Safer Schools: Promoting Safe Play on School Playground Equipment

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SAFER SCHOOLS: PROMOTING SAFE PLAY ON SCHOOL PLAYGROUND EQUIPMENT

by

Kimberly Elaine Seckinger

A Thesis
Submitted to the Faculty of The Graduate College in partial fulfillment of the requirements for the Degree of Master of Arts Department of Psychology

Western Michigan University
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Each year, over 200,000 people receive emergency room care for injuries sustained on recreational equipment, and a vast majority of these injuries involve children under the age of 15 who have been hurt on school playground equipment. To date, a single empirical study has been conducted applying behavioral technology to decrease children’s risky behavior on playground equipment (Heck, Collins, & Peterson, 2001), and showed reductions in risk-taking behavior when programmed consequences were in place. The purposes of the current investigation were to replicate and extend previous research though a component analysis of an injury prevention package designed to decrease unsafe use of playground recreational equipment among elementary school children. Results demonstrated that consistent behavioral contingencies for risky behavior produced the greatest reduction in students’ unsafe behavior on the tube slide while a decline in students’ play on this piece of play equipment was also revealed in two classes. No differences in play behavior of students serving in a peer leadership role were observed. Implications of these findings and further areas for research are discussed.
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Kimberly Elaine Seckinger
# TABLE OF CONTENTS

ACKNOWLEDGMENTS ........................................................................................................ ii

LIST OF TABLES ............................................................................................................... v

LIST OF FIGURES ............................................................................................................. vi

INTRODUCTION ............................................................................................................... 1

METHODS .......................................................................................................................... 8

- Participants ..................................................................................................................... 8
- Setting ............................................................................................................................. 10
- Dependent Measures ................................................................................................... 10
- Experimental Design and Procedures ......................................................................... 12
- Observational Data Collection Procedures and Reliability ....................................... 16
- Other Data Collection Procedures ............................................................................. 18
- Procedural Integrity ....................................................................................................... 19

RESULTS ........................................................................................................................... 20

- Play Behavior of All Students ..................................................................................... 22
- Play Behavior of Peer Leaders ..................................................................................... 34
- Social Validity ................................................................................................................ 39

DISCUSSION ..................................................................................................................... 42

REFERENCES .................................................................................................................... 49

APPENDICES ..................................................................................................................... 54

- A. Human Subjects Institutional Review Board Approval Letter ............................... 54
- B. Social Validity Questionnaires ................................................................................. 55

ifi
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Education Materials</td>
<td>60</td>
</tr>
<tr>
<td>D. Peer Leader Training Materials</td>
<td>67</td>
</tr>
<tr>
<td>E. Contingency Management Phases Criteria for Reinforcement</td>
<td>71</td>
</tr>
<tr>
<td>F. Supervisor Contingency Management Protocol</td>
<td>72</td>
</tr>
<tr>
<td>G. Research Assistant Training Manual</td>
<td>73</td>
</tr>
<tr>
<td>H. Direct Observation Materials</td>
<td>91</td>
</tr>
<tr>
<td>I. Playground Supervisor's / Our Observations Data Sheet</td>
<td>100</td>
</tr>
<tr>
<td>J. Treatment Adherence Checklists</td>
<td>101</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Tube Slide per Recess Period for All Students........... 29

2. Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Angled Climber During 1-minute Probes for All Students ...................................................................................................... 30

3. Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Secondary Slide During 1-minute Probes for All Students...................................................................................................... 32

4. Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Tube Slide per Recess Period for Peer Playground Leaders ................................................................................................................. 34

5. Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Angled Climber During 1-minute Probes for Peer Playground Leaders................................................................. 37

6. Social Validity of Treatment Components for All Students and Peer Leaders ................................................................................................. 40

7. Social Validity of Treatment Components for Playground Supervisors .... 41
LIST OF FIGURES

1. Number of 10-s Intervals in which Risky Behavior on the Tube Slide was Observed During Recess for All Students ..................................................... 24
2. Percentage of 10-s Intervals in which Risky Behavior on the Tube Slide was Observed During Recess for All Students ........................................ 25
3. Percentage of 10-s Intervals in which Play on the Tube Slide was Observed During Recess for All Students .......................................................... 26
4. Number of 10-s Intervals in which Risky Behavior on the Tube Slide was Observed During Reinforcement Period for All Students ................. 27
5. Mean Number of 10-s Intervals with Combined Unsafe Play per Recess Period on Tube Slide, Angled Climber, and Secondary Slide Across Phases and Classes for All Students ............................................. 28
6. Number of 10-s Intervals in which Risky Behavior on the Angled Climber was Observed During 1-minute Probes for All Students ................. 31
7. Number of 10-s Intervals in which Risky Behavior on the Secondary Slide was Observed During 1-minute Probes for All Students ................. 33
8. Number of 10-s Intervals in which Risky Behavior on the Tube Slide was Observed During Recess for Peer Playground Leaders ..................... 35
9. Mean Number of 10-s Intervals with Combined Unsafe Play per Recess Period on Tube Slide and Angled Climber Across Phases and Classes for Peer Playground Leaders .................................................. 36
10. Number of 10-s Intervals in which Risky Behavior on the Angled Climber was Observed During 1-minute Probes for Peer Playground Leaders ................................................................. 38
Introduction

Year after year, unintentional injuries (commonly referred to as "accidents") consistently finish first in reports of the leading causes of death and disability in children and adolescents, culminating in more deaths than the next nine causes combined (Agran, Winn, Anderson, Trent, & Walton-Haynes, 2001; Arias, MacDorman, Strobino, & Guyer, 2003; Guyer, Freedman, Strobino, & Sondik, 2000; Hambridge, Davidson, Gonzales, & Steiner, 2002; Martin, Kochanek, Strobino, Guyer, & MacDorman, 2005). Expenses of childhood injuries are estimated at close to 347 billion dollars annually and include the cost of medical care ($17 billion), future lost wages ($72 billion), and diminished quality of life ($257 billion). This figure excludes other incidental costs, such as loss of parental income attributed to missed work days, property damage, legal costs, and insurance claims adjustment costs, and may, in fact, be a conservative estimate of the overall economic strain of childhood injuries (Danseco, Miller, & Spicer, 2000). Considering these numbers, it is clear that childhood injuries constitute one of the most pervasive health threats to children and impose a heavy burden upon families, schools, and childcare facilities.

Contained within the class of unintentional childhood injuries are injuries involving recreational equipment. Each year, over 200,000 people receive emergency room care for substantial injuries that have been sustained on recreational equipment, with a vast majority of these injuries involving children under the age of 15. Over 75% of these injuries (approximately 156,000 injuries) occur on equipment designed for public use, and close to half happen on school playgrounds (Tinsworth &
McDonald, 2001). Common playground equipment-related injuries include fractures, lacerations, contusions and abrasions, strains and sprains, closed head injuries, and internal trauma (Tinsworth & McDonald; Waltzman, Shannon, Bowen, & Bailey, 1999). Falls from equipment represent the most common cause of playground-related injuries, peaking in the 5 to 9-year-old age group, and are one of the leading reasons for injury-related visits to primary care physicians. Further, falls are twice more likely to occur with 6-year-olds than children 9 years of age (Agran et al., 2001; Hambidge et al., 2002). This peak in playground related injuries corresponds to developmental changes in the amount of time children spend in the school environment, wherein they have increased exposure to playground equipment.

Injuries have been defined in the research literature as the outcomes of behavior-environment interactions that lead to death or damage (Finney et al., 1993). Said another way, injuries are the behavioral consequences of an individual engaging in unsafe conduct within an environmental context. Though risky behaviors do not always produce injury, such conduct does increase the child’s contact to potentially dangerous situations that may result in harm.

A functional assessment of child risk-taking behavior provides explanatory links between the environment and behavior to injury outcomes (Saldana & Peterson, 1998). For instance, the child may engage in risk-taking as a way to gain competence for a desired skill. To gain competency, the child must engage in acts in which that individual is not yet proficient, and is at greater risk for injury than a skilled child. Further, once competence is achieved, the child may feel invulnerable to injuries and
engage in more risk-taking behavior than cautious behavior. Additionally, physiological changes (e.g., adrenaline flow) associated with risk-taking often produce feelings of pleasure, and perhaps fear. These sensations may partially account for risky behavior. Last, peer acceptance and social reinforcement serve as powerful consequences to support the child’s risk-taking behavior (Saldana & Peterson).

Specific to playgrounds, three additional factors may also contribute to injury occurrences. One such factor is ineffective social consequences for safe and unsafe behavior, including decreased adult supervision and subsequently less feedback for appropriate and inappropriate play behavior. Second, sensations that accompany safe behavior are less reinforcing than those associated with risk-taking behavior, and thus, are unlikely to maintain the child’s safe play. Finally, the physical environment can impact the likelihood of injury occurrences, as play equipment may be in disrepair or, alternatively, the child may engage with equipment designed for a different age-group and therefore, is developmentally inappropriate.

Historically, several different theories have been proposed to elucidate accident and injury causation, and these ideologies have influenced and guided prevention efforts. An early interpretation attributed accidents and injuries to fate or some uncontrollable source. However, this view has been negated as several authors attest most accidents are not unavoidable, inexplicable events based on chance but rather are nonrandom phenomena that can be examined through scientific processes

A second theory of accident and injury causation focused on trait characteristics (i.e., being “accident prone”). A vast amount of research within the area of childhood injury prevention has been devoted to identifying predictors of injury. This line of research has implicated numerous markers of increased injury liability, including gender, age, health, temperament, activity level, behavior problems, physical risk and sensation seeking behaviors, social competency, parent and child’s appraisal of child’s physical ability, child’s appraisal of risk, family size, home environment, and maternal anxiety (Bradbury, Janicke, Riley, & Finney, 1999; Hillier & Morrongiello, 1998; Jaquess & Finney, 1994; Matheny, 1987; Potts, Martinez, & Dedmon, 1995; Schwebel & Bounds, 2003; Schwebel, Speltz, Jones, & Bardina, 2002). Surprisingly, motor ability, i.e. “clumsiness”, does not appear to be directly related to injury risk (Schwebel, Binder, McDermott-Sales, & Plumert, 2003). Rather, Schwebel and colleagues (2003) posit that coordinated and clumsy children may engage in hazardous activities at differing frequencies, or other individual differences, such as those listed above, may interact with motor ability to explain injury risk.

It is important to note that research examining these predictors of childhood injuries has been correlational, due primarily to obvious ethical constraints on experimentally manipulating actual risk behavior (Potts et al., 1995). Accordingly,
accident-prone traits may represent predispositions to unintentional injuries, but cannot provide a complete account of its causation.

A third explanation of unintentional injuries attributes accidents to the interaction between individual and environmental factors (Bradbury et al., 1999; Finney et al., 1993; Matheny, 1987; Sulzer-Azaroff, 1978). Injury prevention efforts are characterized in several ways, including level of intervention (e.g., national and state, community, family, and caregiver and child-level initiatives); method (e.g., legislative, education, and behavioral training); type (e.g., passive and active interventions); and, target (e.g., families, caregivers, and children) (Damashek & Peterson, 2002). Passive interventions, such as manufacturer modification and environmental changes (i.e., "safety proofing"), have been considered by many researchers to be the most effective form of injury control as they require little or no effort on the part of caregivers. However, others advocate for more action-oriented interventions, arguing that many injuries cannot be prevented through passive means alone (Damashek & Peterson). Recognizing the limitations of both types of interventions, some researchers in the field, including the Society of Pediatric Psychology Task Force on injury control, recommend multifaceted approaches to injury prevention (Finney et al., 1993).

In their review, Towner and colleagues (2001) examined the effectiveness of several childhood injury prevention strategies across different domains, including playgrounds. The authors reported marginal evidence for the effectiveness of environmental modification and educational interventions, though it is important to
note that these results are based upon a small number of studies. It appears, therefore, that active interventions, such as behavioral training, may be a valuable augment to current injury prevention programs.

The application of behavior-based safety programs to school playgrounds offer a promising course for injury prevention efforts. Researchers have extensively investigated the interaction between behavior and the environment for accident prevention and injury control within the context of organizations and the workplace (for reviews, see Alavosius, Adams, Ahern, & Follick, 2000; Sulzer-Azaroff & Austin, 2000). Behavioral intervention strategies, such as safety training, performance feedback, and reinforcement, have been shown to be successful in reducing occupational accidents and improving safety performance. Such interventions may also be applied to facilitate safety promotion in school-based injury prevention programs.

To date, a single empirical study has been conducted employing behavioral technology to decrease children's unsafe behavior on school playground equipment (Heck, Collins, & Peterson, 2001). The intervention consisted of classroom instruction, daily feedback on play, and small rewards (e.g., certificates, ribbons, gold stars, and a poster for the classroom) contingent upon group decreases in risky play behavior. Though the intervention reduced risk-taking behavior on the slide for all four grades, the intervention was brief and did not demonstrate longevity of behavior change after programmed consequences were removed nor did it identify the mechanisms that produced reductions risky play behavior.
The challenge of playground injury prevention programs, thus, becomes creating interventions that increase knowledge of safety hazards as well as produce changes in children's risk-taking. One obstacle to such programming is that children tend to behave most defiantly in settings with restricted adult supervision, such as the playground (Dougherty, Fowler, & Paine, 1985). When adult authority is limited, children's risk-taking behavior may come under the control of other powerful, direct acting contingencies, such as peer socially mediated and natural sensory consequences.

One strategy to overcome this barrier is to enlist children as behavior change agents. In both academic and nonacademic settings, children have been utilized as peer tutors, reinforcement agents, and facilitators of generalization, and have been shown to be effective in these roles (for review, see Kalfus, 1984). Interventions that involve peer mediators offer several benefits, including promotion of prosocial interactions, maintenance of desirable behavior, increased acceptance of low preference peers, and concomitant changes in the monitor's behavior (Carden-Smith, & Fowler, 1984; Dineen, Clark, & Risley, 1977; Doughter et al., 1985; Fowler, Dougherty, Kirby, & Kohler, 1986; Greenwood, 1981; Sanders & Glenn, 1977; Stern, Fowler, & Kohler, 1988). Given that adult supervisors are often unable to detect and provide feedback for each occurrence of safe or unsafe play, and that children already function as powerful sources of reinforcement for both positive and negative behavior, peer mediation may prove to be a beneficial adjunct to playground injury prevention programs.
The purposes of the current investigation included replication and extension of previous research through a component analysis of an injury prevention package designed to decrease unsafe use of playground recreational equipment among elementary school children. Components of the intervention included safety education, peer reinforcement for safe conduct, and adult mediated reinforcement contingencies for the recess group based upon reductions in unsafe use of play equipment.

This study sought to answer three primary questions:

1. Which component of playground safety treatment package produced the greatest reduction in children's risk-taking behavior on playground equipment?

2. Were changes in behavior between treatment components significant enough to warrant continued implementation of the safety intervention by school personnel?

3. Did the peer leadership role produce subsequent changes in the peer leader's unsafe play?

Methods

Participants

All students. Forty-nine kindergarten students in three classrooms (age range, 5-6 years; class size ranged from 12-20 students) who attended Kalamazoo Advantage Academy (preschool through Grade 8 charter school) participated in the study. Participants were predominantly African American, and many were attending
elementary school for the first time. This grade level was selected based upon previous research findings (Agran et al., 2001; Hambidge et al., 2002) and the recommendations of the school nurse, who reported that she most often treats kindergarten students for playground-related injuries. Criteria for inclusion for this study were: 1) at least five students per recess period; and 2) use of the designated piece of play equipment during the recess period. Equipment use was defined as physically touching or being within three feet of targeted piece of equipment, or being underneath the angled climber. As school attendance and use of the play equipment varied, the number of child participants fluctuated across recess periods and days. Physical inability to engage with the playground recreational equipment served as the only exclusionary criterion for this project. Letters were sent to the students’ homes to inform their caregivers about the project.

**Peer leaders.** Three students per class were nominated by their teachers to be peer playground leaders based upon the following criteria: 1) regular school attendance; 2) engages in positive social interactions with peers; 3) compliant with adult direction as indicated by teacher report; and 4) demonstrated leadership among peers (Greenwood, 1981). Letters were sent to the caregivers of the nominated students to explain the purpose of the study, the role of peer leaders, and to invite caregivers and students to an informational meeting. Parental consent and child assent were obtained for students serving in this role (see Appendix A for Human Subjects Institutional Review Board application and proposal and Appendix B for approval letters). Peer leaders were given wrist bands to wear during recess periods
to designate their role to other students and data collectors. Peer leaders received a certificate of participation at the conclusion of the study.

Setting

The school playground served as the setting for direct observation, data collection, and implementation of the behavioral intervention. Playground facilities included an indoor area with rubberized floor covering and a GameTime ® play system consisting of vertical ladders, stairs, decks, crawl tubes, a climbing wall, a sliding pole, an angled climber and open and tube slides. The specific pieces of playground equipment targeted in this project included the tube slide, angled climber, and open slide (henceforth referred to as secondary slide).

The playground safety lesson was delivered to the students in their classroom and peer leader training was conducted in a resource room during recess time.

Dependent Measures

Two dependent variables were evaluated: 1) play behavior; and 2) social validity.

Play behavior. Observational data of play behavior on the tube slide, angled climber, and secondary slide were collected. Play behavior on the tube slide served as the primary dependent measure while play on the angled climber and secondary slide were used as measures of generalization of treatment effects.

Combined unsafe play on the tube slide and secondary slide were separated into two categories: 1) unsafe sliding, defined as sliding in a manner other than feet first and facing forward (e.g., head first, backwards), more than one student sliding at
the same time or within three seconds of the first slider, and/or a slider sitting at the bottom of the slide for more than three seconds after sliding; and 2) unsafe climbing, defined as ascending the chute, and/or climbing on the outside of the tube (tube slide only).

Combined unsafe play on the angled climber was also divided into two categories: 1) unsafe use, defined as flipping or hanging upside down on the structure, swinging from the outside support of the structure, swinging from poles at the top of the structure (i.e., feet leaving the platform), more than one student hanging or swinging from the underneath of the climber at the same time, and/or leaning backwards off the structure while hanging on with one or no hands; and 2) unsafe climbing, defined as three or more students climbing up or down the structure at the same time, climbing up or down the structure without both hands and feet on the structure, climbing up the structure from the underneath, climbing up or down the structure on the same side and at the same time as another student (e.g., one student is climbing up while another student is climbing down the climber on the same side), and/or climbing over a student hanging from the underneath of the structure.

Social validity questionnaires. Social validity was measured via questionnaires completed by the students and adult playground supervisors. Statements assessing treatment acceptability were rated using a dichotomous yes/no scale for the students and a 5-point Likert scale for the adult playground supervisors (see Appendix C for social validity questionnaires).
Experimental Design and Procedures

A multiple baseline design across classes was employed. Sessions consisted of one recess period, averaging 10.5 minutes in length (range, 4-22 minutes; standard deviation, 3.2 minutes). Phase changes were introduced contingent upon stability in the data or increasing data trends assessed through visual analysis.

**Baseline.** Child participants were not given instruction on how to play on the equipment outside of typical directions from the playground supervisor. The adult supervisor followed school protocol when monitoring the playground and tracked instances of observed risky play behavior on the tube slide using a golf counter. Peer leaders and the playground supervisor did not provide programmed consequences (i.e., verbal praise, stickers, or additional recess time).

**Education.** A playground safety lesson was presented to students by the student investigator (see Appendix D for education materials). The curriculum was based upon recommendations for the prevention of playground-related injuries from the National Program for Playground Safety and the United States Consumer Product Safety Commission. The lesson consisted of several learning activities, including an educational video, scenarios of safe and unsafe play situations used to elicit classroom discussion, and a handout and art project. Comprehension checks were administered to measure the students’ understanding of the material. These checks were in the form of yes/no questions and were administered orally. Child participants were asked to respond to each statement using a colored response card (blue for yes, pink for no). Pencils were presented to class at the end of the lesson contingent upon attentiveness.
and participation. Following the completion of the curriculum, child participants were instructed to use the knowledge they have learned through the safety lesson and play safely during recess.

Again, the supervisor was instructed to follow school protocol when monitoring the playground and to track instances of observed risky behavior. Programmed consequences were not provided by peer leaders or the playground supervisor.

Peer feedback and supervisor contingency management. This package intervention was comprised of two separate components. The first component involved peer leader feedback and rewards. Nominated students were trained to serve as peer playground leaders and provide verbal praise and stickers to students for safe behavior. Training occurred during one recess period (lasting approximately 30 minutes) and included identification of risky and safe behaviors on recreational equipment, recognition of these behaviors in one’s peers, instruction on how to provide positive feedback to peers, and role-play exercises. Comprehension checks, similar to those used in the Education phase, were administered. Peer leaders were required to score 90% or better on comprehension checks. Additional training was provided if the peer leader’s score was below the criterion to ensure the student was adequately prepared for the peer leader role (see Appendix E for peer leader training materials). Following training, the students were asked to serve as a peer leader for one recess period per week.
The peer leader monitored the tube slide for 1 minute during recess. During the monitoring period, the peer leader delivered praise and stickers to students for safe behavior on the tube slide. The peer leader was reminded of the safe behavior to reinforce prior to the start of recess, and prompted, as needed, during the monitoring period. When not monitoring the tube slide, all peer leaders were told to serve as positive role models by playing safely during the recess period.

Supervisor contingency management was the second component of the package intervention and involved the delivery of 5 minutes of extra recess time by the playground supervisor contingent upon reductions in observed risky behavior. The criterion level for reinforcement was based upon a 50% reduction in unsafe play behavior per minute relative to the baseline frequency of risky play observed by the supervisor. The criterion for reinforcement was later increased to 70% reduction in risky behavior relative to baseline (see Appendix F for criteria for reinforcement).

Prior to the start of recess, students were oriented to a star chart posted on the front wall of the playground. They were instructed that the class would earn extra recess time if stars remained on the chart at the end of the regular recess time and that one star would be removed each time the supervisor observed a child engaging in a risky behavior on the tube slide. Examples of risky behavior that would warrant removal of a star were reviewed with the students, and included climbing up the slide, more than one student sliding at the same time, and sliding other than feet first and facing forward. The number of stars on the chart corresponded to the reinforcement criterion for the recess period. Adult supervisors tracked instances of observed unsafe
behavior on the tube slide using a golf counter, as well as by removing a star from the chart. If risky behavior observed during recess was at or below the daily criterion, the playground supervisor allowed 5 minutes of extra playtime; otherwise, recess was terminated at the scheduled time and students returned to the classroom. Programmed consequences were removed during the reinforcement period (i.e., feedback on play behavior was not provided outside of typical supervision and stars were not removed for unsafe behavior). The supervisor continued to follow school protocol when monitoring the playground (see Appendix G for supervisor contingency management protocol).

Supervisor contingency management. The playground peer leader component was suspended in this phase. The adult playground supervisor continued to provide programmed consequences as previously described.

Experimenter contingency management. Programmed consequences were the same as described in the Supervisor Contingency Management component of the behavioral intervention with the exception that the experimenters performed the role of reinforcement agents rather than the playground supervisor. More specifically, the experimenter reviewed the rule with the students at the beginning of recess, tracked risky play on the tube slide via the star chart and golf counter, and informed students at the end of recess if extra play time was earned. As before, programmed consequences were not provided during the reinforcement period.
Observational Data Collection Procedures and Reliability

Training data collectors. Ten undergraduate and graduate research assistants were recruited to aid in data collection. Data collectors received training in the data collection protocol, school procedures, research ethics, and a safety protocol defining situations in which the research assistant would intervene upon witnessing a dangerous act (see Appendix H for research assistant training manual). On-site training occurred two weeks prior to the start of the study and as additional research assistants joined the research team. To be able to independently collect data, research assistants had to achieve a mastery criterion of 90% agreement or higher with a second, independent data collector for two consecutive recess periods. Agreement was determined using exact agreement across each interval. Exact agreement was calculated by dividing the intervals with agreement by the sum of intervals with agreement and disagreement and then multiplying this ratio by 100, i.e. \( \frac{A}{A + D} \times 100 \). On-site training also served as an opportunity to make necessary adjustments to operational definitions and the data collection system as well as a time to allow the students to habituate to the presence of the data collectors on the playground.

Observational data collection. Data collectors arrived to the school 15 minutes prior to the scheduled start of recess to ensure they had materials prepared and were present on the playground before the recess period. Data collectors positioned themselves 5 to 7 feet away from the tube slide in attempts to be unobtrusive. At the beginning of the recess period, the adult playground supervisor
was provided with a golf counter to track the frequency of risky behavior on the tube slide that she observed during the recess. The golf counter was retrieved at the conclusion of the recess period and this number was recorded (see Appendices I and J for data collection materials).

Data were collected for all students as a group (i.e., students were not observed individually) during each recess period. A partial interval recording procedure (a 10-second observation period followed by a 5-second recording period) was employed and tracked intervals in which play on the equipment was observed, and when play was observed, intervals in which risky and safe behavior was observed. One minute probes were conducted at the start of each session to measure students' safe and unsafe behavior on the angled slide and secondary slide. For the remainder of the recess period, data were collected on students' play on the tube slide. Intervals were scored as unsafe if at least one student was in contact with the piece of play equipment, and at least one instance of unsafe behavior was observed (recorded as "+"). Intervals were scored as safe if at least one student was in contact with the piece of equipment and no risky behavior was observed during the interval (recorded as "0"). If no students were in contact with the play equipment during the 10-second interval, it was scored as no behavior occurring (recorded as "n"). Intervals with the absence of play on the targeted piece of equipment were excluded from data analysis.

Group data were also collected separately on peer leaders' safe, unsafe and no play behavior using this same procedure. Additionally, during the Peer Feedback and Supervisor Contingency Management phase, data collectors recorded appropriate and
inappropriate delivery of reinforcement by peer leaders. Correct delivery of reinforcement was defined as providing reinforcement (praise and/or a sticker) to a student contingent upon safe behavior while incorrect delivery included failure to provide reinforcement to a peer contingent upon safe behavior or providing reinforcement contingent upon unsafe behavior. Periodic counts of the number of children using the play equipment were conducted to determine a range of the number of students who played on the equipment during the recess period.

*Interobserver agreement.* Two research assistants independently collected data on the same piece of playground equipment for at least 33% of observation periods. Data collectors positioned themselves at least 3 feet apart and did not discuss the data collection procedure in order to maintain integrity of independent observations. Interval-by-interval exact agreement was calculated for the occurrence of play during the interval (i.e., if play or no play was observed during the interval) by dividing intervals with agreement by the sum of intervals with agreement and disagreement, and then multiplying this ratio by 100, i.e. \((A / (A + D)) \times 100\). Additionally, for intervals in which play was observed, interval-by-interval exact agreement was calculated by the same formula for instances of unsafe sliding, climbing and use.

*Other Data Collection Procedures*

*Social validity.* Measures of social validity were conducted following the Education and Experimenter Contingency Management phases. The student investigator and research assistants orally administered the survey to the students
during the school day. Written feedback was obtained from the adult supervisors via questionnaires which they completed and returned to the student investigator.

_Procedural Integrity_

Several steps were taken to maintain procedural integrity. First, treatment adherence checks were implemented to ensure that components of the playground safety lesson and peer leader training sessions were consistently and accurately delivered. A research assistant monitored adherence to the education and peer leader training protocols as the student investigator conducted the sessions, and recorded “correct” if all components were delivered or “incorrect” if one or more components were omitted or presented incorrectly (see Appendix K for treatment adherence checklists).

Second, comprehension checks were administered following the playground safety lesson and peer leader training to measure the students’ understanding of the presented material. As discussed previously, peer monitors were required to score 90% or better on comprehension checks or additional training was provided using the same training protocol.

During the Peer Feedback and Supervisor Contingency Management phase, procedural integrity of peer mediated reinforcement was measured by recording the number of intervals with correct and incorrect delivery of reinforcement by the peer monitor during the 1-minute monitoring period. Finally, during the Peer Feedback and Supervisor Contingency Management, Supervisor Contingency Management, and Experimenter Contingency Management phases, integrity of the group reinforcement
contingency was monitored by comparing the number of unsafe behaviors observed by the playground supervisor or experimenter and the delivery of additional recess time (i.e., extra recess time was provided if the criterion was met or not provided if unsafe behavior was above the reinforcement criterion).

Results

On average, one student used the play equipment during probes counting use of equipment (range, 0-5).

Interobserver agreement was obtained for 34% of sessions for all students. Exact agreement of the presence or absence of play yielded satisfactory reliability for the tube slide (average = 94%, range 78-100%), and angled climber (average = 95%, range 67-100%). Of intervals in which play was observed, acceptable reliability was found for unsafe sliding (average = 77%, range 38-100%) and climbing (average = 80%, range 38-100%) on the tube slide; and poor reliability for unsafe use (average = 74%, range 0-100%) and climbing (average = 72%, range 0-100%) on the angled climber.

Interobserver agreement was obtained for 37% of sessions for peer leaders. Exact agreement of the presence or absence of play produced acceptable reliability for the tube slide (average = 95%, range 81-100%), and angled climber (average = 95%, range 67-100%). Of intervals in which play was observed, poor reliability was found for unsafe sliding (average = 63%, range 0-100%) and climbing (average = 68%, range 0-100%) on the tube slide; and poor reliability for unsafe use (average = 70%; range, 0-100%) and adequate reliability for unsafe climbing (average = 81%, range
40-100%) on the angled climber. Interobserver agreement was not obtained on the secondary slide for either peer leaders or all students.

Measures of procedural integrity monitored: 1) adherence to education and peer leader training protocols; 2) students' and peer leaders' correct responses to comprehension probes; and 3) correct delivery of programmed consequences by peer leaders, playground supervisors, and experimenters. Across the three classes, the average adherence to the Education protocol by the student investigator was 95.3% and the average correct response on comprehension probes following the safety lesson by students was 84%. The student investigator's adherence to the peer leader training protocol was 100% for both classes 1 and 2, and the correct response to comprehension probes following training by peer leaders ranged from 90 to 100%. All peer leaders met criteria for successful training, thus remedial training was not required.

Measures of integrity of peer mediated consequences yielded: for class 1, 65% correct delivery; and, for class 2, 0% correct delivery of reinforcement by peer leaders. Last, the percentage of correct implementation of behavioral contingency by the supervisor or experimenter during the contingency management phases were: for class 1, 30% correct for the Peer Feedback and Supervisor Contingency Management phase, 33% for the Supervisor Contingency Management phase, and 92% for the Experimenter Contingency Management phase; for class 2, 50% for the Peer Feedback and Supervisor Contingency Management phase, 54% for the Supervisor Contingency Management phase, and 94% for the Experimenter Contingency Management phase.
Management phase; and for class 3, 100% for the Experimenter Contingency Management phase.

**Play Behavior of All Students**

*Tube slide.* Figure 1 provides a visual depiction of the number of intervals in which combined unsafe play (i.e., sliding and/or climbing) on the tube slide was observed across Baseline, Education, Peer Feedback and Supervisor Contingency Management, Supervisor Contingency Management, and Experimenter Contingency Management phases for all students.

High, stable frequencies of 10-second intervals with unsafe play on the tube slide were observed during the Baseline phase for class 1. Though an initial decrease of risky play followed the introduction of the Education phase, intervals with unsafe play behavior returned to near baseline levels by the end of the phase and remained elevated and highly variable during the Peer Feedback and Supervisor Contingency Management, and Supervisor Contingency Management phases. A consistent reduction to low levels of intervals with unsafe behavior on the tube slide was not achieved until the introduction of Experimenter Contingency Management in session 63.

The frequency of intervals with unsafe play were elevated and inconsistent across all phases for class 2 until the experimenters began implementing behavioral contingencies in session 84, at which time instances of observed unsafe play were significantly decreased. Conversely, for class 3, intervals with risky play were low during the Baseline phase, increased and became variable in the Education phase, and
returned to near zero levels during the Experimenter Contingency Management phase. In all classes, clear suppression of unsafe behavior was not demonstrated until the Experimenter Contingency Management phase, at which time behavioral contingencies were more accurately implemented.

These findings are also represented as percentage of intervals with unsafe behavior per recess period in Figure 2. While similar trends are found, data are much more variable and fluctuate greatly within the phases. These fluctuations are heavily influenced changes in the amount of play observed on the tube slide during the recess periods. Most notably, students' play on the tube slide steadily declined across the phases for classes 1 and 2, as shown in figure 3. Also interestingly, high levels of intervals with risky play during the reinforcement period of the Supervisor Contingency Management and Experimenter Contingency Management phases were observed on several occasions in all classes (see figure 4).

Figure 5 and table 1 depict a descriptive statistical analysis of intervals with combined unsafe play on the tube slide across experimental phases for all students.
Figure 1. Number of 10-s Intervals in which Risky Behavior on the Tube Slide was Observed During Recess for All Students. Open squares indicate delivery of additional recess time.
Figure 2. Percentage of 10-s Intervals in which Risky Behavior on the Tube Slide was Observed During Recess for All Students.
Figure 3. Percentage of 10-s Intervals in which Play on the Tube Slide was Observed During Recess for All Students.
Figure 4. Number of 10-s Intervals in which Risky Behavior on Tube Slide was Observed During Reinforcement Period for All Students.
Figure 5. Mean Number of 10-s Intervals with Combined Unsafe Play per Recess Period on Tube Slide, Angled Climber, and Secondary Slide Across Phases and Classes for All Students. N/A = no opportunity for observation.
Table 1

Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Tube Slide per Recess Period for All Students

<table>
<thead>
<tr>
<th>Class</th>
<th>Mean Baseline</th>
<th>Education</th>
<th>Peer FB, Supervisor CM</th>
<th>Supervisor CM</th>
<th>Experimenter CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18.20 (1.64)</td>
<td>11.80 (2.39)</td>
<td>17.60 (11.77)</td>
<td>10.33 (6.02)</td>
<td>2.00 (2.40)</td>
</tr>
<tr>
<td>Range</td>
<td>16 - 20</td>
<td>9 - 15</td>
<td>9 - 40</td>
<td>2 - 20</td>
<td>0 - 11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class</th>
<th>Mean Baseline</th>
<th>Education</th>
<th>Peer FB, Supervisor CM</th>
<th>Supervisor CM</th>
<th>Experimenter CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>14.14 (6.77)</td>
<td>10.80 (11.39)</td>
<td>10.00 (7.07)</td>
<td>10.82 (7.59)</td>
<td>2.81 (3.33)</td>
</tr>
<tr>
<td>Range</td>
<td>4 - 24</td>
<td>4 - 31</td>
<td>5 - 15</td>
<td>3 - 25</td>
<td>0 - 12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class</th>
<th>Mean Baseline</th>
<th>Education</th>
<th>Peer FB, Supervisor CM</th>
<th>Supervisor CM</th>
<th>Experimenter CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4.67 (2.71)</td>
<td>9.10 (7.12)</td>
<td>---</td>
<td>---</td>
<td>1.88 (2.30)</td>
</tr>
<tr>
<td>Range</td>
<td>1 - 9</td>
<td>2 - 26</td>
<td>---</td>
<td>---</td>
<td>0 - 7</td>
</tr>
</tbody>
</table>

Angled climber. The angled climber served as a measure of generalization of treatment effects. Programmed consequences were not provided for play behavior on this piece of equipment.

The frequency of intervals with combined unsafe play (i.e., use and/or climbing) on the angled climber during 1-minute probes across experimental phases for all students is illustrated in figure 6. For class 1, the frequency of 10-second intervals with unsafe play steadily decreased during Baseline and remained at zero during the Education phase, but sharply rose and become variable across the remaining phases. For classes 2 and 3, intervals with unsafe play were highly variable and unstable across phase. In all classes, play on the angled climber appeared insensitive to behavioral contingencies for play on the tube slide (i.e., a decrease in
unsafe play on the angled climber did not occur in correspondence with decreases in risky behavior on the tube slide). Figure 5 and table 2 present a statistical summary of these data.

Table 2

*Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Angled Climber During 1-minute Probes for All Students*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Education</th>
<th>Peer FB, Supervisor CM</th>
<th>Supervisor CM</th>
<th>Experimenter CM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.80 (1.64)</td>
<td>0.00</td>
<td>1.50 (1.84)</td>
<td>2.00 (2.45)</td>
<td>0.50 (0.76)</td>
</tr>
<tr>
<td>Range</td>
<td>0 – 4</td>
<td>0</td>
<td>0 – 5</td>
<td>0 – 6</td>
<td>0 – 2</td>
</tr>
<tr>
<td><strong>Class 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.71 (2.36)</td>
<td>2.20 (2.17)</td>
<td>1.50 (2.12)</td>
<td>2.00 (2.11)</td>
<td>2.50 (0.71)</td>
</tr>
<tr>
<td>Range</td>
<td>0 – 6</td>
<td>0 – 5</td>
<td>0 – 3</td>
<td>0 – 6</td>
<td>2 – 3</td>
</tr>
<tr>
<td><strong>Class 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3.00 (2.00)</td>
<td>2.79 (2.26)</td>
<td>---</td>
<td>---</td>
<td>1.67 (2.89)</td>
</tr>
<tr>
<td>Range</td>
<td>0 – 6</td>
<td>0 – 6</td>
<td>---</td>
<td>---</td>
<td>0 – 5</td>
</tr>
</tbody>
</table>
Figure 6. Number of 10-s Intervals in which Risky Behavior on Angled Climber was Observed During 1-minute Probes for All Students
Secondary slide. The secondary slide also served as a measure of generalization of treatment effects. Data collection on play on this piece of play equipment began at session 76 to determine if changes in risk-taking behavior on the secondary slide occurred when programmed consequences were provided for play on the tube slide due to formal similarities between the slides. Intervals with combined unsafe play (i.e., sliding and/or climbing) on the secondary slide across phases and classes are presented in figure 7. Unremarkable changes in behavior are revealed as the number of 10-second intervals with risky play was low across recesses for all classes.

See figure 5 and table 3 for descriptive statistical analyses of combined unsafe play on the secondary slide.

Table 3

*Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Secondary Slide During 1-minute Probes for All Students*

<table>
<thead>
<tr>
<th></th>
<th>Education</th>
<th>Supervisor CM</th>
<th>Experimenter CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.42 (0.67)</td>
<td></td>
<td>0.42 (0.67)</td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td>0 - 2</td>
<td></td>
</tr>
<tr>
<td>Class 2</td>
<td></td>
<td>1.50 (2.12)</td>
<td>0.38 (0.77)</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td>0 - 3</td>
<td>0 - 2</td>
</tr>
<tr>
<td>Class 3</td>
<td>0.71 (1.50)</td>
<td></td>
<td>0.50 (1.0)</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>0 - 4</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td></td>
<td>0 - 2</td>
</tr>
</tbody>
</table>
Figure 7. Number of 10-s Intervals in which Risky Behavior on the Secondary Slide was Observed During 1-minute Probes for All Students.
Play Behavior of Peer Leaders

*Tube slide.* Figure 8 visually displays the number of 10-second intervals in which combined unsafe play (i.e., sliding and/or climbing) on the tube slide was observed across Baseline, Education, and Peer Feedback and Supervisor Contingency Management phases for peer playground leaders, while figure 9 and table 4 provide a statistical data summary. Data trends for class 1 were highly inconsistent as there were several peaks in unsafe play followed by recess periods with near-zero levels of risky behavior. Floor effects on behavior on the tube slide were observed in classes 2 and 3. Notable differences in peer leaders’ unsafe behavior on the tube slide across experimental phases were not observed for any of the classes.

Table 4

*Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Tube Slide per Recess Period for Peer Playground Leaders*

<table>
<thead>
<tr>
<th>Class</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
<th>Peer Feedback, Supervisor Contingency Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>6.25 (4.57)</td>
<td>4.20 (3.49)</td>
<td>5.50 (7.84)</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>1 – 12</td>
<td>1 – 10</td>
<td>0 – 22</td>
<td></td>
</tr>
<tr>
<td>Class 2</td>
<td>1.80 (2.39)</td>
<td>1.33 (2.34)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0 – 6</td>
<td>0 – 6</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Class 3</td>
<td>0.91 (0.70)</td>
<td>0.00</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0 – 2</td>
<td>0</td>
<td>------</td>
<td></td>
</tr>
</tbody>
</table>
Figure 8. Number of 10-s Intervals in which Risky Behavior on the Tube Slide was Observed During Recess for Peer Playground Leaders.
Figure 9. Mean Number of 10-s Intervals with Combined Unsafe Play per Recess Period on Tube Slide and Angled Climber Across Phases and Classes for Peer Playground Leaders. N/A = no opportunity for observation.
**Angled climber.** Figure 10 illustrates the frequency of 10-second intervals with combined unsafe play (i.e., use and/or climbing) on the angled climber during 1-minute probes across the experimental phases for peer leaders. Intervals with unsafe behavior were elevated during the Baseline phase but immediately are reduced to zero, or near zero, levels with the introduction of the Education phase and maintained through the Peer Feedback and Supervisor Contingency Management phase for each of the classes. See figure 9 and table 5 for a statistical analysis of these data.

As stated in the discussion earlier, the role of peer leaders was discontinued after session 49 due to the unremarkable effects of the role of the students’ or peer leaders’ behavior.

Table 5

*Mean, Standard Deviation and Range of 10-s Intervals with Combined Unsafe Play on the Angled Climber During 1-minute Probes for Peer Playground Leaders*

<table>
<thead>
<tr>
<th>Class</th>
<th>Baseline</th>
<th>Education</th>
<th>Peer FB, Supervisor CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.67 (1.15)</td>
<td>0.50 (0.71)</td>
<td>0.22 (0.67)</td>
</tr>
<tr>
<td>Range</td>
<td>0 – 2</td>
<td>0 – 1</td>
<td>0 – 2</td>
</tr>
<tr>
<td>Mean</td>
<td>1.60 (1.82)</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Range</td>
<td>0 – 4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>1.70 (1.49)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0 – 5</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Figure 10. Number of 10-s Intervals in which Risky Behavior on Angled Climber was Observed During 1-minute Probes for Peer Playground Leaders.
Social Validity

All students and peer leaders. Most students reported highly enjoying the playground safety lesson, having peer playground leaders, and earning extra recess time. They also indicated that they enjoyed recess across both administrations of this measure. Many students endorsed playing more safely because of the treatment components equally across the Education and Peer Feedback and Contingency Management phases (88.5% and 88.9% agreement, respectively). Finally, the peer playground leaders unanimously affirmed that they enjoyed their role as playground leaders. See table 6 for a summary of students’ responses to questions of treatment acceptability.

Playground supervisors. A summary of playground supervisors’ responses to questions of treatment acceptability is provided in table 7. Playground supervisors reported that the safety curriculum and contingency management components of the intervention were valuable and effective in reducing risky behavior on the playground. Further, they indicated that their role in monitoring the playground for additional time was reasonable, and that education and contingency management could be implemented again in the future. On the other hand, the playground supervisors disagreed that the peer leader component was valuable or effective in reducing unsafe play behavior, but did endorse that the presence of peer leaders promoted positive peer social interactions on the playground.
Table 6

*Social Validity of Treatment Components for All Students and Peer Leaders*

**Education**

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Agreement with Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like watching the “Sammy the Raccoon” video and talking about how to</td>
<td>92.3%</td>
</tr>
<tr>
<td>play safely on the playground.</td>
<td></td>
</tr>
<tr>
<td>I play safer on the playground because of what I learned watching the</td>
<td>88.5%</td>
</tr>
<tr>
<td>“Sammy the Raccoon” video and talking about how to play on the playground.</td>
<td></td>
</tr>
<tr>
<td>I have fun playing on the playground.</td>
<td>96.2%</td>
</tr>
</tbody>
</table>

**Peer Leader and Supervisor/Researcher Contingency Management**

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Agreement with Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like having playground leaders and getting stickers for playing safely</td>
<td>100%</td>
</tr>
<tr>
<td>I like earning extra recess time for playing safely.</td>
<td>94.4%</td>
</tr>
<tr>
<td>I play safer on the playground because I get stickers from the playground</td>
<td>88.9%</td>
</tr>
<tr>
<td>leaders and earn extra recess time.</td>
<td></td>
</tr>
<tr>
<td>I have fun playing on the playground.</td>
<td>100%</td>
</tr>
<tr>
<td>I liked being a playground leader. <em>(Peer playground leaders only)</em></td>
<td>100%</td>
</tr>
</tbody>
</table>

*Note.* The values represent mean percentages of students’ agreement with the statement.
Table 7

*Social Validity of Treatment Components for Playground Supervisors*

**Education**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean agreement with statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel the education curriculum was valuable.</td>
<td>3</td>
</tr>
<tr>
<td>I feel this curriculum was effective in reducing the students' risky behavior on the playground.</td>
<td>3</td>
</tr>
<tr>
<td>I feel this curriculum can be implemented again in the future.</td>
<td>2.67</td>
</tr>
</tbody>
</table>

**Peer Feedback and Supervisor/Researcher Contingency Management**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean agreement with statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel that having playground leaders during recess was valuable.</td>
<td>3.5</td>
</tr>
<tr>
<td>I feel having playground leaders was effective in reducing students’ risky behavior on the playground.</td>
<td>3.5</td>
</tr>
<tr>
<td>I feel having playground leaders produced positive social interactions on the playground.</td>
<td>3</td>
</tr>
<tr>
<td>I feel having playground leaders during recesses can be implemented again in the future.</td>
<td>3.5</td>
</tr>
<tr>
<td>I feel the group rewards component of the intervention was valuable.</td>
<td>2.33</td>
</tr>
<tr>
<td>I feel this component was effective in reducing students’ risky behavior on the playground.</td>
<td>2</td>
</tr>
<tr>
<td>I feel my role in this intervention was reasonable (e.g., monitoring 5 extra minutes of recess).</td>
<td>2</td>
</tr>
<tr>
<td>I feel this component can be implemented again in the future.</td>
<td>2</td>
</tr>
</tbody>
</table>
Note. The values represent mean agreement with the statement. Judgments were made on a 5-point scale (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree).

Discussion

The purposes of this study were to evaluate a playground safety promotion program to determine: 1) which component(s) produced the greatest change in students' play behavior; 2) the social validity of treatment components; and 3) the effects of a peer mediation role on play behavior of appointed students.

An analysis of intervention components demonstrated that consistent behavioral contingencies for risky behavior, a condition most readily achieved in the Experimenter Contingency Management Phase, produced the greatest reduction in students' unsafe behavior on the tube slide. Traditional classroom instruction resulted in moderate and minimal reductions in the students' risk-taking behavior relative to Baseline. Further, for classes 1 and 3, effects of the safety lesson appeared to be fleeting as levels of students' unsafe play behavior were as high as or higher than those observed in Baseline by the end of the Education phase. Results of the Peer Feedback and Supervisor Contingency Management phase and Supervisor Contingency Management phase were also mixed. For class 1, students' unsafe behavior on the tube slide increased dramatically in the Peer Feedback and Supervisor Contingency Management phase and then reverted back to levels of unsafe play similar to that observed in Education during the Supervisor Contingency Management phase. For class 2, intervals with unsafe sliding behavior remained relatively constant.
across the Education, Peer Feedback and Supervisor Contingency Management and Supervisor Contingency Management phases. For all classes, significant reductions in students’ risky play on the tube slide were not achieved until the introduction of experimenter-implemented consequences in the final phase.

While it appears that behavioral contingency management is more powerful in affecting behavior change than Education, differences between Peer Feedback and Supervisor Contingency Management phases and the Experimenter Contingency Management phase demonstrate that consequences must be consistently applied to be effective. Inconsistent and inaccurate delivery of behavioral consequences by playground supervisors and peer leaders may, at least in part, account for students’ differential play behavior on the tube slide.

Several factors may account for this discrepancy. With respect to supervisor contingency management, duties associated with monitoring students on the playground may have prevented the supervisors from providing reliable feedback and consequences necessary to control students’ behavior on the tube slide. As noted earlier, adult jurisdiction on the playground is limited, and even with rules and intermittent feedback on play (e.g., removal of a star), it appeared that the consequences occurred too infrequently to produce meaningful reductions in students’ unsafe play. In addition, behavior contingencies may have operated on the supervisors’ behavior to compromise the accuracy of consequence delivery, such as avoidance of students’ problem behavior or reinforcement for remaining on the playground longer rather than returning to the classroom. Finally, despite training and
subsequent instruction, peer mediation appeared to be too sophisticated for the students included in this study, as the peer leaders' correct delivery of reinforcement was poor, and thus, may be more developmentally suited for older students.

The need for consistent delivery of consequences has important implications for the durability of the treatment effects. Students' play behavior did not appear to be governed by the verbal rules presented by the supervisor at the beginning of each recess period, as evidenced by continued high levels of unsafe play throughout the recess during the Supervisor Contingency Management phases. Unsafe play was only significantly reduced once the experimenter began implementing the behavioral contingencies. Furthermore, during the Experimenter Contingency Management phase, suppression of risky play behavior was achieved during the regular recess period when programmed consequences were provided continuously, but often increased once programmed consequences were removed during the reinforcement period. This finding suggests that the dense schedule of feedback and consequence delivery was necessary to reduce and maintain low levels of unsafe behavior on the tube slide. However, poor procedural integrity during the Supervisor Contingency Management phases suggests that sustaining such a rigorous schedule may be too effortful for the playground supervisors to uphold without additional personnel or other supports. Other sampling procedures of risk-taking behavior, such as momentary time sampling, may be more feasible for adult supervisors to maintain over time.
The decline in play on the tube slide across the experimental phases in classes 1 and 2 suggests that use of this piece of equipment may have been suppressed as a result of the safety promotion intervention (that is, play on the tube slide was no longer reinforcing). This finding suggests that future efforts to promote safety should consider the possibility that unsafe play might be displaced from equipment where contingencies are implemented to other pieces of play equipment that were not targeted with behavioral contingencies, or other times during recess, such as during the reinforcement period. Care must be taken to ensure that, while programmed consequences are in place to promote safe use of the equipment, play is still enjoyable.

Generalization of safe behavior to the angled climber did not occur as high and variable levels of risk-taking behavior were observed across the experimental phases in all three classes. On the contrary, low levels of risk-taking behavior on the secondary slide were observed, which may suggest that formal similarity between the slides aided in generalization of safe sliding behavior to the novel slide. It must be noted that data collection on the secondary slide did not begin until session 76 and statements regarding generalization of safe sliding behavior cannot be drawn as baseline data are not available. Tentatively, however, it seems that programmed consequences must be applied to each unique piece of recreational equipment in order to produce behavior change.

The peer leader role did not appear to produce changes in play behavior on the tube slide of students selected to this position. For class 1, unsafe behavior of peer
leaders remained variable across all phases, even during the Peer Feedback and Supervisor Contingency Management phase in which it was expected that the playground leaders would engage in safe play because of their special role. In classes 2 and 3, floor effects impacted the ability to monitor change in peer leaders’ behavior across the experimental phases. Conversely, significant reductions in unsafe play on the angled climber were found following the introduction of the Education phase. This finding is curious as peer leaders received special training on the tube slide and programmed consequences were provided for this piece of equipment rather than the climber. In general, however, it appeared that peer mediated reinforcement did not have an effect on play behavior of other students or the students nominated to the position, and may suggest that this intervention was developmentally inappropriate for the students in the study. As these findings are in opposition with other studies that have reported behavioral benefits for peer mediators (e.g., Carden-Smith, & Fowler, 1984; Doughter et al., 1985; Greenwood, 1981; Stern et al., 1988), further research is warranted to understand the conditions under which such behavior changes might be reliably produced with this age group.

Several limitations with this current investigation exist. Due to the naturalistic nature of observation, disagreement on the presence of unsafe play behavior often occurred despite efforts to calibrate observers. It is possible that the collection of group data may have masked important changes in play behavior. Changes in the level of unsafe behavior across phases for the majority of students may have been veiled by continued risky play by a small number of students, or
alternatively, significant behavior changes may have occurred in students with high levels of unsafe play during the Baseline phase, but these changes were not accurately reflected in the data. Poor experimental control with respect to supervisor contingency management may have hindered effective changes in the students' behavior. That is, the lack of consequences governing the behavior of the adult supervisors may have resulted in poorer results than if the supervisor's behavior was controlled. Last, the uniqueness of the experimental setting, including the small play area and superior adult supervisor to student ratio, may deter effects of this investigation generalizing to other, larger playground settings with fewer adult supervisors.

Further questions for research are raised through this investigation. To begin, a functional assessment of children's use of play equipment may provide valuable information regarding contextual variables and natural reinforcement contingencies in operation that serve to maintain risk-taking behavior (such as the number of children on or near the piece of equipment when unsafe play occurs and the ways in which play on the equipment is reinforced), and interventions to promote safe play may then be created that capitalize on these variables. Also, it remains unknown if the intervention, and in particular the use of peer mediated consequences, would be effective in reducing unsafe conduct on the playground with older students, and its utility with different age samples should be examined. The lack of generalization of treatment effects and suppressed play on the tube slide suggests that designing safety promotion interventions that affect play on all pieces of play equipment is another
challenge that remains to be addressed. An investigation of the effects of various behavior sampling procedures, such as momentary time sampling, on the procedural integrity of the supervisor contingency management component may provide useful information to enhance the viability of the intervention for playground supervisors. Lastly, interventions targeting adult supervisors' monitoring behavior may also enhance procedural integrity of the contingency management component and thus serves as a fifth area to explore through empirical inquiry.
References


Appendix A. Human Subjects Institutional Review Board Approval Letter

WESTERN MICHIGAN UNIVERSITY

Date: July 19, 2004

To: Wayne Fuqua, Principal Investigator
Kimberly Seckinger, Student Investigator for thesis

From: Amy Naujok, Ph.D., Interim Chair

Re: HSIRB Project Number: 04-05-07

This letter will serve as confirmation that your research project entitled "It's All Fun and Games Until Someone Gets Hurt: An Evaluation of a Treatment Package to Decrease Risky Behaviors on School Playground Equipment" has been approved under the full category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals. Good luck!

Approval Termination: May 19, 2005
Appendix B. Social Validity Questionnaires

Student Social Validity Questionnaire, Education Phase

DO NOT PUT YOUR NAME ON THIS PAPER.

Circle your answer.

I liked watching the “Sammy the Raccoon” video and talking about how to play safe on the playground.

YES  NO

I play safer on the playground because of what I learned watching the “Sammy the Raccoon” video and talking about how to play safe on the playground.

YES  NO

I have fun playing on the playground.

YES  NO
Teacher Social Validity Questionnaire, Education Phase

Educational Program

DO NOT PUT YOUR NAME ON THIS PAPER.

I feel the educational curriculum was valuable.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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I feel this curriculum was effective in reducing students' risky behaviors on the playground.

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<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
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I feel this curriculum can be implemented again in the future.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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<tr>
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</tr>
</tbody>
</table>

Comments ____________________________________________________________
_________________________________________________________________
_________________________________________________________________
Student Social Validity Questionnaire, Package Intervention Phase

DO NOT PUT YOUR NAME ON THIS PAPER.

Circle your answer.

I like having playground leaders and getting stickers for playing safely.

YES  NO

I like earning extra recess time for playing safe.

YES  NO

I play safer on the playground because I get stickers from the playground leaders and extra recess time.

YES  NO

I have fun playing on the playground.

YES  NO

Peer Monitors Only

I liked being a peer monitor.

YES  NO
Teacher Social Validity Questionnaire, Package Intervention Phase

Playground Leaders

DO NOT PUT YOUR NAME ON THIS PAPER.

I feel that having playground leaders during the recesses was valuable.

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

I feel having playground leaders was effective in reducing students' risky behaviors on the playground.

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

I feel having playground leaders produced more positive social interactions on the playground.

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

I feel having playground leaders during recesses can be implemented again in the future.

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

Group Rewards

I feel the group rewards component of the intervention was valuable.

1 2 3 4 5
Strongly agree  Agree  Neutral  Disagree  Strongly disagree
I feel this component was effective in reducing students' risky behaviors on the playground.

1 2 3 4 5

Strongly agree Agree Neutral Disagree Strongly disagree

I feel my role in this component was reasonable (e.g., monitoring 5 extra minutes of recess).

1 2 3 4 5

Strongly agree Agree Neutral Disagree Strongly disagree

I feel this component can be implemented again in the future.

1 2 3 4 5

Strongly agree Agree Neutral Disagree Strongly disagree

**Overall Comments:**

Strengths of the safety program:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Weaknesses of the safety program:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Suggestions for changes in the program:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Appendix C. Education Materials

Playground Safety Lesson

Objectives: Students shall:
- identify examples and consequences of unsafe play behavior on playground equipment.
- identify alternative, appropriate play behaviors and consequences for safe play.
- develop three rules for playground safety.
- Demonstrate mastery of these concepts through a comprehension check.

Lead-in questions

- Has anyone ever been hurt on a playground? What happened? How were you hurt?
- Do you guys know how many times kids have to go to the hospital because they get hurt on the playground?
  Answer: Every 2 1/2 minutes a kid is taken to the hospital for getting hurt on the playground.
- What can you do to keep from getting hurt like that again?

"Because we want you to have fun and be safe when you play on the playground, we are going to talk about ways to you can do that."

Activity (first 10 minutes of the lesson)
Materials Needed: Video, "Sammy’s Playground Pointers"

"Today we will watch a movie about playground safety. Sammy is a raccoon who ends up in the nurse’s office after a very bad day on the playground. In many ways, Sammy learns there are things he can do so he’s less likely to get hurt. Watch carefully. When we’re done, I want you to share one thing you can do to help make the playground safer"

- Closure: Ask follow-up questions.
- What happened to Sammy?
- What are some other things that may happen for playing unsafely besides injuries?"
Examples: Getting in trouble.
Not being able to play on the play equipment anymore.

- What could Sammy have done differently to avoid getting hurt?

Activity (10 minutes)
Materials Needed: Handout

Review with the children how to play safely on playground equipment.

- Walk around playground toys and not in front of them.
- Slide feet first, sitting up, and one person at a time.
- Be sure know one if in front of the slide before sliding down.
- Be patient and wait your turn.
- Leave the bottom of the slide after your turn.
- Climb using both hands.
- Be careful climbing down (use 2 hands), and watch out for other kids climbing up.
- Avoid having too many kids on the same toy at the same time.
- Start at the same end of the toy and move in the same direction.

Ask the students to brainstorm potential consequences for playing safely.

Examples: Not getting hurt.
Not having to go to the doctor, or stay inside if hurt.
Being able to play with friends, on the toys.

- Closure: Note that playing safely (specify some of the behaviors) results in positive consequences (specify some of the consequences the children identified). Also note that playing unsafely, like Sammy, can result in negative consequences.

Lead-in questions

- Does anyone know who your supervisor on the playground is? What is her job? Who can be a supervisor?

- Why is it important that supervisors watch you play on the playground?
  
  Answer: Adults realize that you are supposed to run, jump, shout, laugh and explore the playground. But sometimes, other things happen on a playground that needs an adult to help.

"One of the ways that adult supervisors help kids stay safe on playgrounds is by having rules and enforcing those rules."
Activity (5 minutes)
Materials Needed: Poster with class playground rules

Talk about the specific playground rules.

- Do not climbing up the slide
- I person slides at a time
- Slide on your pockets (bottoms) with your feet first, and wait until the person leaves the bottom of the slide before sliding

- Closure: Discuss the purpose of having playground rules (to ensure the students' safety). Discuss the supervisor's role in preventing playground injuries (to foresee possible dangerous situations and to enforce the rules).

Comprehension Check (5-10 minutes)
Have the students complete a brief quiz on the material presented in the lesson. (Done orally)

K-1: Yes/No cards

"Now I'm going to ask you some questions about what we just talked about, and you tell me if it is right or wrong. If the answer is yes, show me the red side of the card. If the answer if no, show me the blue side of the card."

- It's safe to slide down the slide with your friend.
  Answer: NO – always slide down by yourself, feet first, after the other person has left the bottom of the slide

- It's safe to walk around the playground toys.
  Answer: YES – never walk in front or underneath the playground toys, walk around.

- It's not safe to walk up the slide.
  Answer: YES – you should always use the ladder or stairs to get to the top of the slide instead of climbing up the sliding surface.

- It's safe to have 5 children on the rock wall at the same time.
  Answer: NO – there should not be more than 2 kids on the rock wall, or other toys, at the same time.

- When you are playing on the playground, do you have to follow the rules?
  Answer: YES – there are rules to keep your safe on the playground.

Provide feedback to the students on correct and incorrect answers. Explain to the students why an answer was incorrect.
"Now let's practice what we've learned about how to play safely on the playground and how to follow the rules"

**Additional Activity (if time permits)**

**K-1:** Have the students draw a picture of themselves playing safely on the playground. (or have them color the Play-Safe handout).

Curriculum adapted from the National Program for Playground Safety.
### Examples of Safe and Unsafe Usage of Playground Equipment (Teacher Job Aid)

<table>
<thead>
<tr>
<th>Type of Equipment</th>
<th>Correct Usage</th>
<th>Incorrect Usage</th>
</tr>
</thead>
</table>
| **Slide**         | - Holding onto railings with both hands while climbing stairs.  
|                   | - Staying at least one arm’s length between other children.  
|                   | - Sliding feet first.  
|                   | - Sliding sitting up.  
|                   | - Sliding one at a time.  
|                   | - Sliding after other child(ren) has moved from the front of the slide.  
|                   | - Pushing, shoving, or otherwise aggressing against another child while on the stairs or slide.  
|                   | - Using both hands and an appropriate grip.  
|                   | - Starting in the same end of apparatus.  
|                   | - Moving in the same direction.  
|                   | - Waiting one’s turn to climb up or down vertical or horizontal ladders.  
|                   | - Looking out for others on ladders and/or apparatus.  
|                   | - Maintaining an appropriate number of children using the equipment at once (i.e., not crowding the apparatus).  
|                   | - Keeping an appropriate distance between the child in front (e.g., at least 3 feet).  
|                   | - Dropping from the bars with knees slightly bent.  
|                   | - Landing on both feet.  
|                   | - Using only one hand or an inappropriate grip.  
|                   | - Starting at different ends of the apparatus.  
|                   | - Moving in opposing directions.  
|                   | - Climbing up or down vertical or horizontal ladders out of turn.  
|                   | - Using the apparatus without looking for others.  
|                   | - Having too many children on the equipment at once.  
|                   | - Racing across the apparatus.  
|                   | - Trying to cover too large of a distance in one move.  
|                   | - Being closer than 3 feet from the child in front.  
|                   | - Swinging one’s legs excessively.  
|                   | - Hitting, kicking, or otherwise aggressing against another child while on the ladders or apparatus.  
|                   | - Using the apparatus when it is wet.  
|                   | - Dropping from the bars in a manner other than bent knees and landing on both feet.  

1) Walk around playground toys.

2) Slide feet first, sitting up, one person at a time.

3) Be sure no one is in front of the slide before you slide.

4) Be patient. Wait your turn.

5) Leave the bottom of the slide after your turn.

6) Climb using both hands.

7) Be careful climbing down. Watch for other kids climbing up.

8) Don’t have too many kids on the same toy at the same time.

9) Start at the same end of the toy and move in the same direction.
Play Safe

And Have Fun!
Appendix D. Peer Leader Training Materials

Playground Leader Training

Objectives: Playground leaders shall:

- identify examples of safe and unsafe play behavior on covered slide.
- identify these behaviors in one’s peers.
- identify ways to provide positive feedback to peers (i.e., verbal praise and stickers).
- identify ways in which they can be a positive role model during recess time.
- identify steps to take if a peer is pressuring or teasing them.
- demonstrate mastery of these principles through role plays.
- complete comprehension check.

Materials

- Stickers
- Yes/No response cards

"Today we’re going to talk about being a playground leader and how you can encourage your classmates to play safely on the toys. I am going to ask you to help out during one recess period a week by giving a sticker to your classmates when you see him or her playing safely on the slide. You will give out stickers during 1 minute of the recess period, and the rest of the time you will play. I will give you stickers that you can give out during the recess period before recess starts, and I’ll take them back when you are done watching the slide. You will just this one time a week, and each of you will have a day where you will give out the stickers. When you aren’t giving out stickers, you can be a good playground leader by playing safely yourself.

Safe and Unsafe Behavior on Covered Slide

"To be a good playground leader, you have to know the safe and unsafe ways to play on the playground toys. We’re going to talk about how you can play safely on and around the covered slide.

- These are examples of things that you and your friends and classmates should not do when you are playing on the covered slide because you could get hurt:
  - Sliding down the slide head first or backwards
  - Sliding before the person at the bottom has left
  - Sliding down at the same time as your friend
  - Climbing up the slide
Standing in front of the slide

“If you see one of your classmates doing one of these things, you would not give that person a sticker. Instead you want to give your classmates stickers when they do things like:

- Sliding down the slide facing forward and on their pockets
- Waiting their turn and only sliding when the person at the bottom has left
- Sliding one person at a time
- Walking around the slide and not in front of it

“You can tell your classmate, “Good job”, and give him or her a sticker if you see him or her doing any of these things.

**Role Play**

“Now let’s practice this. I’m going to give each of you a sticker and you are going to pretend that you are the playground leader for the day. I’m going to pretend that I am one of your classmates, and I’m going to be playing on our pretend slide. Your job is to decide if what I am doing is safe or unsafe. If it’s safe, then give me a sticker. If it’s not safe, then don’t give me a sticker.”

Role play 1: Pretend to slide down head first.

Role play 2: Pretend to slide down feet first.

Role play 3: Pretend to walk around the slide.

Role play 4 (if have assistant): Pretend to slide down with my friend.

Role play 5 (if have assistant): Pretend to wait for that person to leave the bottom of the slide, and then I slide.

“That’s great. Now let’s talk about what you can do to be a good leader when you are not giving out stickers.”

**Being a Positive Role Model**

“One of the first things you can do is to be a positive play model during recess, and what I mean by that is playing safely on the toys and following the rules yourself. This way your friends will see what you’re doing, and want to do it too. Let’s practice now.”
Should you slide down the slide head first? NO
   How should you slide?

Should you slide down the slide with your friend at the same time? NO
   Tell me what you should do instead.

Should you run up the slide to get to the top? NO
   Tell me what you should do instead.

Should you run or stand right in front of the slide? NO
   Where should you stand instead?

“Another thing good playground leaders should do is to always be nice to their classmates. That means that taking turns, sharing with your classmates, and saying nice things rather than mean things or things that could hurt their feelings. You have a special job as a playground leader that other kids in your class don’t have, and they may feel bad that they are not playground leaders. They may want to have wear a wrist band or give out stickers during recess too. We don’t want to make other kids feel bad, so to be a good playground leader, you shouldn’t show off. You can make new friends when you play nicely with others.”

Peer pressure or teasing

“It’s possible that some of the other kids may want to get a sticker from you, and they may try to get you to give them one even though they are not playing on the slide or playing safely. If this happens, you can use brave talk. Using brave talk means having a nice face (so not looking mean) and saying a little louder than a friendly voice, “I will give you a sticker when you play safely on the slide.” It’s also possible that some of the other kids may tease you or say some things that are not nice. Making fun of people isn’t nice because it can hurt the other person’s feelings. You should never make fun of anyone. If someone makes fun of you, you can use your brave talk again and say, “I don’t like how you are talking to me. It’s not cool”, or you can walk away from the person.

“So let’s review that.”

Tell me a way that you can play safely on the toys so that the other kids will practice that too.

Tell me a way that you can be a nice friend when you are playing on the playground.

If one of your classmates says a mean thing to you, tell me one thing you can do.
**Comprehension check** (done orally, with Yes/No response cards)

Is it safe to run up the slide?  
NO

If you see two kids sliding down the slide at the same time, should you give them stickers?  
NO

If you see a kid sliding down the slide on her bottom and facing forward, should you give her a sticker?  
YES

If you see a kid standing right front of the slide, is he being safe?  
NO

If you see a kid sliding down the slide head first, should you give her a sticker?  
NO

Should you stand to the side of the slide and not in front of the slide?  
YES

Is it safe to wait your turn on the slide?  
YES

Should playground leaders play safely on the toys?  
YES

Should you say mean things to other kids?  
NO

Should you walk away if someone is saying something mean to you?  
YES
Appendix E. Contingency Management Phases Criteria for Reinforcement

<table>
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<th>Duration Recess Time (in minutes)</th>
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Appendix F. Supervisor Contingency Management Protocol

Playground Safety Intervention
For Playground Supervisors

Playground Rules:
- Do not climbing up the slide
- One person slides at a time
- Slide on your pockets (bottoms) with your feet first, and wait until the person leaves the bottom of the slide before sliding

1. Provide the following rule before the start of the recess period (for example, in the classroom, on the playground with the children sitting and listening to the rule):

   "You can earn a reward for playing safely on the playground. During recess, our playground leader for the day will be handing out stickers to students playing safely on the slide. I will also be watching to make sure everyone is following our playground rules. (You may review rules if needed). There are ___ stars posted on the wall. If I see someone break one of the rules, I will take away a star. If there are any stars left on the wall at the end of the recess period, then you will have 5 extra minutes of play time. But if there are no stars left when recess ends, you will not get extra play time, and we will go back to the classroom."

This rule should be repeated to the children each time they go to the playground during the lunchtime recess periods (12:45 or 1:05). After it has been announced for a few days, it may be presented in a shortened version, such as "During recess, I expect you to follow the playground rules and play safely. If there are stars left on the wall at the end of the recess period, then you will get extra recess time."

2. Use this golf counter to keep track of the number of times you see a student(s) disobeying these playground rules:
   a. Do not climbing up the slide
   b. One person slides at a time
   c. Slide on your pockets (bottoms) with your feet first, and wait until the person leaves the bottom of the slide before sliding

   When you see a rule infraction, take a star off the wall.

3. PLEASE CONTINUE TO SUPERVISE AS YOU NORMALLY WOULD (e.g., verbal warnings, time-outs, etc.).

4. At the end of the regularly scheduled recess period, interrupt the children's play.
   - If there are no stars remaining on the wall, terminate recess as you normally would (e.g., having the children line up, etc.).
   - If there are stars remaining on the wall, praise the children for playing safely and following the rules and tell them that they have earned 5 extra minutes of recess time. Terminate the recess time after the 5 extra minutes have elapsed.

5. At the end of the regularly scheduled recess period, a research assistant shall retrieve the golf counter from you. Please do not erase the count on the golf counter.

Thank you for all your assistance with this project!
Appendix G. Research Assistant Training Manual

“It’s All Fun and Games Until Someone Gets Hurt: An Evaluation of a Treatment Package to Decrease Risky Behaviors on School Playground Equipment”

Research Assistant

Training Manual
Contents

1. Project Overview

2. Data Collection Protocol

3. Data Sheets

4. School Rules, Regulations

5. Safety Protocol

6. Ethical Issues

7. Response to Questions

8. Directions to School, Contact Information
Project Overview

Recruitment of Test Site
- Email school to propose collaboration on this project.
- Submit proposal to school.
- Meet with administration of test site to discuss protocol.
- Send letters to caregivers describing the nature of the study and the role of their child(ren) in the project.
- Hold an informational meeting for caregivers to discuss the project and address questions and concerns.

Training of Research Assistants
- Recruit 5-6 undergraduate psychology students to serve as research assistants.
- Conduct training for research assistants.
- Introduce student investigator and undergraduate research assistants to children in the participating classrooms. Explain the nature of the study and what the research assistants will be doing during recess periods.
- Conduct on-site observations 2 weeks prior to the beginning of the study to:
  1) allow research assistants the opportunity to collect data in the naturalistic setting,
  2) train researcher assistants to collect data to a mastery criteria of 90% agreement or higher between two independent observers for 2 consecutive observation periods,
  3) make any necessary adjustments to operational definitions and the data collection system,
  4) allow the children on the playground to acclimate to the presence of the observers.

Peer Monitor Selection
- Recruit potential peer monitors in participating classrooms.
- Send a letter to caregivers of potential peer monitors explaining their child’s role in the study. Ask parents to respond if they are willing to allow their child to serve as a peer monitor, and if their child is interested in this role.
- Upon receiving the letter back expressing interest, the researcher shall contact the parents to complete the informed consent procedure and the child to complete the assent procedure.
Baseline Phase
- Collect observational data on risk-taking behaviors of children on designated pieces of equipment (swings, slides, climbers, and seesaws).

Education Phase
- Administer IBC with parents of peer monitors prior to the implementation of the education curriculum (pre-education).
- Complete the playground safety curriculum with child participants.
- Collect observational data on risk-taking behaviors of child participants on designated pieces of equipment.
- Administer treatment acceptability questionnaires to child participants, adult playground supervisors, and administration.

Package Intervention Phase
- Administer IBC with parents of peer monitors prior to the implementation of the package intervention (post-education).
- Train peer monitors to provide feedback for peers’ safe play.
- Explain group rewards system to children in the participating classrooms and adult playground supervisors.
- Implement package intervention during recess periods.
- Collect observational data on risk-taking behaviors of child participants on designated pieces of equipment.
- Administer IBC with parents of peer monitors following the implementation of the behavioral intervention (post-package).
- Administer treatment acceptability questionnaires to child participants, adult playground supervisors, and administration.

Follow-up Phase
- Administer IBC with parents of peer monitors one month following the package intervention (follow-up).
- Collect observational data on risk-taking behaviors of child participants on designated pieces of equipment.
## Tentative Timeline

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>HSIRB and KAA approval</td>
</tr>
<tr>
<td>August 31</td>
<td>Letters sent home</td>
</tr>
<tr>
<td>Week 1 and 2*</td>
<td>Introduce student investigator and WMU students to children</td>
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<td></td>
<td>Caregiver informational meeting</td>
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<tr>
<td></td>
<td>Data collection training for WMU students</td>
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<tr>
<td></td>
<td>Teacher nomination of playground monitors, identification of children with history of injury reports</td>
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<tr>
<td></td>
<td>Letters sent home to caregivers of potential playground monitors</td>
</tr>
<tr>
<td>Week 3*</td>
<td>Informational meeting for caregivers and potential peer monitors</td>
</tr>
<tr>
<td></td>
<td>Complete informed consent and assent for playground monitors</td>
</tr>
<tr>
<td>Week 4*</td>
<td>Begin baseline data collection across recess periods</td>
</tr>
<tr>
<td>Week 5*</td>
<td>Phase 1: conduct education with Recess Group #1</td>
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<tr>
<td></td>
<td>Conduct training with monitors in Recess Group #1</td>
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<tr>
<td>Week 6*</td>
<td>Phase 2: begin package intervention for Recess Group #1</td>
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<tr>
<td></td>
<td>Phase 1: conduct education with Recess Group #2</td>
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<tr>
<td></td>
<td>Conduct training with monitors in Recess Group #2</td>
</tr>
<tr>
<td>Week 7*</td>
<td>Phase 2: begin package intervention for Recess Group #2</td>
</tr>
<tr>
<td></td>
<td>Phase 1: conduct education with Recess Group #3 (optional)</td>
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<tr>
<td></td>
<td>Conduct training with monitors in Recess Group #3 (optional)</td>
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<tr>
<td>Week 8*</td>
<td>Phase 2: begin package intervention for Recess Group #3</td>
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<tr>
<td></td>
<td>(optional)</td>
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<tr>
<td></td>
<td>Intervention complete</td>
</tr>
<tr>
<td>Week 13*</td>
<td>Collect follow-up data (one month following intervention completion)</td>
</tr>
</tbody>
</table>

* Phase changes shall depend upon process of Recess Groups through the intervention components. This timeline is tentative.
Data Collection Protocol

**Direct Observation, Slide**

**Materials:** Direct Observation, Slide data sheet, clipboard, prompter, pen

1. Collect materials from the office prior to the start of the recess period.
2. Record name, date, and recess period. Circle “Primary” or “Reli”, and experimental phase.
3. At the 60 second prompt “Observe”,
   - Place a tally mark for children playing on the play equipment.
     **Operational definition:** Physically touching the play equipment, or within 5 feet of the play equipment.
   - If a child is a peer monitor, record the M instead of a tally mark.
   - Place a tally mark for each occurrence of unsafe play behavior.
     **Operational definitions:**
     - Holding onto surfaces other than the railings when climbing stairs (e.g., stair steps); holding onto the railings or other surfaces with one hand when climbing stairs; climbing up the sliding surface; climbing the stairs or up the sliding surface within one arm’s length of another child; hanging on the underside of the slide and/or climbing up the slide from the underside; sliding down in manner other than upright and feet first (e.g., head first, lying back, kneeling); running down the slide; two or more children sliding at the same time; sliding before other child(ren) have cleared the front of the slide; hitting, kicking, pushing, shoving or otherwise aggressing against another child while on the stairs or slide (either the aggressor or the target)
   - If a child is a peer monitor, record M instead of a tally mark.
   - Place a tally mark (or M if peer monitor) if injury occurred.
     **Operational definitions:** Scrape or broken skin (e.g., cuts), bruise, muscle strain, sprain, bone fracture, head injury, internal trauma.
     **Injuries must be sustained from the play equipment or from a child on the play equipment (within 5 feet of the play equipment)**
   - If an injury does not occur, leave this column blank for the interval

**Package Intervention Phase Only**

4. Place a star next to the interval numbers in which the peer monitor is monitoring the piece of equipment.
5. Keep a tally mark of each time the peer monitor provides verbal praise and/or a sticker to a child.
   - If verbal praise and/or a sticker are not provided, leave this column blank for the interval.
An example of how data collection would look:

<table>
<thead>
<tr>
<th>Interval</th>
<th># Children Beginning of Interval</th>
<th># Unsafe Bx</th>
<th>Sticker, Praise (Pkg. Intv. Only)</th>
<th>Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M M M M M M M M M</td>
<td>M M M M</td>
<td></td>
<td>M</td>
</tr>
<tr>
<td>2 *</td>
<td>M M M M M M M M</td>
<td>M M M M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Direct Observation, Swings, Climber, and See-Saw**

**Materials:** Direct Observation, Swings, Climber, and See-Saw data sheet, clipboard, prompter, pen

1. Collect materials from the office prior to the start of the recess period.
2. Record name, date, and recess period. Circle “Primary” or “Reli”, piece of equipment monitoring, and experimental phase.
3. At 15 second prompt “Count”,
   - Place a tally mark for children playing on the play equipment.
   - **Operational definition:** Physically touching the play equipment, or within 5 feet of the play equipment.
   - If a child is a peer monitor, record the M instead of a tally mark.
4. At the 60 second prompt “Observe”,
   - Place a tally mark for each occurrence of unsafe play behavior.
   - **Operational definitions:**
     - **Swings:** Kneeling or standing while swinging (i.e., not on one’s bottom); holding onto parts of the swing other than the support chains when swinging; swinging without holding onto anything; swinging with more than one child per swing; walking closer than 5 feet around swings when a child is swinging; getting off the swing before it stops (e.g., jumping off); pushing another child on the swing; pushing empty swings; twisting swing chairs while on the swing; hitting, kicking, pushing, shoving or otherwise aggressing against another child while on the swing (either the aggressor or the target)
     - **Climber:** Using one hand or an inappropriate grip when crossing horizontal bars; two or more children starting at different ends of the apparatus and moving in opposing directions; climbing up or down vertical ladders out of turn; crossing horizontal bars out of turn; having more than 3 children on the horizontal bars or more than 1 child on the vertical bars at one time; racing across the horizontal bars; trying to cover too large of a distance in one move (greater than 2 rungs); being closer than 3 feet from the child in front; swinging one’s legs excessively; using the apparatus when it is wet; hitting, kicking, pushing, shoving or otherwise aggressing against another child while on the ladders of apparatus (either the aggressor or the target)
**See-saw:** Using the see-saw when not on one’s bottom (e.g., kneeling, standing); sitting backwards of the see-saw; holding the bar with only one hand or not holding the bar at all; more than one child on each end at the same time; walking or running across the board; having other children push one side of the board while another child is on the opposite end; getting off the see-saw before the board is balanced; hitting, kicking, pushing, shoving or otherwise aggressing against another child while on the see-saw (either the aggressor or the target)

- If a child is a peer monitor, record M instead of a tally mark.
- Place a tally mark (or M if peer monitor) if injury occurred.
- **Operational definitions:** Fall, scrape or broken skin, broken, strained, or sprained body part (e.g., arm, wrist, ankle), contusion (e.g., bump on head), bruise. **Injuries must be sustained from the play equipment or from a child on the play equipment (within 5 feet of the play equipment)**
- If an injury does not occur, leave this column blank for the interval

**Package Intervention Phase Only**

5. Place a star next to the interval numbers in which the peer monitor is monitoring the piece of equipment.
6. Keep a tally mark of each time the peer monitor provides verbal praise and/or a sticker to a child.
   - If verbal praise and/or a sticker are not provided, leave this column blank for the interval.

An example of how data collection would look:

<table>
<thead>
<tr>
<th>Interval</th>
<th># Children Beginning of Interval</th>
<th># Unsafe Bx</th>
<th>Sticker, Praise (Pkg. Interv. Only)</th>
<th>Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 1 1 M M 1 M M 1 1 1 1</td>
<td>1 1 1 M M M 1 1</td>
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<td>M</td>
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<td>2 *</td>
<td>1 1 M M M 1 1 1 1 1</td>
<td>1 1 1 1 1 M</td>
<td>1 1 1 1</td>
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</tbody>
</table>

**Playground Supervisor’s Observations**

**Materials:** Playground Supervisor’s Observations data sheet, clipboard, golf counter, pen

1. Collect materials from the office prior to the start of the recess period.
2. Record date and recess period. Circle experimental phase.
3. Provide supervisor with golf counter at start of recess period and ask her/him to track the number of risky behaviors they observe on targeted pieces of equipment using the golf counter.
4. At the end of the recess period, collect the golf counter from the playground supervisor and thank her/him for her/his participation. Record the playground supervisor’s count.

*Package Intervention Phase Only*

5. At the start of recess period, record the target level to earn reinforcement.
6. Inform the supervisor of this target when providing her/him with the golf counter. Review the contingencies with her/him if necessary.
7. At the end of the recess period, circle “Y” if reinforcement was earned and “N” if reinforcement was not earned; circle “Y” if reinforcement was provided and “N” if reinforcement was not provided.
## Playground Supervisor's Observations

<table>
<thead>
<tr>
<th>Date</th>
<th>Recess Period</th>
<th>Phase</th>
<th>Supervisor's Count</th>
<th>Package Inv. Phase Only</th>
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</thead>
<tbody>
<tr>
<td>BL</td>
<td>ED</td>
<td>Pkg.</td>
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<td>Intv.</td>
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School Code of Civility

As a student at the Kalamazoo Advantage Academy, I pledge:
• to be responsible
• to persevere
• to respect myself and others
• to be kind
• to tell and seek the truth
• to be a good citizen
• to show courage
• to exercise self-discipline
• to be fair
• to value true friends
• to accept and learn from the consequences of inappropriate behavior

Examples of school rules:
• Always respect self and others
• Follow directions the first time given
• No running in the hallways
• No weapons on school property
• No smoking on school property
• Acts of arson, property defacement, and criminal sexual conduct are prohibited
• Physical assault towards students, employee or volunteer are strictly prohibited
• Compliance with school dress code
-These items are NOT allowed at KAA:
• T-shirts
• Oversize pants
• Any clothing item that is not the right color
• Shoes in colors other than black or brown
• Belts in colors other than black or brown
• Sweatshirts
• Sandals, flip flops, high heels or 3” pumps
• Shirts or sweaters with any designs, decorations or logos
• Hoop earrings for young men
• Large pieces of hanging jewelry such as chains or medallions
• Fingernail polish
• Short shorts/skirts (no more than 2 inches above the knee)
**Please remember that we are guests at KAA and therefore it is ESSENTIAL that we comply with school rules and regulations. Also, remember that we are representatives of Western and the Department. Please conduct yourself in an appropriate manner.

- Professional causal dress
- Sign in at office and obtain a visitor badge before entering the school.
- Arrive 10-15 minutes early.
- Absolutely NO smoking, drinking, or any other illegal substance use on school campus!
Safety Protocol for WMU/KAA Playground Research Project

**Purposes:** To define the role of WMU students during KAA recess periods; to describe situations that may occur on the playground in which WMU students must intervene; and, to delineate steps that WMU students must take when providing intervention during recess periods.

1. **Supervision during recess periods.**
   - KAA staff shall oversee and manage the playground according to school procedures as normal.
   - The role of WMU students shall serve only as observers. WMU students shall not provide extra supervision on the playground during the recess period. WMU students shall defer all supervisory duties to trained KAA staff members. **WMU students should never be left alone on the playground with students.**
   - WMU students shall position themselves in a location on the playground that will be of minimal interference for the supervisors to perform their duties and minimal obtrusion for the students’ play. Examples of where WMU students should stand are in a corner (10-12 feet) away from the toy area, or off to the side (3-4 feet) from the playground supervisors.

2. **Instances in which a WMU student must intervene.**
   - It may be necessary for a WMU student to intercede when s/he witnesses something occurring on the playground. A WMU student must actively intervene when:
     - S/he sees that a child is in imminent danger. Imminent danger refers to times in which a child is clearly in a harmful situation and it is almost certain that the child will be injured without intervention. Examples of situations that may occur include: a child is hanging upside down from horizontal bars and is holding on with only one leg; a child is pulling another child’s feet or legs as that child is climbing up the rock wall; two or more children are shoving each other while on the play equipment in a location where a child can fall more than 4 feet to the ground (e.g., off the slide, off a raised platform).
     - The playground supervisor is not already intervening on the situation (e.g., the supervisor is on the other side of the playground, the playground supervisor does not see what is happening). **A WMU student should not intervene if a KAA playground supervisor is already acting upon the situation. In this situation, the WMU student should defer the task to the trained KAA staff member.**

3. **Steps WMU students must take when intervening.**
   1. Provide an immediate verbal statement (e.g., “Put both your legs on the bar, Pull yourself up, don’t hang upside down”, “Don’t grab her/him”, “Don’t push her/him”).
   2. Alert the playground supervisor to the situation, and allow her/him to handle to situation henceforth.
3. In an injury does occur, assist the playground supervisor by going to the office or the nurse's station to notify them of the incident and obtain help. **WMU students should never be left alone to care for an injured child or to supervise the other children while a KAA staff member leaves to seek help.**
Ethical Issues

Minimizing Intrusions on Privacy

- Only include information that’s relevant in written and oral communications, discuss confidential information only with those concerned
- “Minimum Necessary” to get job done
- What this means for you:
  - Do not inquire about a child’s personal information (e.g., name, class, family life, etc.). A child may volunteer this information to you, but you may not request it.
  - Do not include any identifying information (e.g., child’s name) on data sheets or other documents or discuss this information with others who are not concerned.

Respecting Participant Rights

- Psychologists respect the dignity and worth of all people, and the rights of individuals to privacy, confidentiality, and self-determination
- What this means for you:
  - Do NOT discuss participants in their presence, even if you think they can’t hear or understand you.
  - Do not imitate or tease participants.
  - Do not disclose participants’ personal information to other people not directly involved in the project (i.e., family, friends) or in a public setting.

Maintaining Confidentiality

- Psychologists have a primary obligation and take reasonable precautions to protect confidential information obtained through or stored in any medium
- What this means for you:
  - Return all data sheets to folder in office when finished observing.
  - Do not include any identifying information (e.g., child’s name) on data sheets or other documents.

Informed Consent to Research

- Psychologists inform participants about:
  1. The purpose of the research, expected duration and procedures
  2. Their right to decline to participate and to withdraw from research
  3. The foreseeable consequences of declining or withdrawing
  4. Reasonably foreseeable factors that may influence willingness to participate (e.g. risks, discomfort, side effects)
  5. Any prospective benefits
  6. Limits of confidentiality
  7. Incentives for participation
  8. Contact person for questions about research and participants’ rights
• **What this means for you:**
  - If a peer monitor comes to you and tells you s/he doesn’t want to participate as a monitor anymore, tell her/him that’s okay, and they do not have to.
  - Do NOT pressure a child to participate if s/he does not want to.
Response to Questions

• **Who are you?**

  My name is ____ (first name)__. I am a student at Western Michigan University.

• **What are you doing here/ What are you doing?**

  I am here to learn about how kids play during recess. I am watching you and your classmates playing during recess and writing down what I see on this paper. I'm not watching any kids in general, like you or your friends. I'm watching all the kids play.

• **Why is ____________ wearing a wrist band?**

  S/he is helping us during recess. S/he is a playground peer monitor.

• **What is a peer monitor?**

  A peer monitor is a student who helps other kids play safely during recess. They are taught how to give praise and be a good role model.

• **Can I be a peer monitor/ can I wear a wrist band?**

  Not this time. But you can help your friends to play safely during recess by playing appropriately yourself.
Directions to School, Contact Information

Kalamazoo Advantage Academy
300 South Kalamazoo Mall
Kalamazoo, MI 49007

Start out going East on W. MICHIGAN AVE toward WESTERN AVE. 0.6 miles
Turn SLIGHT LEFT onto STADIUM DR/I-94 BR E/US 131 BR N. 0.6 miles
Continue to follow I-94 BR E/US-131 BR N.
Turn LEFT onto N PARK ST/US-131 BR N. <0.1 miles
Turn RIGHT onto W. WATER ST. 0.4 miles
Turn SHARP LEFT onto MI-43 W/I-94 BR W/E KALAMAZOO AVE. <0.1 miles
End at E. KALAMAZOO AVE KALAMAZOO MI

ESTIMATED TIME: 7 minutes TOTAL DISTANCE: 1.92 miles

Contact Information:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>Cell</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalamazoo Advantage Academy</td>
<td>345.7850</td>
<td></td>
<td><a href="mailto:kim.seckinger@wmich.edu">kim.seckinger@wmich.edu</a></td>
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<tr>
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<td><a href="mailto:r.wayne.fuqua@wmich.edu">r.wayne.fuqua@wmich.edu</a></td>
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Appendix H. Direct Observation Materials

Direct Observation Protocol

Materials: Golf counter
Playground Supervisor Data sheet (A)
Extra wrist bands
Data sheet (B)
Clipboard
Operational definitions
Tape recorder
Pen
IOA data sheets

Before the start of the recess period:
1. Collect materials from the office.
2. Record name, date, session number, and teacher’s name. Circle if IOA data were collected, if you were the “Primary” or “Reli” observer, and experimental phase.
3. Go to the playground.

At the start of the recess period:
1. One data collector should give the playground supervisor a golf counter.
2. Ask the supervisor to keep track of the number of times they witness a rule infraction from the following list:
   o Do not climbing up the slide
   o One person slides at a time
   o Slide on your pockets (bottoms) with your feet first, and wait until the person leaves the bottom of the slide before sliding
3. Remind the playground supervisor to continue to monitor the playground as she normally would. Also remind her not to erase the number on the golf counter.
4. Ask the playground supervisor if the playground leaders are wearing their wrist bands. If one is not, ask the playground supervisor to point out the child for you.
5. Ask the child is s/he can wear this wrist band for you (one of the extra wrist bands)
6. At the end of the recess period, collect the golf counter from the supervisor, and thank her for her help.
7. Collect the extra wrist band(s) from the playground leaders.
8. Record the following information on the Playground Supervisor’s Observation Data Sheet (A):
   o Date
   o Teacher
   o Phase
   o Supervisor’s count (the number on the golf counter)

If the class is in the Package Intervention Phase, also record the following information:
   o Target # of unsafe behaviors to earn reinforcement
   o If reinforcement was earned: Y or N
   o If reinforcement was delivered: Y or N
During the Observation period:

1. **Record the time you began observing.** (Try to begin the observation period ASAP).
2. Start the tape
3. At the “Observe” prompt, begin observing **when you hear the beep.** (10-s interval)
4. Stop observing and record data **when you hear the second beep** (followed by the prompt, “Record”). (5-s interval)

For data collectors observing all children (during all phases) and peer leaders (during BL and Ed. Phases)

5. For the first 10-s interval, **count** the number of children **on the arch climber/secondary slide.**
6. Record during the 5-s interval.
7. For the next six intervals, observe the number of unsafe behaviors **on the arch climber/secondary slide** during the interval.
8. Record during the 5-s intervals. Score:
   - + = at least one child is “on equipment” (physically touching or w/in 3 feet of equipment) and observe at least 1 unsafe behavior
   - 0 = at least one child is “on equipment” and observe no unsafe behavior
   - N = no children playing on equipment during interval
9. For the eighth 10-s interval, **count** the number of children **on the tube slide.**
10. Record during the 5-s interval.
11. For the remaining 10-s intervals, observe the number of unsafe behaviors **on the tube slide** during the interval, and record during the 5-s intervals.
12. Additional counting intervals will occur after intervals 30, 60 and 90.
13. **Record the time recess ended.**
14. Fill in the “Combined inappropriates” column for each interval. Score:
   - + = at least one of the cells for that interval was scored with a +.
   - 0 = all of the cells for that interval were scored as 0.
   - N = cells for that interval were scored as N.

For data collectors observing peer leaders during Pkg. Intv. Phase

15. For the first 10-s interval, **count** the number of other peer leaders (not the PM of the day) **on the tube slide.**
16. Record during the 5-s interval.
17. For the next six intervals, observe the number of unsafe behaviors of the other peer leaders **on the tube slide** during the interval.
18. Record during the 5-s intervals. Score:
   - + = at least one peer monitor is “on equipment” and observe at least 1 unsafe behavior of the peer monitor
   - 0 = at least one peer monitor is “on equipment” and observe no unsafe behavior
   - N = no peer monitors playing on equipment during interval
19. For the seventh through twelfth intervals, observe correct delivery of reinforcement and incorrect delivery of reinforcement.
20. Record during the 5-s interval.
   o + = observe at least 1 correct/incorrect delivery of reinforcement
     (depending on column)
   o 0 = observe no correct/incorrect delivery of reinforcement (depending
     on column)
   o N = no opportunity to deliver reinforcement

21. For the remaining 10-s intervals, observe the number of unsafe behaviors
    of the peer monitor of the day on the tube slide during the interval, and record during the 5-s
    intervals.

22. **Record the time recess ended.**

23. Fill in the "Combined inappropriates" column for each interval. Score:
   o + = at least one of the cells for that interval was scored with a +.
   o 0 = all of the cells for that interval were scored as 0.
   o N = all of the cells for that interval were scored as N.

---

**At the end of recess:**

1. Record the following information on the session log:
   o Date
   o Session #
   o Teacher
   o Phase

2. Complete the IOA data sheet if applicable.
   o Write "A" for agreements
   o Write "D" for disagreements

3. Calculate IOA for each column (#As/Total intervals).

---

**Operational Definitions**

Child is counted as "on the equipment" if she are physically touching the piece of
equipment or within 3 feet of the play equipment (i.e., 3 feet within the front of the slide; 3
feet around the circumference of the arch climber)

**Tube slide / Secondary Slide**

- **Inappropriate sliding:** sliding in a manner other than feet first and facing forward (e.g.,
  head first, backwards); more than one child sliding down the slide at the same time or within
  3 seconds of the first slider; a slider sitting at the bottom of the slide for more than 3 seconds
  after sliding

- **Inappropriate climbing:** ascending the chute; climbing on the outside of the tube (tube
  slide only)

**Arch climber**

- **Inappropriate Use:** flipping or hanging upside down; swinging from the outside support of
  the structure; swinging from poles at the top of the structure (feet off the platform); more
than one child hanging or swinging from the underneath at one time; leaning backwards off the structure while hanging on with one hand

**Inappropriate Climbing:** 3 or more children climbing up or down the structure at the same time; climbing up or down the structure in a manner other than 2 hands and 2 feet on the structure; climbing up the structure from the underneath; climbing up or down the structure on the same side and at the same time as another child (e.g., one child climbing up while another child is climbing down on the same side); climbing over a child hanging from the underneath of the structure

**Peer Leaders (Package Intervention only)**

**Correct Sr+:** Peer slides safely and peer leader gives her sticker/praise; peer slides unsafely and peer leader does not give her sticker/praise

**Incorrect Sr+:** Peer slides safely and peer leader does not give her sticker/praise; peer slides unsafely and peer leader gives her sticker/praise
Data Sheet
All Children

Date:  
Data Collector:  

IOA? Y  
Primary / R  

Class 1  Class 2  Class 3  Time Begin: ___  Time End: ___
BL  Educ.  Pkg. Intv  Pkg. Intv 2  

REGULAR RECESS

+= observe at least 1 unsafe behavior, O = no observed unsafe bx, at least one child is physically touching the play equipment or w/in 3 feet of it, n = no children playing slide during interval

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Supervisor Count Unsaifes  

Our Count Unsaifes
Sr+ PERIOD (Pkg. Intv. Phase only)
+ = observe at least 1 unsafe behavior, O = no observed unsafe bx, n = no children playing slide during interval

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Our Count Unsafes
Data Sheet
Peer Leaders, BL, ED Phases Only

Date: 
Data Collector: Y

IOA? Y Primary / R

Class 1 Class 2 Class 3 Time Begin: Time End:
BL Educ.

REGULAR RECESS
+ = observe at least 1 unsafe behavior, O = no observed unsafe bx, at least one child is physically touching the play equipment or w/in 3 feet of it, n = no children playing slide during interval

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Supervisor Count Unsafer
Our Count Unsafer
Data Sheet
Peer Leaders, BL, ED Phases Only

Date: [Blank]
Data Collector: [Blank]
IOA? Y
Primary / R

Class 1  Class 2  Class 3  Time Begin: _____  Time End: _____
BL  Educ.

REGULAR RECESS
+
= observe at least 1 unsafe behavior, O = no observed unsafe bx, at least one child is physically touching the play equipment or w/in 3 feet of it, n = no children playing slide during interval

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Supervisor Count Unsaferes

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**Peer Leaders: Pkg. Intv. Phase Only, Tube Slide Only**

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Pkg. Intv.

+ = observe at least 1 unsafe behavior, O = no observed unsafe bx, at least one child is physically touching the play equipment or w/in 3 feet of it, n = no children playing slide during interval

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120
### Appendix I. Playground Supervisor's / Our Observations Data Sheet

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</table>
Appendix J. Treatment Adherence Checklists

**Education Curriculum Treatment Integrity Checklist**

<table>
<thead>
<tr>
<th>Date: ________________</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collector: ________</td>
<td>Time began: ___________________</td>
<td>Time end: ___________________</td>
<td></td>
</tr>
<tr>
<td>Total # of kids: ________</td>
<td>Y N</td>
<td>Y N</td>
<td>Y N</td>
</tr>
</tbody>
</table>

| Y N | Play “Sammy’s Playground Pointers” video |
| Y N | Discuss consequences for playing unsafely |
| Y N | Discuss 10 ways to play safely on playground equipment |
| | Walk around playground toys and not in front of them. |
| | Slide feet first, sitting up, and one person at a time. |
| | Be sure no one is in front of the slide before sliding down. |
| | Be patient and wait your turn. |
| | Leave the bottom of the slide after your turn. |
| | Climb using both hands. |
| | Be careful climbing down (use 2 hands), and watch out for other kids climbing up. |
| | Avoid having too many kids on the same toy at the same time. |
| | Start at the same end of the toy and move in the same direction. |
| Y N | Discuss consequences for playing safely |
| Y N | Discuss role of supervisor |
| Y N | Discuss playground rules |
| Y N | Comprehension check |
| | It’s safe to slide down the slide with your friend. |
| | It’s safe to walk around the playground toys. |
| | It’s not safe to walk up the slide. |
| | It’s safe to have 5 children on the rock wall at the same time. |
| | When you are playing on the playground, do you have to follow the rules? | Y N |
Playground Leader Training Treatment Integrity Checklist

<table>
<thead>
<tr>
<th>Date:</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collector:</td>
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<tr>
<td></td>
<td>Time began:</td>
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<td></td>
<td>Time end:</td>
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</tbody>
</table>

**Y** = Yes, **N** = No

- **Discuss job of playground leader**
  - Hand out stickers for 1 minute during one recess per week
  - Play safely

- **Discuss examples of safe and unsafe behavior on covered slide**
  - Unsafe: Sliding down head first or backwards
    - Sliding before person at bottom has left
    - Sliding down at the same time as your friend
    - Climbing up the slide
    - Standing in front of the slide

- **Role play handing out stickers for safe play**

- **Discuss being a positive role model**
  - Play safely
  - Be nice to classmates, don’t show off

- **Discuss what to do if peer pressure, teasing occurs**

- **Comprehension check**

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is safe to run up the slide</td>
<td>*</td>
</tr>
<tr>
<td>2 kids slide at same time - sticker?</td>
<td>*</td>
</tr>
<tr>
<td>Kid sliding on bottom, feet first-sticker?</td>
<td>*</td>
</tr>
<tr>
<td>Safe to stand right in front of slide?</td>
<td>*</td>
</tr>
<tr>
<td>Kid sliding head first - sticker?</td>
<td>*</td>
</tr>
<tr>
<td>Should you stand to side of slide, not in front?</td>
<td>*</td>
</tr>
<tr>
<td>Safe to wait turn on slide?</td>
<td>*</td>
</tr>
<tr>
<td>Should PG leaders play safely on the toys?</td>
<td>*</td>
</tr>
<tr>
<td>Should you say mean things to other kids?</td>
<td>*</td>
</tr>
<tr>
<td>Should you walk away if someone says something mean to you?</td>
<td>*</td>
</tr>
</tbody>
</table>