suggests an empirically-based intervention to teach social skills in physical education. Fourth, based on the students’ and the physical education teacher’s reports, the study may extend the social validity of CWSM interventions in school settings in general, and in physical education in particular.

**Limitations**

1. This study is limited to the teacher's ability to understand and implement the CWSM intervention properly.

2. This study is limited by a multiple baseline across behavior design in a 22-lessons unit.
3. This study is limited to the second-grade students’ ability to execute SM tactics and evaluate their behavior.

4. This study is limited to the sensitivity of data being collected live on-site. The students’ movement in the area and the gymnasium acoustics may limit the observers’ ability to capture (see and hear) and code behaviors.

**Delimitations**

1. This study is delimited to the specific observation methods and dependent variables as introduced in chapter 3.

2. This study is delimited to an intervention implemented by a physical education teacher.

3. This study is delimited to a second-grade class in a charter school, who receives martial-art instruction in physical education.

4. This study is delimited to a specific content taught by the teacher (martial arts curriculum).

5. This study is delimited to two days of students’ training on CWSM and two more training days of the target behaviors (i.e., cooperation and self-control).

**Definitions of Terms**

**Self-management (SM)**

A process in which one changes and controls his own behavior (i.e., controlled response) by executing other behaviors (i.e., controlling response; Briesch & Chafouleas, 2009; Cooper et al., 2007).

**Classwide self-management**

A whole-class variation of SM tactics which is
<table>
<thead>
<tr>
<th><strong>Antecedent-based tactics</strong></th>
<th>SM tactics that involve the manipulation of antecedents to produce a desired change in the target behavior (Cooper et al., 2007).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-evaluation</strong></td>
<td>SM procedure in which a person compares his/her behavior with a pre-stated goal or standard (Briesch &amp; Chafouleas, 2009; Cooper et al., 2007).</td>
</tr>
<tr>
<td><strong>Social skills</strong></td>
<td>Behaviors that can maximize social reinforcement and minimize punishment from others (Cartledge &amp; Milburn, 1978; Merrell &amp; Gimpel, 1998).</td>
</tr>
<tr>
<td><strong>Academic social skills</strong></td>
<td>Behaviors that are related to the classroom’s social environment and that reflect student-teacher or student-material interactions (Merrell &amp; Gimpel 1998).</td>
</tr>
<tr>
<td><strong>Cooperation skills</strong></td>
<td>Learning-related social skills that demonstrate the student’s ability to work with the teacher or others and to follow teacher’s directions without disturbing others (Zwald &amp; Gresham, 1982).</td>
</tr>
<tr>
<td><strong>Self-control skills</strong></td>
<td>Behaviors that demonstrate the ability to control temper in conflict situations and to follow rules and limits (Merrell &amp; Gimpel, 1998).</td>
</tr>
<tr>
<td><strong>Response class</strong></td>
<td>“A group of responses of varying topography, all</td>
</tr>
</tbody>
</table>
of which produce the same effect on the environment” (Cooper et al., 2007, p. 703).

**Functional relation**

A relation that exists “if the dependent variable systematically changes in the desired direction as a result of the introduction and manipulation of the independent variable” (Alberto & Troutman, 2009, p. 425).

**Dojo-kun**

Five karate rules that are cited and practiced in Shotokan style karate lessons. “With each practice session at the dojo, students kneel in the seiza position and repeat these five precepts out loud. This process reminds students of the right attitude, frame of mind and virtues to strive for both within the dojo, and outside” (Dojo Kun, n.d.).
CHAPTER 2

REVIEW OF THE LITERATURE

This chapter reviews self-management (SM) tactics and applications in educational settings. The chapter is divided into three sections. The first section explains what SM is and depicts the different types of SM tactics. The second section discusses SM applications to teach social skills. The third section focuses on characteristics of SM interventions in secondary and elementary school settings.

What is Self-Management?

Understanding SM first requires clarification of the role of the self. In many cases, when observing behaviors, people are able to identify what are the proximate causes that appeared prior to the behavior. These causes are commonly considered as the trigger for the behavior. In other instances, however, human behaviors do not always follow an obvious trigger (Cooper et al., 2007). Consider an example of a child who practices a new skill (i.e., behavior) in the backyard without anyone asking him to do so (i.e., unknown cause). In this example and in other similar cases when causal events are not apparent in the environment, the tendency is to relate internal (i.e., self) powers as causes of behaviors (e.g., the child has strong willpower). These explanations cannot be reliably measured. They lead to circular reasoning that hinders the understanding of the behavior (Cooper et al., 2007; Wolery, Bailey JR., & Sugai, 1988). According to radical behaviorism, causes of any behavior, even if they are unseen, are found in the environmental contingencies. Thus, when explaining SM in terms of behavior, the role of the self is ambiguous (Cooper et al., 2007).
In his discussion about SM skills, Skinner (1953) was the first to explain behaviors typically controlled by the self, using radical behaviorism principles:

When a man controls himself, chooses a course of action, thinks out the solution to a problem, or strives toward an increase in self-knowledge, he is behaving. He controls himself precisely as he would control the behavior of anyone else – through the manipulation of variables of which behavior is a function. His behavior in so doing is a proper object of analysis, and eventually it must be accounted for with variables lying outside the individual himself. (p. 228-229)

According to Skinner (1953), SM is a two-response process. The first is the controlling response, which manipulates any variable that can change the probability of the second response, which is the controlled response. For example, writing a reminder note to do homework (i.e., controlling response) can increase the probability the student will complete the assigned homework (i.e., controlled response).

The controlled response may be a function of multiple variables which contour different forms of SM tactics. As such, SM programs are best conceptualized as a variable on a continuum. On one end are behavior-change programs that entail a small degree of SM, in which the person controls only one component (e.g., the student only self-monitors her behavior). On the other end are programs that are entirely designed and implemented by the person (e.g., the student self-monitors his behavior and self-administers the consequences).

People use different degrees of SM tactics to promote a desired change in their behavior (Cooper et al., 2007). The implementation of any degree of SM is conducted via the altering of one or more parts of the three-term contingency: antecedent, behavior
and consequence. Accordingly, SM tactics are classified as antecedent-based tactics (i.e., altering antecedents), self-monitoring (i.e., monitoring and altering behavior) and self-administered consequences (i.e., altering consequences; Cooper et al., 2007; Wolery et al., 1988). An explanation of each one of these tactics follows.

**Antecedent Based Tactics**

Antecedent-based tactics are underlined by the assumption that specific antecedent stimuli increase the probability that particular behaviors will be performed (Wolery et al., 1988). The controlling behavior manipulates the antecedents to cause a change in the controlled behavior (Cooper et al., 2007). One example is providing response prompts. Implementing this tactic, the person creates stimuli that later function as cues or reminders for the desired behavior. For instance, students with developmental disabilities used a picture of a person holding his finger in front of his mouth to prompt them to be quiet during the lesson (Wehmeyer et al., 2003).

**Self-Monitoring**

Self-monitoring is the procedure of systematically observing one’s behavior and recording its occurrence or nonoccurrence (Cooper et al., 2007). Self-monitoring is usually combined with self-evaluation when the person compares her performance with a pre-stated standard or goal. For example, middle school students were trained to put a check mark on a checklist (i.e., self-monitoring) every time they demonstrated the target behaviors (i.e., classroom preparation and homework preparation), to calculate the number of behaviors they emitted, compare it to a predetermined goal and self-evaluate their performance (Gureasko-Moore, DuPaul, & White, 2007). Although self-evaluation might be considered as a skill that can be emitted only by middle school or older
students, Priel, Assor, and Orr (1990) found that young children as kindergarten students can also accurately self-evaluate their behaviors.

Self-Administered Consequences

Self-administration of consequences occurs when the person arranges specific consequences for desired or undesired behavior. Applying consequences such as positive or negative reinforcement can be used in SM programs to increase desired behavior. For instance, seriously emotionally disturbed adolescents provided positive reinforcement (e.g., computer games) to themselves for their accurate evaluation of their target behaviors (Ninness et al., 1991).

The Effects of Self-Management on Social Skills Learning

Social skills are interactive and situation-specific behaviors that maximize social reinforcement. Social skills can be learned and therefore are targets for interventions (Merrell & Gimpel, 1998). Children’s and adolescents’ social skills are divided into five dimensions: peer relationship (e.g., offering help to peers when needed), self-control (e.g., remaining calm in conflict situations), academic (e.g., remaining on-task during the lesson), compliance (e.g., following rules) and assertion skills (e.g., initiating conversations with others; Merrell & Gimpel, 1998). Self-management interventions are particularly effective in improving two dimensions of students’ social skills in school settings: academic and self-control skills (Briesch & Chafouleas, 2009).

Self-Management Interventions Targeting Academic Social Skills

Merrell & Gimpel (1998) defined academic social skills as behaviors related to the classroom social environment. These are student’s behaviors that occur in the classroom environment and depict student-teacher or student-materials interactions.
Academic social skills are also referred to as learning-related social skills (McClelland & Morrison, 2003) or mastery behaviors (Bronson, Tivnan, & Seppanen, 1995) that are prerequisites for academic achievements and performance. Researchers (Briesch & Chafouleas, 2009; McClelland & Morrison, 2003) argue that academic social skills (e.g., on-task, recruiting teacher’s attention) are significantly related to students’ academic achievements in school. A recent literature review targeting 22 SM interventions that taught students’ academic social skills supports this assertion by demonstrating improvement in students’ academic achievements (Mooney et al., 2005).

Academic social skills include: (a) completing tasks or assignments independently, (b) completing individual seatwork, (c) listening to and following the teacher’s directions, (d) producing work to satisfactory level and quality, (e) using free time appropriately, (f) maintaining good personal organization (e.g., bringing required materials to school), (g) appropriately asking for help when needed and (h) ignoring peers’ distraction. Students demonstrating mastery of academic social skills are often considered by their teachers to be productive and independent learners (Merrell & Gimpel, 1998).

Frequently measured dependent variables in the academic social skills’ category are on-task behavior, classroom preparation behaviors, homework preparation, following teacher instructions and gaining the teacher’s attention. On-task behavior is the most commonly investigated academic social skill in SM interventions. On-task is usually defined as student’s engagement in the lesson’s tasks and according to the teacher’s expectations. For example, Edwards, Salant, Howard, Brougher, and McLaughlin (1995) defined on-task behavior as “student being seated at their desks and either reading,
printing, having the pencil ready to print, or talking with the teacher or teacher assistant in regard to the assignment” (p. 5). On-task behavior of target students was typically recorded using interval recording (e.g., momentary time sampling, partial interval recording). Intervals ranged from three seconds to one minute. On-task was predominantly collected for few individuals in a study. One investigation measured on-task behavior of an entire seventh grade class using duration recording and pausing an on-task running clock when one student or more were off-task (Mitchem et al., 2001).

Improvements in on-task behavior were demonstrated in general and special education settings among elementary and middle school students (e.g., Edwards et al., 1995; Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005; Mitchem et al., 2001; Ornelles, 2007). For instance, elementary students diagnosed with ADHD increased their on-task engagement from 55% of the lessons’ time during baseline to 94% during the SM intervention (Harris et al., 2005). On rare occasions SM interventions did not have positive effects on students’ on-task behavior. In a study among kindergarten students, researchers found that on-task behavior only sporadically generalized from the training setting to the classroom setting (Connell et al., 1993). Another SM study conducted among fifth grade students found no change in on-task behavior from baseline to the intervention (Lannie & Martens, 2008). The limited disparity of on-task measures between baseline and intervention might have been due to the level of adult-attention students received and their remote positioning from one another during baseline (Lannie & Martens, 2008).

Classroom preparation behaviors (e.g., sitting in class when the bell rings) and homework preparation were also measured as academic social skills. These preparation
behaviors were typically recorded using a checklist by both the teacher and the students. Self-management interventions that targeted preparation behaviors yielded positive findings among adolescent students with ADHD or other learning disabilities (Gureasko-Moore et al., 2007; Gureasko-Moore, Dupaul, & White, 2006; Snyder & Bambara, 1997). The target behaviors continued to be demonstrated even after the termination of the intervention (i.e., fading and maintenance phases; Gureasko-Moore et al., 2006).

Self-management studies have also investigated the students’ ability to gain the teacher’s attention appropriately and to follow teacher’s instructions. These behaviors were mostly recorded using event recording methods (Mitchem et al., 2001; Peterson, Young, West, & Hill-Peterson, 1999). Middle school students who participated in SM improved their ability to follow the teacher’s directions from 52% instruction followed during baseline to 86% followed at the conclusion of the intervention. The students increased appropriate recruitment of the teacher’s attention from 47% appropriate recruitments during baseline to 79% at the conclusion of the intervention (Mitchem et al., 2001). Kindergarten children also successfully learned how to recruit the teacher’s attention appropriately and continued to exhibit this behavior after the termination of the SM intervention (Connell et al., 1993).

Despite the positive results of SM on academic social skills, Briesch and Chafouleas (2009) suggest to be cautious with generalizing the results of single studies to the population. Briesch and Chafouleas (2009) reviewed 30 SM studies which targeted social skills and found that SM interventions yielded only moderate effectiveness as measured by effect size. This was mainly due to the small number of participants in the studies.
Self-Management Interventions Targeting Self-Control Skills

Self-control social skills are behaviors that demonstrate the ability to control temper in conflict situations and to follow rules and limits (Merrell & Gimpel, 1998). Children who are able to self-control their behavior are also considered to have self-restraint. Examined self-control behaviors were inappropriate verbalization and touching, disruptive behavior, appropriately accepting “no”, appropriately accepting feedback and apologizing as necessary.

Few studies investigated the effects of SM on inappropriate verbalizations (Davies & Witte, 2000; Wehmeyer et al., 2003) and inappropriate touching and hugging (Wehmeyer et al., 2003). The studies demonstrated middle school students with developmental disabilities were able to decrease inappropriate touching and verbalization from frequency of 13 inappropriate behaviors during 15 minutes observation to almost zero (Wehmeyer et al., 2003). Similar results were demonstrated among elementary students diagnosed with ADHD (Davies & Witte, 2000) and with typically developing high school students (Peterson et al., 1999). Other self-control behaviors that improved were accepting “no” for an answer, accepting feedback and consequences and apologizing when needed. After receiving training in SM, students increased the occurrence of these self-control behaviors to nearly 80% of the time (Peterson et al., 1999).

Disruptive behavior was also measured as indication for self-control. Disruptive behavior was defined as student (a) leaving the seat or class, (b) talking out without permission, (c) behaving aggressively or exhibiting excessive physical movements, (d) destructing property or (e) behaving in any other manner that required reprimand.
Students’ disruptive behaviors were typically recorded using partial interval recording. DuPaul and Hoff (1998) found that a SM intervention yielded a decrease of 80% in disruptive behaviors of fourth grade at-risk students. Similarly, Wehmeyer et al. (2003) found a decrease in disruptive behavior of students with developmental disabilities from mean of 6.5% of intervals with disruptive behavior to a mean of nearly 0%.

The literature includes indications of generalization of self-control and reduction in disruptive behaviors to other untrained settings. For example, seriously emotionally disturbed high school students learned how to reduce socially inappropriate behavior such as fighting and using inappropriate language. The students demonstrated self-control also in unsupervised classroom settings (e.g., students in class without teacher’s supervision; Ninness et al., 1991). In another study, a typically developing fifth grade student demonstrated a reduction of disruptive behaviors in the classroom, which generalized to the reduction of the same behavior in his home setting (Stevenson & Fantuzzo, 1984).

**Characteristics of Self-Management Interventions in School Settings**

In this section, the characteristics of SM interventions will be reviewed beginning with analysis of secondary school interventions and followed by elementary school interventions. Two recent literature reviews underlined the process of identifying characteristics of SM interventions in school settings. The first literature review was conducted by Mooney et al. (2005) and included 22 SM studies published in 1970-2002. The SM interventions targeted academic achievements of children and adolescents with emotional and behavioral disorders. The review was based on conceptualization of SM interventions as behavior-change programs that include one or more of the following
procedures: (a) self-monitoring, observing and recording the presence or absence of the target behavior; (b) self-evaluation, comparing performance to a predetermined criterion or goal; (c) self-instruction, using self-statements to prompt a behavior; (d) goal setting, self-selecting goals for target behaviors; and (e) strategy instruction, teaching the student steps to follow when facing a problem or aiming to an outcome.

The second literature review was conducted by Briesch and Chafouleas (2009) and consisted of 30 studies published in 1988-2008. Briesch and Chafouleas (2009) used a list of components to examine the anatomy of SM interventions and the extent to which it was student-managed. Similar to the previous review, Briesch and Chafouleas (2009) conceptualized a list of 10 SM procedures. Four procedures, identical to the ones conceptualized by Mooney et al. (2005) were self-monitoring, self-evaluation, self-instruction and goal setting. Additional procedures included: (a) selecting target behavior, (b) defining target behavior, (c) selecting primary reinforcements, (d) observing the target behavior, (e) recording the target behavior and (f) administrating reinforcements. The aforementioned literature reviews assisted in analyzing the nature of SM interventions as a function of age level in which they were implemented (i.e., secondary and elementary school settings).

**Self-Management Interventions at the Secondary Level**

Self-management interventions at the secondary level were conducted among seventh to ninth grade students and typically targeted three to 10 participants (e.g., Gureasko-Moore et al., 2007; Mitchem et al., 2001; Peterson et al., 2006; Wehmeyer et al., 2003). Participants were students either at-risk (e.g., Peterson et al., 2006) or with special needs diagnosed with ADHA (e.g., Gureasko-Moore et al., 2006; Gureasko-
Moore et al., 2007) or emotional disorders (e.g., Kern, Dunlap, Childs, & Clarke, 1994; Ninness et al., 1991).

Participants usually received SM training outside the classroom. The training was typically delivered by the researcher or the teacher. The SM trainings ranged from 10 minutes (Kern et al., 1994) to five weeks (Ninness et al., 1991) and included instructions on how to self-manage behaviors. Shorter training sessions were provided in interventions that implemented self-monitoring only, which is a relatively easy procedure to learn and execute. Longer training sessions were required for interventions that included self-evaluation only or self-evaluation and self-monitoring. Training periods that lasted few days or more included training students on the target behaviors they were expected to display (i.e., classroom social skills’ training) and the SM tactics they were to use. For example, a training delivered by the special education teacher began with describing the target behaviors and the rationale for their importance. The teacher then modeled the behaviors, prompted students to demonstrate the behaviors and praised students that appropriately executed the target behaviors. The SM training included training on evaluating behaviors and using a points card. The teacher taught the students how to rate their behavior based on a specific rating system, explained the concept and procedure of matching student’s rating to the teacher’s rating of behavior, and informed them about reinforcement and points provided based on behavior (Peterson et al., 2006).

In most interventions the target behaviors were derived from the classroom rules (e.g., keeping hands and feet to oneself). If personal-goal setting was included, the goals were set either by the teacher (e.g., Kern et al., 1994) or by both the teacher and the student (e.g., Gureasko-Moore et al., 2007; Wehmeyer et al., 2003).
A prevalent procedure in secondary school interventions was self-evaluation. Students were expected to follow the classroom rules and to self-evaluate their behavior in reference to the teachers’ expectations of classroom rules or their personal goal. In a number of interventions self-evaluation was combined with self-monitoring (e.g., Gureasko-Moore et al., 2006; 2007; Snyder & Bambara, 1997; Wehmeyer et al., 2003). For example, seventh to ninth grade students with developmental disabilities were taught how to self-monitor their on-task behavior by answering the question “Am I working?” and then comparing their current performance to previous sessions and self-evaluate their progress (Wehmeyer et al., 2003). The frequency of self-monitoring and/or self-evaluation during the lesson varied from one check per lesson to eight checks.

Accumulation of points and use of positive consequences are two fundamental characteristics in SM interventions in secondary school settings. Points were typically awarded based on the students’ assessment of their behavior and its accuracy. Accuracy of assessment was examined using a matching procedure. In this procedure, students compare their assessment with the teacher’s assessment (e.g., Gureasko-Moore et al., 2006; Peterson et al., 2006) or with a peer’s assessment (e.g., Mitchem et al., 2001). The matching procedure was conducted either (a) during the training session to evaluate students’ ability to self-assess accurately before the intervention began (e.g., Kern et al., 1994; Ninness et al., 1991) or (b) throughout the entire intervention (e.g., Gureasko-Moore et al., 2006; Mitchem et al., 2001).

Consequences for target students included materials such as pens and pencils, game time (e.g., computer games, chess) and snacks (e.g., soda, chips). In SM interventions that were applied classwide, activities were delivered as positive
consequences to the entire class (Mitchem et al., 2001). Usually students self-administered consequences by selecting the rewards for appropriate behavior together with the teacher or by self-reinforcing themselves without the teacher’s assistance (Gureasko-Moore et al., 2006; Peterson et al., 1999; 2006; Snyder & Bambara, 1997; Wehmeyer et al., 2003).

In addition to the interventions’ results, social validity can also indicate the effectiveness of the study. Few studies addressed the social validity of the SM intervention. In order to increase the probability that teachers will continue to use the SM program, the SM should be acceptable (i.e., the students and the teacher perceive the program as appropriate, fair and reasonable), feasible (i.e., time required to implement the program is reasonable) and effective (i.e., the program yields desired behavior change; Mitchem & Young, 2001). As such, in some studies the researchers implemented a fading phase to make the intervention more acceptable, feasible and effective. The fading phases involved a gradual fade-out until students self-managed their behaviors without the support of external stimuli (e.g., self-evaluation cards). Fading the SM interventions were mainly done by reducing the number of times students were asked to self-assess during the lesson (Gureasko-Moore et al., 2007; Mitchem et al., 2001).

**Self-Management Interventions at the Elementary Level**

SM interventions at the elementary level were implemented across all grades in elementary school (i.e., K-5) and typically targeted only two to nine participants. Participants in SM interventions were typically developing students and those with special needs, mostly with ADHD (Davis & Witte, 2000; Edwards et al., 1995; Harris et
al., 2005). Other special needs students were those at-risk (DuPaul & Hoff, 1998), with severe emotional disturbance (McDougall & Brady, 1995) and students with learning disabilities (Wolfe, Heron, & Goddard, 2000).

In most studies students’ training was provided outside the classroom, in a distinct training setting, and by the researcher or the teacher (e.g., DuPaul & Hoff, 1998; Harris et al., 2005). The SM training duration ranged from 10 minutes (Moore, Prebble, Robertson, Waetford, & Anderson, 2001) to five days (Edwards et al., 1995) and focused on how to self-manage and on the target behaviors to self-manage. For instance, 9 years old students with learning disabilities learned how to self-monitor their on-task behavior in 10 supervised trials’ training (Wolfe et al., 2000). The training was delivered by the teacher using direct instruction. During the training the teacher presented examples and non-examples of on-task behavior and modeled it. The group discussed the importance of the behavior and students role played the behavior to show understanding. Lastly, students practiced self-monitoring using the question “am I on-task?” During the training the teacher delivered feedback and reinforcements to maintain accuracy of on-task recording.

At the elementary level target behaviors and individual goals were set only by the researcher or the teacher. The target behaviors students were required to exhibit either class rules such as following teacher directions (e.g., Davis & Witte, 2000; Wills et al., 2010) or academic social skills such as on-task behavior (e.g., Harris et al., 2005; Lannie & Martens, 2008; Moore et al., 2001). As opposed to secondary students, elementary students were mostly expected to self-monitor their behavior. Students used audio prompts that cued them to monitor the presence or absence of the target behavior. For
example, when the signal was heard students had to monitor whether they were on- or off-task indicating “yes” or “no” on a recording sheet (e.g., Harris et al., 2005; Lannie & Martens, 2008; Moore et al., 2001). In some studies students presented the self-monitoring data on graphs that illustrated their progress and that were kept as individual records (e.g., Harris et al., 2005; Lannie & Martens, 2008; Moore et al., 2001; Wolfe et al., 2000). For example, Harris et al. (2005) taught third to fifth grade students diagnosed with ADHD to answer the question “Was I paying attention?” by “yes” or “no” each time they heard a tape tone. At the end of the day students graphed the number of times they answered the question with “yes”. Students self-monitored their behaviors in intervals ranging from 45 (Harris et al., 2005) to 60 seconds (Edwards et al., 1995) using a tape-recorded tone. In other interventions that did not use audio signals, students were required to self-evaluate or monitor their behavior every 2-8 minutes (DuPaul & Hoff, 1998; Wills et al., 2000) or every time the behavior occurred (Davis & Witte, 2000).

Reinforcers at the elementary level were typically verbal praise or stickers, delivered by the teacher or the researcher (Connell et al., 1993; Harris et al., 2005; McDougall & Brady, 1995; Moore et al., 2001; Ornelles, 2007). When points or other rewards were delivered, students periodically self-administrated consequences. For example, in a study with typically developing fifth grade students, the students awarded themselves with a gold star each time they met their individual goal (i.e., number of math problems solved). They were able to exchange the stars later for a reward that was included in a self-determined menu of backup reinforcements (Stevenson & Fantuzzo, 1984).
Matching was rarely applied in SM interventions for elementary students. In one study matching was conducted but was only made available to the researchers for measurement purposes. Thus students were not aware of the appropriateness of their matching (McDougall & Brady, 1995). In a different study that implemented matching students were made aware of the matching accuracy, yet they did not receive points or reinforcement for their level of accuracy (Edwards et al., 1995).

Fading was also implemented in few studies at the elementary level (e.g., DuPaul & Hoff, 1998; Edwards et al., 1995; Moore et al., 2001; Wills et al., 2010). Edwards et al. (1995) decreased the number of times students were required to self-monitor their behavior during the lesson by gradually extending the intervals from one minute to 10 minutes. In another study, third grade students continued receiving audio prompt for self-monitoring however, record sheets were not available and students were not asked to self-record their on-task behavior (Moore et al., 2001).

**Self-management interventions for second grade students.** According to Piaget’s cognitive development theory, second grade students are in the concrete operations period of their intelligence development. Although relying on concrete learning, they begin to learn abstracts (Philips & Soltis, 1991). They think logically about events and objects and are capable of understanding classifications (Phillips, 1975). In other words, students at the age of seven are able to classify group of behaviors as “cooperation” or “self-control” and can understand the logic behind the ABC of the behavior (e.g., the teacher gave me permission to talk because I raised my hand). At this age, students also learn how to function appropriately in other settings beyond the family;
therefore, it is essential to teach them the expected behaviors in those other settings (Merrell & Gimpel1998).

Literature findings that show that children younger than school age can successfully self-evaluate their behavior affirm the assumption that second grade students are capable of self-evaluating as well. A study conducted with kindergarten students show they were able to accurately self-evaluate their behaviors according to expected behaviors (Priel et al., 1990). Moreover, there is empirical support that SM interventions have positive influence on children in a primary grade levels. For instance, Edwards et al. (1995) found that 7, 8 and 9 years old students diagnosed with ADHD were able to increase their on-task behavior in reading class after receiving a five-day self-monitoring training. Moreover, kindergarten students who received training on how to self-evaluate their behavior, demonstrated improvement in their on-task behavior and recruitment of teacher’s attention (Connell et al., 1993).

Summary

Self-management is a process in which the individual controls and changes his own behaviors by manipulating one or more elements in the three-term contingency: antecedents, behavior and consequences. There are multiple SM tactics which result in wide variety of SM interventions in school settings. The SM interventions differ based on students’ age level, ability to understand and implement SM procedures, and the behavioral needs in the educational settings.

SM programs were implemented in general and special education, and across various grade levels from kindergarten to high school. Self-management interventions have wide empirical support. They have yielded positive results with regards to social
skills such as increased on-task behavior, improved preparation for class or in-class behaviors, bettered student-teacher communication, reduced in students’ inappropriate behaviors and enhanced self-control (i.e., conflicts, receiving no).

All SM programs were preceded by SM training on (a) classroom rules or expected behaviors and (b) learning of different SM tactics or procedures. Self-management tactics for elementary students most commonly included self-monitoring, as it is an easier procedure to learn and apply. Students were reinforced regularly with stickers, verbal praise or tangibles for executing adequate SM procedures or exhibiting desired behaviors.

From the review of SM studies in this chapter the following conclusions emerge. First, students benefit from participation in SM interventions by improving fundamental social skills. Students also consequently improve their academic performance in different disciplines such as math and reading. Second, students are able to understand and implement SM procedures and to self-evaluate and monitor their behavior accurately in structured and less structured settings (e.g., playground). Third, students are able to generalize SM skills and other target behaviors across time and settings. Finally, students enjoy self-managing their behaviors and are aware of its contribution to their appropriate behaviors.

Despite the prevalence of SM in general and special education settings to enhance students’ social skills, there is salient dearth of application of such interventions in the physical education setting. Considering the effectiveness of SM interventions in improving classroom management and developing a more social and adaptive behavioral
repertoire, the absence of research is surprising and illuminates the need to establish a related line of research in physical education.
CHAPTER 3

METHODS

The purpose of this study was to examine the effects of Classwide Self-Management (CWSM) program on social skills learning of second grade students in a martial arts physical education curriculum. The following social skills were examined: (a) cooperation, (b), persistency time (c) and self-control. The intervention directly targeted the three behaviors mentioned above, yet, two more variables were measured for possible collateral academic effects: on-task behavior and correct legs completed during the persistency task. In addition, students’ accurate assessment and the social validity of the study were assessed. This chapter is organized into six sections. The first section describes the theoretical framework underlying this study. The second section discusses the selection of the setting, participants, and how access to the research site was gained. In the third section, definition and measurement of the dependent variables are presented. In the fourth section, observation and recording procedures are portrayed. The fifth section describes the research design, experimental procedures, and treatment integrity. Section six discusses the data analysis and internal validity.

The Theoretical Framework Underlying this Study

The study was framed and conducted according to behavioral principles underlying the science of human behavior (Cooper et al., 2007). This section will introduce the reader with the basic elements involved in analyzing human behavior and the concept of SM.

Behavior is any activity of a living organism; it is everything people do (Cooper et al., 2007). “All behaviors occur within an environmental context” (Cooper et al., 2007,
and causes for any behaviors are always found within the environment. In other words, at all times there is interaction between the human behavior and the environment. The science of behavior depicts this interaction using the three-term contingency. The three-term contingency is the basic unit to analyze the relationships between the antecedent stimulus, behavior and consequences (Cooper et al., 2007). Antecedents are environmental conditions occurring before the behavior is executed and consequences are environmental events that occur after the behavior. Consequences affect the behavior by reducing or increasing the probability the behavior will occur again in the future. Consequences that follow a behavior and increase its future frequency are called reinforcers. A consequence responsible for a decrease in the future frequency of a behavior is called a punisher (Cooper et al., 2007).

Learning, according to the science of behavior, occurs through operant conditioning. Operant conditioning is the process in which functional relation between voluntary (i.e., operant) behavior (e.g., smiling) and consequences are established (Alberto & Troutman, 2009; Cooper et al., 2007). Operant conditioning includes two elements: selection by consequences and stimulus control. Selection by consequences is a primary principle that underlines the science of behavior. According to this principle, human nature is to select behaviors that support survival. Thus, a person would continue emitting behaviors that result in reinforcement (e.g., use polite language), and would avoid behaviors that result in punishment (e.g., come late to class).

Stimulus control develops when behavior gets selected by consequences. When a behavior is emitted repeatedly under particular conditions and followed by reinforcement, the stimulus that preceded the behavior also gains control over the likelihood that this
behavior would occur again in the future under similar conditions. For instance, a student who receives attention (i.e., reinforcer) from the math teacher (i.e., antecedent) despite not raising his hand for permission to talk, is likely to continue to talk without permission in class. On contrary, if the same student in the presence of the science teacher (i.e., antecedent) will be reprimanded for talking-out without raising his hand, the probability that barging in the science class will cease and hand raising will increase. This example illustrates that the behavior of hand raising is under different stimulus control in the math class versus the science class, due to its selection by consequences. In the math class the undesired behavior is emitted and reinforced, while in the science class the undesired behavior is punished and decreased.

As previously argued, causes for behavior are found in the environment. Therefore, a behavioral change can be made via manipulation of the environment (i.e., manipulation of antecedents, consequences and/or responses). Teaching, from a behavioral standpoint, is manipulation of environmental events and contingencies of reinforcement. For instance when the teacher posts rules on the classroom wall he manipulates environmental stimuli (Skinner, 1968). In educational settings teachers change students’ environment to teach appropriate behaviors. Nevertheless, the ultimate goal of education is to develop independent learners who behave appropriately and productively without continuous supervision of external agents (i.e., teachers). Therefore, it is recommended students be taught how to control, maintain and change their own behavior, also known as SM skills (Cooper et al., 2007).

Self-management is “the personal application of behavior change tactics that produce a desired change in behavior” (Cooper et al., 2007, p. 578). In SM the person
controls his own environment to produce changes in his behaviors. A SM behavior-change program may involve various management tactics rooted within the three-term contingency. The SM program may include manipulation of antecedents (e.g., manipulation of motivating operations, providing response prompts), behaviors (e.g., observation and recording of the behavior) and consequences. The program will be considered a SM program when the person completely or partially controls at least one of the three elements in the three-term contingency (Cooper et al., 2007; Young, West, Smith, & Morgan, 1991). In this study, students self-managed by manipulating their behavior. Students evaluated themselves three times during the lesson on target behaviors they were expected to demonstrate.

Selection of Setting and Participants

This section describes the school setting, the teacher, the students, and how access to the setting was gained.

Setting

A K-12 charter school was selected for this study. According to data from the Nevada Annual Reports of Accountability, the school had enrollment of 670 K-12 class students. The majority of students were Hispanic (56.6%), with 20.0% African American students, 19.7% white students and a minority of Asians students (3.4%). Physical education classes were conducted in a large gymnasium that accommodated approximately 50 students at a time. The class was instructed by a teacher with 11 years of experience in teaching martial arts. The teacher was a licensed science female teacher and due to her background, she was asked by the school principal to teach martial arts content as the school’s physical education curriculum. The teacher had two years of
experience in teaching martial arts in physical education. Students participated in a 45-minute physical education lessons, twice per week. This study started at the beginning of the fall semester and lasted 22 lessons.

**Participants**

At the beginning of the study the physical education class consisted of three second grade classes. From day 6, one class was separated which left two second grade classes for a total of 47 students (20 girls and 27 boys). The target students were selected according to three criteria: students who (a) were considered by their teachers as moderately to highly disruptive, (b) attended physical education classes regularly and enjoyed being physically active and (c) were from the same homeroom class. The physical education teacher and the classroom teacher, based on their judgment and former experiences with the students, made the selection of four target students who met these criteria.

**Gaining Access**

The investigator initiated informal conversations with the physical education teacher about the possibility of conducting this study in one of her physical education classes. The teacher expressed her agreement and interest in the study. The investigator then met with the school principal and the research director to obtain formal permission to conduct the study. Afterwards the investigator submitted a proposal to the Institutional Review Board (IRB) at University of Nevada Las Vegas. The proposal was approved by the IRB at University of Nevada Las Vegas (Protocol #1007-3531M). Prior to the beginning of the study, the teacher signed an informed consent form (Appendix A) and sent parental informed consent forms to the parents (Appendix B). Students were read a
child’s assent form (Appendix C) as well. Parents and participants were informed the data would be kept confidential and no one other than the primary investigator and her research team would have access to these data. All informed consent forms were obtained from the students prior to the beginning of the study. Data were not collected on students who did not have consent for participating in the study.

**Definition and Measurement of the Dependent Variable**

This study measured six dependent variables. The first dependent variable was cooperation. Cooperation was defined as a response class of five behaviors:

1. **Following the teacher’s instructions** - The student follows teacher’s verbal and/or non-verbal instructions given during the interval within 1 to 3 seconds from the time the instructions were given.

2. **Gaining the teacher’s attention appropriately** - The student raises his/her hand and waits quietly for the teacher to approach him/her. If the teacher is not facing the student, the student is permitted to: (a) call the teacher’s name one time and then wait with his/her hand raised or (b) ask appropriately for assistance from the teacher’s aid. Incorrect teacher attention-getting behaviors include students raising both hands, waving their arms, saying the teacher’s name loudly or repeatedly, and/or talking before being recognized.

3. **Accepting feedback/criticism/”no” from the teacher** - The student looks at the teacher providing the feedback/criticism/answer “no”, listens to the teacher until she finishes and states a verbal and/or nonverbal affirmative such as “ok, I understand”. The student does not argue but can ask questions, related to the feedback, in a calm and polite manner.
4. Listening to teacher/classmates during class discussions or any time the teacher provides knowledge for the entire class or for group of students. The student attends to the teacher/classmate, looks at them if possible, and seems to be listening to them. The student is not occupied by any alternative behavior that may distract attention from the discussion.

5. Waiting appropriately - In waiting situations (e.g., waiting for other students to enter the gym, waiting for the teacher to approach the student), if specific waiting instructions were explicitly provided by the teacher, the student should comply with the teacher’s requirements. If waiting requirements were only implied or not mentioned at all, the student should wait quietly at the same spot without disturbing other classmates or the lesson.

An example of a student’s cooperation recording instrument is presented in Figure 3.1. The cooperation data are presented as percentage of cooperation behavior. Percentage was computed by dividing the number of times students demonstrated cooperation by the total of cooperation and noncooperation behaviors (Cooper et al., 2007).

The second dependent variable was self-control. Self-control was defined as a response class of three behaviors:

1. Controlling temper with peers/adults in conflict or losing situations - Communication with peer/adult is conducted with calm voice and with moderate hands and body movement. The student does not use any kind of violence (verbal or non-verbal).
Figure 3.1. Example of the data collection instrument for self-control, cooperation and student’s on-task behavior during karate lesson.
2. Responding appropriately when hit/pushed/teased by other students - The Student ignores the act of violence and can (a) report to the teacher about the incident or (b) ask politely and appropriately for the other student to stop.

3. Accepting feedback/criticism appropriately from a friend - The student looks at the person providing the feedback/criticism, listens to the person until he/she finishes, states a verbal and/or nonverbal affirmative such as “ok, I understand”. The student does not argue but is permitted to ask questions, related to the feedback, in a polite manner.

   In case of uncertainty whether a demonstrated behavior (e.g., a sad face) was an indication for self-control or lack thereof, the observers exercised the following judgment. If the demonstrated behavior interrupted the function of class or the learning of others (e.g., captures attention of others and distracts them from learning, or teacher asking student to cease the demonstrated “attitude”) the observers coded the behavior as lack of self-control.

   Additionally, any case of hitting, pushing, teasing, or otherwise using verbal or non-verbal violent behavior (including destroying equipment) was recorded as a lack of self-control behavior.

   An example of a student’s self-control recording instrument is presented in Figure 3.1. The self-control data are presented as percentage of no-self-control behavior. Percentage was computed by dividing the number of times students demonstrated inappropriate self-control by the total of intervals observed in the lesson.

   The third dependent variable was persistency time. Persistency time was defined as time the student is actively involved in completing an assigned task that is predetermined as challenging and despite unsuccessful experiences or under extreme
physical demands. Persistency time was collected during three minutes of exceptionally difficult task students were required to perform. The challenging task consisted of students running from one line on the gym floor to another line (approximately 35 feet) and doing five crunches when they return. The task was considered exceptionally difficult due to its long duration under strenuous physical demands. Persistency time data are presented as total time students were performing the task as instructed by the teacher during the entire task’s time. Students’ persistency time was recorded using the observation instrument presented in Figure 3.2.

Persistency/Class On-Task Recording Instrument

<table>
<thead>
<tr>
<th>date: 5/16/2014</th>
<th>time</th>
<th>percent of on-task</th>
<th>Coder name: Joe</th>
</tr>
</thead>
<tbody>
<tr>
<td>on-task total</td>
<td>20:00</td>
<td>100%</td>
<td>IOA: Ben</td>
</tr>
<tr>
<td>total time</td>
<td>40:00</td>
<td></td>
<td>%: 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start time</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10:15AM</td>
</tr>
<tr>
<td>date: _________</td>
<td>time</td>
<td>percent of on-task</td>
<td></td>
</tr>
<tr>
<td>on-task total</td>
<td></td>
<td></td>
<td>Coder name:</td>
</tr>
<tr>
<td>total time</td>
<td></td>
<td></td>
<td>IOA:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>%: ______</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start time</td>
</tr>
<tr>
<td>date: _________</td>
<td>time</td>
<td>percent of on-task</td>
<td></td>
</tr>
<tr>
<td>on-task total</td>
<td></td>
<td></td>
<td>Coder name:</td>
</tr>
<tr>
<td>total time</td>
<td></td>
<td></td>
<td>IOA:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>%: ______</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start time</td>
</tr>
<tr>
<td>date: _________</td>
<td>time</td>
<td>percent of on-task</td>
<td></td>
</tr>
<tr>
<td>on-task total</td>
<td></td>
<td></td>
<td>Coder name:</td>
</tr>
<tr>
<td>total time</td>
<td></td>
<td></td>
<td>IOA:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>%: ______</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start time</td>
</tr>
<tr>
<td>date: _________</td>
<td>time</td>
<td>percent of on-task</td>
<td></td>
</tr>
<tr>
<td>on-task total</td>
<td></td>
<td></td>
<td>Coder name:</td>
</tr>
<tr>
<td>total time</td>
<td></td>
<td></td>
<td>IOA:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>%: ______</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start time</td>
</tr>
</tbody>
</table>

*Figure 3.2. Example of the data collection instrument for whole class on-task behaviors and student’s persistency time during karate lesson.*
The fourth dependent variable was correct legs in the persistency task. Correct leg was defined as sprinting from one line to another continuously. Correct legs measurements were collected during the three minutes difficult task. Correct legs data are presented as number of legs students performed correctly during the three minutes persistency task. Students’ correct legs were recorded using the observation instrument presented in Figure 3.3.

Persistency – event recording

<table>
<thead>
<tr>
<th>Observer: _______________</th>
<th>Date: _______________</th>
<th>IOA: Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>% IOA: _____</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task 1:</th>
<th>Task 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>_______________________</td>
<td>___________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student: _______</th>
<th>Student: _______</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Totals</th>
<th>Total #:</th>
<th>Total correct:</th>
<th>Total agreement (if IOA):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Totals</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total #:</td>
<td>Total correct:</td>
<td>Total agreement (if IOA):</td>
</tr>
</tbody>
</table>

*Figure 3.3. Example of the data collection instrument for students’ correct legs during the persistency task.*

The fifth dependent variable was on- and off-task behavior. On-task and off-task were defined as follows:

On-task behavior - Student was engaged appropriately in motor task/activity according to the teacher’s instruction. A student was also considered to be on-task when
attending to the teacher or other classmate that talked during a discussion with the teacher.

Off-task behavior - Student was not engaged in an appropriate motor task/activity according to the teacher’s instruction. The student was also considered to be off-task when he/she talked without permission or when disturbing other students in class.

On- and off-task data were collected for each of the target students and for the entire class. An example of a student’s on-task behavior recoding instrument is presented in Figure 3.1. Example of class on-task behavior recording instrument is presented in Figure 3.2. On- and off-task behavior is presented as percentage of the intervals in which on-task behavior occurred during the lesson. On- and off-task data for the entire class are reported as the percentage of total time class was on-task during the entire lesson time. Percentage was computed by dividing the number of intervals students were on-task by the total number of observation intervals (Cooper et al., 2007).

The sixth dependent variable was the student’s accurate assessment. Accurate assessment was defined as a student’s assessment of behavior that matches the assessment of the teacher or the researcher who observed the student. Researchers used the same point cards students used in order to compare students’ assessment with observers (Figure 3.4). Accurate assessment was computed using percent measurement of response and is reported as a percentage of student-observer rating match.

Two additional variables were used to measure the social validity of the study by assessing the intervention's acceptability on its consumers. The students were asked in a questionnaire about their satisfaction and acceptability of the SM intervention (See Appendix D). The physical education teacher was also asked about her acceptability of
the SM intervention (goals, procedures, and outcomes) using a survey questionnaire (See Appendix E).

Name: ___________________________ Date: ______________________

KARATE-KA Point Card

Black belt = 3 points
Yellow belt = 2 points
White belt = 1 point

Circle your rating here:

Rating | I | II | III
---|---|---|---
B | ![Black Belt](image1.png) | ![Black Belt](image2.png) | ![Black Belt](image3.png)
Y | ![Yellow Belt](image4.png) | ![Yellow Belt](image5.png) | ![Yellow Belt](image6.png)
W | ![White Belt](image7.png) | ![White Belt](image8.png) | ![White Belt](image9.png)

Figure 3.4. Example of student’s point card as used to collect data about students accurate assessment.

Observation Procedures

This section describes the equipment that was used in the study, participants’ reactivity, the observers, procedures of observers’ training and interobserver procedures.

Equipment

All karate lessons were conducted in a gymnasium area of approximately 80X50 feet (Figure 3.5). One videotape recorder was operated to ensure permanent record of the challenging task. The videotape recorder was positioned outside the designated area of the lesson in the least obtrusive way. Positioning of the videotape recorder is illustrated in Figure 3.4 (marked as C1). Two observers, marked as X1 and X2 in Figure 3.5, stood in each half of the court fairly close to the target students, yet still outside the designated area of the lesson and in the least obtrusive way. The two observers wore an MP3 player
that paced their observation to fixed intervals of 10 seconds observation and 5 seconds recording.

![Diagram of the courts, locations of the observers and videotape recorders. “X” denoted observers’ location, “C” denotes videotape recorder location, and “S” denotes students.](image)

**Figure 3.5.** Diagram of the courts, locations of the observers and videotape recorders. “X” denoted observers’ location, “C” denotes videotape recorder location, and “S” denotes students.

**Participant Reactivity**

Participant reactivity indicates the possibility that changes observed in students’ performances are a result of some extraneous variable rather than a result of the independent variable. In order to decrease the degree of reactivity, the following procedures were implemented:

1. Observers received two on-site training sessions observing the designated class prior to the beginning of the intervention. During this time the camera was also set up, although no filming took place. By the time the study began, the students were already used to the presence of other adults and cameras in their class.

2. The observers were present in the gymnasium prior to the students’ arrival and left after the class ended, which reduced the possibility of disrupting the lesson.

3. The observers avoided conversing with the students or the teacher.

4. The researchers and the video camera remained outside the lessons’ area at all times in an unobtrusive position.
5. Except of the information that was given to the students in the assent and consent forms about the intervention they were invited to participate in, students did not know who or what is the target of observation.

6. During the intervention, observers made the efforts to remain as unobtrusive as possible at all times in order to minimize participants’ reactivity.

**Description and Training the Observers**

Five observers assisted in data collection for this study. Four observers were Master students at the University of Nevada Las Vegas. Three of them were enrolled in the Special Education and Early Childhood Department and the fourth was enrolled in the Sports Education Leadership Department. The principal investigator of this study was an Assistant Professor in the Sports Education Leadership Department, and a Board Certified Behavior Analyst. The principal investigator oversaw the project and periodically assisted with on- and off-site observations.

All observers received training on each of the observation instruments used in this study to an accuracy and/or agreement criterion of 95-100% based on recommendations made on Cooper et al. (2007). One training session included knowledge of definitions and discussion on all the dependent variables. Observers were provided with the definitions for the target behaviors (e.g., self-control, persistency) and were asked to learn them independently. The researcher and the observers then discussed the definitions for further clarification. Training for self-control and cooperation also included a written test (See Appendix F). The observers were required to code behavioral scenarios to appropriate or inappropriate demonstration of the target behavior. Agreement in all the written tests was 100%. For three of the dependent variables (i.e., self-control,
cooperation and on- and off-task) training also included live coding. The observers coded two 45-minute karate lessons on-site using the observation instruments of the study. The observations were followed by a discussion and troubleshooting challenges that emerged during the observation.

**Interobserver Agreement and Observer’s Drift**

Since human observation is the method used for data collection in this study, an interobserver agreement (IOA) was necessary. Interobserver agreement is established by comparing the judgments of two people observing simultaneously the same target behavior and assessing to what extent they agree in recording the occurrences and non-occurrences of the behavior. The higher the IOA, the more confidence one can have in the accuracy of the data. The IOA percentage was calculated by dividing the agreements by the agreements and disagreements and multiplying by 100 (Cooper et al., 2007).

Observers’ drift over time might affect the way observers interpret the data. A drift occurs when the observer's interpretation of the definitions of the target behavior has changed over time; hence their coding would be different (Cooper et al., 2007). To control observers drift, (a) observers rotated in their observation of student and/or variables so that no observer observed the same student/variable for the entire length of the study; (b) different observers served as IOA randomly (as opposed to having one observer solely responsible for IOA); and (c) IOA measures were conducted on-site or were taken randomly from tapes to control for drifts in observation as a function of progress of the study rather than a change in students’ behavior. Interobserver agreement was performed on at least 35% of the collected data which is higher than recommended by Cooper et al. (2007).
**Data Collection Procedures**

The same observer coded self-control, cooperation and student’s on-task behavior on site, using one observation instrument (See Figure 3.1). The instruments for the data collection were created based on examples from previous studies (e.g., Mitchem et al., 2001). Data were coded in consecutive intervals of 10 seconds each. One researcher observed two target students. An MP3 player prompted the researchers every 15 seconds (i.e., 10 seconds observation, 5 seconds recording) to switch observation from student one to student two. Data for persistency were collected from videotapes. Data were collected using the procedures described below.

**Self-control.** A partial-interval recording system was used to collect data and IOA on self-control. In partial-interval recording, the observer records whether the target behavior occurred at any time during the interval. One researcher observed two target students using an interval system of 15 seconds. At the first 10 seconds, the researcher observed one student and recorded the data in the remaining five seconds. The next 15 seconds the researcher observed and recorded the second student’s data. The researchers recorded appropriate and inappropriate self-control behaviors, according to the definitions. The data are presented graphically as percentage of no-self-control behavior during the lesson time.

**Cooperation.** A partial-interval recording system was used to collect data and IOA on cooperation. Using the 15-seconds interval system utilized for coding self-control, the observers recorded cooperation for two target students. The observers recorded cooperation and noncooperation behaviors, according to the definitions
provided. The data are presented graphically as percentage of the opportunities to exhibit cooperation during the lesson.

**Persistency time.** A duration recording system was used to collect data and IOA on the time the target students were on-task during an assigned challenging task and despite unsuccessful experiences or under extreme physical demands. These data were collected from videotapes of each target student. Using a running stopwatch, the observer activated the watch every time the target student was on-task during the challenging task, and stopped the watch when the student was off-task. Data for persistency time are presented graphically and reported as percentage of time students were on-task in each of the difficult tasks prescribed in the study.

**Correct legs.** An event recording system was used to collect data and IOA on the number of correct legs. In event recording, the observer tallies each instance of the behavior as it occurs. The data on correct legs were collected from videotapes for each target student. The data are presented graphically and demonstrate the number of correct legs performed in the persistency task.

**Student’s on-task behavior.** The 15-seconds interval recording system was used to collect data and IOA on the target students’ on- and off-task behavior. On-task was recorded using momentary time sampling. The observer records the presence or absence of the target behavior at the moment the 10-seconds observation time ends (Cooper et al., 2007). In other words, the observers recorded if students were on or off-task at the end of the observation interval. Data for students’ on-task behaviors are presented graphically as percentage of time the behavior occurred in each lesson.
**Entire class on-task behavior.** A duration recording system was used to collect data and IOA on the time all students in the class were simultaneously on-task. These data were collected by one observer according to the following procedure. When students were sitting/standing as one group, the area in which they were positioned was divided into two equal areas creating two groups of students. The observer scanned all students in one area and rotated the observation to the second area every 5 seconds for the entire duration of the lesson. A MotivAider® prompted the researcher to rotate observation from one practice area to the other. Using a running stopwatch, the observer activated the watch every time all students in the scanned area were on-task and stopped the watch if one or more students in the area were off-task (Mitchem et al., 2001). Another stopwatch was used to measure the total duration of the lesson. This watch was activated at the beginning of the observation period (i.e., when all target students entered the gym) and was stopped when observation ended (i.e., when all target students existed the gym). The data are presented graphically as percentage of time the class was simultaneously on-task (Cooper et al., 2007).

**Accurate self-assessment.** Permanent products were used to collect data and IOA on students’ accurate assessment of their behaviors. Each researcher who observed two target students rated the students’ behavior on a 3-point scale ranging from outstanding to needs improvement, according to the guidelines that were provided to the students by the teacher. Assessment was conducted three times per lesson using interval recording signaled by the teacher. Students at that time rated their behavior using the provided scale. After the lesson, the observer compared the students’ assessment with
their own. Data for accurate assessment are presented graphically as percentage of accurate self-assessment per lesson.

**Social validity.** The researcher analyzed the students’ and the teacher’s responses to the social validity questionnaire. Students’ and teacher’s responses were summarized and reported in a narrative and a graphical format.

**The Research Design, Experimental Conditions, and Treatment Integrity**

This section explains the research design and describes the intervention (i.e., CWSM) and the teacher’s and the students’ training. Treatment integrity, data analysis, and internal validity are also discussed.

**Research Design**

A multiple baseline design across behaviors was implemented in this study to examine the effects of the independent variable (i.e., CWSM) on (a) cooperation behaviors, (b) persistency time, (c) correct legs (d), self-control (e) on-task behavior (for students and entire class) and (f) students’ accurate self-assessment. Social validity data were collected at the conclusion of the study examining the students’ and the teacher’s acceptability of the intervention's goals, procedures, and outcomes. Table 3.1 summarizes the experimental questions, type of data and how data collection and analysis were conducted.

The multiple baseline design is the most widely used single-subject research design for evaluating the functional relationship between independent and dependent variables. In multiple baseline across behaviors, baseline data are collected for two or more behaviors of a single participant. After reaching stable baseline data, the intervention (i.e., CWSM) is applied to the first behavior and behavioral changes are
inspected. When desired trends are detected, the intervention is then applied to the second behavior and in a similar manner to the other behaviors separately and consecutively (Cooper et al., 2007).

A multiple baseline design was selected in this study for two main reasons. First, the objective of this research is to investigate the effect of CWSM intervention on students’ social skills learning. A multiple baseline design allowed the researcher to investigate the effects of a specific treatment on several behaviors, each one examined under the experimental condition sequentially and consecutively. Second, appropriate demonstration of social skills such as self-control and cooperation is critical for learning and teaching. A multiple baseline across behaviors design allows to maintain the intervention in effect on all behaviors for the entire duration of the study.

**Experimental Conditions**

**Baseline.** During baseline, the teacher’s typical instruction was delivered with one exception. On the first day of the study, students received training on the target behaviors (e.g., class rules) based on procedures described in Merrell and Gimpel (1998) and Young et al. (1991). The lesson plan according to which the target behaviors were taught is presented in the teacher’s training package (see Appendix I). During the training the teacher explained each of the behaviors, the class discussed examples and non-examples of the behaviors and students were asked to complete a worksheet assignment related to the expected behaviors. Following the training day, typical instruction continued regularly with the addition of reciting the target behaviors at the beginning and the end of each lesson as a reminder. Thus a typical lesson during baseline was delivered as follow: (a) reciting class rules (i.e., dojo-kun), (b) warm up laps, (c)
karate practice, (d) performance of a challenging task and (e) lesson closure including recitation of the class rules (i.e., dojo-kun).

Self-management Intervention. The SM intervention included 10 components the teacher implemented. The components are derived from Young et al. (1991):

1. Initial training - A training session (40 minutes), for SM and cooperation, for the target students: In this training session the teacher defined and provided examples of SM and reminded students the ABC of behaviors. The teacher also reviewed the class rule “respect others” based on the “Dojo-kun” (i.e., karate rules) and the target behavior cooperation and asked students to role-play the behavior. Finally, the teacher explained the rating system and the behavior evaluation which included students’ assessment of their own behavior and its match or mismatch with the teacher’s evaluation.

2. Continuing trainings: Two training sessions (20 minutes each), one for each of the other behaviors, for target students, were also delivered by the teacher. This training entailed reminders about the SM system and the already learned behaviors, discussion about examples and non-examples of the new target behavior, and role playing of the target behavior.

3. Classwide training: A 15-minute training session for each of the three learned behaviors was provided to the entire class during the lesson’s time. These training sessions were identical to the ones provided to the target students with the exception of the role-playing.

4. Posting rules: Class rules, rating system, and statements describing rating levels were posted in the gym.
Table 3.1
Collection and Analysis of Dependent Variables Data

<table>
<thead>
<tr>
<th>The experimental question</th>
<th>Behavior</th>
<th>Type of data</th>
<th>How data was collected</th>
<th>Data analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the effect of CWSM intervention applied in physical education (PE) on second grade students' self-control?</td>
<td>Controls temper with peers/adults in conflict or losing situations</td>
<td>Appropriate / Inappropriate response</td>
<td>Partial-interval recording (15 seconds)</td>
<td>Graphically</td>
</tr>
<tr>
<td></td>
<td>Responds appropriately when hit/pushed/teased by other students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accepts feedback/criticism appropriately from a friend</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Violent behavior</td>
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</tr>
<tr>
<td>What is the effect of CWSM intervention applied in PE on second grade students' cooperation behaviors?</td>
<td>Follows teacher’s instructions</td>
<td>Cooperation / noncooperation response</td>
<td>Partial-interval recording (15 seconds)</td>
<td>Graphically</td>
</tr>
<tr>
<td></td>
<td>Gains teacher attention appropriately</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accepts feedback/criticism/”no” from teacher</td>
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<td></td>
<td>Listens to teacher/classmates during class discussions</td>
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<tr>
<td></td>
<td>Waits appropriately</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is the effect of CWSM intervention applied in PE on second grade students' on-task behavior?</td>
<td>Student’s on-task behavior</td>
<td>Student on / off-task behavior</td>
<td>Momentary time sampling (15 seconds interval)</td>
<td>Graphically</td>
</tr>
<tr>
<td>What is the effect of CWSM intervention applied in PE on second grade students' persistency?</td>
<td>Engaged in task that is more difficult or challenging than usual.</td>
<td>On-task behavior and correct performance</td>
<td>Duration recording and event recording</td>
<td>Graphically</td>
</tr>
<tr>
<td>To what extent second grade students can accurately evaluate their behavior when participating in CWSM program?</td>
<td>Accurate self-assessment</td>
<td>Accuracy of response</td>
<td>Permanent recorded completed in variable intervals</td>
<td>Graphically</td>
</tr>
</tbody>
</table>
5. **Assigning teams:** Students were assigned to two teams according to their general classroom affiliation.

6. **Point cards (Appendix I):** The teacher paused the practice three times during the lesson to allow students to self-evaluate their behaviors using a 3-point scale. At the signal, students rated their behaviors based on the given rating system.

7. **Fading procedure:** The fading of the point cards and assessment was conducted in two phases. First, students were asked to evaluate their behavior using the point card and report the assessment by the show of fingers (e.g., black belt assessment was shown with three fingers). Second, they were asked to show fingers only without using the point card anymore. These fading phases occurred on day 6 and 12 of the intervention, respectively.

8. **Matching:** Subsequent to the self-evaluation, the teacher randomly selected two students from each team and matched her rating with theirs. If the student’s-teacher’s rating matched exactly, the teacher doubled the points (e.g., if student and teacher rated 2, the total score was 4) to be awarded. Scores were awarded both to the student and the student’s general classroom. If a match occurred for outstanding level of behavior (i.e., 3 points), one additional bonus point was given to the student and to his/her class. In a case of no match, the teacher’s evaluation was recorded, no bonus points were given and the registered points were divided between the individual student and the class.

9. **Public posting:** Students recorded their score on the *Best Karate Student Points Table*. In addition, the teacher documented the class points in her records and at the end of the final (i.e., third) rating period, recorded the total points for each class on the *Best Karate Class Points Table*. At the end of the lesson, the teacher announced the team that earned the highest number of points for the day.
10. Brief and debrief meetings with the target students: In order to ensure appropriate implementation of the SM system by the target students and amplify the reinforcing contingencies, brief and debrief meetings were conducted with the target students each lesson. These meetings were led by the physical education aid. The meetings were held at the beginning and end of each lesson. In the brief meetings the teacher’s aid reminded students the expected behavior and asked them to explain the behaviors to him. In the debrief meetings the aid, according to a protocol prepared by the investigator, informed the students of their daily score, announced the “best behavior demo student” and reinforced the selected student by giving them an high-five and a smile. The aid briefly discussed the reasons why the “best behavior demo student” was chosen (as he/she had the most points) and what behaviors the other students should demonstrate in the future in order to be as successful.

11. Identifying winning class: The Best Karate Class Points Table was visited at the conclusion of every lesson and the winning class was announced and praised. Every four lessons the class with the highest number of points was announced a winner and received an activity reinforcer (i.e., special nunchaku lesson). The other class was praised for effort.

12. Identifying winning students: At the end of the semester, six students (three from each class) with the highest number of points were announced as best karate students of the physical education class and received a tangible reinforcer (i.e., karate patch).

Teacher Training

A training package including description of the intervention was provided to the teacher and is presented in Appendix I. The researcher also provided the teacher with
two 60-minutes in-school training sessions prior to the beginning of the study. The first training included explicit establishment of the class rules. The second training entailed description of the CWSM procedures and how to execute the CWSM program in class. At the conclusion of the training, the teacher described to the researcher the CWSM procedures and how they will be taught to students to verify understanding.

**Student Training**

Similar to the two foci trainings that were provided to the teacher by the researcher, the physical education teacher provided two trainings to students: class rules training and CWSM training. Both trainings were provided to the target students separately and then to the entire class. The rules’ training was conducted in the gym at the beginning of the study for duration of a full lesson. Students learned the class rules, using the concept of *the ABC of behavior*. Students learned how environmental events trigger their behaviors and what may be the possible consequences of their behaviors. The teacher gave examples of how certain events in school can trigger their behavior and what are the possible consequences for every behavior. In addition, the students wrote on a worksheet example of their own for triggers, behaviors and consequences.

At the end of baseline and prior to the beginning of the intervention the teacher provided 40 minutes of CWSM training to the target students and 20 minutes of training to the class, using the following procedures:

1. Introduction to SM. The teacher discussed with students what SM is and its importance.
2. The ABC of behaviors. Following a discussion about behaviors and consequences, the teacher asked students to provide examples for triggers of behaviors, appropriate and inappropriate behaviors and possible consequences.

3. Rating behaviors and matching to the teacher. The teacher explained the rating and the matching system. She taught students how to independently assess their behaviors during the designated time interval and also informed students that for every assessment interval two students from each class will be chosen for matching purposes, to examine their accurate assessment. Target students had also the opportunity to practice the self-evaluation procedure in their training.

4. Points system. The teacher explained to students how ratings translate into points and how points can be replaced with rewards during the semester. Students learned they can receive three, two, or one point for outstanding, satisfactory or needs improvement performance, respectively. When student’s-teacher’s ratings exactly matched, students were informed they would receive doubled points. Matching of the outstanding performance level (i.e., 3 points) was awarded one additional bonus point. In exact match cases, total points were given to the student and the class. In no-match cases, the teacher’s evaluation was counted, no bonus points were given and the registered points were divided between the individual student and the class.

5. Expected behaviors and class rules. The teacher explained the concepts of accurate assessment on-task behavior and cooperation and how they related to the class rules: “be faithful”, “put maximum effort in everything you do” and “respect others” (respectively). The same training procedures were used for teaching the fourth (i.e., persistency) and the fifth (i.e., self-control) target behaviors.
Treatment Integrity

"Treatment integrity refers to the extent to which the independent variable is implemented or carried out as planned“ (Cooper et al., 2007, p. 235). A checklist was used to assess the teacher's instruction during the baseline phase and the adherence to the prescribed CWSM program during the intervention. The baseline instruction checklist (See Appendix K) was created based on multiple observations on the teacher’s delivery of physical education lessons before the study began and analysis of the components that typically exist in her everyday teaching. Two components (i.e., reciting the class rules at the beginning and end of every lesson and the inclusion of a five-minutes challenging task at the end of each lesson) were added to the typical lesson and were included in the treatment integrity checklist as well. The CWSM treatment integrity checklist (See Appendix L) was created based on the components that characterize a CWSM intervention. The treatment integrity checklist evaluated the adherence to the CWSM program as prescribed each day the intervention will be in effect. At the end of each lesson the researcher marked whether or not the listed CWSM components were exhibited. When implementation of one or more of the components were missing or lacking, the researcher held a discussion with the teacher at the end of the lesson on the adequacy of the implementation and provided recommendations for improvement.

Data Analysis

Rules of single subject design governed the data analysis. The data are graphically displayed and visually analyzed. The common properties for behavioral data (i.e., variability, level, trend and mean) are employed to determine whether a functional
relation existed between the independent variable and the dependent variables (Cooper et al., 2007).

**Variability** refers to how often and the extent to which measures of behavior under the same environmental conditions yield different outcomes (Cooper et al., 2007). When variability is evident, there is need for additional data to assist in determining whether a functional relation is present. A *level* is the value on the vertical axis scale around which a set of data points converge. The absolute level value (i.e., mean, median, and/or range) allows detecting the extent of change from one level to another (Cooper et al., 2007). A *mean* represents the average performance of a behavior across a certain number of observations. Large differences in mean performance across phases of the study (i.e., baseline and intervention) indicate behavioral change and a possible effect of the independent variable (Cooper et al., 2007). A *trend* refers to “the overall direction taken by a data path” (Cooper et al., 2007, p. 151). Trend represents a decrease or an increase or no change in data. A degree of trend can also be described.

**Internal Validity**

High internal validity is established when changes in the dependent variable are demonstrated to be a function of the independent variable only while controlling the likelihood that changes are a result of other confounding variables. When a strong experimental control is demonstrated, these confounding variables are either not present or are being held constant. Applied behavior analysts assess the degree of an experimental control mostly by attaining a steady state responding (Cooper et al., 2007). Steady state represents little variations in the different dimensions of the target behavior and provides researcher the basis for a powerful form of experimental reasoning.
commonly called baseline logic (Cooper et al., 2007). The baseline logic entails three elements: (a) prediction, (b) verification, and (c) replication. Prediction is defined as "the anticipated outcome of a presently unknown or future measurement" (Cooper et al., 2007, p. 169). It is recommended to continue the condition measurements until the stability of these data are clear and until the researcher has a strong reason to believe that the behavior’s measures will not change under the same conditions (Cooper et al., 2007).

Verification is accomplished when a change in level occurs subsequent to introducing the independent variable. Once demonstrated, it indicates the accuracy of the original prediction of stable baseline, and greatly reduces the responsibility of confounding variables for the observed change in the behavior. Replication means repeated manipulations of the independent variables which reproduces the previously observed behavior change. Once demonstrated, it (a) reduces the probability that confounding variables were responsible for the repeated behavior change, and (b) demonstrates the reliability of the behavior change (Cooper et al., 2007).

In multiple baseline across behaviors design, after achieving a stable baseline responding for the first behavior (i.e., self-control), a prediction is made that similar level of responding will be measured again under the same conditions. Baseline measurements of the other two behaviors (i.e., cooperation and persistency) suggest the possibility of verifying the prediction made for the first behavior. Verification is obtained if no or little change was observed in the data path of the two behaviors that are still exposed to baseline condition, while the intervention is already in effect for the first behavior. If the same trend of measures, as observed with the first behavior under the intervention condition, is also observed for the second behavior under the same condition, a
*replication* can be claimed. A further replication would similarly be claimed if the same trend of measures is demonstrated again when the intervention is applied to the third behavior.
CHAPTER 4

RESULTS

This chapter presents the results of the study. The results are described in the following order: (a) interobserver agreement, (b) treatment integrity, (c) Students’ (i.e., Kim, Naomi, Adam and Nathan) social and academic learning, (d) whole class on-task behavior, (e) students accurate assessment, (f) acceptability of the intervention’s goals, procedures, and outcomes on the students who participated in the study, and on (g) the physical education teacher. All variables were collected for 22 days with the exception of whole class on-task behavior which was collected for 10 days. A multiple baseline across behaviors design was implemented to examine the effects of the independent variable on the various dependent variables. The study began with four target students but concluded with three.

Interobserver Agreement

Table 4.1 summarizes the percentage of sessions during which IOA was conducted. For variables that were observed on-site (i.e., cooperation, self-control and on-task behavior) IOA were collected on an average of 43% (range, 40-45%) of the lessons for Kim, 63% (range, 57-67%) for Naomi, 47% (range, 37-53%) for Adam and 51% (range, 46-54%) for Nathan. For variables that were observed from a videotape (i.e., number of legs and persistency time), IOA were collected on 44% (no range) of the lessons for Kim, 35% (no range) for Naomi, 41% (range, 38-44%) for Adam and 36% (no range) for Nathan. Interobserver agreement for whole class on-task behavior was conducted only once (14%) due to early termination of observation.
Table 4.1

Percentage and Range Lessons Assessed for Interobserver Agreement

<table>
<thead>
<tr>
<th>On-site data collection</th>
<th>Videotape data collection</th>
<th>Whole class on-task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation</td>
<td>Self-control</td>
<td>On-task</td>
</tr>
<tr>
<td>Kim</td>
<td>40%</td>
<td>45%</td>
</tr>
<tr>
<td>Naomi</td>
<td>57%</td>
<td>67%</td>
</tr>
<tr>
<td>Adam</td>
<td>37%</td>
<td>53%</td>
</tr>
<tr>
<td>Nathan</td>
<td>46%</td>
<td>54%</td>
</tr>
</tbody>
</table>

Table 4.2 presents the IOA obtained for the behaviors demonstrated during the lesson. The mean IOA for cooperation for all students was 89.5% (range 77-99%), for self-control 97.5% (range 85-100%), for students’ on-task 92% (range 69-100%), for persistency time 94% (range 84-100%), for persistency- number of legs 97% (range 67-100%) and for whole class on-task 75% (range 75-75%).

Table 4.2

Mean and Range of Percentage of Interobserver Agreement

<table>
<thead>
<tr>
<th></th>
<th>Cooperation</th>
<th>Self-control</th>
<th>On-task</th>
<th>Persistency (on-task)</th>
<th>Persistency (number of legs)</th>
<th>Whole class on-task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim</td>
<td>91% (77-99%)</td>
<td>98% (92-100%)</td>
<td>95% (86-100%)</td>
<td>94% (85-100%)</td>
<td>93% (67-100%)</td>
<td>75% (75-75%)</td>
</tr>
<tr>
<td>Naomi</td>
<td>90% (84-97%)</td>
<td>97% (89-100%)</td>
<td>91% (69-99%)</td>
<td>92% (84-98%)</td>
<td>100% (100-100%)</td>
<td></td>
</tr>
<tr>
<td>Adam</td>
<td>90% (81-99%)</td>
<td>96% (85-100%)</td>
<td>91% (76-99%)</td>
<td>95% (85-99%)</td>
<td>100% (100-100%)</td>
<td></td>
</tr>
<tr>
<td>Nathan</td>
<td>87% (80-90%)</td>
<td>99% (96-100%)</td>
<td>92% (88-95%)</td>
<td>96% (93-100%)</td>
<td>98% (93-100%)</td>
<td></td>
</tr>
</tbody>
</table>
Treatment Integrity

Checklists were used to determine the treatment integrity. At the beginning of the study, the teacher’s typical instruction was observed. The typical lesson began with reciting the class rules (i.e., dojo-kun) and warm up laps. The lesson continued with a karate practice followed by three minutes of a conditioning task (i.e., persistency task). The lesson concluded with recitation of the dojo-kun again. The checklist (See Appendix K) demonstrated an 83% consistency of the teacher implementation of the typical instruction. The 17% discrepancy was due to a late recitation of rules on one day, failing to complete the persistency task on two days or skipping the warm up on one day.

An intervention checklist (See Appendix L) was used to determine whether or not the teacher implemented the intervention as required, adhering to all CWSM components. Treatment integrity shows 89% consistency of the teacher’s implementation of the CWSM intervention. Periodical inconsistencies were in the implementation of the recitation of rules, announcement of the winning class, self-assessment and self-recording of points and debriefing with target students.

Students’ Social Skills Learning

The following section presents the data for students’ social skills learning. Data are presented by students (Kin, Naomi, Adam, Nathan) across all behaviors in the following manner. The dependent variable cooperation is presented as the percent of time appropriate responses (e.g., the student followed teacher’s instruction) occurred during the lesson out of the total time in which the student had opportunities to demonstrate the behavior. Self-control data are presented as the percent of time students demonstrated a non-self-control behavior (e.g., hitting another student) during the lesson.
Persistency time is presented as percent of time students appropriately completed the 3-minutes challenging task. On-task behavior is presented as percent of time students were on-task during the lesson. Correct legs are presented as rate of responses per 3 minutes persistency task.

**Kim**

Data for Kim’s social skills learning are presented in figure 4.1. Academic skills learning variables are presented in figure 4.2. Data for Kim were not collected in lessons 7 and 21, as she was absent. Cooperation data were not recorded on day 9 due to observers’ error.

**Cooperation.** During baseline, the data demonstrated no trend and no variability. Cooperation behaviors occurred on average during 65% (range 54-70%) of the time during which such behavior could have been displayed. During the CWSM intervention, Kim’s cooperation behavior increased to a mean of 92% (range 72-100%). There was no overlap of data points between the baseline and the intervention conditions.

**Persistency.** During baseline data were variable with no trend. Kim persisted for a mean of 32% (range 0-67%) of the total conditioning task time. During the CWSM intervention, there was an increasing in the level of data to a mean performance of 88% (range 67-100%). There were no overlapping data points between baseline and intervention conditions.
**Self-control.** During baseline, the data demonstrated no trend and no variability with the exception of lesson 4. No-self-control was demonstrated during a mean of 1% (range 0-7%) of the lesson. No-self-control behaviors were not inspected during the intervention. Overlap of data points between baseline and intervention condition was 100%.

**On-task behavior.** During baseline, on-task data demonstrated a descending trend with a mean of 67% (range 52-77%) of the lesson time. During the CWSM intervention on-task increased to a mean of 92% (range 73-100%) with an ascending
trend. There was low variability in the data and 7% overlap of data points between baseline and intervention condition.

Correct legs. Baseline data were highly variable with no trend. A mean of 8 (range 0-14) correct legs in a 3 minute task were performed during baseline. Correct legs increased to a mean of 17 (range 7-23) during the CWSM intervention. An upward trend was observed during the intervention phase with 25% overlapping data points.

Naomi

Data for Naomi’s social skills learning are presented in figure 4.3. Academic skills learning variables are presented in figure 4.4. Data were not collected in lesson 2, as Naomi was absent.

Cooperation. During baseline, the data demonstrated a downward trend with no variability. Cooperation behaviors occurred on average during 48% (range 33-59%) of
the time during which such behavior could have been displayed. During the CWSM intervention, Naomi’s cooperation behavior increased to a mean of 80% (range 52-99%). An ascending trend was observed until lesson 14 and then the data remained stable. Only 12.5% of the data points overlapped between baseline and intervention conditions.

**Persistency.** During baseline, the data demonstrated a slight downward trend with variability. Naomi persisted for a mean of 35% (range 21-63%) of the total task time. During the CWSM intervention, an ascending trend was demonstrated. Level increase to a mean of 78% (range 41-98%). There were 22% overlapping data points between baseline and intervention conditions.

**Self-control.** Variability was inspected during baseline without a trend. No-self-control was demonstrated with a mean of 3% (range 0-12%) of the lesson. During the CWSM intervention, level of data slightly decreased to a mean of 1% (range 0-3%). Trend remained zero and 100% of data points overlapped between baseline and intervention condition.

**On-task behavior.** During baseline, on-task data demonstrated no trend with a mean of 54% (range 46-66%) of the lesson time. During the CWSM intervention on-task time increased to a mean of 82% (range 56-100%). Data established an ascending trend with low variability. There was 25% overlap of data points between baseline and intervention condition.
**Figure 4.3 Naomi’s Cooperation, persistency and non-self-control behaviors**

**Correct legs.** Correct legs data were highly variable with no trend during baseline. A mean of 8 (range 2-19) correct legs in a three-minute task were performed during baseline. Correct legs increased to a mean of 17 (range 9-22) during the CWSM intervention. An upward trend was observed during the intervention phase with 66% overlapping data points.
Figure 4.4 Naomi’s on-task behavior (percent of lesson time) and correct legs (rate per 3 minutes).

Adam

Data for Adam’s social skills learning are presented in figure 4.5. Academic skills learning variables are presented in figure 4.6. Data were not collected in lessons 3, 7 and 20 as Adam was absent. On day 13 Adam missed half of the lesson and no data were recorded for persistency and correct legs.

Cooperation. During baseline, the data demonstrated a downward trend with slight variability. Cooperation behavior occurred with a mean of 46% (range 36-69%) out of the total number of opportunities to display the behavior during the lesson. During the CWSM intervention, Adam’s cooperation behavior increased to a mean of 75% (range 52-94%). A slight variability was demonstrated with only 28.5% overlapping data points between the baseline and the intervention conditions.
**Persistency.** During baseline, the data demonstrated downward trend with variability. Adam persisted for a mean of 32% (range 12-53%) of the total conditioning task time. During the CWSM intervention, persistency level increased to a mean of 86% (range 56-100%) establishing an ascending trend. There was no overlap of data points between baseline and intervention conditions.

**Self-control.** A variable descending trend was demonstrated during baseline. No-self-control was demonstrated during a mean of 7% (range 0-21%) of the lesson. The behavior’s level decreased to a mean of 0% (range 0-1%) with no trend, during the CWSM intervention. A 100% overlap of data points was inspected between baseline and intervention condition.

**On-task behavior.** During baseline, on-task data demonstrated a descending trend with no variability and a mean of 50% (range 39-72%) of the lesson time. During the CWSM intervention on-task increased to a mean of 79% (range 47-97%). An upward trend was detected with 36% overlap of data points between baseline and intervention conditions.

**Correct legs.** Correct legs data were highly variable with no trend during baseline. A mean of 8 (range 1-17) correct legs occurred during the three minutes task. Correct legs increased to a mean of 20 (range 14-24) during the CWSM intervention. An upward trend was observed during the intervention phase with 25% overlapping data points.
Figure 4.5 Adam’s Cooperation, persistency and non-self-control behaviors

Figure 4.6 Adam’s on-task behavior (percent of lesson time) and correct legs (rate per 3 minutes).
Nathan

Nathan withdrew from school on the day 13 of the study before the intervention was applied to persistency and self-control. Data are available only for cooperation and on-task as presented in figure 4.7. Cooperation data were not recorded on day 9 due to observers’ error.

Cooperation. During baseline data were variable with no trend. Cooperation behaviors occurred on average of 62% (range 45-79%) of the time the behavior could have been displayed. During the CWSM intervention, Nathan’s cooperation behavior increased to a mean of 75% (range 66-84%). There was 66% overlap of data points between baseline and intervention conditions.

Figure 4.7 Nathan’s cooperation and on-task behaviors
On-task behavior. During baseline, on-task data were stable with no trend and with a mean of 64% (range 51-78%) of the lesson time. During the CWSM intervention on-task increased to a mean of 78% (range 70-84%) with no variability and trend. There was a 42% overlap of data points between baseline and intervention conditions.

Functional Relationships

A functional relationship between the independent and the dependent variables was demonstrated for Kim, Naomi and Adam in the following manner. Initially, desired changes were observed when the intervention was applied to cooperation without any notable changes in persistency and self-control baseline responses (i.e., prediction and verification). In a similar manner, persistency changes were observed when the intervention was implemented on this behavior (i.e., replication), without observing changes in baseline data for self-control. However, due to the extremely low occurrences of non-self-control behaviors for Kim during baseline, no changes were observed during the intervention. Table 4.3 presents a summary of the existence or absence of functional relationship found between the intervention and the dependent variables for Kim, Naomi and Adam. No decision can be made about functional relations as Nathan withdrew from school.

Table 4.3

Existence or Absence of Functional Relationship across the Dependent Variables

<table>
<thead>
<tr>
<th>student</th>
<th>Functional relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim</td>
<td>Yes</td>
</tr>
<tr>
<td>Naomi</td>
<td>Yes</td>
</tr>
<tr>
<td>Adam</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Whole Class On-Task

Whole class on-task behavior was measured only until day 10 of the intervention due to the absence of detectable desired changes. Baseline and intervention data demonstrated no trend and little variability. Whole-class on-task behavior mean was 5% (range 3-9%) of the lesson time during baseline and 7% (range 6-9%) during the intervention.

Functional Relationships

No change in data was observed and whole class on-task behavior remained the same during baseline and intervention. There was no functional relation between the independent and the dependent variable.

![Figure 4.8 Whole class on-task behavior](image)

Students’ Accurate Assessment

Students’ accurate assessment was measured by comparing the observers’ assessment of the target students’ behavior with the students’ assessment. Accurate assessment was computed using percent measurement of response and is reported as
percentage of student-observer rating match. Data are presented by (a) percent accuracy and (b) number of times each level of accuracy was obtained throughout the intervention.

Kim

Kim’s accurate assessment data are presented in Figure 4.9. The data demonstrated an upward trend with variability until day 7 and stability from day 8 until the end of the study. Kim’s mean accurate assessment was 79% (range 33-100%). As represented in the graph Kim assessed her behavior with 100% or 67% (i.e., one-step match) accuracy on 11 days out of 14 days of the intervention.

Naomi

Naomi’s accurate assessment data are presented in Figure 4.10. The data demonstrated an upward trend with variability. Naomi’s mean accurate assessment was 61% (range 0-100%). As noted in the graph Naomi assessed her behavior with 100% or 67% (i.e., one-step match) accuracy on 11 days out of 16 days of the intervention.

Adam

Adam’s accurate assessment data are presented in Figure 4.11. The data demonstrated an upward trend with variability. Adam’s mean accurate assessment was 59% (range 0-100%). Adam assessed his behavior with 100% or 67% (i.e., one-step match) accuracy on 9 out of 13 days of the intervention.

Nathan

Nathan’s accurate assessment data are presented in Figure 4.12. The data demonstrated a downward trend with stability. Nathan’s mean accurate assessment was 52% (range 33-67%). Nathan assessed his behavior with 67% (i.e., one-step match) accuracy on four out of seven days of the intervention.
Figure 4.9. Kim’s percent of accuracy

Figure 4.10. Naomi’s percent of accuracy
Figure 4.11. Adam’s percent of accuracy

Figure 4.12. Nathan’s percent of accuracy
The Acceptability of the Intervention's Goals, Procedures, and Outcomes - Students

Students’ responses regarding their acceptability of the interventions' goals, procedures, and outcomes are summarized question by question. Open-ended answers were read, placed in common categories and analyzed and are presented graphically. Thirty-nine students (18 boys and 21 girls) filled the questionnaire and responded to all of the questions. All questions provided students an opportunity to write a comment about their answer. Questionnaires were analyzed by gender.

**Question 1: I liked to assess my behavior during the lesson (yes/no). Explain.**

The majority (97%) of students reported they liked to assess their behavior during the lesson. One boy did not answer this question. Twenty-five students added comments that were divided into common categories and are presented in figure 4.13 as percentage of total comments. Of the 12 boys who wrote comments 50% reported they liked self-assessment because it was “fun”, 25% because it provided opportunities to earn points, and 8% because it improved their grades, or their honesty or their behavior. Of the 13 girls, 33% reported self-assessment provided opportunities to earn points and to improve their behavior. Twenty five percent liked to self-assess their behavior because it was fun and 8% thought self-assessment improved their grades and honesty.
Question 2: *I would like to assess my behavior again and in other classes as well* (yes/no). Why? All girls (n=18, 100%) and 86% of the boys responded “yes” to this question. Eighteen students added comments that were divided into common categories and are presented in figure 4.14 as percentage of total comments. Of the 10 Girls who wrote comments, 50% reported that the self-assessment procedure improved their behavior, 10% their honesty and 20% said that the SM system generally helped them. In addition, 10% of the girls reported they would like to use the self-assessment procedure in other lessons because it felt good and because it provided opportunities to earn points. Of the eight boys who commented, 50% wanted to self-assess their behavior in other classes because it was fun, 25% because it improved their honesty and 13% because it improved their behavior. Only one boy indicated he did not like using self-assessment.
Question 3: What would you prefer? Me self-assessing my behavior or my teacher assessing my behavior? Why? Among girls (n=18) 89% preferred self-assessment versus 11% who preferred teacher-assessment. Among boys (n=21) 76% preferred self-assessment, 19% preferred teacher-assessment and 5% did not respond. Eighteen students added comments that were divided into common categories and are presented in figure 4.15 as percentage of total comments. Of the eight girls who wrote comments, 75% reported they liked self-assessment because it gave them a feeling of independence and 25% preferred self-assessment because it was fun. Of the 10 boys who commented, 40% reported they preferred self-assessment because it was fun, 20% because it was like a game and 10% because it provided independence and because it improved their honesty. Among the boys who preferred teacher-assessment, two boys reported that the teacher could help them (20%).
The Acceptability of the Interventions' Goals, Procedures, and Outcomes on the Physical Education Teacher

Responses regarding the teacher’s acceptability of the interventions' goals, procedures, and outcomes are summarized question by question in this section.

*Question 1: After using the self-management system, which strategy do you think is more effective in improving students’ behavior: (a) teacher assessing and responsible for students’ behaviors or (b) students self-managing and assessing their own behaviors?*

*Why?* The teacher thought both strategies were effective and should be implemented together. The teacher believed students should be responsible for their behavior and know how to assess their behavior but that must be accompanied by a teacher’s follow up to ensure proper learning of self-assessment.

*Question 2: Do you think self-management techniques should be part of physical education lessons? Why or Why not?* The teacher believed self-management should be part of the physical education lessons. She reported as she began implementing the SM
system in her lessons, she felt a significant change in the class atmosphere. Lessons ran more smoothly without spending much time and energy on discipline.

*Question 3: Would you use self-management or components of self-management for teaching classes in the future? Which components?* The teacher stated she would use SM components in the future because they make the class more productive and help students learn how to take responsibility on their behaviors. According to the teacher the beneficial components were (a) activities that coincide with class rules, (b) students rating their behavior and (c) elements of cooperation and competition.

*Question 4: If you were to make changes in the self-management strategy to make it better fit to your classes, how would you change it?* The teacher reported she would assign a final activity in the lesson that would be “rule-focused”. In her opinion, a “rule-focused” activity can be assigned to teach different rules at various times in order to reinforce and clarify the rules better for the students.

*Question 5: After implementing the self-management strategy, do you think it would have been effective with a bigger size class (e.g., triple physical education classes)?* The teacher did think the SM strategy could be effective with a larger class size. She acknowledged that the more students, the more time it will take to train them on the system. Although the system is effective, its implementation requires confidence and particularly patience at the beginning.

*Question 6: Would you like to comment about anything else?* The teacher stated: “You made a believer out of skeptic. This was well organized and well executed. I was impressed with the change.”
CHAPTER 5
DISCUSSION

This chapter discusses the results found in the study and is divided into seven sections. Section one deliberates each experimental question and situates the findings in the SM literature. Section two discusses the effects of the CWSM intervention on students’ academic learning. Section three deals with functional relations and procedural limitations. Section four discusses implication for teachers. Section five deliberates implications for researchers and section six suggests directions for future research. Section seven focuses on the conclusions of the investigation.

What is the Effect of CWSM Intervention Applied in Martial Arts Physical Education Curriculum on Second Grade Students’ Cooperation Behaviors?

Cooperation was defined and measured as a response class of five behaviors: following teacher instructions, recruiting teacher’s attention, appropriately receiving feedback or “no” from the teacher, listening during class discussions and waiting appropriately.

All participants demonstrated in this study an increase in cooperation behaviors when the CWSM intervention was applied to this behavior. Girls’ cooperation data increased until a fairly stable and high (above 91%) performance was established from day 8 of the intervention and on. For Adam, a continuous upward trend was observed from day 5 of the intervention with some variability in the data.

These improvements in cooperative behaviors are of importance as elementary teachers perceive cooperation as a skill essential for success in elementary school (Lane,
Givner, & Pierson, 2004; Lane, Pierson, & Givner, 2003; Meier, DiPerna, & Oster, 2006). Teachers believe that elementary-school students should know how to follow instructions, use free time appropriately (e.g., in waiting situations; Meier et al., 2006) and listen to others in the classroom (e.g., Lane et al., 2003). Therefore, number of SM studies target one or more of the cooperation sub-behaviors (e.g., following teacher instructions; Mitchem et al., 2001; Peterson et al., 2006). Yet, only recruiting the teacher’s attention was investigated in elementary school settings (Connell et al., 1993) while other cooperation behaviors were not yet examined (e.g., waiting appropriately, following teacher instructions, accepting “no” and feedback from the teacher and listening during class discussions).

Typically, SM studies examined various cooperation behaviors in isolation. Their findings indicate similar effects to the ones found in the current investigation. Nonetheless, this study expands the literature by providing evidence for the positive effects of a SM intervention not only on a single cooperation response rather on a cooperation response class. The study shows second grade students can learn a cluster of cooperation behaviors such as waiting appropriately, following teacher instructions, accepting “no” and feedback from the teacher and listening during class discussions.

What is the Effect of CWSM Intervention Applied in Martial Arts Physical Education Curriculum on Second Grade Students’ Persistency Time During Challenging Tasks?

Persistency time was defined and measured as time the student is actively involved in completing a challenging task, despite unsuccessful experiences or under extreme physical demands. Persistency task in this study entailed students sprinting from
one line to another line and performing sit-ups in between. Number of correct legs performed was also recorded as a function of persistency. All target students improved their persistency behaviors once the intervention was implemented on this variable and increased their time on-task and the number of correct legs completed.

Despite the improvement, persistency time and correct legs were variable during baseline. Variability of data indicates lack of control on the environment and the factors that affect the behavior (Cooper et al., 2007). There are probably two reasons for the variability demonstrated. First, Kim and Adam received cooperation training on day 8. On that day their persistency time and number of correct legs were exceptionally high. The atypical performance on day 8 indicates a collateral effect of the cooperation training on persistency. Presumably Kim and Adam associated the cooperation behavior of following teacher instructions with persistency (i.e., completing the conditioning task without giving up). Second, physical performance in the gymnasium is visible to all. Based on anecdotal observations Naomi and Kim were close friends. They also performed the persistency task next to each other. Therefore, it is possible that Kim’s performance on day 8 affected Naomi’s time on-task and number of correct legs resulting in her high performance as well.

Persistency, despite its importance in education (Eldar, 2006) and its correlation with teacher grades (Cartledge & Milburn, 1978), has rarely been investigated. Findings from this study are important as they provide preliminary evidence that second grade students can learn how to persist in tasks despite physical difficulties in the physical education setting.
What is the Effect of CWSM Intervention Applied in a Martial Arts Physical Education Curriculum on Second Grade Students’ Self-Control?

Self-control was defined and measured as a response class of three behaviors: controlling temper with peer/adult in conflict situations, responding appropriately when hit/pushed/teased by other students and accepting feedback or criticism appropriately from a friend. Any act of verbal or non-verbal violence, was recorded as no-self-control behavior.

Self-control was chosen as a dependent variable in this study due to its social significance. Elementary teachers believe self-control behaviors such as controlling temper with peers and responding appropriately when hit are critical for successful participation in school (Lane et al., 2004; Lane et al., 2003; Meier et al., 2006). Some teachers attribute more importance to self-control skills than to cooperation skills (Meier et al., 2006).

However, self-control is a difficult behavior to observe. In most cases, and if conflict situations were not preplanned to be presented in the lesson, loss of self-control is much more evident than situations in which a student is considered to be under self-control. Therefore, self-control behavior was not reported. No-self-control behaviors were reported instead.

No-self-control behavior for all students was low during baseline and decreased even further as the study progressed. There was no functional effect of the intervention on the self-control behavior when the intervention was implemented. The average self-control behavior for all students was 3.6% during baseline and 0.3% during intervention. Low occurrence of disruptive behavior during baseline (mean of 6.5%) and a decrease to
0% during intervention was also found in another previous study (Wehmeyer et al., 2003). While occurrences of no-self-control are low as well as the reduction in the behavior, this desired behavioral change as discussed earlier is vital for success in elementary school. Loss of self-control is often considered an aggressive and severe behavior. Even though the behavior may not occur frequently, teachers are concerned with its sheer occurrence. Violent and aggressive behaviors are prohibited in school and inappropriate in our society, regardless of their frequency. Thus even one occurrence of uncontrolled aggressive behaviors is alarming. Due to the severity of this behavior, teachers’ reports on self-control concerns are justified.

The decrease of the no-self-control behavior as early as baseline is attributed to collateral effects of the intervention on cooperation behaviors. Once students were making improvements in cooperating with the teacher, appropriate behaviors occupied the students for most of the lesson’s time, resulting in less time and opportunity to lose control and misbehave. The decrease in no self-control behaviors also suggests response generalization from a trained response (i.e., cooperation) to a non-trained response (i.e., self-control).

**What is the Effect of CWSM Intervention Applied in a Martial Arts Physical Education Curriculum on Second Grade Students’ On-Task Behavior?**

On- and off-task behaviors were measured although not directly intervened with SM. Students were considered on-task when engaged appropriately in motor task/activity according to the teacher’s instruction and when listening to the teacher or students during discussion.
An increase in students’ on-task behavior was inspected immediately when the intervention began. The on-task data pattern was similar to the cooperation data: a gradual increase that stabilized later (i.e., mean of 95-98%) for the girls, and a gradual increase for Adam. Harris et al. (2005) found a similar collateral effect of a SM intervention on un-intervened behavior. In that study on-task behavior of students with ADHD increased while intervening on attention and performance in spelling (Harris et al., 2005). The current findings suggest that SM interventions targeting social skills or basic classroom behaviors have added-value of increasing second grade students’ on-task behavior. On-task behavior is considered a proxy measure for learning, thus increasing the importance of this finding.

What is the Effect of CWSM Intervention Applied in a Martial Arts Physical Education Curriculum on Second Grade Whole-Class On-Task Behavior?

Using a similar definition for on-task behavior as in the previous research question, an observation system suggested by Mitchem et al. (2001) for group on-task behavior was utilized in this study. Mitchem et al. (2001) observed class on-task behavior of seventh grade students during a language arts lesson. In contrast to 80% improvement in class on-task behavior Mitchem et al. (2001) had found, the current study did not find any changes in whole class on-task behavior. A possible reason for the lack of measured effect is due to the inadequacy of Mitchem et al.’s (2001) observation system in a physical education setting. Physical education is a much less structured environment where students are required to move about the area, as opposed to a classroom where they are required to sit at their desks. In addition, physical education
settings occupy a larger number of students. In such a setting, with a large group of students (e.g., 45 students) who travel in the gym, situations where only a single student was off-task were scarce. Nevertheless, after intervening on cooperation, anecdotal observations revealed overall positive effects of the CWSM intervention on the class’ participation and engagement in the lesson. Students were much quieter, more attentive to instructions and less disruptive, resulting in lessons that ran smoother with an improved and positive atmosphere.

**To What Extent Can Second-Grade Students Accurately Evaluate Their Behavior When Participating in CWSM Program in the Physical Education?**

Accurate self-evaluation was measured by comparing students’ self-evaluation to the observers’ evaluation. The target students gradually improved their ability to accurately evaluate their behavior throughout the study. At the beginning of the study, the observer-student match was low. Students learned to evaluate their behavior more accurately according to the rating system as the study progressed. This learning was evident in the increase of observer-student agreement throughout the study. It is important to note the evaluation became more difficult when new behaviors were introduced (i.e., persistency and self-control) as students were required to evaluate more behaviors. Despite the increase in difficulty, the level of accuracy of evaluation still increased, indicating students’ enhanced ability to self-evaluate accurately. Several SM studies completed a matching procedure to ensure students’ accurate self-assessment (e.g., Connell et al., 1993; Davis & Witte, 2000). Yet data for this variable were not provided. This study validates second grade students’ ability to learn and improve their self-evaluation skills in a SM program in the physical education setting.
Nonetheless, reaching the desired level of accuracy in self-evaluation required learning and practice. The low observer-student match percentage in the initial days of the intervention indicates the students’ difficulties comprehending the response class cooperation and determining if they adhered to all five responses included. In addition, the duration dimension of the self-evaluation (i.e., performance demonstrated the entire interval, part of the interval or none) added complexity to the procedure. Based on the data, it took students five to nine lessons to practice self-evaluation before achieving more accurate levels.

Another evidence for the students’ need to practice self-evaluation in order to improve accurate evaluation appeared in the classes’ daily points. In this study, one of the two participating second grade classes used a SM system in their home classroom in addition to the physical education setting. During the initial nine days of the intervention, this class received better daily points due to their accurate evaluation, compared to the class participating in SM in physical education only. This finding supports the assumption that second grade students evaluate themselves more accurately when they receive more self-evaluation practice.

**How Acceptable are the Intervention's Goals, Procedures, and Outcomes to the Students who Participated in the Study?**

Results from the social validity questionnaire suggest that students enjoyed using SM and would like to use the system in other classes as well. As to gender differences, it appears that girls appreciated the SM system because it helped them improve their grades and behavior; while boys liked the system because it was game-oriented and consisted of points earning.
The social validity results suggest students value the outcomes of the SM system in physical education and prefer a SM system more than a teacher-management one. A previous SM study (e.g., Edwards et al., 1995) conducted with elementary school students (7-9 years old) also reported students enjoyed the system and thought it was useful.

**How Acceptable are the Intervention's Goals, Procedures, and Outcomes to the Physical Education Teacher?**

The physical education teacher also appreciated the system and valued its benefits. At first the teacher was skeptical about the project’s possible effects with the lower grade levels. Yet throughout the study she felt more comfortable implementing the SM system and was increasingly pleased with its effect on her students’ behaviors. The teacher’s continuation of the SM system after the study concluded provided a solid indication of its social validity. The teacher modified the system by reducing the number of students selected for student-teacher match and changed the display of the class daily winnings. More importantly, the teacher expanded the modified version to the other second through fifth grade classes.

Other studies coincided with the current results. Elementary teachers reported the SM intervention was easy to implement, that they enjoyed using it in their lessons and would use the system in the future (Davis & Witte, 2000; Wolfe & Fleron, 2003). As social validity of SM intervention was examined only in classroom settings, this study provides new evidence regarding the acceptability of the system on second grade physical education teachers.
Social Skills and Students’ Academic Learning

This study suggested some relation between students’ display of social skills and collateral increase in what is considered to be academic performance (i.e., on-task). The relations between students’ social skills and academic achievements have been a topic for investigation (Elliott, Malecki, & Demaray, 2001). Studies examining this relationship sought to determine whether the acquisition of social skills improves students’ academic outcomes and performance. The literature in this area contains investigations demonstrating a positive relationship between social skills and students’ academic achievement (Cartledge & Milburn, 1978) and also a causal effect of social skills on academic achievements (Elliott et al., 2001). The academic measures improved in this study, in concurrence with the social skills that were directly intervened on, provides another validation of the relationship between social and academic skills’ learning.

Wentzel (1993) provided the hypothesis for the causal relationship between the two variables. Learning often requires social student-student and student-teacher interactions. These interactions involve the demonstration of social skills. Socially competent students are typically successful in these encounters (Elliott et al., 2001). Positive social interactions between the student and the teacher are assumed to have an effect on the quality and time of the teacher’s instruction and engagement with the student (Wentzel, 1993). As a result, the student receives better instruction and more feedback from the teacher and learns academic content better. In addition to Wentzel’s (1993) hypothesis, this study showed that when students learned the social skill cooperation with the teacher they listened better to the teacher and followed her
instructions. These behaviors are also assumed to have an effect on learning and academic achievement.

**Functional Relations and Research Limitations**

A functional relation exists when target behaviors (i.e., dependent variables) demonstrate a desired change only when the intervention (i.e., independent variable) is applied. Functional relations between the dependent and independent variables can be claimed if verification, predication and replication are demonstrated in the graphical display.

In this study, a functional relation was found between CWSM program and the second grade students’ social skills. The functional relation was shown by (a) the demonstration of verification, predication and replication in the first two tiers of the study design and (b) the inter-subject replication evidenced in desired behavioral changes across all target students. When inter-subject replication is observed, it supports the assumption that the intervention and no other factors lead to a behavior change (Cooper et al., 2007).

Nonetheless, the study had few limitations to internal and external validity. The current study entailed a three-tier design yet the previously discussed challenges with the self-control behavior limited the third replication. Although two-tier design is sufficient to demonstrate functional relations (Cooper et al., 2007); the inability to demonstrate replication with the third behavior decreased the strength of the study’s internal validity. Internal validity is also threatened by variable data which suggests lack of a control on the environment that affects the behavior. In this study variable data were especially
apparent in students’ persistency data during baseline. Possible reasons for the variable data were previously discussed.

External validity in the behavioral science is strengthened by replicating intervention outcomes with different subjects and in various settings. This study began with four target students. One of the target students, Nathan, withdrew from school and from the study which limited the external validity of the investigation.

Another limitation previously discussed is the possible inadequate definition and measurement of the whole class on-task variable. The observation system implemented to record whole class on-task time did not permit a proper record of this variable and consequently did not allow presentation of behavior change.

**Implications and Recommendations for Teachers**

Physical education teachers who wish to implement the SM system in their school should consider the following recommendations.

1. **Self-Management Training.** The training provided to the whole class was overall sufficient for most students in the class to be able to participate successfully. Students with special needs (e.g., learning disabilities, particular behavior deficits) might need an additional support in learning how to self-manage. Such support should include personal training prior to the one the whole class receives. In addition, brief and debrief meetings with the students before and after the lesson should also be implemented to provide them with feedback on their performance and progress.

2. **Rating System.** The evaluation scale in this study included three levels of performance that differed in the duration of the demonstration of the required behavior. At the beginning of the study students had difficulties discriminating between the
evaluation levels. A more simple system could entail only two-level assessment indicating whether or not the desired behavior was emitted. With upper elementary grades, teachers can use three or four points scale (e.g., Peterson et al., 2006). The rating scales can include other hierarchal concepts such as gold, silver or bronze medalist (instead black, yellow and white belt level).

3. Point cards. The point cards and the poster describing the rating system served as a visual prompt for students to use the rating system accurately and are recommended. Some teachers may find the use of paper and pencil in physical education contrived and cumbersome as students do not bring and use these materials on a regular basis in this setting. In these cases, a show of fingers can replace the point cards. Teachers can continue to use a three point scale and ask students to rate and show their evaluation using their fingers, or possibly show thumbs up or down with a two-point scale. Nonetheless, for more successful implementation, and particularly with the primary grades, teachers should begin with point cards and gradually fade their use as students become more familiar with the system.

4. Students’ self-evaluation. The study began and concluded with three self-evaluation checks. The more assessment checks during the lesson, the more opportunities students have to practice self-evaluation. Moreover, intervals are shorter to allow for less time to misbehave. Teachers who do not observe desirable changes in students’ behavior with three checks can increase the number of checks in the lesson. Nonetheless, the ultimate goal of SM is for students to be able to self-manage and behave as expected without the contrived prompts of the self-evaluation procedure. Therefore, once students are ready, it is recommended to start a fade-out procedure by decreasing
the number of checks in the lesson. After gradually fading out the checks and ensuring maintenance of students’ behavior over time, teachers can remain with a single assessment check at the end of the lesson.

**Implication and Recommendations for Researchers**

There are several suggestions for researcher who would like to investigate the effects of CWSM on students’ social skills learning in physical education.

1. Most SM interventions were applied with individual students rather than classwide. In light of the positive effects demonstrated in this study and the importance of SM skills for all people, priority should be given to the implementation of classwide interventions. Researchers can provide additional individual training and support to students who require it.

2. Children are eventually expected to be able to self-manage their behavior without external support. Researchers should try to terminate the intervention when students demonstrate appropriate behavior while environmental support is minimal. Therefore, fading out environmental support for SM such as number of assessment checks, point cards and contrived reinforcements should be considered.

3. The inappropriate definition of no-self-control behavior in this study limited the observers’ opportunities to record this behavior. It is suggested to conduct pilot observations prior to the beginning of the study and to detect the frequency, duration and magnitude of selected behaviors to create an appropriate definition for self-control behavior.

4. To avoid collateral effects of the intervention on untrained target behaviors, researchers should select distinct behaviors that are less likely to have an effect on one
another (e.g., waiting appropriately and talking with permission). In addition, a multiple baseline across behaviors design is prone in this case to collateral effects. A multiple baseline across settings design could remediate this challenge.

5. Examining whole class on-task behavior can provide important information regarding the efficacy of the intervention classwide. Researchers who want to examine this variable in a physical education setting should modify the observation system. A criterion of three quarters of the class could be used to determine whole class on-task in physical education.

**Future Studies**

The investigation and validation of SM to teach students social skills in physical education is novel. Considering the positive effects of this study, more research is recommended to validate the current findings. Validation of the CWSM intervention in physical education can be achieved by more investigation across various grade levels, physical education content areas and with other social skills. Future studies could target behaviors such as cooperation between students, leadership, sportspersonship and persistency.

Contingencies and reward systems for students should be considered based on gender and age level. For example, based on the current social validity findings, future studies that target individual students can implement the teacher’s positive feedback for girls (without using points and tangibles). On the other hand, if target students are boys only, a token economy may be more effective. Nonetheless, the ultimate goal of SM systems is to teach students to manage their behavior and display appropriate conduct without dependency on contrived reinforcements. Future SM investigations should
include fading phases during which contrived reinforcements (e.g., points and tangibles) will gradually be shifted to natural reinforcements (e.g., teacher’s praise and academic success).

In addition, a SM study is considered effective if participants continue to demonstrate the target behaviors after the intervention was terminated. Future studies should also conduct generalization probes to examine students’ response maintenance. When possible, it is recommended to conclude future studies with a plan for generalization and investigate both the generalization of the SM and the social skills to other settings (e.g., classroom).

**Conclusions**

The CWSM intervention improved second grade students’ social skills in the physical education setting. Students’ cooperation and persistency time behaviors improved. In addition, students’ on-task time during the lesson and correct legs during the conditioning task increased as well. Students’ and the teacher’s responses regarding the acceptability of the SM system suggest that the intervention benefited students’ behavior and social skills learning. In addition, the students and the teacher perceived the CWSM intervention as an applicable and welcomed system in the physical education setting.

This study extended the literature in four ways. First, it strengthened the validity of CWSM as an effective behavior-change school program by demonstrating its positive effects on students’ social skills’ learning in an ecologically valid setting. Second, it extended the generality of CWSM to physical education settings and provided initial validation of such system in physical education. Third, it suggested an empirically-based
intervention to teach social skills in physical education. Forth, the study extended the social validity of CWSM interventions in school settings in general, and in physical education in particular.
APPENDIX A

SELF-MANAGEMENT IN PHYSICAL EDUCATION - TEACHER CONSENT
APPENDIX C – TEACHER CONSENT FORM

TEACHER INFORMED CONSENT
Department of Sports Education Leadership

TITLE OF STUDY: The Effects of Classwide Self-Management Plan on Second Grade Students’ Social Skills in Physical Education

INVESTIGATOR: Dr. Shiri Ayvazo

CONTACT PHONE NUMBER: 702-895-4179

Purpose of the Study
Shiri Ayvazo invites you to participate in a research study. The purpose of this study is examining how a self-management plan affects the development of students’ social skills during a karate unit in physical education.

Participants
You are being asked to participate in the study because you are teaching martial arts in your physical education curriculum for second grade students.

Procedures
If you volunteer to participate in this study, I WILL ask you to incorporate the following elements to your lessons. On the first day of the study, I WILL ask you to systematically teach classroom rules using a lesson plan that will be provided to you. Then I WILL ask you to continue your physical education instruction as you typically would. After 3-5 days I WILL provide you a 90-minutes self-management training in which I WILL teach you how to use a self-management plan in your classroom and how to train students to self-assess target behaviors that you would like to be exhibited during your classes. Once the training was completed and I have answered your questions, I WILL ask you to continue deliver physical education instruction together with the implementation of the self-management strategy until the end of the study. The strategy will include prompting and reinforcing students to accurately self-assess their social skills and providing awards to winning groups and individuals. I will provide you with support, guidance and feedback about the implementation of the self-management intervention throughout the entire study. During that time I will measure the behavioral change of the target behaviors. The entire study will be a semester long (25-30 lessons). To be able to measure the students’ social skills I will videotape the physical education lessons and will ask you to wear a wireless microphone so that your instructions will be heard on tape. You will also be provided with a stopwatch to prompt students to self-assess their behaviors on different times during the lesson. All data and videotapes will remain confidential. I ask your permission to participate in this study, if this is acceptable to you, by signing the following consent form.
TITLE OF STUDY: The Effects of Classwide Self-Management Plan on Second Grade Students’ Social Skills in Physical Education

CONTACT PHONE NUMBER: 702-895-4179, Dr. Shirí Ayvazo

Benefits of Participation
There may be direct benefits to your students and to you as a participant in this study. I hope to be able to demonstrate that the self-management strategy will assist in developing your students’ social skills and increase their cooperative and active participation in physical education. The self-management strategy you will be training on might assist in improving your students’ behaviors in physical education and will allow for better classroom management and effective teaching.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks. You may be uncomfortable being videotaped during the initial days of the study. You may also feel some stress delivering an intervention you may not be as familiar with. I will provide you with training on using self-management and will begin the intervention only when you feel you are ready to implement it and that all of your questions had been answered. I will also continuously provide support as the study progresses. No other risks are involved.

Cost /Compensation
There will not be financial cost to you to participate in this study. The study may take additional 90 minutes beyond the physical education instruction time for training purposes. I hope to be able to train you on self-management during your preparation hours or at any other time that will be convenient to you.

Contact Information
If you have any questions or concerns about the study, you may contact Dr. Shirí Ayvazo at 702-895-4179. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794.

Voluntary Participation
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with the university. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Confidentiality
All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be destroyed.
TITLE OF STUDY: The Effects of Classwide Self-Management Plan on Second Grade Students' Social Skills in Physical Education

CONTACT PHONE NUMBER: 702-895-4179, Dr. Shiri Ayyazo

Participant Consent:
I have read the above information and agree to participate in this study. I am at least 18 years of age. A copy of this form has been given to me.

______________________________ Date
Signature of Participant

______________________________
Participant Name (Please Print)

Videotaping Consent:
It was explained to me that the physical education lessons are videotaped. I agree to be videotaped for the purpose of this research study.

______________________________ Date
Signature of Participant

Participant Note: Please do not sign this document if the Approval Stamp is missing or is expired.
APPENDIX B

SELF-MANAGEMENT IN PHYSICAL EDUCATION - PARENTAL CONSENT
APPENDIX D – PARENTAL CONSENT FORM

PARENT PERMISSION FORM
Department of Sports Education Leadership

TITLE OF STUDY: The Effects of Classwide Self-Management Plan on Second Grade Students’ Social Skills in Physical Education

INVESTIGATOR: Dr. Shiri Ayvazo

CONTACT PHONE NUMBER: 702-895-4179

Purpose of the Study
Your child is invited to participate in a research study. The purpose of this study is to examine how a self-management strategy affects students’ social skills in physical education. In this study the physical education teacher will train the students on how to self-assess their behaviors according to her expectations. Throughout the study the students will self-assess their social skills’ behaviors several times during the lesson and will be reinforced based on their performance. The study will be a semester long (25-30 lessons). In order to measure the students’ social skill and activity levels, they will be videotaped during the physical education lessons. All videotapes will remain confidential. I ask your permission for the participation of your child in this study, if this is acceptable to you, by signing the following consent form.

Participants
Your child is being asked to participate in the study because he/she is a student in the class the physical education teacher selected for participation in this study.

Procedures
If you allow your child to volunteer to participate in this study, your child will be asked to continue to follow the teacher’s instructions in physical education. They will be asked to assess their behaviors during the physical education lessons. No additional requirements will be made beyond what the students ordinarily do during physical education or classroom instruction.

Benefits of Participation
There may be direct benefits to your child as a participant in this study. We hope to be able to demonstrate that the self-management strategy will improve your child’s social skills, and increase their activity in physical education.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks. Your child may be uncomfortable/distracted with the presence of a videocamera during the initial days of the study. However, if your child, at any point, would like to withdraw from the study due to any type of stress or any other reason, he/she will be able to do so with no penalties. No other risks are involved.
TITLE OF STUDY: The Effects of Classwide Self-Management Plan on Second Grade Students' Social Skills in Physical Education

CONTACT PHONE NUMBER: 702-895-4179, Dr. Shiri Ayvazo

Cost /Compensation
There will not be financial cost to you to participate in this study. The study will not take any of your child’s time. Your child will not be compensated for their time.

Contact Information
If you or your child have any questions or concerns about the study, you may contact Dr. Shiri Ayvazo at 702-895-4179. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794.

Voluntary Participation
Your child’s participation in this study is voluntary. Your child may refuse to participate in this study or in any part of this study. Your child may withdraw at any time without prejudice to your relations with the university. You or your child are encouraged to ask questions about this study at the beginning or any time during the research study.

Confidentiality
All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link your child to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be destroyed.

Parent Permission:
I have read the above information and give permission for my child to participate in this study. I am at least 18 years of age. A copy of this form has been given to me.

________________________________________________________
Signature of Parent

________________________________________________________
Child’s Name (Please print)

________________________________________________________
Parent Name (Please Print)

________________________________________________________
Date

Videotaping Consent:
It was explained to me that the physical education lessons are videotaped. I agree to allow my child to be videotaped for the purpose of this research.

________________________________________________________
Signature of Parent

________________________________________________________
Child’s Name (Please print)

Participant Note: Please do not sign this document if the Approval Stamp is missing or is expired.

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AUG. 24 2010

Page 2 of 2
APPENDIX C

SELF-MANAGEMENT IN PHYSICAL EDUCATION -CHILD ASSENT FORM
APPENDIX E – CHILD ASSENT FORM

The Effects of Classwide Self-Management Plan on Second Grade Students’ Social Skills in Physical Education

1. The name of the person visiting my class is Dr. Shiri Ayvazo and she is a researcher from the University of Nevada Las Vegas.

2. Dr. Ayvazo is asking you to take part in a research study because she is trying to learn more about how teaching strategies that can improve your social skills and participation in physical education.

3. If you agree to be in this study, you will be asked to continue to follow the teacher’s instructions in the physical education class. The teacher will teach you how to self-assess your behaviors in physical education and determine whether or not you met the teacher’s expectations for the lesson. Dr. Ayvazo will be videotaping the class as well, but you will not need to do anything different than how you would regularly participate in the physical education lesson and follow your teacher’s instruction.

4. There is minimal risk in this study. You might feel a little uncomfortable having a video camera in class. But all of us will get used to its presences quickly.

5. If you will agree to participate in the study, we hope that you will learn more in physical education and improve your social skills and interactions with friends and with the teacher.

6. Please talk this over with your parents before you decide whether or not to participate. We will also ask your parents to give their permission for you to take part in this study. But even if your parents say “yes” you can still decide not to do this.

7. If you don’t want to be in this study, you don’t have to participate. Remember, being in this study is up to you and no one will be upset if you don’t want to participate or even if you change your mind later and want to stop.

8. You can ask any questions that you have about the study. If you have a question later that you didn’t think of now, you can talk with me or with Dr. Ayvazo. You can also call Dr. Ayvazo at any time. She can be reached at 702-895-4179. If we have not answered your questions or you do not feel comfortable talking to us about your question, you or your parent can call the UNLV Office of Research Integrity – Human Subjects at 702-895-2794.
9. Signing your name at the bottom means that you have read this form or had it read to you and that you agree to be in this study. You and your parents will be given a copy of this form after you have signed it.

Print your name ___________________________ Date ____________

Sign your name ___________________________

I agree to be videotaped for this research study. YES □ NO □
APPENDIX D

SOCIAL VALIDITY - STUDENTS
Self-management for learning positive behaviors (for students)

I am a boy / I am a girl (please circle)

Directions: Thank you for participating in the self-management project. Can you please tell us how much you enjoyed and learned while self-assessing your behaviors during the physical education class? The investigator is the only person who will see your answers.

Please answer the following questions:

1. I liked to assess my behavior during the lesson because (please circle and explain):
   Yes. Because: _______________________________________________________________
   No. Because: ______________________________________________________________

2. I would like to assess my behavior again and in other classes as well
   Yes. Because: ______________________________________________________________
   No. Because: ______________________________________________________________

3. What would you prefer? (please circle)
   a) me self-assessing my behavior
   b) My teacher assessing my behavior
   Why?
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

4. Is there anything else you want us to know?
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
APPENDIX E

SOCIAL VALIDITY - PHYSICAL EDUCATION TEACHER
Self-management for learning social skills (For PE teacher)

Physical Education Teaching experience: ____
Martial arts teaching experience __________

**Directions:** Thank you for participating in this experiment. The questionnaire will seek information about your acceptability of using self-management for learning social skills as a behavioral strategy in a physical education setting. The investigator is the only person who will see your answers.

**Question 1. After using the self-management system,** which strategy do you think is more effective in improving students’ behavior: (a) teacher assessing and responsible for students’ behaviors or (b) students self-managing and assessing their own behaviors? Why?
________________________________________________________________________
________________________________________________________________________

**Question 2.** Do you think self-management techniques should be part of physical education lessons? Why or Why not?
________________________________________________________________________

**Question 3.** Would you use self-management or components of self-management for teaching classes in the future?
Yes because ______________________________________________________________
Which components
________________________________________________________________________
No because ______________________________________________________________
________________________________________________________________________

**Question 4.** If you were to make changes in the self-management strategy to make it better fit to your classes, how would you change it?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

**Question 5.** After implementing the self-management strategy, do you think it would have been effective with a bigger size class (e.g., triple physical education classes)?
________________________________________________________________________
________________________________________________________________________

**Question 6.** Would like to comment about anything else?
________________________________________________________________________
________________________________________________________________________
APPENDIX F

SELF-CONTROL AND COOPERATION BEHAVIORS - WRITTEN TEST
Self-Control Behaviors - Written Test

Please mark if appropriate (+) or inappropriate (-):

1. ___ The target student listens to his friend who tells him that he did not rate his behavior correctly and he needs to rate it as 2 and not 3. The target student waits until the friend finishes and then asks politely “why?”

2. ___ The target student begins shouting on another student who took his belt.

3. ___ The target student remains calm while being teased. After couple of seconds that the teasing does not stop, the target student approaches the teacher and tells her about the incident.

4. ___ The target student asks nicely from a friend to be careful when kicking because the friend accidentally kicked the target student on the previous trial.

5. ___ The target student remains on-task while other student talk to him during practice time.

6. ___ The target student teases students from the winning group.

7. ___ The target student pushes back other student who accidently pushed her.

8. ___ The target student ignores friend criticism by laughing and walking away while the friend talks.

9. ___ The target student compliments a friend in the winning group.

10. ___ The target student responds to a friend that started a conversation during practice time.
Cooperation Behaviors - Written Test

Please mark if appropriate (+) or inappropriate (-):

1.  ____ The student asks his teacher if he can go to get some water. Teacher says “no”. The student nods and return to the practice area.
2.  ____ The student begins practicing the task provided by the teacher after 15 seconds from the moment she said “go”.
3.  ____ The student looks at a friend responding to the teacher’s question during closure.
4.  ____ The student talks with a friend standing next to her while waiting to the teacher to provide instructions.
5.  ____ The student loudly calls the teacher’s name, while she is talking with another student. Since she does not hear him, he continues calling her name again and again.
6.  ____ The student listens to his teacher and says “OK” after she finishes providing him feedback.
7.  ____ The student begins talking with a friend next to her while waiting for the teacher to provide instructions (the teacher asked students to remain at the same spot once they finish practicing and stated they can talk quietly only with the friend that sits next to them).
8.  ____ The student begins practicing 3 seconds after the teacher said “start”.
9.  ____ The student began the activity before the teacher gave the cue to start.
10.  ____ The student asks loudly and with attitude “why?!?” after the teacher told him he cannot change groups.
11.  ____ After raising her hand trying to get teacher’s attention, the student asks for help from the teacher’s aid.
12.  ____ The student makes an angry face when the teacher asks him to stop talking and begin working.
13.  ____ The student is playing with her belt while the teacher is providing instructions.
The Effects of Classwide Self-Management Plan on Third Grade Students' Social Skills in Physical Education

THE PACKAGE – A PROCEDURAL MANUAL

Package goal:

To teach physical education teachers how to use a self-management program to improve students’ social skills. The self-management program is presented here as "a package".

Rational:

The purpose of this study is to investigate the effects of a self-management plan on second grade students’ social skills in physical education. This study will examine the effects of a classwide self-management plan in a karate unit on students’: (a) self-control, (b) cooperative behaviors (c) persistency and (d) on-task behavior. The study will also examine the ability of second grade students to accurately self-assess target behaviors (See implementing the study: behaviors and definitions).

On the first day of the study, students will receive training on the target behaviors (e.g., self-control) based on procedures previously identified in the literature (Merrell & Gimpel, 1998; Young, West, Smith & Morgan, 1991). During the training you will explain each of the behaviors, the class will discuss examples and non-examples of the behaviors (See implementing the study: class rules training day). Following the training day, instruction will continue regularly with the addition of: (a) restating the target behaviors at the beginning of each lesson as a reminder and (b) assigning a 3 minutes difficult task at the end of every lesson (See implementing the study: definition for difficult task). After 6-8 lessons in which typical instruction will be applied and before the implementation of the self-management intervention on the first behavior, you will receive 90 minutes training on the procedures and implementation of the self-management intervention. You will then instruct the students how to use self-management to assess their behaviors. The self-management intervention will be in effect from this point until the end of the study. The intervention (i.e., self-management) will include eight components (Young, West, Smith, & Morgan, 1991):

1. Training session for target students (30 min): will be led by you and will consist the following components (See implementing the study: self-management training day):
   a. Defining of self-management: You will teach students the definition and rationale for self-management and elicit examples from the students of benefits of self-management.
b. **Re-defining the ABC of behaviors.**

c. **Reviewing dojo-kun** (i.e., class rules).

d. **Rating System and evaluating behaviors:** Students will learn the rating system (Black, yellow and white) describing various levels of rule following behavior, and points associated with each level.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Definition</th>
<th>Points earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding performance: Black belt (B)</td>
<td>Student demonstrated the target behavior satisfactorily for the entire time.</td>
<td>3</td>
</tr>
<tr>
<td>Satisfactory performance: Yellow belt (Y)</td>
<td>Student demonstrated the target behavior satisfactorily only part of the time.</td>
<td>2</td>
</tr>
<tr>
<td>Needs improvement: Whit belt (W)</td>
<td>Student did not demonstrate the behavior at all.</td>
<td>1</td>
</tr>
</tbody>
</table>

2. **Posting rules:** Class rules, rating system, and statements describing rating levels will be posted in the gym.

3. **Assigning groups:** students will be informed that points will be given both to individual students and to their class.

4. **Point cards:** You will pause the practice three times during the lesson (approximately every 15 min) to allow students to self-assess their behaviors on their performance card. At the signal, students will rate their behaviors based on the given rating system previously described.

5. **Matching:** Subsequent to the self-assessment, you will randomly select one student from each group and will match your rating with theirs. When student’s teacher’s ratings...
match exactly, the student’s points will be doubled (e.g., if the student and you rated 2, the total score will be 4). Scores will be given both to the student and the group. If an outstanding level of behavior was demonstrated (i.e., 3 points, black belt behavior) and there will be a student-teacher match on this assessment, one additional bonus point will be given to the student and the group. In a case of no match, yours evaluation would count, no bonus points will be given and the registered points will be divided between the individual student and the group.

6. **Reporting points**: You will send students to record their score on the “personal best” table. In addition, you will document the groups’ points in your records and at the end of the final (i.e., third) rating period, you will record the total points for each group on the “group citizenship” table. At the end of the lesson, you will announce the group that earned the highest number of points for the lesson and all students in the winning group will receive one bonus point towards their individual score.

<table>
<thead>
<tr>
<th>Example of “Personal Best” table:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name / date</td>
</tr>
<tr>
<td>Joe</td>
</tr>
<tr>
<td>Lisa</td>
</tr>
<tr>
<td>Brian</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Example of “Group Citizenship” table:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team</td>
</tr>
<tr>
<td>date</td>
</tr>
<tr>
<td>Team # one</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Total: ___</td>
</tr>
<tr>
<td>Team # two</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Total: ___</td>
</tr>
</tbody>
</table>

7. **Identifying the winning team**: The group citizenship table will be visited every 4 lessons and the group with the highest number of points will be announced winner and the other groups will be praised for effort (Reward for the winning team: Nunchucks lesson).
8. **Identifying winning students:** At the end of the semester, three students with the highest number of points will be announced as best citizens of the class.

(Reward for the winning students: patches)

During the study you will wear a stopwatch to signal for the three self-assessment checks.

**Implementing the Intervention**

Behaviors and definitions

**Definitions of the Dependent Variables**

Self-control is defined as a response class of four behaviors:

- In case of uncertainty whether a demonstrated behavior (e.g., a sad face) is indication for self-control or lack of self-control, one should exercise the following judgment – if the demonstrated behavior (in the following cases/situations ONLY) interrupts the function of class or the learning of others (e.g., captures attention of others and distracts them from learning, or teacher asking student to cease the demonstrated “attitude”) will be considered as a non-self-control behavior.

1. **Controlling temper with peers/adults in conflict or losing situations - Communication**
   with peer/adult is conducted with calm voice and with moderate hands and body movement. The student does not use any kind of violence (verbal or non-verbal).

2. **Responding appropriately when hit/pushed/teased by other students - The Student**
   ignores the act of violence and can (a) report to the teacher about the incident or (b) ask politely and appropriately from the other student to stop.

3. **Accepting feedback/criticism appropriately from a friend - The student looks at the**
   person providing the feedback/criticism, listens to the person until he/she finishes, states a verbal and/or nonverbal affirmative such as “ok, I understand”. The student does not argue but is permitted to ask questions, related to the feedback, in a polite manner.
4. Hitting, pushing or teasing, or otherwise using verbal or non-verbal violent behavior. (including destroying equipment)

Cooperation is defined as a response class of six behaviors:

1. Following teacher’s instructions - The student follows teacher’s verbal or/and non-verbal instructions within 5 to 8 seconds from the time the instructions were given. If instruction was not given during the interval, do not code cooperation (+), if the student is simply on-task.

2. Gaining teacher’s attention appropriately - The student raises his/her hand and waits quietly for the teacher to approach him/her. If the teacher is not facing the student, the student is permitted to: (a) call the teacher’s name one time and then wait with his/her hand raised or (b) ask appropriately for assistance from the teacher’s aid. Incorrect teacher attention-getting behaviors include students raising both hands, waving their arms, saying the teacher’s name loudly or repeatedly, and/or talking before being recognized.

3. Accepting feedback/criticism/no from teacher - The student looks at the teacher providing the feedback/criticism/answer “no”, listens to the teacher until she finishes and states a verbal and/or nonverbal affirmative such as “ok, I understand”. The student does not argue but can ask questions, related to the feedback, in a calm and polite manner.

4. Listening to teacher/classmates during class discussions or any time the teacher provides knowledge for the entire class or for group of students. The student attends to the teacher/classmate, looks at them if possible, and seems to be listening to them.
The student is not occupied by any alternative behavior that may distract attention from the discussion.

5. Waiting appropriately - In waiting situations (e.g., waiting for other students to enter the gym, waiting for the teacher to approach the student), if specific waiting instructions were explicitly provided by the teacher, the student should comply with the teacher’s requirements. If waiting requirements were only implied or not mentioned at all, the student should wait quietly at the same spot without disturbing other classmates or the lesson.

On-task and off-task are defined as follows:

1. On-task behavior - Student is engaged appropriately in motor task/activity according to the teacher’s instruction. A student is also considered to be on-task when attending to the teacher or other classmate that talk during a discussion with the teacher.

2. Off-task behavior - Student is not engaged in an appropriate motor task/activity according to the teacher’s instruction. The student is also considered to be off-task when he/she talks without permission or when disturbing other students in class.

Persistency:

The student is continuously and actively involved in completing an assigned task that was predetermined as challenging, despite unsuccessful experiences and/or under extreme physical demands.

Acceptable participation: running continuously (no walking) and doing 5 full sit-ups with knees bend (90 degrees), hands behind the head and getting up until body touches knees without hands touching the ground.
**Accurate evaluation:**

Accurate evaluation of student is one that matches the assessment of the special education observer who observed the student for the entire lesson.

**Class rules training day**

Training Objectives:

- Teacher will teach the ABC of behavior
- Teacher will teach students the definitions and rational of each rule.
- Teacher will make the connection between the dojo-kun and the target behaviors as shown below:

<table>
<thead>
<tr>
<th>Dojo kun</th>
<th>School rules</th>
<th>Social skill / Target Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Seek perfection of character</strong></td>
<td>Be the best you can be at all times</td>
<td>Persistency</td>
</tr>
<tr>
<td><strong>Be Faithful</strong></td>
<td>Be honest</td>
<td>Accuracy in self-evaluation (will not be explained until the intervention begins)</td>
</tr>
<tr>
<td><strong>Put maximum effort into everything you do – Endeavour</strong></td>
<td>Work hard in all you do</td>
<td>On-task behavior</td>
</tr>
<tr>
<td><strong>Respect others</strong></td>
<td>Be nice</td>
<td>Cooperation</td>
</tr>
<tr>
<td><strong>Refrain from violent behavior</strong></td>
<td>Keep hands, feet and other object to yourself</td>
<td>Self-control</td>
</tr>
</tbody>
</table>
Lesson plan for Class rules (target behaviors)

First day of study

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Comments</th>
<th>organization</th>
</tr>
</thead>
</table>
| 5 min| **introduction:** Explain to students what would be covered in the lesson:  
Learning the ABC of behavior  
Learning the class rules | After students entering the gym call students (select only students the behave appropriately) to sit in 7 rows behind cones | Students will be sited in rows:  
* * * * *  
* * * * *  
* * * * *  
* * * * * |
| 10 min| **The ABC of behaviors:**  
A: **Teacher ask the class to work on a karate task individually and quietly**  
B: **John work for the entire task time quietly without disturbing other students**  
C: **teacher smile to John and says to him that he is doing a great job**  
  
Ask students to complete examples for consequences:  
  
**Goal:** Helps students understand how antecedents and consequences affect their behavior.  
Draw a table of 3 columns – write on one column “trigger” on the second “behavior” on the third “consequence”.  
Ask students to 3 give examples of events that trigger their behaviors and the possible negative or positive consequences to the behavior they selected to demonstrate.  
Send students to work in pairs and to write on a table 5 examples of ABC of behavior - at least two examples from the PE environment.  
After 3-4 min, ask students to stop (using stop signal) and come back to their rows only one student (number 1) from each pair brings the paper and the pan. | Students will be sited in rows:  
* * * * *  
* * * * *  
* * * * *  
* * * * *  
**Equipment:**  
Board  
Marker | Students are scattered in the area work in pairs:  
* * * * *  
* * * * *  
* * * * *  
* * * * *  
**Equipment:**  
40 Worksheets  
40 pans |
| 15 min | **Dojo-kun – class rules:**  
Ask students to put the papers and the pans next to them without touching it.  
Explain students what dojo kun is: a **Japanese martial arts term literally meaning dojo (training hall) rules. Rules are generally posted at the entrance to training halls or at the "front" of the dojo and outline behaviors that are expected and those that are prohibited.**  
Tell students that from now on the dojo kun will be recited at the beginning and end of each class.  
Introduce students with the rules and the expected behaviors – use the definitions.  
Ask students to work again with their pairs and provide examples of behavior to each one of the rule using the second page.  
Ask students to return to their rows.  
Ask students to share with the class what they wrote.  
(See package for rules and behaviors) | Students will be sited in rows:  
* * * * *  
* * * * *  
* * * * *  
* * * * *  
**Equipment:**  
dojo kun and behaviors’ poster  
Students are scattered in the area work in pairs:  
* * * * *  
* * * * *  
* * * * *  
* * * * *  
40 Worksheets  
40 pans | **Role playing:**  
Begin the role playing by presenting a situation for rule # 1 providing an antecedent for the students (the teacher aid). The teacher aid will behave in a certain way and then you provide the consequences.  
Ask students to identify the antecedent, behavior and consequences.  
Repeat the same with all other 4 rules.  
Send students to work. Each time 1 or 2 pairs. | Students will be sited in rows:  
* * * * *  
* * * * *  
* * * * *  
* * * * *  
**Equipment:**  
Students will be sited in rows:  
* * * * *  
* * * * *  
* * * * *  
* * * * *  
**Closure:**  
Ask students what they have learned today  
Ask students to explain the ABC of behaviors  
Ask students to recite the dojo-kun  
See if there are any questions… |
# Lesson Plan for Self-Management

**Target students**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Comments</th>
</tr>
</thead>
</table>
| 5 min | **Introduction:**  
Share with students what would be covered in the training:  
- Introduction to self-management program  
- Re-defining the ABC of behaviors  
- Learning the rating system  
Start the lesson with this kind of statement: “today and in the next few weeks we will have the opportunity to learn skills that will be very important for you as students.” |  |
| 5 min | **Defining self-management:**  
Define the term self-management: *things a person does to improve his own behavior.*  
Ask students why it is important to self-manage their behavior.  
Examples: if I know to manage myself, I may avoid unpermitted conversation, I will be able to attend class better, get good grades and also get praised by the teacher… | **Goal:** students will learn what is “self-management” and will understand the importance of self-managing their behavior. |
| 5 min | **Re-defining the ABC of behaviors:**  
Present to students the definitions of the ABC (written on the board).  
Ask students to give examples of events that trigger their behaviors and the possible negative or positive consequences to the behavior they selected to demonstrate.  
Provide two examples – one with positive consequences and one with negative consequences. | **Equipment:** Board with the definitions of the ABC |
| 10 min | **Rating System and evaluating behaviors:**  
Tell students that from now on, students will not only be responsible for their behavior, but will independently assess it during the lesson, according to your expectations.  
Then explain your expectations related to the behavior of cooperation, using the rating system. Introduce students with the rating system (poster) that you use in your classroom.  
Explain each of the levels and provide examples.  
Explain students that during the lesson they will self-assess their behavior three times each lesson, according to your signal. The assessment will be of their behavior during that interval of time.  
Role playing for the behavior cooperation: | **Goal:** teach students to accurately self-assess their behaviors and to behave according to teacher’s expectations.  
**Equipment:** Rating system poster |
Explain students how the class-rule “respect others” is related to cooperation with the teacher. Then do role playing:

**Waiting**: During waiting time you must sit quietly and wait for my instructions. No talking is allowed.
Example: when students enter the gym. Ask students to wait 2-3 min like as they have to wait when they enter the gym. Ask them to rate their behavior. (practice the routine of lining up to enter the gym, receive the point cards, writing their name, putting under the bench and wait to the teacher).

**Gaining teacher’s attention**: If you want to talk during the lesson or ask question – you must raise your hand before and wait for me to approach you. Same as you need to do in your classroom. If you see that I am not available – you can go to tony to ask his help. (example + rating for waiting and gaining teacher attention)

**Accepting feedback**: sometimes after you ask me something or when I come to give you a feedback you might hear things that you do not like. For example, if I am telling you that you cannot go to drink, or that you need to sit in a time out. In this occasions, you must listen to me until I finish to talk, you can ask appropriately why but you must accept my feedback or no appropriately. Let’s see two examples of receiving feedback or “no”: appropriately and inappropriately. (during tag game)

**Listening to teacher or other classmate**: during class discussions you must attend the person who talks, and remain focused without playing with other objects or kids around you. (example +rating for all four behaviors + teacher matching)

Also tell students that you will evaluate their behavior as well, but of only few students from each class, and each lesson it might be the same or different students. Therefore, they should always continue assessing themselves accurately and appropriately, as they don’t know on what day the teacher will match her assessment to theirs.

**Dojo-kun – be faithful (accurate assessment)**: Explain students how the class-rule “be faithful” is related to accurate assessment.

**Following teacher instructions**: After I provide instructions, you must immediately to follow them. Examples: reciting the dojo kun, when I count etc. (example do the conditioning task + rating + matching + points)

The fun part is that when the teacher gets to see your assessment, you can get points that go to you AND to your group. Explain that ratings are equal to points. That is, the better you behave during the interval of time, you might get
more points. Moreover, if you are honest and accurate in your assessment and it matches how the teacher assessed you, you (and your class) get bonus points that equal your performance. Explain the matching rating system.

<table>
<thead>
<tr>
<th>5 min</th>
<th>Closure:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ask students what they have learned today</td>
</tr>
<tr>
<td></td>
<td>Ask students to explain the rating system</td>
</tr>
<tr>
<td></td>
<td>Ask students to explain the matching system</td>
</tr>
<tr>
<td></td>
<td>Ask students to explain the rule “be faithful” and how it is related to self-management.</td>
</tr>
<tr>
<td></td>
<td>See if there are any questions…</td>
</tr>
<tr>
<td></td>
<td>Recite the dojo-kun</td>
</tr>
</tbody>
</table>

Self-control (refrain from violent behavior) and persistency (seek perfection of character) will be taught in the same manner but for a shorter time as students will already know the SM procedures.

Lesson diagram:

- **Defining Self-management**
- **Re-defining ABC of behavior**
- **Explaining waiting**
- **Explaining gaining attention**
- **Self-evaluation 1**
- **Explaining accepting feedback**
- **Explaining listening to the teacher or other classmate**
- **Self-evaluation 2 + matching**
- **Explaining following instructions**
- **Self-evaluation 3 + matching + points**
Lesson Plan for Self-Management

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 minutes</td>
<td>Getting ready to class: Reciting dojo-kun + class rules</td>
<td>Students receive as they enter to the gym a point card + pencil</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students will be asked to write their name on the point card and to put it under the benches where they sit.</td>
</tr>
<tr>
<td>10 minutes</td>
<td>Warm-up</td>
<td>Jessica and Tony observing 6 students – 2 from each class</td>
</tr>
<tr>
<td>1-2 minutes</td>
<td>Self-evaluation 1 - students are sent to record scores</td>
<td>Jessica call to the 6 students and check for matching. Tony assists her with the decision.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jessica record points for the class and send students to the individual point board. Tony goes with the students to help and supervise them.</td>
</tr>
<tr>
<td>15 minutes</td>
<td>Practice</td>
<td>Jessica and Tony observing 6 other students – 2 from each class</td>
</tr>
<tr>
<td>1-2 minutes</td>
<td>Self-evaluation 2 - students are sent to record scores</td>
<td>Same as self-evaluation 1</td>
</tr>
<tr>
<td>5 minutes</td>
<td>Practice</td>
<td>Jessica and Tony observing 6 other students – 2 from each class</td>
</tr>
<tr>
<td>5 minutes</td>
<td>Practice – conditioning task</td>
<td></td>
</tr>
<tr>
<td>1-2 minutes</td>
<td>Self-evaluation 3 - students are sent to record scores</td>
<td>Same as self-evaluation 1</td>
</tr>
<tr>
<td>5 minutes</td>
<td>Closure</td>
<td>Tony takes from the observers their point cards for the 4 target students.</td>
</tr>
<tr>
<td></td>
<td>Announcement of winning team (Jessica-based on her records)</td>
<td>While students are waiting to exit the gym Tony call the 4 target students and provide them feedback on their assessment. If students ask – the feedback is given based on what you and Jessica saw in the lesson.</td>
</tr>
<tr>
<td></td>
<td>Reciting dojo-kun + class rules</td>
<td></td>
</tr>
</tbody>
</table>

Feedback to target students:

3 points match - “excellent job ____. I see that you not only assessed yourself correctly but also behaved appropriately! If you keep that behavior you might win the contest!”

Other matches – “Very nice ____. I see that you have been honest and rated yourself accurately! Next time try also to behave as a black belt student.”

No match – “not so good... based on what Ms. Leneave and I saw... in ___ round you should have rated yourself as ____. Next time try to self-assess yourself more accurately because you might get chosen for the matching procedure... and if you won’t assess yourself accurately – you will not receive enough points to win...
APPENDIX K

TREATMENT INTEGRITY CHECKLIST FOR -BASELINE INSTRUCTION
Teacher treatment integrity checklist for baseline instruction

Grade: 2nd
Observer: Elian Aljadeff-Abergel

<table>
<thead>
<tr>
<th>Date</th>
<th>Reciting the dojo-kun</th>
<th>Warm up laps</th>
<th>3 minutes challenging task</th>
<th>Reciting the dojo-kun</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.24.10</td>
<td>Only at the middle of the lesson</td>
<td>C</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>9.30.10</td>
<td>C</td>
<td>C</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>10.1.10</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>10.7.10</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>10.8.10</td>
<td>C</td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>10.14.10</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

**C** - Complete
**I** - incomplete
APPENDIX L

TREATMENT INTEGRITY CHECKLIST FOR OF THE SELF-MANAGEMENT INTERVENTION
**Teacher treatment integrity checklist for self-management intervention**

Grade: 2nd  
Observer: Elian Aljadeff-Abergel

<table>
<thead>
<tr>
<th>Date</th>
<th>Reciting the dojo-kun</th>
<th>Warm up laps</th>
<th>Self-evaluation (X3)</th>
<th>Students recording points</th>
<th>3 minutes challenging task</th>
<th>Announcement of winning team</th>
<th>Reciting the dojo-kun</th>
<th>Conclusion with target students</th>
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<tbody>
<tr>
<td>10.15.20</td>
<td>I</td>
<td>C</td>
<td>C</td>
<td>I</td>
<td>C</td>
<td>C</td>
<td>I</td>
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<td>10.22.20</td>
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<td>C</td>
<td>C</td>
<td>I</td>
<td>C</td>
<td>C</td>
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<td>C</td>
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<td>11.4.10</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>I</td>
<td>C</td>
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<td>C</td>
<td>I</td>
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<td>11.5.10</td>
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<td>12.9.20</td>
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<td>Half completed</td>
<td>Half completed</td>
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<td>I</td>
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</table>

C- Complete  
I - incomplete
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Awards for Research:


Awards for Academic Achievement:
*College president’s list for Outstanding Academic Achievement* - this award recognizes outstanding undergraduate students who achieved average grade of 90% or better during the 2006-2007 academic year. Zinman College of Physical Education and Sport Sciences, Israel 2007.


*Outstanding preservice teacher’s class* – accepted to the outstanding junior year undergraduate teacher’s class, based on field experience teaching grades earned in the sophomore year. Zinman College of Physical Education and Sport Sciences, Israel 2007.

*Dean’s list for Outstanding Academic Achievements* - this award recognizes outstanding undergraduate students who demonstrate excellent academic achievements (85-90% average grade) during the 2005-2006 academic year. Zinman College of Physical Education and Sport Sciences, Israel 2006.

*Dean’s list for Outstanding Academic Achievements* - this award recognizes outstanding undergraduate students who demonstrate excellent academic achievements (85-90% average grade) during the 2004-2005 academic year. Zinman College of Physical Education and Sport Sciences, Israel 2005.

*Enrolled in Accelerated studies program* - this enrollment recognizes prospective undergraduate students based on excellence of academic achievements upon entering to the teacher education program. Zinman College of Physical Education and Sport Sciences, Israel 2004.
Peer-Reviewed Papers:


**Aljadeff-Abergel, E.**, & **Ayvazo S.** (in review). Educating through the physical – games and activities. *Interventions in School and Clinic.*

Peer-Reviewed Papers in Progress


Non Peer-Reviewed Papers:


Presentations:


145


Thesis Title: Effects of Classwide Self-Management Intervention on Second Grade Students’ Social Skills in Physical Education

Thesis Examination Committee:
   Chairperson, Shiri Ayvazo, Ph.D.
   Committee Member, Doris Watson, Ph.D.
   Committee Member, Nancy Lough, Ph.D.
   Graduate Faculty Representative, David Grant, Ph.D.