

Project RECESS:

Restructuring Environmental Contingencies and Enhancing Self-Managed Supervision

Laura Kern

University of Connecticut, 2017

Aggressive behaviors are garnering a great deal of national attention in research, policy, and practice circles. The majority of these problematic behaviors occur in non-classroom settings, where students outnumber staff and structure is lacking. Although strategies, like active supervision, are effective at reducing problem behavior in these settings, adults often miss opportunities to implement these strategies to achieve desired results. Project RECESS (**R**estructuring **E**nvironmental **C**ontingencies and **E**nhancing **S**elf-**M**anaged **S**upervision) introduces a behavioral approach to increase adult active supervision through the use of self-management. Specifically, four recess supervisors participated in a brief training on active supervision and engaged in self-management by filling out a supervision checklist and direct behavior ratings (DBR). Using a multiple baseline across participants design, I introduced the intervention to participants in a randomly assigned order, and I examined the fidelity, effects (measured by direct observations of staff and students and recordings of interactions), and social validity of the RECESS intervention. Results suggest that the brief training and self-management may be associated with increases in some of the active supervision interactions, specifically prompting and praising. There was no change in students' problematic

behavior, although it was at low levels through each phase. This exploratory study has potential implications for schools, and researchers.

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Managed Supervision

Laura Kern

B. A., University of Notre Dame, 1996

J. D., Quinnipiac University School of Law, 1999

M.A., University of Connecticut, 2011

A Dissertation

Submitted in Partial Fulfillment of the

Requirement for the Degree of Doctor of Philosophy at the

University of Connecticut

2017

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APPROVAL PAGE

Doctor of Philosophy Dissertation

Project RECESS: Restructuring Environmental Contingencies and Enhancing
Self-Managed Supervision

Presented by

Laura Kern, M.A., J.D.

Major Advisor _____
Brandi Simonsen

Associate Advisor _____
George Sugai

Associate Advisor _____
Jen Freeman

Readers: Sandra Chafouleas, Timothy J. Lewis

University of Connecticut

2017

Acknowledgements

They say it takes a village to raise a child. Apparently it takes a small city to finish a dissertation...I would like to thank my family foremost for supporting me in this process from the beginning to the end. Mom, Dad, Mom B., Dad B., Lisa, Jamie, Peter, Jen, and all my nieces and nephews (many of whom make their research debut in the pseudonyms), thanks for making sure I ate, took time off, and enjoyed the last few years. For my beloved angel, Ryan, thanks for teaching me how to look at the world differently (and marvel at its wonder), and for my husband, Rob, much gratitude for helping me through the stress of statistics (you thought the bar exam was bad!) and experiencing the joy of new insights through our mutual love of law. Without all of you, I would have crashed and burned.

An extreme amount of gratitude is needed for my colleagues, friends, and future peers, Eleanor, TJ, Annie, Jess, Lola, Janet, Sarah, Xin, and Michael, and my data collectors, Emily, Bill, Bryan, and Lilliana, and so many others who have helped to get through long nights of number crunching, sharing the fun of article coding, while maintaining IOA at sufficient levels (always). And especially for Jennifer and Kate: to the many late nights of texting and all we have lived, there are not really words to express how much you mean to me.

Finally, to the professors who have taught me how to think differently, I thank you wholeheartedly! For my committee, Tim and Sandy, who have helped to make this study stronger, to Allison who taught me that policy can be just as important as law, thank you! Bianca, you have shared the importance of measuring multiple perspectives and that has been amazing. Mary Beth, you started me on this journey and had me

always consider the parents and students first! Jen, I was not sure to list you as a friend or professor, you have helped me to take a step back from the details and think of the bigger picture, and George, I won't be able to see a problem without trying to create a logic model to analyze it. I have been honored to have worked with you. Last but certainly not least, Brandi who has been my greatest ally and deepest friend, you have been a rock to tether to, no matter the magnitude of the storm (or the value of the MO)...to all of you, THANK YOU!

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Chapter I

Introduction and Review of the Literature

Bullying behavior is a complex behavior that impacts many students. Overall, 29.9% of students report involvement in moderate to frequent bullying by engaging in bullying (13%), experiencing bullying (10.6%), or both (6.3%; Nansel et al., 2001). In terms of frequency, 10.6% of students report bullying others sometimes, and approximately 8% of students report being bullied once a week or more. Bullying is more prevalent in males than females and more common in middle school (grades 6-8) than high school (grades 9-12; Nansel et al., 2001). In a more recent meta-analysis examining prevalence, Modecki et al. (2014) reported prevalence rates of 35% for bullying involvement. Alarming, students with disabilities may be victimized at even higher rates in elementary (24.5%), middle (34.1%), and high (26.6%) school, and students may be victimized over multiple years (Blake, Lund, Zhou, Kwok, & Benz, 2012).

Negative Impact of Bullying Behavior

Overall, bullying behavior has been found to have detrimental impacts. Individuals who initiate bullying behavior experience have increased psychiatric problems (Kumpulainen, 1998), including anxiety, depression, and panic disorder as adults (Copeland, Wolke, Angold, & Costello, 2013), and are at a greater risk of engaging in criminal behavior (Ttofi, Farrington, Losel, & Loeber, 2011). Individuals on the receiving end of bullying behaviors often experience low self-esteem, depression, psychiatric disorders, and increased drop-outs (Hawker & Boulton, 2000), and bullying others predicts acts of criminal violence (Sourander et. al., 2006). Bullying behavior has

long-term effects for adults, including increased risk for delinquency, violence, aggression, and anti-social problems as an adult (Bender & Lösel, 2011). Bullying also increases suicidal ideation (Holt et al., 2015; Rivers & Noret, 2010) and suicidal behavior (Holt et al., 2015) for those who are involved in any capacity.

Impact of Unstructured, Non-Classroom Settings on Student Behavior

When considering the context of school settings, it is important to identify where the challenging student behavior is occurring. Bullying and other aggressive behaviors have been found to be more prevalent in non-classroom settings. In part, this may be due to the unstructured nature of non-classroom areas, where larger number of student congregate often without close supervision and without structured routines and instructional activities that engage students in the classroom (Haydon & Scott, 2008). Across the non-classroom settings in elementary schools, playgrounds have repeatedly seen the greatest amount of problematic behavior, as documented by office discipline referral, observational, and survey data (e.g., Cash, Bradshaw, & Leaf, 2015; Spaulding et al., 2010). After observing a larger number of episodes of bullying behavior on playgrounds (4.5 episodes per hour) than in classrooms (2.4 episodes per hour), Craig, Pepler, and Atlas (2000) noted that these unstructured areas seem to “foster bullying” (p. 30). Not surprisingly, in another study the overall amount of bullying of peers has been found to be the highest in the playground (58.4%), compared to lunchroom (18.9%), hallway (13.5%), and classroom (10.8%; Fite et al., 2013). These findings highlight behavioral difficulties found in unstructured, non-classroom elementary school settings on the playground and lead to considerations of what interventions are needed to reduce the aggressive behavior in these settings.

Interventions Designed to Reduce Bullying

Across studies, components of interventions to reduce bullying behavior vary across literature reviews and meta-analyses. Interventions have included creating a whole-school policy, improving classroom environment, establishing peer support systems, and improving playground design and supervision (Smith, Ananidadou, & Cowie, 2003). Although some focus on the importance of a whole school approach (e.g., Vreeman and Carroll, 2007), others report components across school (e.g., anti-bullying policy and increased supervision), parent (e.g., staff training, information), classroom (e.g., rules, social skills), peers (e.g., peer-led), and individuals (e.g., targeted interventions for bullies; Smith, Schneider, Smith & Ananiadou, 2004). In a meta-analysis, Ttofi and Farrington (2011) identified components of effective interventions, which included “parent trainings, improved adult supervision, disciplinary methods, school conferences, information for parents, and cooperative group work” (p. 41).

Multiple meta-analyses on bullying behavior interventions have reported mixed results on the overall effectiveness of the interventions to reduce the behavior (e.g., Baldry & Farrington, 2007). Notably, in a meta-analysis on bullying behavior that examined effect sizes as measures for meaningful and clinically important effects, Merrill et al. (2008) reported reductions in one-third of the outcomes, such as self-reported bullying, teacher/staff knowledge, peer reports of participation, and school records of discipline referrals. Most of the outcomes showed no meaningful change (as the interventions did not produce meaningful effect). They suggested that the reviewed interventions might change knowledge, attitudes, and self-perceptions, but may not lead to changes in the behavior of bullying (Merrill et al., 2008).

To further understand how bullying interventions are addressed in schools, given the mixed findings of effectiveness of interventions and the importance of reducing the actual behavior of bullying, Kern and Sugai (2016) systematically reviewed 126 bullying interventions, focusing on the characteristics of the interventions and how they would fit into a multi-tiered system of support framework. Using the findings of meta-analyses and literature reviews to guide their inquiry, they found that across studies, most interventions consisted of small group interventions (79.5%) compared to universal/whole school interventions (35.4%). Despite research indicating that bullying is most prevalent in non-classroom settings, bullying interventions rarely included the playground (19.0%), cafeteria (4.0%), hallways (3.2%), and/or bus (0.8%). Furthermore, most interventions did not include or examine changing adult (or teacher) actions to prevent or respond to the bullying behavior. For example, only 14.3% of bullying behavior interventions included increasing adult supervision (Kern & Sugai, 2016). Kern and Sugai (2016) also found that across the interventions coded, 3.2% utilized a peer mediation process, 6.3% used a peer mentoring/support system, and 19.8% included social skills. As for instruction components, some interventions included direct instruction (11.9%), modeling appropriate behavior (11.9%), and role-playing (37.3%), often components associated with social skills instruction (Kern & Sugai, 2016). The systematic review by Kern and Sugai (2016) suggests that there is inadequate inclusion of settings known to be hotbeds for bullying behavior. Although prior research has suggested that adult active supervision, parent training, and policies is important, most interventions did not include these components. Likewise, peer-included and social skills were noted, but at fairly low percentages.

Supporting Student Behavior in Unstructured Settings: A Review of the Literature

In summary, studies have found that interventions targeting adult behavior, such as increasing supervision, or student behavior, such as social skills interventions, may lead to reductions in inappropriate and bullying behavior. Furthermore, when taking into account the context of schools, unstructured areas are particularly prone to these types of behaviors, and recess is associated with the highest levels of bullying behavior. Although there has been some initial research that has considered unstructured areas, there has not been a systematic review of interventions to reduce aggressive and bullying behaviors on the playground. To that end, I systematically reviewed the research base of interventions that sought to reduce bullying, aggressive, and other inappropriate behaviors in the unstructured setting of recess and extended the literature by (a) describing evidence-based interventions for this setting; (b) synthesizing findings from experimental, quasi-experimental, and single case research; and (c) examining the common components of these effective interventions. In particular, this literature review addressed the following questions.

1. What are the overall characteristics of interventions focusing on the reduction of aggressive, bullying, and inappropriate behavior during school recess?
2. What are the components of effective behavioral interventions to reduce aggressive, bullying, and inappropriate behavior of students during school recess for students and staff?

Method for Literature Review

Article identification process. Across this review, I used multiple rounds of analysis to identify articles that addressed the research questions. This process

included (a) utilizing a Boolean search of electronic databases, (b) screening abstracts for significant categories, (c) screening full articles for inclusion criteria, and (d) following through with an ancestral search and abstract screening of all peer-reviewed articles' from the final articles reference lists. Appendices A and B contain specific coding and definitions of the abstract and full articles' inclusion criteria.

Electronic database search. I conducted an electronic search across the following electronic search engines: PsycINFO, Academic Search Premier, ERIC, Professional Development Collection, Psychology and Behavioral Sciences Collection, and PsycARTICLES. I selected peer-reviewed empirical studies in English with no date restrictions, and I configured the keyword searches into a Boolean Search as follows: ("playground" or "recess" or "unstructured setting*") AND "school" AND ("intervention" or "program"). Overall, I reviewed 381 abstracts.

Abstract review. For the abstract screen, I pulled the abstract of each citation and coded it for initial categories of inclusion. First, I looked to see if the abstracts were written in English (373 or 98%) and pertained to a human subject (368 or 99%), eliminating statistical and policy-focused articles. Of the remaining 368 abstracts, I then coded for Non-Autism Spectrum Disorder focused (339 or 92%),¹ school-based (345 or 94%), and/or playground/recess setting (267 or 73%). In total, 241 (65%) abstracts addressed all three categories (non-autism, school-based, and recess) and passed to the next round of abstract coding. Of the 241 abstracts that survived these initial categories of coding, I coded the abstracts for adult behavior consisting of either

¹ The articles that focused on students with Autism Spectrum Disorder often used techniques specific to that population to address more intense social issues not related to aggression, and were thus excluded from the review).

active supervision (9 or 4%) or other adult behavior (e.g., coaching; 21 or 9%) and student behavior consisting of aggression/bullying behavior (36 or 15%), social skills (e.g., initiating social interactions; 19 or 8%), or other student behavior (36 or 15%). Additionally five (2%) of the abstracts were not clear and passed to the next level of coding. Other categories that were noted, but not necessary to pass the abstract screen, were abstracts related to physical fitness/health (92 or 38%), change of playground equipment (35 or 15%), injury or safety concerns (16 or 7%), observations of children on the playground (8 or 3%), or other (e.g., literature reviews; 40 or 17%). In all, 91 (24%) of all of the abstracts passed the abstract code to full coding of the articles.

Ancestral search. Prior to coding the full articles, I went through the resource list of the articles that passed to the full article coding to ensure as much of the literature as possible was located. The ancestral search consisted of reviewing the reference lists of the final articles and pulling the abstracts for each of those articles, resulting in an additional 871 abstracts being screened. Because the electronic database was not used and the peer-reviewed limiter was not selected, I examined the articles to see whether they were peer-reviewed, resulting in 524 (60%) peer-reviewed journal articles. Using the same abstract screening as with the original search for the 524, all 524 (100%) were written in English and 497 (95%) were pertaining to human subjects. Furthermore, of those 497, 493 (99%) were not focused on Autism Spectrum Disorder, 361 (73%) were school-based, and 47 (9%) took place in playgrounds/recess. In total, 43 (9%) abstracts included all three categories (non-autism, school-based, and recess) and passed to the next round of abstract coding. I then coded for the additional behavior screening components of either adult behavior (active supervision; 4 or 9%) and other adult

behavior (2 or 5%) or student behavior (aggression/bullying; 11 or 26%, social skills; 18 or 44%, and other behavior; 10 or 23%). One abstract was not clear.

In summary, for the ancestral abstract screening, 31 (4%) of all of the abstracts from the ancestral search passed the ancestral abstract code and were coded for the same criteria as the full articles. I aggregated the results with the prior full article results (and reported in the full article percentages in the preceding section). Overall, 19 (2%) of those abstracts were repeated abstracts from the initial abstract search and were eliminated as redundant. This meant that 12 (1%) of the abstracts from the total abstracts from the ancestral screening passed to the full article coding. In total, 1252 unique abstracts were reviewed, and 103 (8%) of all of the abstracts passed to full article coding. See Appendices C and D for more details on the abstract and ancestral abstract screening.

Full article coding procedure. In order to summarize the existing empirical literature, I coded each retained article across multiple categories for applicable characteristics. The categories included elementary school aged (92 articles or 89% of articles that passed to full code), setting of school and recess (96 or 93%), behaviorally-based dependent variable (72 or 70%), either adult (10 or 10%) or student (72 or 70%), and empirical study (68 or 66%). Of the empirical studies, I further coded for experimental group design (17 or 17%), quasi-experimental group design (3 or 3%), or single subject design (24 or 23%). I also checked to see that the article addressed behaviors in the intervention (either student or adult; 67 or 65%; with adult being 25 or 24% and student being 59 or 57%). Additionally, the intervention had to include a focus on adult supervision (26 or 25%), aggressive/bullying behavior of the student (38 or 38%), or inappropriate behavior of the student (45 or 44%). Some interventions did

include a sole focus on appropriate behavior (40 or 39%), but as this was not the focus of this review, they were excluded. In all, I retained 31 of the 103 (30%) articles reviewed during this process for inclusion in this round of review. See Appendix E for the number and percentage of fully coded articles (n=103) for all of the coded categories.

Results of the Literature Review

In this section, I describe the characteristics of the 31 articles that passed full article screening, including specific details for paper type and research design, population characteristics, setting, dependent variable, independent variable, measures, and results. See Table 1 for a description of the included articles and Appendix F for the number and percentage of final articles (n=31) for all of the coded categories.

Table 1

Sample Characteristics, Settings, Research Design, Independent/Dependent Variables, and Results of All Included Intervention Studies

Study	Sample Characteristics	Design	Independent Variable(s)	Dependent Variable(s)	Result(s)
Anderson-Butcher, Newsome, & Nay, 2003	462 elementary students from K-6 th grade	ABABA	Recess supervisor training: 3 hour workshop with modeling skills, reinforcement and feedback strategies; personal reflection in play, strategies to encourage student participation and cooperation	Aggregated problematic behavior: Hitting; pushing/shoving, kicking/tripping, verbal abuse, throwing objects, playing chase on equipment, standing on the equipment, twisting the swings, tying people with ropes, climbing on equipment not appropriate for play, tacking and pile-ons, swinging upside down	Functional Relation found with a decrease in problematic behavior of students; school attendance rates remained stable; number of recess supervisors fluctuated but did not impact results
Barrera, Biglan, Taylor, Gunn, Smolkowski,	284 students and families grades K-3; 168 Hispanic	Group Experiment: Randomized into	IV on reducing aggression and addressing reading difficulties; used	Aggressive Student Behavior (Also academic reading but reported in a different article)	Statistically significant reductions in child

Black, & ... Fowler, 2002	children and 116 European American; 45% were girls	Intervention and Control groups	Incredible Years (parent training); Contingencies for learning academic and social skills (CLASS) and Dina Dinosaur Social Skills Program for behavior and peer interactions; Reading Mastery and Corrective Reading for reading	aggressive behavior observed on the playground	
Christopher, Hansen, & MacMillan, 1991	3 male students with behavioral challenges (disability not identified, but all in special education), ages 8, 7, and 7) in grades 2 nd and 3 rd grade; identified through teacher nomination and observations; peer helpers: 2 students per	Multiple baseline across participants	Peer helpers to increase positive social interactions for peers with social changes (and disabilities) on the playground; included instruction using Peer Tutor Training Guidelines and role play on social interactions	Positive interactions Negative Interactions Each coded for: social initiations, social responses, no responses	Functional relation found with positive social interaction increasing and negative interactions decreasing; although the negative interactions increased for 2 students the declined during the maintenance phase; sociometric

Cunningham, Cunningham, Martorelli, Tran, Young, & Zacharias, 1998	classroom of other student selected by teacher 3 elementary schools (483, 403, and 329 students total), with 3 peer mediation teams (School 1: 9 boys, 19 girls, School 2: 9 boys, 12 girls; School 3: 5 boys, 7 girls)	Multiple baseline	Student conflict mediation program during recess; groups of students acted as peer mediators	Physical Aggression Adult Intervention Mediator Monitoring Consumer Satisfaction (extensive_	ratings did not improve Functional relation found with a reduction in physical aggressive behavior of students; number of adult interventions was stable in Schools 1 & 3, and declined in School 2 Maintenance: School 1 went back to baseline until number of peer mediators increased to recommended levels; Schools 2 and 3 physical
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					aggression remained lower than baseline
Dougherty, Fowler, & Paine, 1985	Participants: 2 boys, both “mentally handicapped”, age 9 and 10; screened for negative behavior on the playground Peer monitors: 6 classmates ages 8-9, recommended by teachers or by participants Classroom teacher and aide	Multiple Baseline across settings for 2 participants	Reprogramming Environmental Contingencies for Effective Social Skills (RECESS) Consists of social skills training (individual), class-wide social skills training, point system, daily and weekly reward system, class wide contingency Consultant, Recess supervisor, Peer, and participant acting as peer, self-monitoring of point system	Negative Interactions with Peers (e.g., name calling, ignoring friend requests) Positive interactions with Peers (e.g., give compliment) Rule infractions Negative initiations or responses from peers Praise Point Loss Bonus Point Award	Student (Dennis) rate of negative behavior reduced in both settings and maintained across the intervention; also reduced when acting as peer monitor; Positive interactions increased; rule infractions decreased as well as negative interactions from peers Student (Ed) rate of negative behavior decreased and maintained during the intervention; rule infractions decreased as well as negative interactions from peers Praise rates only increased during consultant phase Both students did not

					maintain rates of low negative behavior 3 months post intervention and at start of subsequent school year
					Peer Monitors: negative interactions decreased for majority of monitors; praise rates for them were low
Eddy, Reid, Stoolmiller, Fetrow, Beidel, Brown, & ... Haaga, 2003	6 elementary schools students total (214 in intervention and 147 in control schools; adults also included Follow-up focused on middle school grades (5 th , 6 th , 7 th and 8 th)	Multiple Probe; Randomized Control and Intervention Groups	Linking the Interests of Families and Teachers (LIFT) program: intervention for families (parent classes), teachers (classroom management), and playground monitors (supervise and reward)	Juvenile arrests Substance abuse	Reductions in arrests and in alcohol use (not other substance abuse)
Fowler, Dougherty, Kirby, & Kohler, 1986	Reversal and multiple baseline	3 boys (7 years old) in 1 st grade who displayed disruptive	Peers who were screened as having higher rates of inappropriate behavior acted as	Negative interactions with peers, positive interactions with peers, rule infractions, negative behaviors from peers toward the observed child; adult and	Functional relation between the peer monitor and the

behavior during recess	peer monitors of behavior on the playground	monitor behaviors: praise and prompts, point awards and time-out	inappropriate behavior and appropriate peer interactions; results were not sustained when the intervention was not happening; was able to withdraw some adult monitoring for two students; one student responded initially but then did not decrease his behavior when the intervention was reintroduced
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Franzen & Kamps, 2008	Urban charter elementary school with 320 total	Multiple baseline across grade levels during	SW-PBS in a school and a focus on playground as problematic areas;	General Disruptive Inappropriate Verbal	Functional relation found on aggregated inappropriate
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students, many with free and reduced lunch; focus on grades 1 st , 2 nd , and 3 rd and 10 teachers	recess setting (grades 1st, 2nd and 3rd)	utilized social skills lesson plans, active supervision (interactions) and handing out of loops for appropriate behavior, group contingency (classroom based) for loops for additional reinforcers, corrective feedback using reteaching zones for inappropriate behavior; also included posted prompts and signs for student playground behavior and teacher active supervision	Inappropriate physical Aggression Inappropriate Use of Equipment Teacher Active Supervision (neutral or positive interactions) Teacher reprimands	behavior decrease for students and increase in adult supervision (interaction) for teachers
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Frey, Hirschstein, Snell, Edstrom, MacKenzie, & Broderick, 2005	6 schools with children in grades 3 – 6 (1,023 total); subgroup of 544 students observed on playground; across 36 experimental	Randomized control trial with schools matched by size, ethnicity, and % of students receiving reduced lunch	Steps to Respect which includes changes in policy, staff training, and classroom curriculum; focuses on adults, students, and bystanders;	Bullying Encouragement of Bullying Nonbullying Aggression Agreeable Social behavior Argumentative social behavior Adult intervention	Statistically significant reductions in bullying and argumentative behavior, increases in agreeable interactions, enhanced
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	and 36 control classrooms			Beliefs on bullying	bystander responsibility, decreases in perceived adult responsiveness, less acceptance of bullying/aggression; self-reported aggression/bullying was not different
Frey, Hirschstein, Edstrom, & Snell, 2009	6 schools with children in grades 3 – 5 (624 total); subgroup of 360 students observed on playground	Randomized control trial with schools matched by size, ethnicity, and % of students receiving reduced lunch (longitudinal extension of Frey, Hirschstein, Snell, Edstrom, MacKenzie, & Broderick, 2005)	Steps to Respect; includes changes in policy, professional development, and curriculum for students but also targeted interventions for coaching individual students	Bullying Encouragement of Bullying Nonbullying Aggression Agreeable Social behavior Argumentative social behavior Adult intervention Beliefs on bullying	Declines in bullying, victimization, nonbullying aggression, destructive bystander, argumentative behavior; more difficulty responding assertively than control; older students considered themselves more

					aggressive and less victimized than younger students
Grossman, Neckerman, Koepsell, Liu, Asher, Beland, Frey & Rivara, 1997	12 elementary schools across 49 classrooms of 2 nd and 3 rd grades matched by school and randomly assigned into control or intervention; 12 students from each classroom randomly selected for observations	Randomized control trial	Second Step social skills curriculum taught in classrooms focusing on empathy, impulse control, and anger management	Overall negative behavior Physical negative Verbal negative Neutral/pro-social	Statistically significant decreases in inappropriate behavior (e.g., aggressive behavior) in playgrounds and increase in neutral/pro-social behavior; aggressive behavior in control schools increased; some behaviors maintained at 6 months; teacher and parent rated behaviors did not show significant changes

Guevremont, MacMillan, Shawcock, & Hansen, 1989	2 female children (7 and 8 years old) with social challenges matched with 3 females classmates and 2 female classmates	Single Case design (weak) using multiple baseline across 2 girls and a withdrawal (ABA) design	Peer-mediated intervention for the playground; IV consisted of training several peers recommended by teachers through role play and modeling to use 4 social interaction behaviors (initiating, responding to refusals, maintaining interactions, responding to negative behavior of the child they were working with) with 2 peers who were struggling with social interactions during recess	Positive Interaction Negative Interaction Social Initiation	Increase in social initiations and positive peer interactions, no changes reported in negative interactions which were low at baseline (no functional relation due to weak design)
			Helpers would be given stickers and for 5 stickers a McDonald's certificate for engaging in the behavior with the 2 girls across a percentage of the time		

Hirschstein, Van Schoiack Edstrom, Frey, Snell, & MacKenzie, 2007	2 schools in 3 rd and 6 th grades (36 total), included 549 students total (50% female); subset of 22 children randomly selected from a subset of the population was observed on the playground; 36 teachers (83% female) were included	Randomized group design (by school)	Steps to Respect experimental study on addressing bullying; focused on teachers implementation: "Talk:" lesson adherence and quality, and "Walk:" support for skill generalization and coaching	Program Implementation Playground behaviors: (e.g., bullying aggression, victimization, bystander behavior)	Victimization reduced but not bullying or aggression; high quality lessons saw student reports of greater victimization; this was not shown with the observations; Coaching had greater impacts and more reductions in victimization and destructive bystander behavior
Hoff & DuPaul, 1998	3 children (2 boys and 1 girl) at risk for conduct disorder and who showed characteristics of ADHD and	Multiple probe single case design	For 3 children at risk for conduct disorders and currently showing ADHD or ODD in classroom and playground settings; teachers started a	Percentages of intervals of disruptive or aggressive behavior during class or playground; positive peer interactions, negative nonaggressive interactions, verbal aggression, physical aggression, noninteractive, on	Functional relation found with a reduction of disruptive behaviors for all three students

ODD across multiple screeners

behavior management system and over several phases trained students to use the procedure for self-management of their disruptive and/or aggressive behaviors;

or off-task behavior

Kamps, Kravits, Stolze, & Swaggart, 1999

Students across 26 classrooms, and 12 schools (8 elementary and 4 middle) from lower SES urban settings; 28 students in cohort 1, 11 identified with EBD (26 boys, 2 girls) grade 1-7); 24 students in Cohort 2, 6 identified with EBD (21 boys, 3 girls) (grades Kindergarten – 7th grade)

Quasi-experiment (sequential cohort with control-wait group)

Universal intervention to address behaviors of at-risk children for EBD using classroom management, social skills, peer tutoring for reading

Social Competence: Requests for attention, on and off task behaviors, positive and negative peer interaction and play at recess aggression, & disruptions

Statistically significant changes in social competence (increases in appropriate requests for attention, on-task behaviors, positive peer interaction and play at recess and decreases in aggression, disruptions, out-of-seat behaviors

Lane, Wehby, Menzies, Doukas, Munton, & Gregg, 2003	7 elementary students (ages 8-9), 5 males and 2 females placed into 3 groups which included same-age peers	Multiple baseline across intervention groups	Social skills intervention on student behavior and academics in the classroom and social behavior on the playground; social skills was based on pre-assessment of students acquisition deficit	Total disruptive behaviors in the classroom Academic engaged time in the classroom Negative social interactions on the playground	Functional relation found with academic engagement increasing, disruptive and negative social interactions decreasing (except with one student that increased the negative social interactions but the baseline showed no negative social interactions)
Lewis, Sugai, & Colvin, 1998	Suburban elementary school grades 1-5 (Kindergarten excluded), across 110 students (51% male), school team	Multiple baseline across settings (lunch, recess, transition to recess area)	Effective Behavioral Support framework and expanding to nonclassroom settings; utilized social skills and direct intervention consisting of group contingencies (for cafeteria) and for	Problematic Playground Behaviors (such as hands on others, threats, misuse equipment)	Functional relation probably found for decrease in problem behavior of students; decrease in behavior was

	consisting of 5 grade-level teachers and a special educator		classroom (for recess), and active supervision and precorrection for transition area		moderate
Lewis, Colvin, & Sugai, 2000	Elementary school grades Kindergarten – 5 th grade), 475 students and 42 staff	Multiple baseline across recess periods	School implementing SW-PBS, IV geared to nonclassroom setting of recess consisting of reminder of social skills and playground rules to students prior to recess setting (precorrections) and increase in active supervision of playground monitors	Problem student behaviors: Hands on others, Misuse of equipment, Language/Name-Calling, Threats, Interfere with Games, Argue Adult Active Supervision: Move + 15', Interact with student, Interact with adult, whistle/gesture	Functional relation found with a decrease in problem behaviors of the student in unstructured settings (not structured) but not significant change found for increase in active supervision of the adults
Lewis, Powers, Kelk, & Newcomer, 2002	Elementary school (grades K-6 th) chosen for it's impoverished and diverse environment	Multiple baseline across 3 recess periods	Recess-based intervention for schools using Positive Behavior Support Framework consisting of social skills on appropriate recess behaviors	Hands on Others/Pushing Misuse of Equipment Language/Name Calling Interfering with Activity	Functional relation found; although last recess period baseline rate of problematic

			aligned with school wide behavior expectations and a group contingency (playground monitors give loops to students that can be handed in to classroom teachers and used for other reinforcers);	Arguing More than 10 Seconds Playing with Rocks	behavior was not high and not a strong effect found for the introduction of the intervention
Low, Frey, & Brockman, 2010	544 students from 6 elementary schools (grades 3 – 6); 50.7% male, 49.3% female	Randomized control trial	Steps to Respect focusing on relational aggression, specifically malicious gossip on the playground; included social skills on friendships and conflict resolution; professional development for staff and policy changes in school as well as the encouragement of bystander involvement	Malicious gossip Beliefs of Students	Relational aggression (gossip) decreased (fewer instances of gossip); having supportive friends pre IV predicted sign declines in victimization in IV group
Marchant, Young,	Elementary school; school	Multiple baseline	Positive behavior support across the	Aggressive behaviors (verbal aggression, physical aggression)	Functional relation found

Lindberg, Fisher & Solano, 2012	(grades 1 st through 6 th grades); 3 students: 1 male, 7 years old in 1 st grade, 1 male 6 years old in 1 st grade, 1 male 9 years old in 3 rd grade;	across 3 students	school and was looking at nonclassroom areas, specifically the playground; IV consisted of 5 components: social skills for playground rules in gym class, reminding of the rules, modifying playground areas, encouraging active supervision for monitors, self-management plan for three students at-risk for aggressive playground behaviors; monitors were also provided a token reinforcement system for active supervision	Appropriate Play (following 5 pre-taught playground rules)	when self-management system was used for the three students with a decrease in aggressive behaviors and increase in appropriate play
McConaughy, Kay, & Fitzgerald, 1998	18 pairs of 1 st graders screened for at-risk behaviors for severe emotional	Randomized control trial using matched pairs	Parent-Teacher Action Research (PTAR teams) with class wide social skills instruction compared a group with just classroom	Internalizing and externalizing behavior, including social behavior, delinquent behavior, aggressive behavior as well as less observed total problems in recess and classroom behaviors; off-task behaviors (academics)	Significant decreases in externalizing and internalizing behavior, including

	disturbance across 7 schools and 13 1 st grade teachers; total student participants was 36 (28 boys, 8 girls)		wide social skills instruction; PTAR teams included team meetings between parents and teachers, action plans based on child's strengths		social behavior, delinquent behavior, and aggressive behavior as well as less observed total problems in recess behavior
Miller, Cooke, Test, & White, 2003	3 students with mild disabilities (emotional behavior disturbance (2), hearing impairment (1)) from an elementary school and several peers for each student (to form a friendship circle); 3 students	Multiple probe single case design	Friendship circles consisting of weekly meetings with student with disability and screened and nominated peers (teacher and through the students information on a sociogram listing students in the class; included social skills on friendships	Appropriate, inappropriate, and no social interactions during lunch (intervention and maintenance) Friendly, unfriendly, or isolated play during recess (generalization)	Functional relation in that the appropriate interaction increased, inappropriate and no interaction decreased for lunch (maintained) and these results were generalized to recess for two of the students (more friendly play); although the results of the

					peer perception of friendship were not that improved
Murphy, Hutchinson, & Bailey, 1983	344 Kindergarten, 1 st , 2 nd grade students	Reversal single case design (ABAB)	Organized games and a time-out procedure to reduce inappropriate behavior on the playground; IV consisted of instruction for students and staff and a hand-out for games (rope jumping and foot races); recess aides helped to run the activities and provide feedback for the students	Aggression Property abuse Rule violations (overall frequency of incidents)	Functional relation found between games and reductions in inappropriate behavior; time-out was rarely used; the aide ratings did not correlate with the observations in finding behavioral changes
Nelson, Smith, & Colvin, 1995	3 students (males with screened for social behavioral challenges matched with	Multiple baseline across subjects and settings	Dyads formed and trained in recess behavior and the use of self-evaluation (self-monitoring technique); students self evaluated their	Positive peer social behavior Negative peer social behavior Isolate Positive Adult social behavior	Functional relation found with increases in positive social interactions and decreases

3 peers (2 males and 1 female) nominated for social interaction strengths

behavior and matched with peer; playground supervisor monitored and provided feedback and points for students based on matching

Negative adult social behavior
 Appropriate equipment use and game playing
 Inappropriate equipment use and game playing
 Other

in negative interactions (positive and negative behaviors were pooled); for most dyads was low, no change was found for isolate and other behaviors; also found behavior improvements in other recess period

Quinn, 2002

Rural elementary school; 1st graders participated; 15 boys screened for anti-social behavior; 15 randomly selected male peers

Randomized group

Behavioral and cognitive behavioral social skills instruction targeting boys with anti-social behaviors screened before the intervention done in classroom using cooperative groups (peers);

Externalizing antisocial behavior
 Peer Social Behavior (Positive Interactions, Negative Interactions, Social Interactions, Total % positive, Total % Negative)
 Academic Engaged Time (AET) for classroom academic engagement (% of time engaged)

Differences in academic engagement (increase) but not for negative playground interactions or externalizing antisocial behaviors (the behaviors

				over 15 minutes)	focused on in the intervention measures)
Reid, Eddy, Fetrow, & Stoolmiller, 1999	12 elementary schools with increased juvenile delinquency rates; 671 1 st graders and 5h graders (382 IV and 289 control);	Randomized group design (by school)	Linking the Interests of Families and Teachers (LIFT) was comprised of a randomized control trial across elementary schools that had higher rates of juvenile delinquency; consisted of parent training, classroom social skills and problem solving for 1st and 5th graders, and coordinated communication system between classrooms and parents	Child physical aggression on the playground Mother's aversive verbal behavior Teacher ratings of chide positive ratings with peers	Aggressive playground behavior declined; Mothers with more aversive verbal behavior improved; Teacher reported improvements in class behavior improved (but this was 1 year post intervention
Samalot-Rivera, & Porretta,, 2013	6 students ages 10 – 17 (alternative education schools); 1 female, 2 males;	Multiple Baseline Across Participants	Social Skills Instruction for sport and game related behaviors; including modeling, role playing, behavioral rehearsal; based on	Appropriate Behavior: physical, verbal, gestural positive behavior related to competitive sports/games Inappropriate Behavior: physical, verbal, gestural	Appropriate Behaviors: 86% in class and 50% in recess showed increase; Inappropriate

identified with Emotional Behavioral Disorder (EBD); 5 Caucasians, and 1 Native American

adapted curriculum from Appropriate Sort and Game Behaviors Curriculum

negative behavior related to competitive sports/games

Behaviors: 100% in class and 33% in recess showed decrease; Maintenance: 33% increased appropriate behaviors; 17% stayed above baseline; 50% went to baseline; 50% decreased inappropriate behaviors; 17% above baseline; 33% went to baseline

Sasso & Rude, 1987

“Severely handicapped:” 5 male, 3 females ages 7 – 11 in self-contained special education classrooms

Withdrawal single case design with counter-balancing of treatments across subjects

Social initiation recess intervention for paired handicapped children and non-handicapped children looking at effect of low status versus high status

Social initiations Responses:
Verbal Interaction
Physical Interaction
Positive Interaction
Negative Interaction

Functional relation with social initiations increase by non-handicapped students and increase in

	“Nonhandicapped” students: 5 males and 3 females grades 1 st , 2 nd , and 3 rd based on peer nomination of high or low status		students trained to socially interaction with handicapped peers		social initiations by not associated peers especially with high status peer involvement; negative peer interactions remained the same for most students
Schneider, 1991	41 aggressive children ages 7 – 13 in institutionalized setting (both residential and school) (mostly Conduct Disorder Aggression) randomly assigned to two interventions; 32 boys and 9 girls	Quasi-experimental group design with two intervention groups	Interventions: social skills and relaxation/desensitization interventions; (social skills was a problem-solving Cognitive behavioral therapy approach that included modeling and role playing with feedback)	Aggressive Behavior (Aggression Initiated & Aggression-Retaliated) Cooperative Play on the playground	Significant reductions for both groups in aggression and increase in cooperative play on the playground; social skills showed greater decreases in aggression compared to desensitization intervention
Stoolmiller,	12 elementary	Multiple	Linking the Interests	Interpersonal Process Code	Lowered rates

Eddy, & Reid, 2000	schools with students in 4 th and 5 th grades, 671 students total (382 in intervention and 289 in control schools); 51% female; adults also included but no demographical or other information was provided	Probe; Randomized Control and Intervention Groups	of Families and Teachers (LIFT) program: intervention for families (parent classes), teachers (classroom management), and playground monitors (supervise and reward)	(IPC): physical aggression directed at another child on the playground	of aggression; children with higher initial rates responded the best with the lowest reduction; intervention impacted the stability of the aggression
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Paper type and research design. Given inclusion criteria all of the articles (31 or 100%) were empirical in nature, with the following specific designs: 11 (35%) were experimental group designs, 2 (6%) were quasi-experiments, and 18 (58%) were single subject designs. No other designs were found in the fully coded articles.

Sample characteristics. All (100%) studies included Elementary School-Aged Children, with students of ages 4-7 (8 or 26%), 8-11 (13 or 42%), and 12-15 (2 or 7%). In addition, one article included students ages 16-19 (3%), but none included either age extremes of Birth to 3 (0%) or 19 plus (0%). Seventeen articles included adults (55%; although not necessarily as a primary focus). As far as school level, all studies (31 or 100%) took place in elementary school settings, and three studies (10%) also included Middle Schools (6-8, 7-8). There were no Pre-K (0%) or high schools (0%). The majority of interventions (29 or 94%) took place in the U.S. For disability status, nine (29%) articles included students with a disability, including PDD/Autism (2 or 6%), Developmental Disorder/Mental Retardation/Intellectual Disability (2 or 6%), ADH/D (3 or 10%), EBD/BD (5 or 16%), and Other (4 or 13%)². Finally, several studies included population demographics such as gender (25 or 81%), ethnic background (17 or 55%), and SES (or equivalent; 11 or 35%).

Setting. The main setting of interest for this literature review was recess in a school. Additionally, most (28 or 90%) took place in traditional public schools with only a few (3 or 10%) taking place in other non-traditional schools (e.g., alternative schools). There were other settings within schools that included recess and lunch/cafeteria (3 or

² Although I excluded abstracts of articles that focused primarily on autism, there were a few articles that included students with this disability.

10%), classroom (21 or 68%), or other (7 or 23%). No studies included the hallways (another unstructured area).

Dependent variables (behavior). For the dependent variables, the overall purpose of the search was to identify interventions that focused on the behavior during recess/playground settings. To that end, all (31 or 100%) included articles contained dependent variables related to students' behavior and a few (7 or 23%) also measured adult behaviors.

Adult behavior. Of the seven studies that measured adult behavior, most included a focus on active supervision and related strategies, although active supervision may not have been directly measured or changed by the intervention. For example, Lewis et al. (1998) did not measure active supervision directly, but it was a focus of the intervention; and Lewis et al. (2000) included active supervision, but there was no observed change in the behavior. In contrast, Franzen and Kamps (2008), implemented a school-wide positive behavior system of intervention, which emphasized the importance of "active teacher supervision" (p. 155). Active supervision was combined with antecedent and consequence strategies, consisting of "precorrection, conversational remarks, positive feedback on appropriate behavior,...delivery of recess loops" (p. 159), and corrective feedback (e.g., advising students on a replacement behavior) in areas that were called "reteaching zones" (p. 154).

Student behavior. Researchers measured a variety of student behaviors, including aggressive behavior or bullying, verbal aggression, physical aggression, problematic behavior/inappropriate behaviors, rule infractions, misuse of equipment, academics and/or on/off-task behavior, negative interactions, use of reinforcement, use of

punishment, appropriate behavior, positive interactions, social initiations/responses, no responses/isolate, and other. The studies that included aggressive behavior or bullying described the behavior in multiple ways such as “aggressive” (Barrera et al., 2002; Murphy et al., 1983; Schneider, 1991), whereas others used the term “bullying” (Frey et al., 2005; Frey et al., 2009). Some studies were more specific as to type of aggression, such as physical (Cunningham, 1998; Hoff & DuPaul, 1998; Reid et al., 1999; Stoolmiller, et al., 2000) or verbal (Hoff & DuPaul, 1998) aggression. Additionally, there were many labels for inappropriate or problematic behavior, including negative (Fowler et al., 1986, Nelson et al., 1995); disruptive (Franzen & Kamps, 2008; Hoff & DuPaul, 1998; Kamps et al., 1999, Lane et al., 2003); aggregated “problem” (hitting, pushing/shoving, kicking/tripping, verbal abuse, throwing objects, playing chase on equipment, standing on the equipment, twisting the swings, tying people with ropes, climbing on equipment not appropriate for play, tackling and pile-ons, and swinging upside down; Anderson-Butcher et al., 2003); problematic playground (e.g., hands on others, threats, and misuse of equipment; Lewis et al., 1998); problem student behaviors (e.g., hands on others, misuse of equipment, language/name-calling, threats, interfering with game, and arguing; Lewis, et al., 2000); and inappropriate (physical, verbal, and gestural negative behavior related to competitive sports/games; Samalot-Rivera & Porretta, 2013) behavior. Lewis et al. (2002) concentrated more on the specific and observable behavior the students (e.g., hands on others, interfering with activity, arguing more than 10 seconds, and playing with rocks; “language/name calling,” p. 185). Other inappropriate behaviors that were included more systematically included rule infractions/violations (Dougherty et al., 1985; Fowler et al., 1986; Murphy et al., 1983)

and misuse /inappropriate use of equipment/property damage (Franzen & Kamps, 2008; Lewis et al., 2002; Murphy et al., 1983; Nelson et al., 1995).

There were additional student behaviors coded across the studies. Some studies measured academic behaviors, such as off-task behavior (Hoff & DuPaul, 1998; Kamps et al., 1999; McConaughy et al., 1998) or academic engaged time (Lane et al., 2003). Several interventions looked at the social aspects of recess. As such, they included undesired social behaviors (e.g., negative social initiations or interactions during recess, negative interactions and social initiations; Christopher et al., 1991). Similarly, some studies looked for the appropriate behavior of positive social interactions (e.g., Christopher et al., 1991) or no responses to peer social engagement and/or isolate (e.g., Hoff & DuPaul, 1998).

Independent variables (intervention). I used three features to describe the intervention: scope, components, and focus of the intervention. I further categorized the scope into focus (staff [17 or 55%] or student [30 or 97%]) and level (universal [16 or 52%], small/targeted group [22 or 71%], or individual [14 or 45%]) of the intervention. The articles were coded for behaviorally-based intervention components. All (31 or 100%) of the interventions included behavioral strategies for students (31 or 100%), and 10 (32%) of the articles included behavioral interventions for both students and adults. More specifically, of the interventions that also included a focus on adults, 11 (35%) addressed adult supervision, 7 (23%) included adult interaction on the playground, and 11 (35%) included adult feedback on the playground. Student-focused interventions included 7 (23%) antecedent strategies, 25 (81%) social skills training, 8 (26%) reinforcement strategies (no punishment), and 12 (39%) combined consequence

strategies. Other non-behavioral intervention components were coded, including 8 (26%) cognitive behavior interventions (looking at covert rather than overt behaviors), 12 (39%) staff training/professional development, 9 (29%) policy review/revision, 1 (3%), environmental modifications, 6 (19%), academics, and 2 (6%) other components. Even though I planned to code for additional categories, none of the interventions addressed mental health therapy, physical activity/health related, injury/safety related, or discipline referrals. Finally, I coded the focus of the intervention; 11 (35%) articles focused on adult active supervision (move, scan, interact), 19 (61%) focused on student aggressive/bullying behavior, 23 (74%) focused on student inappropriate behavior, and 18 (58%) focused on student appropriate behavior.

Measures. Across the studies, categories were included for the measurements of the dependent variables. These included observations (30 or 97%; including observations with a described tool in 8 or 26%), rating scales (13 or 42%), student self-reports (6 or 19%), teacher self-reports (3 or 10%), and other measures (12 or 39%; e.g., peer nominations).

Results. The coded results centered on the behavior of students and adults or other results that was relevant to recess interventions (rather than every result that was recorded for the intervention). Additionally, implementation measures were coded. Overall, 27 (87%) of the articles showed a decrease in undesired student behavior (either statistically significant or with an established functional relation). For aggression/bullying, there was a reduction across 17 (55%) articles, an increase in none (0%), and no significant change occurred in one (3%) of the articles. With inappropriate student behavior, 20 (65%) of the articles recorded a decrease, 1 (3%) an increase, and 3

(10%) no significant change. As for appropriate student behavior, 15 (48%) of the articles showed an increase, and 1 (3%) article showed neither a decrease nor a significant change. With adult behavior, coding was concentrated on the increase or decrease (whichever was the desired direction of the behavioral change for active supervision and other adult behaviors). Across the 31 studies, only 4 (13%) articles showed an effective change in adult behavior, and only one (3%) of the articles recorded an increase in active supervision; one (3%) article showed no significant change with active supervision, and no articles showed a reduction. As for other adult behaviors, one (3%) article showed an increase, three (10%) a decrease, and two (6%) no significant change. Although other potential results were coded, there were no results reported across the articles for physical activity/health or injuries/safety concerns. With respect to implementation measures, 15 (48%) articles recorded fidelity measures, 29 (94%) included IOA measures, and 9 (29%) contained social validity measures.

Summary of Effective Interventions

Overall, as detailed above, 27 (87%) articles described effective interventions for students and four (13%) for adults. The following section describes common components of the effective interventions. Then, I describe and synthesize the individual articles across the following categories: peer based interventions, social skills, and adult supervision.

Common components of effective interventions. Across the effective interventions, there were general intervention components that could be compared across the interventions. The components included: academic instruction (4 or 15%), adult supervision (11 or 41%), classroom management (3 or 11%); curriculum (5 or 18%),

group contingencies (5 or 19%), parent involvement (5 or 19%), peer involvement (7 or 26%), prompts/pre-corrections (4 or 15%), self-management (3 or 11%), and social skills (21 or 78%). Several articles described different studies using the same type of intervention. For example, three articles (Frey et al., 2005; Frey et al., 2009; Low, Frey, & Brockman, 2010) included *Steps to Respect*; five were aligned with school-wide positive behavior support (SW-PBS; Franzen & Kamps, 2008; Lewis et al., 1998; Lewis et al., 2000; Lewis et al., 2002; Marchant et al., 2012), and three articles consisted of the LIFT intervention (Eddy et al., 2003; Reid et al., 1999; Stoolmiller, Eddy, & Reid, 2000). The following sub-sections describe the interventions in greater detail, highlighting peer-based interventions, social skills, and adult supervision.

Peer-based interventions. A few interventions focused on the including peers as intervention agents. Cunningham et al. (1998) trained peers to act as mediators as part of a conflict mediation program in elementary school playgrounds. Similarly, Fowler et al. (1986) trained peers who were screened as having more inappropriate playground behavior to serve as monitors of playground behaviors for all students. Kamps, Kravits, Stolze, and Swaggart (1999) was designed as a universal intervention to address behaviors of at-risk children for emotional behavior disturbance using classroom management strategies, social skills, and peer tutoring for students with reading difficulties.

Social skills. The majority of effective interventions (21 or 78%) centered on social skills. Across these interventions, there was an equal split between interventions that focused on increasing social competence (8 or 38%; e.g., Eddy et al., 2003) and interventions that focused on teaching discreet behavioral social skills (8 or 38%; e.g.,

Lewis et al., 2002). Notably, five articles (24%) included a focus on social competence, but included the direct teaching of social skills (e.g., Frey et al., 2005). For the settings of the intervention, trainings were mostly done in the classroom (17 or 81%; e.g., Samalot-Rivera & Porretta, 2013), with only one (5%) done only on the playground (Nelson, Smith, & Colvin, 1995). Three (14%) interventions included both classroom and playground settings (Franzen & Kamps, 2008; Lewis et al., 2002; Reid et al., 1999).

In general, I examined the components of the social skills interventions. Of note, many included direct instruction (11 or 52%), modeling (10 or 48%), role-playing (13 or 62%), feedback (10 or 48%), and reinforcement (9 or 43%). For example, Schneider (1991) and Samalot-Rivera and Porretta (2013) included modeling and role-play. Three (14%) studies tied in the social skills lessons to school rules (Franzen & Kamps, 2008; Lewis et al., 1998; Lewis, et al., 2004). By way of illustration, Lewis et al. (2002) included social skills on appropriate recess behaviors aligned with school wide behavior expectations. A few interventions included problem-solving (6 or 29%) or conflict resolution (3 or 14%). For example, the social skills intervention for Schneider (1991) was based on cognitive behavior therapy, focusing on problem solving to reduce aggressive behavior and increase cooperative behavior on the playground. Some interventions included part of an established intervention and often included a set curriculum, like (a) *Steps to Respect* (e.g., Frey et al., 2005; Frey et al., 2009; Low et al., 2010;), which was used to address relational aggression (e.g., malicious playground gossip), teach conflict resolution, and establish social skills for successful relationships (Low et al.), or (b) *Second Step* (Grossman et al., 1997), which was used in classrooms to teach empathy, impulse control, and anger management. Only one (5%) taught students

how to self-talk to help cope with antagonistic situations (Schneider, 1991). Several of the interventions (4 or 19%) did not include sufficient details to determine precise components (Barrera et al., 2002; Dougherty, Fowler, & Paine, 1985; Fowler et al., 1986; McConaughy, Kay & Fitzgerald, 1998).

There were also studies that utilized a school-wide positive behavior support (SW-PBS) and its application in schools and non-classroom settings through school-wide positive behavior support (e.g., Lewis et al., 2002). This included the use of social skills lesson plans combined with active supervision and a group contingency (Franzen & Kamps, 2008; Lewis et al., 1998; Marchant et al., 2012). For example, with Franzen and Kamps (2008) the group contingency consisted of the giving of loops (a token reinforcer) for appropriate behavior that could be turned in as part of a group contingency (classroom based) for additional reinforcers. This study also included corrective feedback for inappropriate behavior in areas called “reteaching zones” (Franzen and Kamps (2008). Marchant et al. (2012) added a self-management plan for three students at-risk for aggressive playground behaviors to strengthen its behavioral focus.

Some of the interventions focused on social skills, but had a strong emphasis on working with parents in various ways. For instance, all of the LIFT interventions included training parents in behavioral techniques (Eddy et al., 2003). Some of the interventions were multi-faceted, such as the *Incredible Years*, which focused on parent training, contingencies for learning academic and social skills (CLASS), the Dina Dinosaur Social Skills Program for behavior and peer interactions (social skills program), and a Reading Mastery and Corrective Reading intervention for reading (Barrera et al., 2002) or by including parent training combined with a classroom social skills for problem

solving, and a coordinated communication system between classrooms and parents (Reid et al., 1999). Other interventions focused on a specific population, such as having Parent-Teacher Action Research (PTAR teams) combined with social skills instruction for students with several emotional disturbances (McConaughy, Kay, & Fitzgerald, 1998). Finally, some interventions included parents more nominally to provide resources such as the *Steps to Respect* interventions that sent out information packets on ways to utilize the program in the home setting (Frey et al., 2005).

Other interventions included social skills combined with peer-based interventions. For example, with Dougherty, Fowler, and Paine (1985) the intervention of Reprogramming Environmental Contingencies for Effective Social Skills (RECESS) consisted of social skills training (individual and class-wide) combined with reward systems that recognized consultants, recess supervisors, and peers. With Nelson, Smith, and Colvin (1995) dyads with at risk behaviorally challenged students and their peers, were trained in social skills behavior surrounding recess and the use of self-evaluation (self-monitoring technique), with students self-evaluating their behavior and then matching their ratings with the peer while playground supervisors monitored and provided feedback and points for students based on the matching of the ratings.

Active adult supervision. Two of the effective interventions had a primary focus of increasing active supervision of adults through training of staff. Anderson-Butcher, Newsome, and Nay (2003) addressed aggregated problematic behavior on the playground (e.g., hitting, pushing) through a that included a 3-hour workshop with modeling, reinforcement, and feedback for supervisor skills as well as strategies to increase the participation and cooperation of students in recess settings. Murphy, Hutchinson, and

Bailey (1983) trained staff on organized activities during recess, including using time-out procedures to address inappropriate playground behavior.

Interventions also addressed adult supervision, as part of a larger intervention package (e.g., Fowler et al., 1986). This could include the monitoring of a point system by adults (Dougherty et al., 1985) or the running of a reward system in general for appropriate behavior (Stoolmiller et al., 2000). Some of the SW-PBS interventions were more specific in having supervisors take a more active role, such as the awarding of elastic loops directly to students for appropriate playground behavior as part of a group contingency (Franzen & Kamps, 2008; Lewis et al., 2002; Lewis et al., 1998). Other SW-PBS based interventions included direct instruction for teachers on active supervision (Franzen & Kamps, 2008; Lewis et al., 1998; Lewis et al., 2000), including a recess guide (“Recess Intervention Supplement”) with the teacher training (Franzen & Kamps, 2008, p. 154). In another SW-PBS based intervention, Marchant et al. (2012) included a token economy system for the recess monitors in which they were given tokens that could be turned in for gift certificates if they stood in their designated areas, organized and ran games for students, checked in with certain students, and awarded points if the students were self-managing their behavior. Finally, the SW-PBS intervention of Franzen and Kamps (2008) included areas known as reteaching zones where supervisors were directed to correct students for inappropriate behavior.

In sum, this systematic review addressed two main questions. First, I reviewed the overall characteristics of interventions to reduce aggressive, bullying, and inappropriate behavior in elementary schools. Then, I identified and described the components of effective interventions to reduce aggressive, bullying, and inappropriate

behavior of students in elementary schools. Across the articles, findings suggest implications for interventions, including the importance of social skills approaches and the lack of interventions on adult active supervision.

Discussion of Literature Review

Overall characteristics of interventions. Across the studies, most of the interventions included elementary-aged students in traditional public schools. Although slightly over half of studies also included adults, most studies measured the behavior of students, not adults. When adult behaviors were included, most interventions focused on active supervision. With the student behavior, there was not a consistent definition of aggressive or bullying behavior, with behaviors ranging from broad categories, such as aggression (e.g., Schneider, 2001) or bullying (e.g., Frey et al., 2005) to specific behaviors, such as language/name calling (Lewis et al., 1998). This is similar to prior findings that there is not a uniform definition of bullying (Baldry & Farrington, 2007; Kern & Sugai, 2016). Additionally, although prior research suggests that a multi-level intervention would be most effective, especially one that incorporates a whole-school approach (Vreeman & Carroll, 2007), the interventions were split across universal, small/targeted groups, and individual based interventions, with the majority taking place in small groups. This matches the findings of Kern and Sugai (2016) that most interventions focused on small groups, despite recommendations for more universal, whole-school approaches. Finally, all of the interventions used behavioral strategies, with most including social skills instruction for students and some including active reinforcement by adults. The use of active supervision and the teaching of social skills is suggested as an important element of many of the effective interventions (Ttofi &

Farrington, 2011), but as Kern and Sugai (2016) found, the majority of interventions for bullying did not include either of these as a component.

Common components of effective interventions. Looking at all of the studies, there were common components of the effective interventions. Overall, most of the effective interventions focused on student behavior rather than adult behavior. Although a few considered peer-based strategies, most of the interventions focused on improving the social skills of students. In the social skills interventions, there was some consistency on the ways to teach social skills, with about half of the interventions including direct instruction, modeling, role-playing, feedback, and reinforcement. However, the focus was variable, ranging from teaching behavioral expectations (e.g., Lewis et al., 2002) to increasing problem-solving (e.g., Schneider, 1991). Four interventions did not specify the components of the social skills interventions. Some interventions included SW-PBS (e.g., Franzen & Kamps, 2008), whereas others included packaged curricula (e.g., Frey et al., 2005).

As for adult behavior, eleven (41%) of the effective interventions addressed active supervision as part of a larger intervention. Only two effective interventions focused solely on increasing adult active supervision (Anderson-Butcher et al., 2003; Murphy et al., 1983). However, only one intervention demonstrated an increase in active supervision, and this intervention included a delay in the intervention delivery across the summer (Franzen & Kamps, 2008). This is surprising as prior research has suggested that active supervision is an important component in interventions that reduce bullying, and it would be hoped that studies would not only include this component, but also measure whether the behavior increased. For instance, in their meta-analysis, Ttofi and Farrington

(2011) found that many programs were effective in reducing bullying and victimization, and that one of the components of effective programs included improvements in playground supervision. In their literature review, however, Kern and Sugai (2016) found that only 14.3% of bullying behavior interventions included increasing supervision. These results are more in line with the findings here on the limited number of effective interventions that addressed the adult behavior of active supervision. There is cause for cautious optimism that more interventions in this review included this component than in the Kern and Sugai (2016) even if measurement was lacking. However, more research is still needed on interventions that increase active supervision.

Limitations. The results of this review should be interpreted in light of several potential limitations. First, there is always the possibility of missed articles from the inclusion criteria and the Boolean search of the electronic database. Although the ancestral search decreases the possibility that articles would be missed, it cannot control for this possibility. Second, articles were included as evidence-based if they were coded as experimental, quasi-experimental, or single case designs. Articles were not examined for quality of the design, and the final review include articles that are more suggestive of evidence-based practices than a guarantee of quality. Third, because one person reviewed and coded the articles, the reliability of the results has not been checked.

Implications of Literature Review

The findings from this literature review have implications for schools and researchers. The majority of effective interventions focused on student behavior, with most emphasizing social skills training for students. For the few studies that address adult behavior, the researchers sought to increase active supervision. Furthermore, of the

studies that measured adult supervision, none measured each of the key components of the behavior (e.g., scanning, moving, and interacting).

All of the interventions emphasized interactions of the supervisors with the students. Murphy et al (1983) focused on the use of organized games and time-out procedures to address negative student behavior. For Anderson-Butcher et al. (2003) a 3-hour training included instruction on modeling, reinforcement, and feedback to students. Similarly, both Lewis et al. (2000) and Franzen and Kamps (2008) encouraged interactions with students, with Lewis et al. (2000) having a greater emphasis on the use of precorrections, consisting of reminders for schoolwide behavioral expectations for the playground, and Franzen & Kamps including a group contingency for praise through loops and the use of reteaching zones for corrective feedback. Across these four key studies on active supervision, the interventions addressed interactions directly as a key component of active supervision.

Following this emphasis on interactions, the two interventions that directly measured active supervision focused on measuring this sub-behavior. Franzen & Kamps (2008) examined “Teacher active supervision” (neutral or positive interactions) and “Teacher reprimands” and was the only intervention to claim an increase in active supervision by the increase in the teachers’ average of neutral and positive interactions, reporting the overall average of teachers of a certain grade level (p. 156). They specifically decided to focus on interventions to measure active supervision as it was difficult to observe scanning and movement. Lewis et al. (2000) measured “Adult Active Supervision” through: “Move + 15’, Interact with Student, Interact with Adult, Whistle/gesture” (p. 114). In their measurements, they also measured movement as

“Monitor moved beyond fifteen feet from a previous spot” (p. 114). Although they had included training on scanning, they did not measure for its increase. Again, most of the active supervision measurements surrounded interactions.

The findings of the literature search suggest that an intervention that increases active supervision might require additional components to change the adult behavior, and that each of the three sub-components of active supervision might need to be included in this intervention and directly measured (e.g., moving and scanning, not just interacting) to see if there are increases in active supervision. One such promising technique that has been used successfully to change behavior in adults is self-management. The next section will describe self-management in greater detail and how it might be used to increase active supervision.

Use of Self-Management to Address Active Supervision

Although there are multiple definitions of self-management, Cooper, Heron, and Heward (2007) define it behaviorally as “. . . the personal application of behavior change tactics that produces a desired change in behavior” (p. 578). Self-management can help to increase efficiency and effectiveness while helping to replace undesirable habits with desirable ones (e.g., on-task behavior, Moore et al., 2013). As well, people who are using self-management often can complete challenging activities and achieve personal goals. Other benefits include more personal ones, such as helping to manage internal behaviors and to increase generalization and maintenance of changes in behavior and more broadly such as helping to benefit society (e.g., delaying reinforcers for the good of others; Cooper, Heron, & Heward, 2007).

There are several ways to employ self-management. As Skinner (1953)

explains, self-management “includes a manipulation of variables including self-manipulation of antecedents, engaging in other behaviors, self-monitoring and self-evaluation, and self-reinforcement” (p. 228). As I applied a behavioral analytic approach in this intervention, I included strategies that addressed the antecedent (before the behavior occurs), the behavior (while it occurs), and the consequences (after the behavior occurs). Antecedent techniques may include using prompts to remind the person to do the behavior, and consequences may include self-reinforcement, whereby an individual gives herself a pre-selected positive reinforcer or allows escape from an aversive contingent on behavior (Cooper et al., 2007). Behavior techniques that include self-management often involve self-monitoring, where a person records her behavior systematically, and self-evaluation, where a person compares their self-assessment with a goal or standard (Cooper et al., 2007). Consequence techniques include the reinforcing of desired behaviors to make them more likely to occur in the future (Cooper et al., 2007) and can be done through the use of self-reinforcement.

Keeping self-management in line with behavioral analysis, and considering behaviorally-based self-management interventions that incorporate antecedent, behavior, and consequence contingencies, I examined studies that used a behavior analytic framework for self-management. In a series of studies using self-management to change adult teacher behavior, Simonsen and colleagues (2013, 2014, 2017) included setting of a goal, daily self-monitoring, entry of data into a spreadsheet, self-evaluation and self-reinforcement, and weekly prompts from the researchers. Thus, they addressed the antecedent through the goal setting, the behavior through teaching the components of classroom management and the self-monitoring of the data sheets,

and the consequences through the self-reinforcement. Again, all three behavioral contingencies were addressed through these interventions, aligning these self-management strategies with proven behavioral techniques.

One of the concerns with this line of interventions by Simonsen and colleagues, however, was that despite demonstrating positive effects during self-management, effects were not maintained once self-management was faded (Simonsen et al., 2017). Considering the importance of maintenance, Simonsen and colleagues began to consider other additions to the intervention package (Simonsen et al., n.d.). One possibility may be to use direct behavior rating scales (DBRs; Chafouleas, Riley-Tillman, & Christ, 2009), which might allow more opportunities for self-monitoring and self-evaluation. Also, using DBR's in conjunction with behavior ratings of student behavior might pair the original self-management strategies with a new way to self-monitor and help the supervisor come in contact with natural contingencies of reinforcement (e.g., better student behavior). The next section explains more details on direct behavior rating scales and their connection with self-management.

Self-monitoring/self-evaluation through direct behavior rating scales.

Historically DBR's have been used to increase communication (e.g., School-Home notes), monitor student behavior (e.g., tracking change in off-task classroom behavior), or connect assessment to interventions (e.g., self-management intervention; Chafouleas et al., 2009). Among its benefits, DBR's allow a person who has directly experienced the behavior to efficiently rate the behavior at approximately the same time it occurs (Riley-Tillman et al., 2008), while also allowing the opportunity for teachers to rate students, students to rate themselves, and potentially teachers to rate themselves. In

essence, DBR's combine the benefits of using behavior rating scales and direct observation, with ratings occurring close in time to the actual behavior (Chafouleas et al., 2009).

DBR's often include a target behavior rated on a scale during a specified period of time (Riley-Tillman et al. 2008). Chafouleas et al. (2009) define three critical components: "(a) the rating occurs in immediate proximity to the observation period of interest, (b) the rater is a person who has firsthand experience with the target of interest (e.g., the ratee) during the observation period, and (c) minimal inference is required to discern the target behavior or behaviors" (p. 197). Recent work has been done to establish a more standardized version, the DBR single item scale (DBR-SIS), that includes a single behavior that is rated using either a 5-point or 10-point scale (Chafouleas, Sanetti, Jaffrey, & Fallon, 2012). The DBR multiple item scale (DBR-MIS) has also been suggested as a possible tool incorporating several behaviors and might include the use of a question with a series of responses (Chafouleas et al., 2009).

DBR's allow an individual the opportunity to engage in the target behavior of self-monitoring and self-evaluating their own behavior while also allowing a way to measure the behavior immediately for progress monitoring purposes (Chafouleas, Riley-Tillman, & Sugai, 2007). DBR's have been used successfully for students with traumatic injury to self-monitor their behavior, matching teacher and student ratings to look at accuracy and include a way of providing feedback (Davies, Jones, & Rafoth, 2010). DBR's have also been used as a way for students to self-monitor their behavior across classroom settings, leading to improvements in student engagement and preparedness (Chafouleas et al., 2012).

Overall DBR's provide powerful yet efficient tools to identify behavioral change. The full use and importance of DBR's in interventions, however, is still being explored. Chafouleas et al. (2009) suggest that DBR's might serve in multiple roles in a tiered intervention system, such as Tier 1 screeners or Tier 2 and/or 3 monitors of intervention effectiveness. DBR's can also provide a way to increase the treatment integrity by both observers and/or the participants (Sanetti, Chafouleas, Christ & Gritter, 2009). For example, an observer can rate the interventionist competence (e.g., the skill level of the interventionist) and the participant can rate her/his participant adherence (e.g., the implementation of the components), both of which are important components of treatment integrity (Sanetti et al., 2009). When Simonsen et al. (n.d.) included direct behavior ratings as a component of the intervention the tools were not used in isolation but were used in conjunction with other self-management strategies. DBR's on their own might help to increase the maintenance of any behavioral change by having the participants link any changes of their behavior to positive changes in the students' behavior (pairing) and increase their awareness of the participants to naturally occurring reinforcers in the environment. To that end, this proposal seeks to explore the sole use of DBR's on the direct rating of an adult on their own behavior as well as the behavior of the students to increase the self-monitoring and self-evaluation aspects of self-management and to provide a way that the self-management might be maintained independently once the intervention ended during a maintenance phase. The intervention will also provide the opportunity to compare the ratings of the participants with the observers to consider treatment integrity.

Logic Model of Project RECESS

To look at the key components of the self-management intervention more precisely and illustrate how I hypothesized the intervention would work, I used a logic model based on applied behavioral analysis (ABA). As mentioned in the section above, utilizing an ABA perspective requires a researcher to address three aspects: the antecedent (what occurs before), the behavior, and the consequences (what occurs after). With respect to consequences, they can increase (reinforce), decrease (punish) or have no effect (neutral) on future behavior (Cooper et al., 2007). Looking at a way to increase behaviors positively and proactively, it is preferable to focus on prevention (i.e., antecedent approaches) and positive reinforcement (i.e., adding a stimulus that increases behavior).

For the antecedents, I incorporated a way to remind (or prompt) the adult to engage in the desired behavior. For this, I had the supervisors review the checklist that contained the key active supervision behaviors before recess. To teach the active supervision behaviors, I provided a brief professional development training that explicitly taught active supervision and strategies to self-manage implementation of active supervision with a checklist and direct behavior rating scales (as described above). Finally, to increase and maintain active supervision across time, I asked recess supervisors to self-reinforce when they met a predetermined goal. In addition, I hypothesized that once the supervisors became aware of the more appropriate behavior (aided by the pairing of the DBR's rating of their own behavior with the student appropriate behavior), they would also come in contact with natural reinforcers in the setting that would be there after the intervention ended (e.g., more appropriate student

behavior). As for the students, the adults would remind (prompt) the students to engage in appropriate behavior and would praise (positively acknowledge) the behavior when it occurred. The following logic model (Table 2) highlights key steps in the ABA-based Project RECESS intervention and illustrates behavior contingencies for adult and student behavior, focusing on positive behavioral approaches.

Table 2
Logic model of Project RECESS

Desired outcome	Antecedent	Behavior	Consequences/Function
Change in Adult Behavior	Prompt active supervision in recess using a checklist	Teach active supervision and self-management strategies through professional development. Self-monitor and self-evaluate active supervision, including the use of a checklist and DBR's to self-manage adult behavior that is incompatible with inactive supervision	Self-reinforce active supervision Increase in student appropriate behavior may function to reinforce active supervision
Change in Student Behavior	Adult active supervision includes prompt to students	Assumes student has appropriate student playground behavior in their repertoire	Adult interactions (praise) and loops given for instances of appropriate behavior may reinforce appropriate behavior

Purpose of Study

The purpose of Project RECESS was to test the effects of a targeted

professional development, which included brief training followed by self-management (i.e., filling out an active supervision checklist and completing direct behavior rating scales) on recess supervisor's use of active supervision (i.e., moving around the environment, scanning or looking around, and interacting with students) on the playground. In other words, the goal was to explore whether self-management strategies lead to an immediate and sustained increase in recess supervisor's active supervision. A secondary goal was to demonstrate that once recess supervisors used the active supervision strategies, student problematic behavior during recess decreased. Finally, I explored whether using just the direct behavior rating scales for self-management would support the maintenance of any increase in active supervision, and if the supervisors would use the DBR's independently for self-management.

Research Questions

Specifically, I addressed the following research questions:

1. What are the effects of a brief training and on-going self-management on recess supervisors' active supervision behaviors?
2. What are the effects of increasing active supervision on students' problematic behavior during recess?
3. Will any increase in recess supervisor's use of self-management be maintained with the sole use of direct behavior rating scales as part of a self-management strategy of the adult active supervision?

Chapter II

Method

This dissertation examined the use of self-management to increase the active supervision of recess supervisors. Specifically, I trained the recess supervisors on the elements of active supervision (Part 1) and the use of self-management (e.g., the checklist and direct behavior rating scales; Part 2). Using a multiple baseline design across participants, I trained each participant one at a time, in a randomly assigned order, to determine if a functional relation was present for (a) an increase in recess supervisors' active supervision behaviors, (b) a decrease in student inappropriate behavior, and (c) maintenance of the use of self-management for any desired increases in supervisor's active supervision. This chapter summarizes the methods used in the study.

Setting

Once I received the University of Connecticut's (UConn) Institutional Review Board (IRB) approval, I emailed district and school administrators of elementary schools that serve kindergarten through sixth (K-6) grades (or some subset of those grades; e.g., K-2, K-4, 5-6) with whom I have an existing relationship (e.g., professional development centers affiliated with the Neag School of Education, members of the Center for Behavioral Education and Research [CBER] research collaborative, schools/districts who have participated in prior research). In addition, I sent an email to other professionals who have a relationship with schools (e.g., positive behavioral interventions and supports [PBIS] trainers, state department of education consultants, consultants from the regional education service centers), and asked those individuals to forward the email to district and school administrators who may be interested in participating (see Appendix G).

Ultimately, I obtained permission to conduct a study at a suburban elementary school spanning preschool through grade 5 in Connecticut.

According to the State of Connecticut website that lists school information (EdSight; <http://edsight.ct.gov/>), the strategic school profile lists an enrollment of 207 students (grades preK-5). As far as discipline, in 2009–2014, there were no in-school or out-of school suspensions, expulsions, or bus suspensions. About twenty-five percent (24.6%) of the students were eligible for free or reduced-price meals and 6.3% were students with disabilities. Students were listed as 18.4% Asian, 5.8% Hispanic or Latino, and 71.0% white. As for staff, there were 16.6 full-time equivalent staff and 6.0 paraprofessional instructional assistants.

Participants

After the school site was approved by the IRB, I asked the principal to help me set up a brief meeting to directly recruit recess supervisors. At the recruitment meeting, I explained the key aspects of the study (Appendix H) and distributed a recess supervisor consent form and a one-page contact information sheet, which prompted recess supervisors to provide preferred contact information (email and phone) and to identify a 15-min block of recess for observation (see Appendix I). I asked recess supervisors to either (a) complete both forms (consent and contact information) if they were interested in participating in the study, (b) fill out the contact form only and select the option indicating they would like to request an individual meeting to discuss the study before signing consent, or (c) indicate that they are not interested in the study by leaving both forms blank (Appendix H). Five recess supervisors completed both forms at the meeting,

indicating interest. One decided not to participate, and four signed the consent to participate.

I also asked the principal to send home parent notification forms for all students in the school prior to any data collection in the classroom. The parent notification form informed parents that there might be an outside observer during their child's recess and that investigators from the University of Connecticut may be observing their student's behavior as a measure of the effectiveness of a recess supervisor training program during recess; however, their child would not be identified in the research or known to the researchers. I confirmed with the principal that the notice was sent out prior to starting observations. Copies of the recess supervisor consent form and parent notification forms are attached as Appendix J.

At the end of the study, I was able to meet with two participants and receive demographic survey from three that allowed me to describe the participants with greater specificity. Pseudonyms were used to protect the confidentiality of the participants.

Cassie. At the time of the study, Cassie was a 56-year old white female paraprofessional with an Associates degree. During the recess period, she was in charge of all of the 3rd, 4th and 5th graders. With no prior training in active supervision, Cassie has been supervising recess for 2 years.

Olivia. Olivia is a white female paraprofessional who worked across the school as a floating paraprofessional. During recess she supervisors all 3rd, 4th, and 5th graders. Olivia did not send back her demographical information and declined to meet in person, resulting in her age, highest degree of education, years supervising, and prior training as “unknown.”

Madelyn. At the time of the study, Madelyn was a 70-year old white female paraprofessional who works with grades 3, 4, and 5. She received her GED. In prior years, she worked one-on-one with a student with disabilities and behavior challenges and “keeps an eye on him” but was not directly assigned to him. Instead, she watched all of the 3rd, 4th and 5th graders during her recess period. She has been supervising recess for over 10 years and has not received prior training on active supervision.

Grace. At the time of the study, Grace was a 57-year old white female paraprofessional who works with grades 1 and 2. Her highest degree of education was an Associates degree. At recess she was not assigned a specific child, but was in charge of all kindergarten through 2nd graders during her recess period. She has been supervising recess for 3 years and did not indicate whether she has received prior training on active supervision.

Dependent Variables

Active supervision. For this study, I defined the behavior of active supervision behaviorally as three components: scanning, moving, and interacting. This is in line with several SW-PBS affiliated interventions. Colvin et al. (1997) defines active supervision as: “...specific and overt behaviors . . . displayed by supervisors designed to prevent problem behavior and to promote rule-following behavior” (p. 346), and Lewis et al. (2000) specifies active supervision to consist of moving, scanning, and interacting. Specifically for this proposal, active supervision consisted of moving (supervisor increases the number of steps and/or movement between quadrants), scanning (supervisor looks up at groups of students and moves her/his head), and interacting (supervisor speaks to a student or groups of students). Interacting was

further coded as a prompt (reminder) to engage in appropriate behavior, specific or general praise to acknowledge appropriate behavior, or specific or general corrective to stop inappropriate behavior. The specific aspect of praise and corrections required the person to reference the behavior. Other interactions were coded (general communication with a student or group of students) and specified as either student initiated or adult initiated. Additionally, to encourage verbal praise, the supervisor was given a bag with 15 loop bracelets (loops). As part of the intervention, the supervisor was asked to give out the loops to students after the supervisor sees incidents of appropriate behavior.

Student behavior. For Project RECESS, the student problem behavior was defined both topographically and by magnitude as part of a continuum of problematic behavior, focusing on the behavior itself and its increasing intensity. On the opposite end of the spectrum, appropriate behavior was also measured as part of the direct behavior rating scales. Specifically, student behavior on the playground was defined as:

- *Moderately Problematic Behavior:* teasing, refusing to play with other children, pushing; basically low intense aggressive behavior
- *Highly Problematic Behavior:* repeated verbal teasing and harassment, physical fighting, such as with punching or repeated kicking; basically more intense physical aggression
- *Appropriate Behavior:* cooperatively playing with others, such as participating in sport and/or games; using playground material the way it should be used, such as sliding down the slide feet-first; following school-wide behavioral

playground expectations (which might be part of the behavior matrix of the school)

Measures

Several categories of measures were used in this study to measure or assess the dependent variable (DV), fidelity of implementation, and social validity of the self-management strategy. I also gathered demographic data from participating recess supervisors (as reported earlier).

Direct observation of active supervision. Recess supervisor's use of empirically-supported active supervision was the primary DV of this study. Active supervision (e.g., moving, scanning, and interacting) was recorded and coded on The Systematic Observation of Recess Supervisor Active Supervision form (see Appendix P).

Measuring supervisor interaction. To measure supervisor interaction, I divided the recess into 15 one-minute intervals for each supervisor. For each observation, I coded interaction behaviors in three ways: (a) momentary time sampling during outside observations; (b) event recording (i.e., frequency counts) of audio recorded interactions; and (c) the number of loops handed out during the intervention and maintenance phase.

Momentary time sampling during outside observations. The outside observation form used a momentary time sampling at the beginning of each 15 minute intervals of an observation period for the key behaviors (moving, scanning, interacting, quadrant location, corrective actions (e.g., having students stop playing, blowing of a whistle; if visible/auditory to the observer), moderately problematic behavior (student),

and highly problematic behavior (student). I also staggered the observation session for the recess with multiple participants starting the first, and then the second two minutes later, and the third two minutes after the second. This allowed me to observe all three participants during that recess period. I gave the clipboards to the supervisors when they came onto the playground and recorded the time they were holding the clipboards using the iPod recording to determine the precise steps per minute.

The end result is that the outside observations consisted of a total time of 19 observed minutes for three of the participants, but each participant was only observed for a total of 15 minutes. The participant that was in the recess period without others was observed for 15 minutes.

Event recording (frequency counts) of audio recording. In addition, after the recess was done and ideally within 48 hours (up to 5 days was allowed), I listened to audio recordings of the interactions made on the iPod tablet that the supervisor carried on a clipboard to record the frequency of specific verbal interactions, specifically counting the frequency of prompt/precorrection, general praise, specific praise, general correction, specific correction, other interactions (student initiated or adult initiated) across 30-second intervals. The purpose of using an audio recording was to be able to hear the verbal interactions of the recess supervisor with less disruption. Specifically, I used the Systematic Observation of Recess Supervisor Active Supervision form to record the frequency during a 30-second interval across a 15-minute session of recess (Appendix P), and I used event recording to note the number of times (frequency of) the behavior events that occur. After each recording was coded, the recording was erased. I then calculated the rate (number of times per minute) of each of the key

behaviors to be able to compare them across participants and across time.

Total loops distributed. Also, (as indicated above as part of the interaction measurement), after their training, the supervisor was given a bag with approximately 15 loop bracelets (loops). As part of the training the supervisor was asked to give out the loops to students after the supervisor saw incidents of appropriate behavior (e.g., cooperatively playing with others). Any loops not handed out to students were collected by the data collector at the end of the observation session and counted daily, with the number of loops given out to students recorded on the observation form (Appendix P).

Measuring supervisor movement. The adult movement was recorded in two ways. First, I used an application on the iPod for a pedometer that measured the exact number of steps taken. The iPod was collected at the end of the observation session, the recording and movement (number of steps) was transcribed by a trained observer, and deleted ideally within 48 hours, but not longer than 5 days. As mentioned previously, because of the difficulty of navigating the playground for the second recess period when there were three participants, I noted the time of the recording as the recording was started when the participant was handed the tablet. When I picked up the recording, I noted the number of steps. After I listened to the recording and listed the full time of the recording, I divided the total steps by the exact duration of the recording to obtain a precise rate of steps per minute. Additionally for the observations on the playground, for every observation interval, I marked the quadrant location of the supervisor at the interval beginning using momentary time sampling. At the beginning of the study, I had divided the playground into 4 quadrants (e.g., playscape, door, field,

and blacktop) and used these quadrants to indicate the location at the beginning of each interval. I calculated the percentage of intervals with changes in location.

Measuring supervisor scanning (looking around). During the in vivo observation, I recorded the number of intervals the recess supervisor engaged in scanning (looking around) using momentary time sampling across a 15-minute time period using 1-minute intervals. Under this method, time is broken into equal segments (intervals) and if the behavior occurred at the beginning of the interval, the observer marked it as occurring during that interval; Cooper et al., 2007).

Direct observation of student behavior. To explore the impact of changes in recess supervisor behavior on student behavior, I recorded the behavior of students who entered a pre-identified problematic area on the playground, again using momentary time sampling at the beginning of 1-minute intervals to note whether the student displayed the following behaviors: moderately problematic behavior (e.g., teasing, refusing to play with other children, pushing/lower intensity aggression) and highly problematic behavior (e.g., repeated verbal teasing/aggression, fighting/physical aggression). At the beginning of the study, the recess supervisors indicated the areas each found problematic, and this happened to be the areas that they were assigned and monitored. In effect, the behavior of the students in the location around the supervisor was recorded.

Direct behavior rating of student and supervisor behavior. As an additional measure of overall group behavior, recess supervisors and data collectors were asked to fill out a Direct Behavior Rating (DBR; <http://directbehaviorrating.com/cms/>) scale consisting of two items on a scale of 0 (0%, never) to 10 (100%, always) during the observation time: the recess supervisors rated their own active supervision (item 1) and

the students rate of appropriate student behavior (item 2). The DBR's were included as part of the checklist for the recess supervisors and as part of the observation form for the observers (See Appendix N, O, & P).

Measures of fidelity of self-management implementation. I collected fidelity data for the first training by having an independent observer watch the training and fill out the Fidelity Measure for Active Supervision Training. This form consisted of a series of ratings (a) fully (covered all content, addressed questions), (b) partially (covered some content, addressed parts of questions), or (c) not at all (skipped that portion of training; Appendix L). For the three other trainings, I filled out this checklist after the training was completed as it was challenging to organize having an additional observer for the trainings given the inconsistency of the weather and the shift of the daily schedule of the supervisors to attend the trainings. The data collection tool also included a checklist for observers that mirrored the active supervision self-management checklist and direct behavior rating scales, including whether the Recess Supervisor reviewed the checklist before the recess and if the observer perceived that the recess supervisor had done several listed components of active supervision with a response of Always, Sometimes, and Never response. Finally at the end of the data collection tool, observers were asked to look whether the recess supervisor implemented the self-monitoring strategy fully (i.e., filled out the checklist and DBRs), partially (used one, but not both), or not at all (did not fill out the checklist and DBRs; Appendix P).

The ratings for training 1 were at 100% (7/7) for the score "fully covered." For the self-assessment, the rating scale was the same and for all three trainings, I covered all

7 areas fully for 100% (7/7) fidelity of training. Overall, the trainings for all 4 were fully covered at 100% across the independent data collector and self-assessments.

Measures of social validity. In order to explore the acceptability of the intervention for the recess supervisors, I asked them to complete two surveys at the end of the intervention: (a) TPD Acceptability Questionnaire (TPDAQ) and (b) Usage Rating Profile-Intervention Revised (URP-IR).

TPD Acceptability Questionnaire (TPDAQ). The TPDAQ has been adapted from the Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) and includes questions related to an intervention's social validity (Simonsen et al., 2017). The original IRP-15 was related to a longer version of the IRP (Witt, Martens, & Elliot, 1984) that measures teachers' acceptability of behavior interventions. Although this tool has not been psychometrically validated, the original IRP-15 appears to consist of a one-factor structure with a "general acceptability" and high internal consistency (Cronbach's $\alpha = 0.98$; Martens et al., 1985). Similar to its predecessor, the TPDAQ contains includes a Likert scale ranging from *1 – Strongly Disagree* to *6 – Strongly Agree* for the acceptability of the intervention. The following questions were added to this tool: "16. I would prefer using an electronic version of the checklist: Yes/No and "17. Please provide any comments about the checklist and/or direct behavior rating scales as a way to increase self-management (open-ended response)." The TPDAQ was used to collect data on the social validity of the self-management strategies from the recess supervisor's perspective at the end of the intervention. (A copy of the questionnaire is included in Appendix Q).

Usage Rating Profile-Intervention Revised (URP-IR). This instrument consists

of 29-items that supplement information collected by the IRP (and its successor the TPDAQ) in order to take into account other influences on use of an intervention (Briesch, Chafouleas, Neugebauer, & Riley-Tillman, 2013; Chafouleas, Briesch, Neugebauer, & Riley-Tillman, 2011). Participants indicate their level of agreement, or disagreement, with each item using a 6-point Likert scale (1—strongly disagree to 6—strongly agree). Exploratory and confirmatory factor analysis suggests that the instrument has the following six factors: (a) acceptability, (b) understanding, (c) home school collaboration, (d) feasibility, (e) system climate, and (f) systems support (Briesch et al., 2013). In this study, participating supervisors completed the URP-IR at the end of the intervention. (A copy of the questionnaire is included in Appendix Q).

Supervisor demographic information. A brief demographic questionnaire was distributed to gather demographic information from participating supervisors (see Appendix R).

Inter-Observer Agreement

Data collector's description. I was the primary data collector, and additional trained data collectors assisted with Inter-Observer Agreement (IOA) checks for the playground and for the recordings. For the playground, observers included four students: two undergraduates in special education, a master's student in school psychology, and a PhD student in special education. For the recordings, observers included three observers: two of the students also assisted with the outside observation (the undergraduate in special education and the masters in school psychology) and were joined by a third observer (an undergraduate in speech therapy).

Observer training. To ensure the reliability of the data collection, I provided

the following trainings. First, data collectors were trained to collect data across a series of activities. Specifically, reliability training consisted of (a) one meeting to introduce the tool and discuss operational definitions of the behaviors included on the form and (b) two or more sessions of in-vivo training (i.e., observing teachers and children in recess) with the form and with the audio recording. In-vivo training was continued until the behavioral observers reach the predetermined criterion (i.e., 85%) of inter-rater reliability.

To ensure the integrity of the reliability checks, I calculated the IOA weekly throughout duration of study to prevent observer drift. If inter-rater reliability decreased below 80% on any observation for any behavior, I provided a “booster” training session to again reach a criterion of 85% inter-rater reliability before resuming observations. In this study, only three behaviors across three observations fell below 80% for IOA. One occurred during the baseline for agreement on quadrants for one observer, and I went over the locations on the observation form and started to draw a diagram for reference on the data form for every observation thereafter. The other was for outside observations during maintenance for one behavior, and we went over the definitions again. The third occasion was after a new data collector had been trained and IOA was not as high on one of his initial IOA sessions (again for one behavior), and we went over the training again. No other booster sessions were required, and IOA was monitored weekly to make sure that the IOA for each behavior was at 80% or above across all behaviors.

As far as the amount of IOA collected, because I was the primary data collector through this study, I wanted to obtain a high percentage of IOA across all phases.

Although, Cooper et al. (2007) suggest IOA for at least 20% of all observations, I wanted to have IOA for at least 40% of the sessions for each participant across all phases. Because weather changes often led to unplanned cancellations, for some phases I had over 40% and some under as I had to pre-plan the weekly IOA needs for both outside observations and the recordings while trying to predict the weather. For my outside observations, the percentage of IOA collected per phase can be seen in table 3 and 4 and ranges from an average of 31% to 63% for outside observations and 43 to 67% for recordings.

Table 3

Percentage of IOA for outside observations: percentage across phases, and participants

Participant	Phase					
	Baseline	1	2	3	4	Maintenance
Total	63%	60%	40%	40%	31%	33%
Cassie	57%	63%	40%	43%	29%	33%
Olivia	80%	63%	40%	33%	29%	33%
Madelyn	57%	71%	40%	43%	25%	33%
Grace	57%	43%	40%	43%	43%	33%

Table 4

Percentage of IOA for recordings: percentage across phases and participants

Participant	Phase					
	Baseline	1	2	3	4	Maintenance
Total	47%	56%	60%	43%	52%	67%
Cassie	43%	63%	60%	50%	43%	67%
Olivia	60%	63%	60%	46%	40%	67%
Madelyn	43%	57%	60%	50%	50%	67%
Grace	43%	43%	60%	43%	43%	67%

To calculate IOA for both outdoors and recordings, I used an interval by interval agreement, which is the strictest form of IOA (Cooper, Heron & Heward, 2007). For the outside observations, I recorded IOA on the dependent variables across

15 intervals marking the percentage of agreement (either 0% or 100%) for each interval for each behavior. Of the recorded observations, I recorded IOA on the dependent variables across 30 second intervals on the frequency of the behavior and again calculated IOA interval by interval; here the percentage of agreement could vary if there were several instances of the behavior across each interval and was calculated by dividing the lower frequency by the higher frequency and multiplying the total by 100 to obtain a percentage. For both the in vivo observations and recordings, the percentages across all intervals were then averaged to obtain a mean IOA for each behavior across every observation and as an overall mean across the observation. Across all observations, IOA ranged from an average of 88.3% to 100% for outside observations and 96.4% to 99.7% for recordings. Tables 5 and 6 contain the averages of the percentages of IOA across the outside and recorded observations for each phase for each participant.

Table 5
IOA agreement for outside observations

	Recess Supervisor Behavior									Student Behavior					
	Scanning			Interacting			Quadrant Location			Moderately Prob.			Highly Prob.		
	Baseline	Intervention	Maintenance	Baseline	Intervention	Maintenance	Baseline	Intervention	Maintenance	Baseline	Intervention	Maintenance	Baseline	Intervention	Maintenance
Total	96.9	96.1	95.0	96.0	95.1	84.3	95.6	98.4	88.3	99.6	99.3	98.3	100.0	99.9	98.3
Cassie	98.3	95.0	100.0	98.3	95.0	80.0	85.0	97.8	93.3	100.0	99.4	100.0	100.0	100.0	100.0
Olivia	95.6	95.8	100.0	100.0	95.2	86.7	100.0	98.8	80.0	100.0	100.0	100.0	100.0	100.0	100.0
Madelyn	95.0	98.2	100.0	93.3	98.2	98.3	100.0	98.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Grace	100.0	97.3	80.0	91.7	91.3	77.3	98.3	98.7	80.0	98.3	97.3	93.3	100.0	99.3	93.3

Table 6
IOA agreement for recordings (average across global behaviors)

	Prompts			Praise			Correctives			Other Interactions		
	Baseline	Intervention	Maintenance	Baseline	Intervention	Maintenance	Baseline	Intervention	Maintenance	Baseline	Intervention	Maintenance
Total	99.5	98.3	99.0	99.7	98.0	98.5	97.1	97.1	98.8	97.8	97.4	97.5
Cassie	100.0	97.6	100.0	99.6	96.8	98.8	96.5	97.2	100.0	98.3	97.1	100.0
Olivia	100.0	97.5	100.0	100.0	97.4	100.0	99.5	97.2	100.0	99.4	97.0	99.2
Madelyn	99.2	100.0	100.0	100.0	99.8	100.0	98.5	98.4	100.0	97.5	99.0	99.2
Grace	98.9	98.2	95.8	99.5	98.5	95.0	93.5	95.5	95.1	96.7	96.3	91.7

Independent Variable

In order to increase the active supervision of recess supervisors through the use of self-management, I developed a targeted professional development, which included 2 didactic trainings (1:1 or group setting; part 1 focused on active supervision, part 2 focused on self-management) accompanied with scripted trainings on the components of active supervision and self-management. These scripts included (a) an operational definition of active supervision, moderately problematic behavior (of students); highly problematic behavior (of students); and appropriate behavior (of students; needed for the direct behavior rating scales; (b) rationale for using active supervision to reduce problematic behavior; (c) examples/non-examples of active supervision; (d) definition of self-management; (e) description of self-management (i.e., how to self-monitor, use the checklist, self-evaluate, and self-reinforce); (f) development of a self-management plan; and (g) the use of the checklist and Direct Behavior Rating Scales. Specifically, teachers' self-management activities would include daily self-monitoring during recess. Appendix K contains the scripts of the trainings. Overall, the average duration of the trainings took 18 minutes for Part 1 and 13 minutes for Part 2.

Between the training for part 1 and part 2, I observed the recess supervisor's active supervision (e.g., moving, scanning/looking, and interacting) using the checklist. If the Recess Supervisor was marked as "Sometimes" for at least one of the moving, scanning/looking, and interacting behaviors on the checklist, they received part 2 of the training that included a brief review of Part 1. This was done to make sure that the brief training was sufficient for any supervisors who were not familiar with active supervision and needed additional trainings to be able to perform the skills. If the criterion was not reached,

the recess supervisor would receive part 1 training for a second time and the part 2 training.

All of the supervisors were able to meet a “Sometimes” for at least one behavior and were able to go directly to part 2 training. Appendix M contains the checklist between trainings 1 and 2.

The main components of the self-management plan included the active supervision self-management checklist and direct behavior rating scales. This checklist consisted of a modified self-assessment checklist for active supervision in unstructured areas (Positive Behavior Support Non-Classroom Management Self-Assessment; Sugai & Colvin, 2004). The checklist also included a list of questions for the adult based on the components of active supervision. The supervisor was asked to review the checklist before the observation session by answering if they had reviewed the checklist before the session with a Yes or No and were asked to fill out the Checklist after the observation session with a response of Always, Sometimes, and Never response for each of the behaviors. The checklist tool also contained two direct behavior rating scales for the percentage of time ranging from 0 (0%) to 10 (100%) for the following behaviors: Active Supervision (adult behavior) and Students engaged in Appropriate Behavior. Recess Supervisors were asked to rate these behaviors at the end of the observation session. This tool can be found in Appendix N. Following the training, the recess supervisor implemented the self-management strategies daily (checklist review and completion and DBR completion) and turned in their checklist/DBR's at the end of the observation period. (They were provided with a clipboard with the tablet and paper version of the checklist and DBR's.)

At the end of the intervention, observers collected maintenance data. I contacted the supervisors about using the DBR's and handing out the loops with an offer to supply the

material. I also sent the DBR's to each supervisor in an attachment to the email. At the end of the observations for maintenance, the supervisors could choose to fill out the DBR's. Appendix O contains the DBR's for the maintenance phase.

Design and Analysis

Design. I used a single-subject multiple baseline design across participants, which is an established experimental approach that is associated with high levels of internal validity. Single subject methodology is characterized by a high level of experimental control, repeated measurement of behavior across time, and within-participant comparison (i.e., each participant serves as his/her own control; Kratochwill et al., 2010). As part of the multiple baseline design, four recess supervisor's use of active supervision were observed during a selected 15-min segment of recess. These observations were done daily during the same time frame that the recess supervisor was supervising outside recess on the playground (approximately 3-5 days per week), depending on weather allowance of outside recess. Recess supervisors were progressed through three conditions: baseline, intervention, and maintenance in a staggered fashion with random assignment of order. That is, recess supervisor numbers were drawn out of an container to select which recess supervisor would progress to intervention (and then follow-up) first, second, third, and fourth.

Use of composite score and graph. With all of the dependent variables that were measured, it would have been difficult to decide what data to rely upon for stability, level, and variability to make a decision on when to move to the next phase of the intervention. After discussion with my advisor and clearance from my committee, I developed a composite consisting of the three main outside observation behaviors (scanning, interacting, and moving

between quadrants). The composite consisted of a score from 0 to 3, with three being highest. In order to have a 3, the supervisor had to be engaging in all three behaviors across 100% of the intervals. To calculate the composite, I added the number of intervals when each of the three key behaviors occurred and divided that number by 15 (total # of intervals). During each phase, I looked at the composite graph and looked at the stability, level, and variability to determine when to move to the next phase. This composite score also allowed a comparison of multiple active supervision behaviors at the same time.

Baseline condition. During the baseline condition, I recorded the amount each recess supervisor actively supervises (e.g., moves, scans/looks around, and interacts) during a 15-min segment of recess daily at the same time. The supervisor did not change her typical strategies/routines. Observers collected baseline data until the composite data (moving between quadrants, scanning, and interacting) were stable (i.e., there are minimal changes in level and trend of the dependent variables over at least five observations, as per What Works Clearinghouse Standards for multiple baseline design studies; Kratochwill et al., 2010).

Intervention condition. Once baseline data were stabilized, I randomly assigned recess supervisors to intervention order. The first randomly assigned participant/recess supervisor entered into the intervention condition. During this time, we continued to observe the recess supervisors that were still in baseline as before until the composite of all previously trained recess supervisor's data were stable (i.e., the composite variable was stable in terms of trend, level, and variability). At that point the second randomly selected recess supervisor entered into the intervention condition. This process was repeated until all four recess supervisors had entered the intervention condition. The implementation of the targeted

professional development (part 1 on active supervision and part 2 on self-management) was also staggered across all participating recess supervisors (i.e., multiple baselines). Between the training for part 1 and part 2, observation/s were made of the active supervision of the recess supervisor using the checklist to ensure that the recess supervisor was showing that they can engage in the active supervision (e.g., moving, scanning/looking, and interacting) and meet the criteria of “Sometimes” for moving, scanning, or interacting (Appendix M). Again, all of the supervisors meant the criteria and were able to proceed directly to the part 2 training.

Observers collected intervention data until the newly trained supervisor’s composite data were stable (i.e., there are minimal changes in level and trend of the dependent variables over at least five observations, as per What Works Clearinghouse Standards for multiple baseline design studies; Kratochwill et al., 2010). Until all participant’s had received training and have had at least 5-7 observation sessions, the observations continued across the other participants. This was done to make sure that there were no other confounding variables that might account for any change in data.

Maintenance condition. If a recess supervisor’s active supervision remained adequate after all of the participants had entered the intervention phase and the last participant’s composite score had shown stability, the recess supervisors moved into the maintenance phase. During this phase, I asked each recess supervisor to use the direct behavior rating scale portion of the self-management at her/his own discretion for a period of 3-4 weeks (and not the checklist) and to hand out loops, if desired. I conducted three observation probes during the same 15-min segment of recess observed previously over the course of four weeks. During probes, I again collected data on each recess supervisor’s implementation of the skill, asked the recess

supervisor whether s/he had been using the direct behavior rating scales, and recorded whether or not s/he used the direct behavior rating scales (and the fidelity with which it was used) at the end of the observation.

At the conclusion of the study, I offered to meet with each recess supervisor to share a report with summarized data. At this meeting, I also asked the recess supervisor to complete the social validity measures (the TPDAQ and URP-IR), filled out the demographics with them, and ideally gave them a gift card for participating. For those who did not wish to meet in person, I asked the recess supervisors to submit the social validity measure and demographics by mailing it back to me in a self addressed stamped envelope.

Analysis. Data analysis consisted of visual analysis of the changes in recess supervisor behavior and student behavior (e.g., examining changes in level or trends and the variability of data points) across and within the baseline and intervention phases (Cooper, Heron, & Heward, 2007; Kazdin, 2011; Kratochwill et al., 2010) with means, ranges, and effect sizes (Tau-U) calculated to support the visual analysis. The number of recess loops, steps taken, and office discipline referrals for the playground were tallied and reported as a total number and/or rate. I examined social validity data through descriptive statistics (e.g., frequency of responses).

Chapter III

Results

For this dissertation study, I tested the impact of a self-management strategy on the active supervision of recess supervisors following training and the on-going use of a checklist and direct behavior rating scales. I also investigated whether the intervention would affect the student behavior, and whether the supervisor used the DBR's and maintained any increases in self-managed desired behavior with the sole use of direct behavior rating scales. Four recess supervisors participated and were observed during recess both in person and after with recorded information on their actual interactions. During these observations, data collectors (a) tracked the percentage of intervals that the supervisors interacted, scanned, and moved between quadrants using a momentary time sampling at the beginning of the minute during a 15-minute slice of recess; (b) the exact number of steps taken during that same period; (c) the percentage of intervals of student problematic behavior; and (d) the frequency of prompts, praise, corrections, and other interactions using event recording broken down into thirty 30-second intervals, but calculated as rate per minute.

Visual analysis. I used visual analysis to examine the level, trend, and stability of data within and across phases on a graph. This technique relies upon applied baseline logic to see if there is a functional relation between the intervention (independent variable; i.e., self-management) and the behavior/s (dependent variables; e.g., active supervision) across three or more participants across three or more points in time.

Specifically, I examined multiple baseline graphs for the supervisors' key active supervision behaviors and for the student behavior. Each of the graphs included the number of

the observations on the x-axis and the percentage of intervals or the rate of behavior per minute (whichever is applicable to the variable) on the y-axis. I also included lines to illustrate changes in phases. As this study took place outside in the winter, it was customary to have data 2 to 3 days per week, with the other days not having outside recess. I have separated out large breaks in data (e.g., school vacations), but have connected the other data points for ease of interpretation.

There were a few instances where the recording did not work on Olivia's iPod, which led to a few gaps in data for the recordings and steps per minute (evident on the graphs as breaks). Also, Madelyn was absent for a few days toward the end of the intervention. As she had not shown any sustainable changes in behavior at that point, and with the composite showing that the supervisors' behaviors were steady, I ended the intervention phase.

Descriptive statistics. In order to compare the changes across the phases, I used descriptive statistics to determine the mean (average) and the range for each participant for each phase across the key dependent variables. I did the same for the student behavior. I used the range because it showed variability the most clearly for some of the behaviors. See Tables 7 and 8 for the specific results for outside observations and the recordings.

Table 7

Mean and range of the outside observations: adult active supervision and student behavior

Participant	Recess Supervisor			Students	Mean Percentage of Intervals (and Range)							
	Behavior/Phase	Mean Percentage of Intervals or Rate (and Range)			Baseline	Intervention	Maintenance					
		Baseline	Intervention					Maintenance				
Cassie	Interactions (%)	31% (7 - 53%)	41% (7 - 73%)	16% (0 - 47%)	Moderately Problematic	5% (0-13%)	2% (0-17%)	0% (0-0%)				
	Scanning (%)	68% (60 - 73%)	77% (33 - 100%)	91% (87 - 100%)								
	Movement (between Quadrants; %)	19% (0 - 33%)	22% (0 - 47%)	22% (0 - 33%)					Highly Problematic	0% (0-0%)	0% (0-0%)	0% (0-0%)
	Movement (Steps per minute)	19.3 (5.5 - 32.4)	16.7 (1.1 - 30.3)	10.8 (10.0 - 11.6)								
	Corrective Actions (per minute)	0.0 (0.0 - 0.0)	0.0 (0.0 - 0.0)	0.0 (0.0 - 0.0)								
	Loops (per minute)	N/A	0.7 (0.3 - 1.0)	0.8 (0.5 - 1.0)								
	Interactions (%)	20% (0 - 87%)	33% (7 - 73%)	18% (0 - 33%)	Moderately Problematic	1% (0 - 3%)	2% (0 - 10%)	0% (0 - 0%)				
	Scanning (%)	74% (13 - 93%)	85% (67 - 100%)	96% (87 - 100%)								
	Movement (between Quadrants; %)	15% (0 - 33%)	16% (0 - 47%)	20% (13 - 27%)	Highly Problematic	0% (0-0%)	0% (0-0%)	0% (0-0%)				
Movement (Steps per minute)	15.4 (4.0 - 29.3)	21.0 (9.0 - 40.8)	15.3 (13.2 - 18.6)									
Corrective Actions (per	0 (0.0 -	0 (0.0 -	0 (0.0 -									

	minute)	0.0)	0.0)	0.0)				
	Loops (per minute)	N/A	0.4	0.2				
			(0.1 – 0.7)	(0.1 – 0.4)				
Madelyn	Interactions (%)	17% (0 - 40%)	13% (0 - 33%)	13% (7 - 20%)	Moderately Problematic	2% (0 - 10%)	2% (0 - 7%)	0% (0 - 0%)
	Scanning (%)	83% (60 - 100%)	92% (73 - 100%)	96% (93 - 100%)				
	Movement (between Quadrants; %)	4% (0 - 33%)	5% (0 - 27%)	2% (0 - 7%)	Highly Problematic	0% (0-0%)	0% (0-0%)	0% (0-0%)
	Movement (Steps per minute)	5.0 (0.4 - 12.7)	5.9 (1.3 - 20.5)	5.7 (3.3 - 7.2)				
	Corrective Actions (per minute)	0.0 (0.1 - 0.0)	0.0 (0.0 - 0.0)	0.0 (0.0 - 0.0)				
	Loops (per minute)	N/A	0.0 (0.0 - 0.0)	0.0 (0.0 - 0.0)				
Grace	Interactions (%)	34% (7 - 80%)	65% (33 - 87%)	38% (27 - 47%)	Moderately Problematic	8% (0 - 17%)	9% (0 - 17%)	3% (0 - 10%)
	Scanning (%)	66% (38 - 93%)	84% (73 - 100%)	91% (87 - 100%)				
	Movement (between Quadrants; %)	8% (0 - 33%)	31% (0 - 60%)	11% (0 - 33%)	Highly Problematic	0.3% (0-6.7%)	2.9% (0-13.3%)	0% (0-0%)
	Movement (Steps per minute)	19.6 (6.5 - 44.2)	30.8 (22.4 - 36.0)	18.1 (15.2 - 21.5)				
	Corrective Actions (per minute)	0.0 (0.0 - 0.1)	0.0 (0.0 - 0.1)	0.0 (0.0 - 0.1)				
	Loops (per minute)	N/A	0.1 (0.0 - 0.13)	0.0 (0.0 - 0.1)				

Table 8
Recorded interactions: Prompt, praise, corrections, other interactions

Participant	Variable	Rate per minute (and Range)		
		Baseline	Intervention	Maintenance
Cassie	Prompts	0.1 (0.0 – 0.1)	0.3 (0.0 – 1.0)	0.1 (0.0 – 0.2)
	Praise	0.1 (0.0 – 0.3)	0.9 (0.1 – 2.8)	0.9 (0.1 – 1.9)
	Corrections	0.6 (.3 - .9)	0.4 (0.0 – 1.2)	0.1 (0.0 – 0.3)
	Other Interactions	1.1 (0.5 - 2.3)	1.4 (0.2 – 2.6)	0.8 (0.4 – 1.5)
Olivia	Prompts	0.0 (0.0 – 0.1)	0.4 (0.1 – 0.9)	0.0 (0.0 – 0.0)
	Praise	0.2 (0.0 – 0.4)	0.8 (0.4 – 1.1)	0.7 (0.5 – 1.1)
	Corrections	0.6 (0.2 – 1.9)	0.3 (0.0 – 0.8)	0.1 (0.1 – 0.1)
	Other Interactions	1.0 (0.5 – 2.9)	1.3 (0.7 – 2.3)	1.0 (0.7 – 1.6)
Madelyn	Prompts	0.0 (0.0 - 0.3)	0.2 (0.0 – 0.6)	0.0 (0.0 - 0.1)
	Praise	0.1 (0.0 – 0.4)	0.3 (0.0 – 0.9)	0.2 (0.1 – 0.4)
	Corrections	0.7 (0.1 – 2.5)	0.3 (0.0 – 1.5)	0.3 (0.0 – 0.6)
	Other Interactions	0.6 (0.2 – 1.5)	0.4 (0.0 – 1.1)	0.4 (0.2 – 0.6)
Grace	Prompts	0.0 (0.0 - 0.3)	0.2 (0.0 – 0.6)	0.0 (0.0 - 0.1)
	Prompts	0.2 (0.0 – 0.5)	1.0 (0.6 – 1.5)	0.2 (0.1 - 0.3)
	Praise	0.6 (0.1 – 1.7)	1.0 (0.4 – 1.5)	0.7 (0.5 – 0.9)
	Corrections	1.7 (0.1 – 3.4)	1.1 (0.5 – 1.8)	1.1 (0.6 – 1.9)
	Other Interactions	1.6 (0.5 – 2.5)	2.5 (2.1 – 3.0)	1.9 (1.3 – 2.4)

Research Question 1: What are the effects of a brief training on self-management on recess supervisors' active supervision behaviors?

To address this research question, I discuss the active supervision behaviors (e.g., scanning, moving, and interacting) across the supervisors, focusing on key behavioral changes using visual analysis, descriptive statistics, and calculations of effect size focusing on the Tau-U. First, I will share the details about the composite that was used to make decisions on changing phases and on comparing multiple active supervision behaviors.

Use of the composite. As described in the procedures section, I used a composite score and graph to determine when to change phases and to examine the overall effect of the intervention on the combination of three active supervision behaviors. For the outside observations alone, there were a total of 6 main adult dependent variables being measured, and for the recordings there was a total of 8 adult variables measured. In total, I measured 14 adult dependent variables for active supervision. This made it difficult to determine which variables should be relied upon to decide on when to change to a new phase. As described in the methods chapter, I developed a composite score using the three main outside observation behaviors that could be compared on the same scale (scanning, interacting, and moving between quadrants). This composite score was from 0 to 3, with three being highest and a score when a supervisor was engaging in all three 100% of the intervals. The composite was calculated by adding the number of intervals each of the three key behaviors occurred and dividing them by 15 (the total number of possible intervals).

Additionally, the literature suggests that three behaviors (e.g., moving, scanning, and interacting) comprise active supervision, but other studies have not measured all three as part

of their consideration of active supervision (e.g., Franzen & Kamps, 2003; Lewis et al., 2000). By using the composite measure and allowing a comparison of the three behaviors at the same time, I could see if the intervention increased active supervision as it has been defined and promoted to schools.

I describe the results using visual analysis for each participant and across the phases overall. Figure 1 presents a graph for the composite scores.

Cassie. Baseline data of Cassie was stable (Mean = 1.1; Range = 1.1-1.3) with no trend. After the intervention, the composite increased slightly in level (Mean = 1.4), was stable (Range = 1.1-1.7), and showed no trend.

Olivia. At baseline, Olivia's composite data showed no trend line at baseline and rose in level only slightly after the intervention (baseline Mean = 1.1; intervention Mean = 1.3). Both phases were stable (baseline Range = 0.9-1.3; intervention Range = 0.9-1.8).

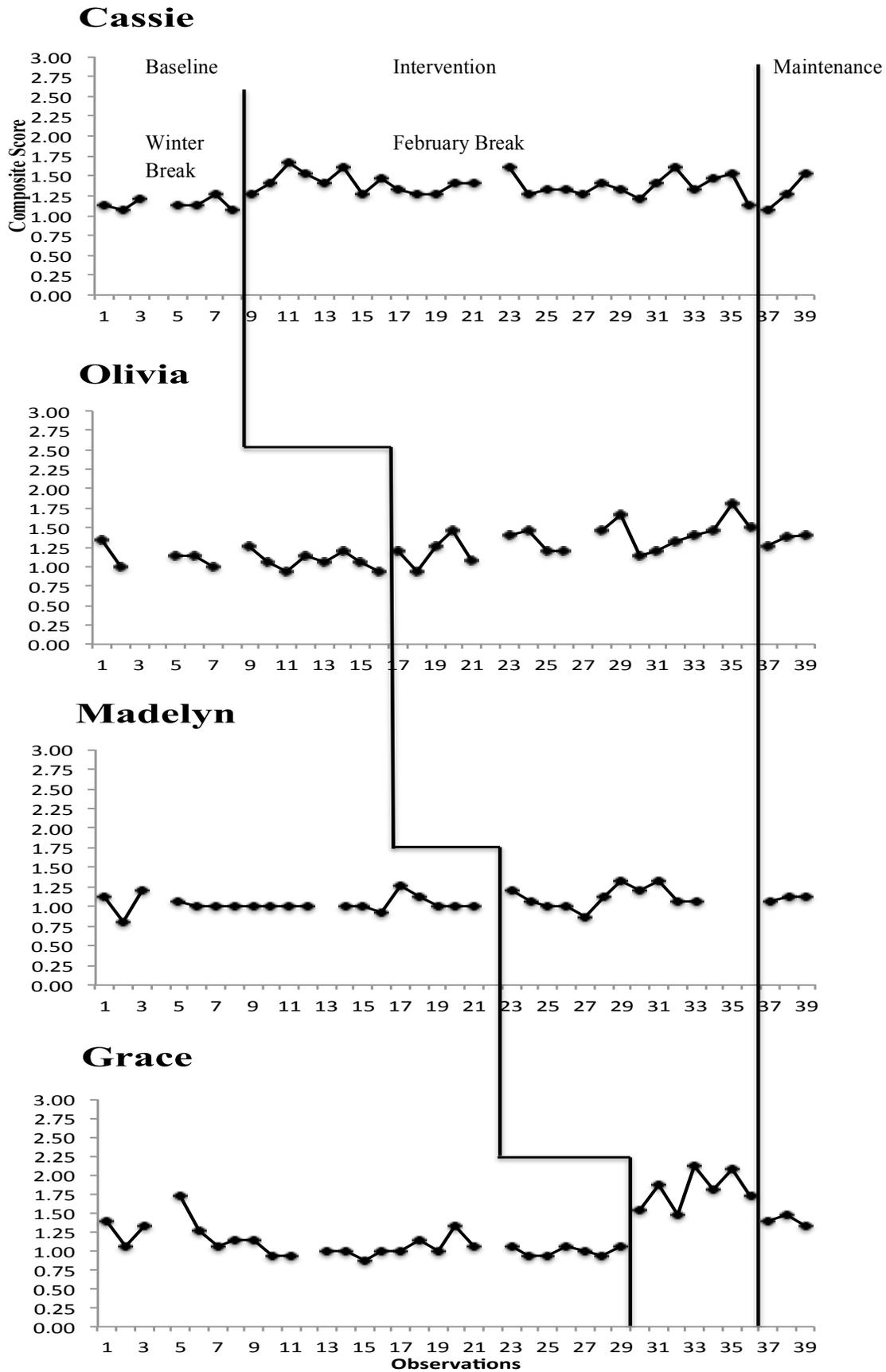
Madelyn. Madelyn showed steady data (Mean = 1.0; Range = 0.8-1.3) with no trend at baseline. After the intervention was introduced, there was a slight increase immediately. Overall the phase was steady with low variability (Mean = 1.1; Range = 0.9-1.3) with some overlap of data between phases.

Grace. The composite data for Grace was steady with no trend through the baseline (Mean = 1.1; Range = 0.9-1.7). After intervention, there was an immediate and sustained increase in level with some variability (Mean = 1.8; Range = 1.5-2.1). There was not an overlap in data between phases suggesting that Grace showed increases in the composite.

Composite across participants. Across all participants for baseline, the composite was stable and flat. After the intervention was introduced, all participants showed a small increase

immediately with no trend. For three of the participants, the data remained steady but did not show a change in level. For Grace, the level rose, there was not overlap between baseline, but there was variability. Looked at as a whole, the composite of the active supervision behavior did not increase across all participants.

Figure 1. Composite Graph of Active Supervision



Scanning. This active supervision behavior consisted of a supervisor looking around the playground. Across all participants, this behavior did not increase through each phase. See *Figure 2* and *Table 7* for the graph and relevant table.

Cassie. Using visual analysis, Cassie showed stable levels of scanning at baseline (Mean = 68%), with an increasing positive trend line. After the intervention, the scanning behavior dropped in level then rose again, averaging 77%, with an increasing trend. There was greater variability across the intervention phase (Range = 33-100%) compared to the baseline (Range = 60-73%).

Olivia. At baseline, Olivia showed variability in data (Range = 13-93%) with a flat trend line (Mean = 74%), and most of the data falling between 80-100%. After the intervention was introduced, the level rose (Mean = 85%) and remained fairly flat, with the data more stable than baseline (Range = 67-100%), still showing high rates of scanning across both phases.

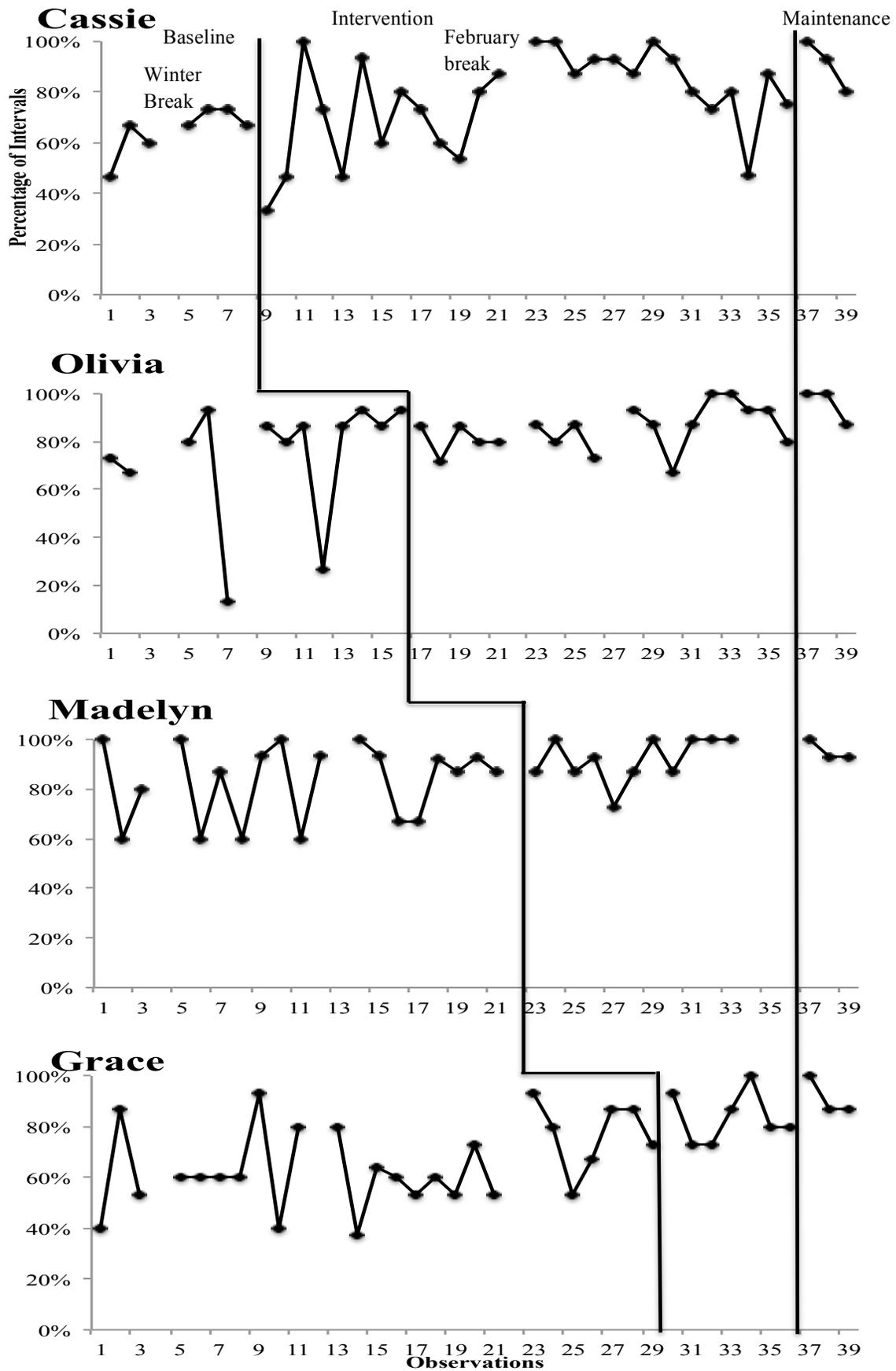
Madelyn. Madelyn was higher in level (Mean = 83%) in scanning than the other behaviors, and her level rose (Mean = 92%) after intervention. The graph indicates variability at both baseline (Range = 60-100%) and intervention (Range = 73-100%), spanning toward the top part of the graph across both phases. Trends were not evident nor a jump in level at the intervention phase.

Grace. At baseline, Grace's rates of this behavior (Mean = 66%), increased in the intervention phase (84%). Visual analysis shows variability in this behavior at baseline (Range = 38-93%), with more stability after intervention (Range = 73-100%). Trend was increasing through baseline and at intervention, slightly decreasing. There was an increase in

level immediately at the intervention point almost to 100%.

Scanning across participants. For scanning, there was a similar degree of variability across all participants for baseline that became more stable with three out of the four participants during intervention. Levels increased only slightly after the intervention, with Grace having the only immediate change. The variability across the phases was prevalent as well as overlap of data between baseline and intervention. Looking across the phases and participants, there is not an effect for this behavior.

Figure 2. Scanning



Moving. The moving behavior consisted of the percentage of change of quadrants and the number of steps per minute. See *Figure 3 and 4* and *Table 7* for the graphs and relevant table.

Movement across quadrants. This behavior looked at the percentage of changes in the quadrant locations on the playground.

Cassie. The graph for Cassie does not support an increase in the moving across quadrants. The baseline shows an increasing positive trend and variability through this phase (Range = 0-33%). There is an immediate increase in level at intervention that is not maintained and is slightly higher overall (Mean = 22%) compared to baseline (Mean = 19%) with variability (Range = 0-47%), and no trend.

Olivia. At baseline there was variability in the data (Range = 0-33%) with a decreasing trend. At the intervention phase, variability continued (Range = 0-47%) with a slight increase in trend. The level stayed similar from baseline (Mean = 15%) to intervention (Mean = 16%).

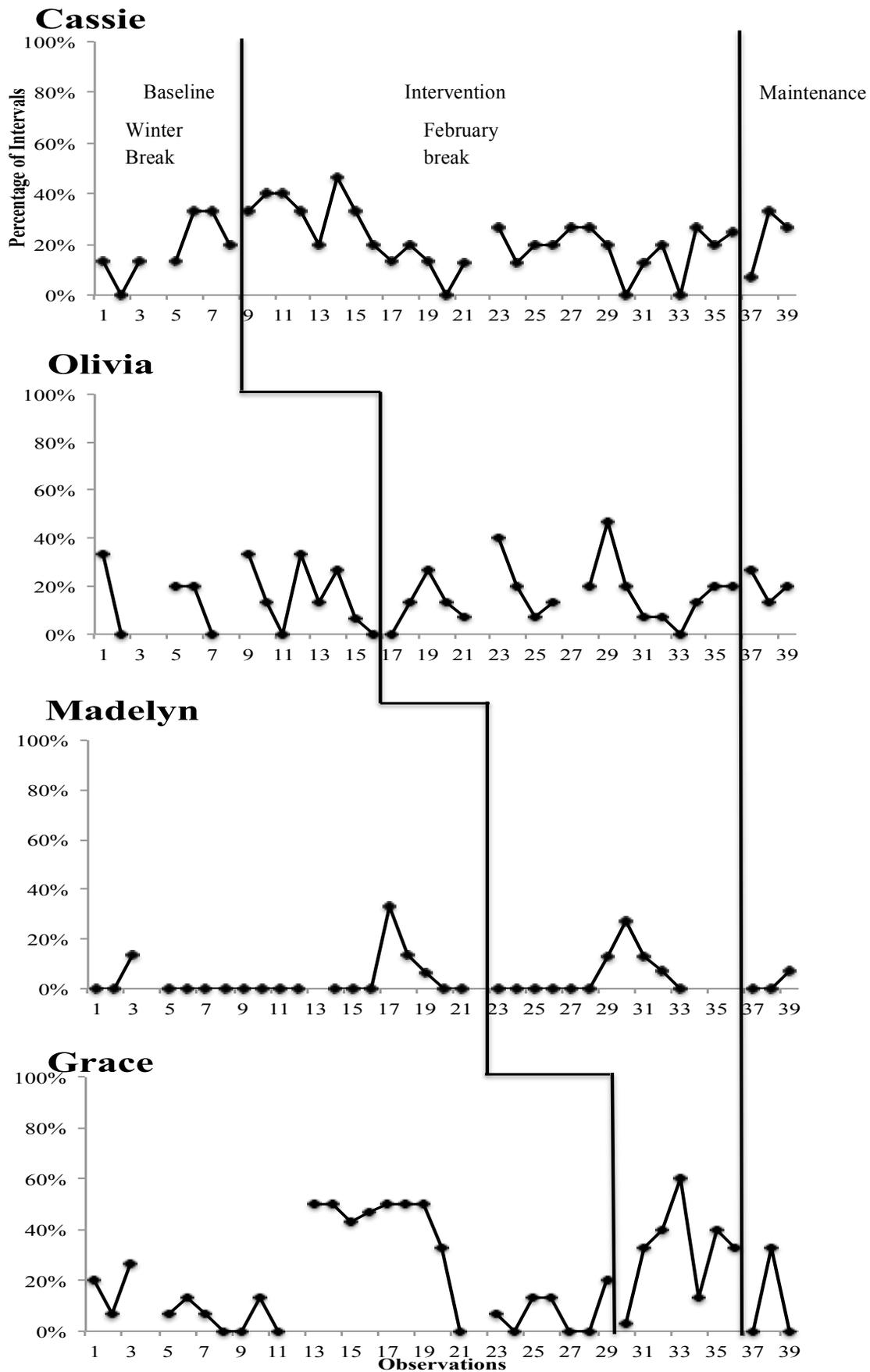
Madelyn. Madelyn did not move around the playground and this did not change between the baseline and the intervention. The graphs display low levels through the study (baseline Mean = 4%; intervention Mean = 5%), with a slight amount of movement toward the end of the intervention. There was a similar range of variability for baseline (Range = 0-33%) and intervention (Range = 0-27%).

Grace. Visual analysis for baseline shows variability (Range = 0-33%) with a spike in observations around days 13-19. Trend lines look stable and with the exception of the spike, there is a fairly low level of movement, averaging 8%. After the training, there is greater variability (Range = 0-60%) and an ascending trend line, with the variability making it

difficult to see the change in average level to 31%.

Movement across quadrants summary across participants. Across all of the participants there is not an increase in the movement across quadrants. There are different trends in the baseline with Cassie increasing, Olivia decreasing, Madelyn flat almost on baseline, and Grace stable. After the intervention, Grace has an increasing positive trend with a change in level with the others having no trend and no change in level. Across three of the participants there is variability across both phases with Madelyn being the most stable with data close to the x-axis for both phases. When examining the four participants, there is not an increase in movement across the quadrants.

Figure 3. Moving between quadrants



Movement in steps. This behavior looked at the rate of movement by focusing on the number of steps per minute.

Cassie. With Cassie, the baseline was variable (Range = 5.5-32.4/min) with an increasing trend and a spike right after winter break. The level did rise immediately at intervention but the average fell from 19.3/min to 16.7/min (similar to baseline levels) and showed a large degree of variability (Range = 1.1-30.3/min) with no trend.

Olivia. Olivia's steps rose in level from 15.4/min at baseline to 21.0/min and showed variability across both phases (baseline Range = 4.0-29.3/min and intervention Range = 9.0-40.8/min). The baseline had a decreasing trend, and the intervention had an increasing trend with a peak right before the end of the intervention.

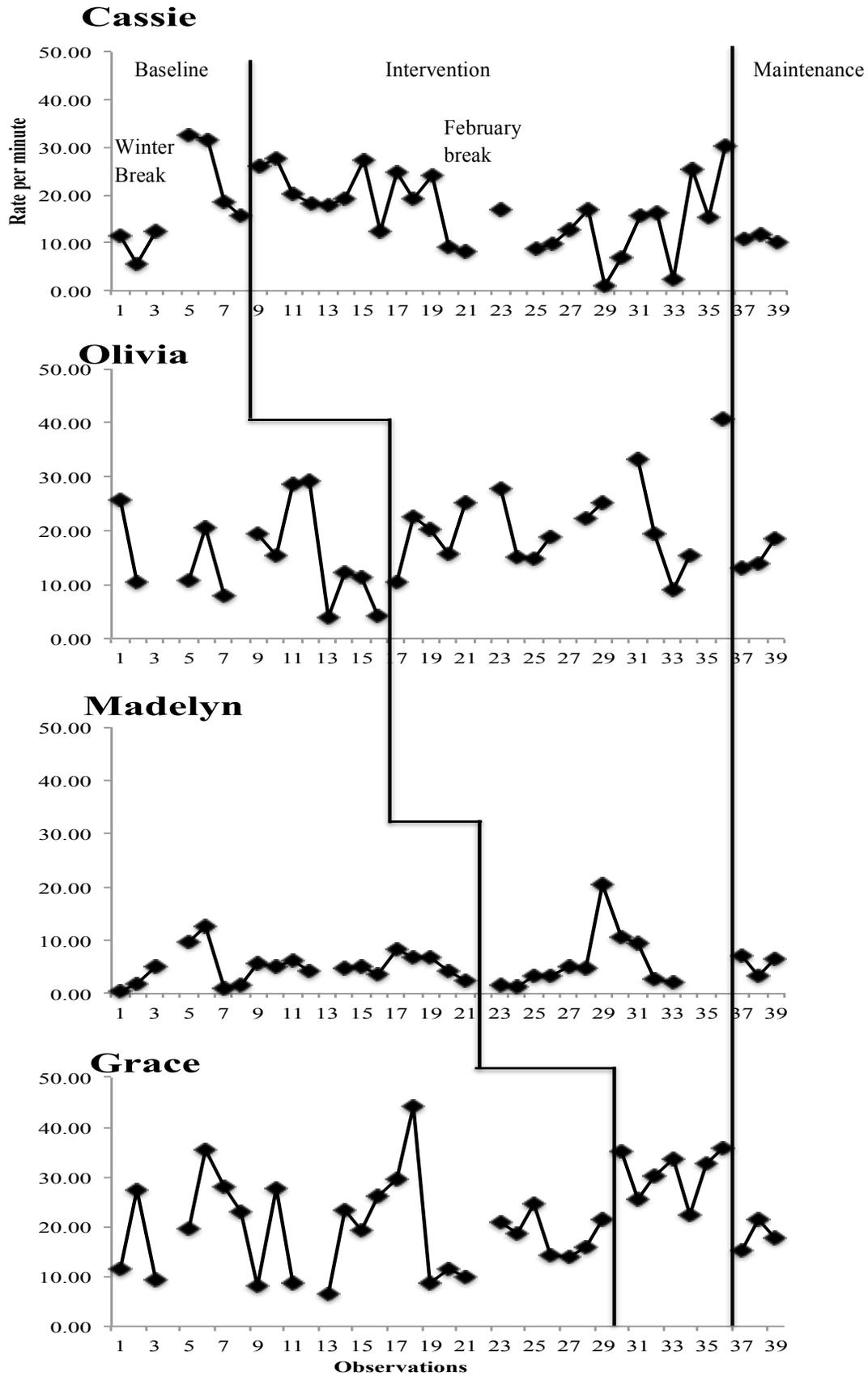
Madelyn. Visually, Madelyn's steps per minute remained low 5.0/min and variable (Range = 0.4-12.7/min), with a slight rise during intervention corresponding to the change in the movement across quadrants. At intervention phase, she averaged the same level as baseline (Mean = 5.9/min) and showed similar variability (Range = 1.3-20.5/min).

Grace. With the movement of steps, the level rose from baseline (Mean = 19.6/min) to intervention (Mean = 30.8/min). Visual analysis shows variability in baseline data (Range = 6.5-44.2/min) with no trend and less variability at intervention (Range = 22.4-36.0/min) and again no trend. Overall, at the intervention there is an increase in level and decrease in variability relative to baseline.

Movement in steps across participants. This behavior showed greater improvement than the movement between quadrants, as Grace showed a possible increase. Cassie and Olivia did have some increase in level, but there was great variability across both phases. Madelyn did not

have increases in her behavior across the intervention phase. With the variability and the increase in level clear more for Grace, the data do not support a functional relation between movement (steps) and the intervention.

Figure 4. Movement: Rate of Steps



Interacting. The interacting behavior consisted of the observed interactions between the supervisors and students and the recorded interactions. The recorded interactions included sub-behaviors of prompting, praising, correcting, and other interactions. Although I did track more specific behaviors (e.g., general and specific praise), for the purposes of this review I report on the more global behaviors. See *Figure 5, 6, 7, 8, and 9* and *Table 7 and 8* for the graphs and relevant tables.

Outside interacting. Observers recorded outside interactions using momentary time sampling.

Cassie. With the outside interactions, visual analysis supports a possible increase. The baseline shows great variability (Range = 7-53%) with a sharp decrease in trend, while the intervention shows a jump in level when going between phases. This behavior again shows much variability (Range = 7-73%) across the intervention phase. In all, the intervention increased in average level from 31% to 41%, with no trend line evident across the intervention phase.

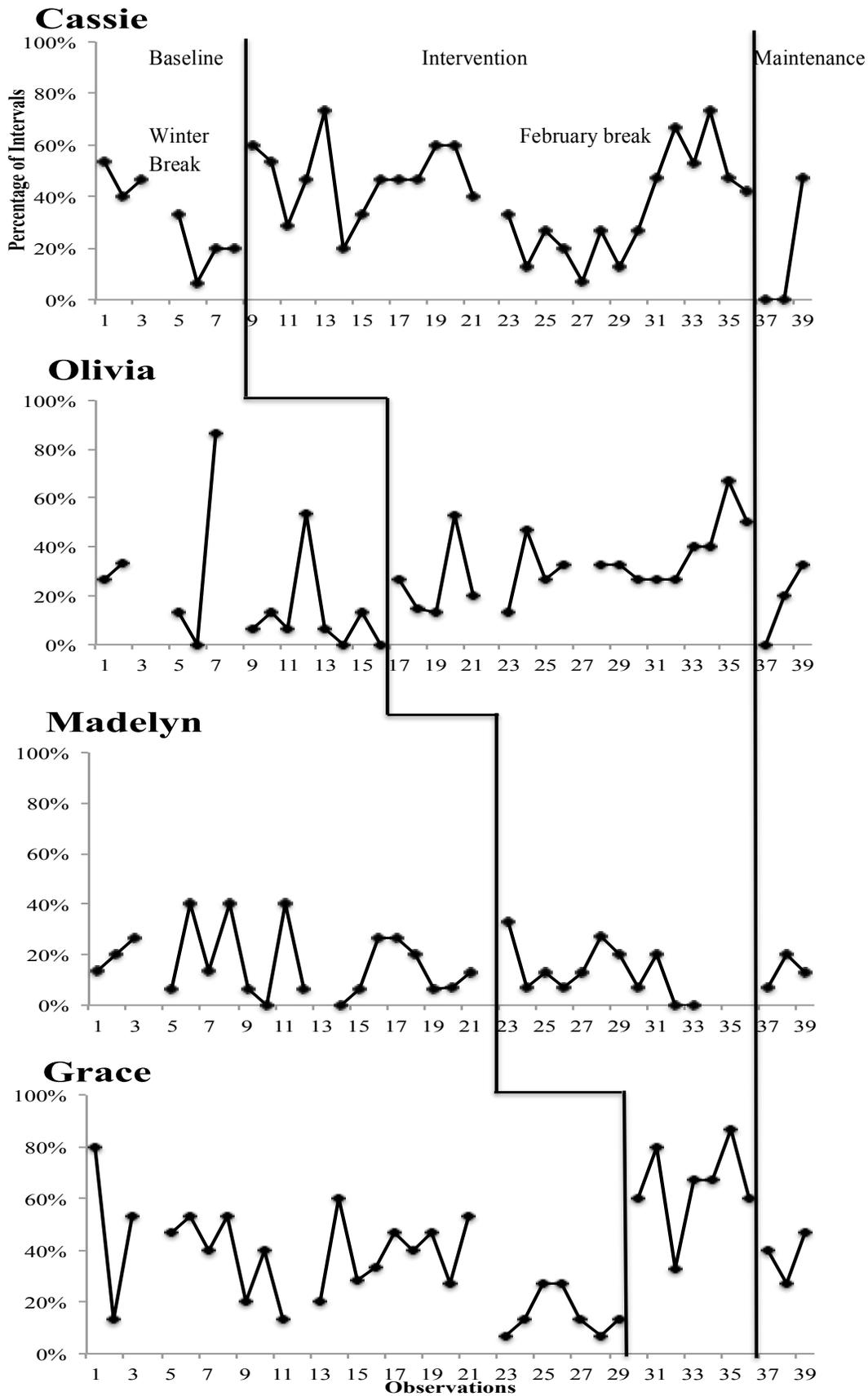
Olivia. Baseline interactions were low in level (Mean = 20%), but highly variable with a range from 0 to 87% and a decreasing trend. During the intervention phase, the interactions rose to a higher level with an immediate increase and sustained that level (Mean = 33%), but were still very variable (Range = 7-73%), with a slightly increasing trend line.

Madelyn. Visual analysis shows variability during baseline (Range = 0-40%). At the intervention there is a jump in level, but an immediate drop and decreasing trend line with a lower level average at intervention (Mean = 13%) compared to baseline (Mean = 17%). The intervention phase also showed variability, but slightly less than at baseline (Range = 0-33%).

Grace. With the outside observations, the graph illustrated that the interactions were very variable at baseline (Range = 7-80%), with a descending trend line and an overall average level of 34%. After beginning intervention, there was an immediate and sharp increase in level, and then great variability (Range = 33-87%) over the intervention phase showing an overall lack of trend but a substantial increase in average level (Mean = 65%).

Outside interacting summary across participants. This behavior is a little challenging to interpret. There seems to be an increase in level for Grace, Cassie, and Olivia, but the data were variable. Across all participants, there was an immediate increase in level, but the increase did not sustain for three of the participants. Overall, the data does not support a functional relation.

Figure 5. Interacting (Outside observations)



Recorded Interacting. These behaviors consisted of the specific recorded interactions of prompting, praising, correcting, and other interacting.

Prompting. The behavior of prompting was coded from the recordings and showed a possible increase across the participants. .

Cassie. With the prompting, baseline levels were low and stable. After the intervention was introduced, there was not an immediate change in level. After day 15, the prompting of Cassie rose and was variability for the rest of the intervention, at a higher level compared to the almost level line of 0 for the baseline. This is supported by the change in average level from a low of 0.1/min at baseline to 0.3/min at intervention with little variability from baseline ranging from 0-0.1.minute to increased variability during intervention at 0-1.0/minute.

Olivia. At baseline, the prompts were low and stable (Mean = 0.0/min; Range = 0-0.1/min). After the intervention was introduced, the prompts rose in level, immediately, were somewhat variable (Range = 0.1-0.9/min), and showed a change in overall level for this behavior (Mean = 0.4/min).

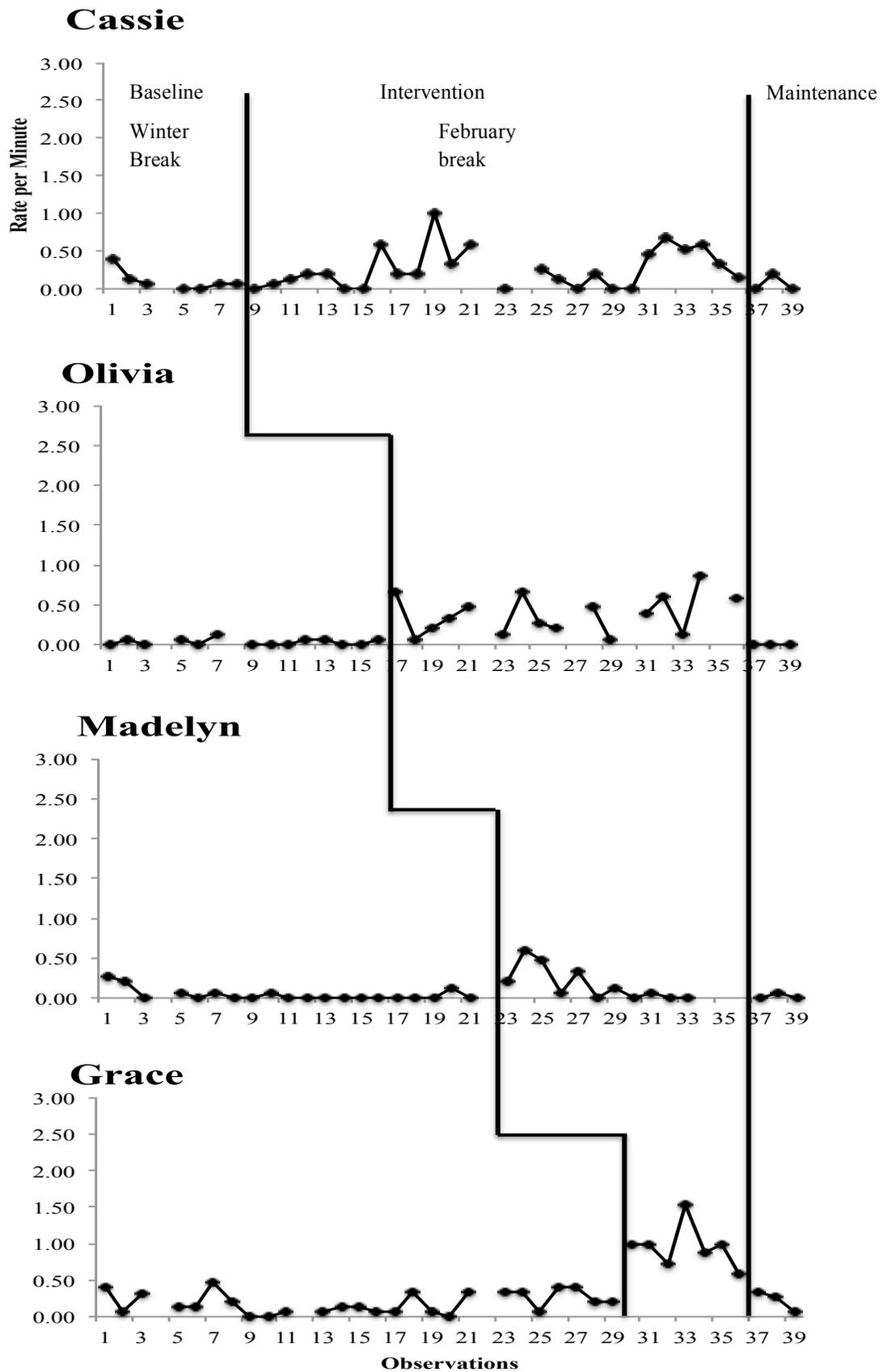
Madelyn. The recordings do show some movement in prompts at the intervention phase (Mean = 0.2/min) compared to baseline (Mean= 0.0/min). The baseline phase was flat with little variability (baseline Range = 0.0-0.3/min), and the intervention phase showed some movement at the beginning that decreased to none of the behavior at the end of the intervention with some degree of variability (Range = 0.0-0.6/min).

Grace. Prompts rose from baseline average of 0.2/min to intervention average of 1.0/min. The data showed bounce during baseline (Range = 0-0.5/min) and more at

intervention (Range = 0.6-1.5/min). At baseline, prompts were almost non-existent and rose in level at the onset of the intervention, with no overlap with baseline data points,

Prompting summary across participants. This behavior might have shown an increase across the phases and participants. For Grace, Madelyn, and Olivia there is an immediate increase and rise in level for prompting and for Cassie, there is a more gradual change but an overall increase in level. Madelyn's behavior also increased immediately but decreased to baseline levels after three observations. Overall, across the four participants at baseline, there were low and stable levels of behavior. At intervention, there was an immediate increase in three of the four participants, with greater variability across all participants compared to baseline. As these behaviors were very low at baseline for all four and showed increases for all four, data might support a functional relation between the intervention and prompting. However, since one participant's (Madelyn's) behavior decreased to baseline levels by the end of the intervention condition, these results should be interpreted with caution. See *Figure 6* and *8*.

Figure 6. Prompting



Praising. Praising was a recorded interaction and had a potential increase in this study.

Cassie. At baseline the graph shows flat and stable rates of praising (Mean = 0.1/min; Range = 0.0-0.3/min). After the intervention was introduced, there was an immediate and sustained increase in average level (Mean = 0.9/min) and variability (Range = 0.1-2.8/min) with little trend, showing a spike around day 20 and a drop to 0 around day 29.

Olivia. Praise rates showed the greatest increase from baseline to intervention compared to the other recorded interactions. Baseline rates were flat and stable (Mean = 0.2/min; Range = 0-0.4/min). At intervention there was an immediate change in level with some degree of variability (0.4-1.1/min), a higher average level (0.8/min), and little overlap between data points.

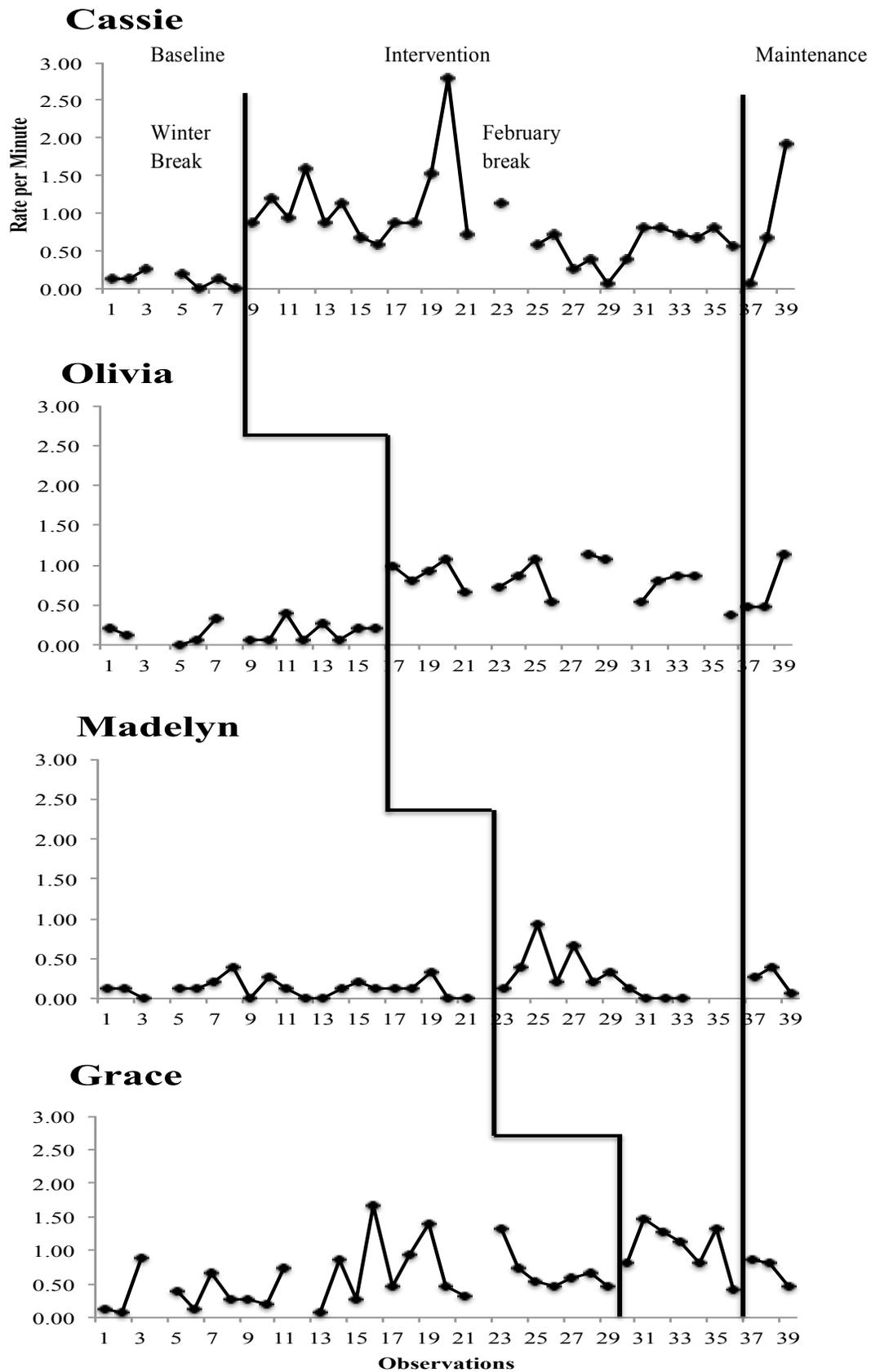
Madelyn. For baseline, the praise was low and stable (Mean = 0.1/min) with little variability (Range = 0.0-0.4/min). Praise showed an increase on day 2 of the intervention phase that lasted for 6 observations before dropping to baseline levels. At intervention the average level rose to 0.3/min, ranging from 0.0-0.9/min.

Grace. Praise rose in level after the intervention was introduced with an overall change in average level from 0.6/min to 1.0/min at intervention. Praise showed some variability for both baseline (Range = 0.1-1.7/min) and intervention (Range = 0.4-1.5/min) and overlap between baseline and intervention data. Praise declined in trend during the intervention phase with a fall below baseline on the last day of the observations.

Praising summary across participants. This behavior showed a possible increase across the participants. For Cassie, Olivia, and Grace, praise rose immediately after the intervention and maintained a higher level through the intervention phase. For Madelyn, praise rose on the second

day and continued higher than baseline rates for several observations before dropping to baseline levels. For Madelyn, Cassie, and Grace there is some overlap between the baseline and intervention data points. Overall, there appears to be increases in level across the participants that support a possible functional relation for this behavior; however, the overlap for several of the participants weakening the claim of an effect. See *Figure 7* and Table 8.

Figure 7: Praising



Correcting. I coded the rate of correcting from the recorded interactions. This behavior did not change as a result of the intervention.

Cassie. Corrections had a descending trend at baseline with variability (Range = 0.3-0.9/min). The behavior dropped in level at intervention introduction and remained at a lower level (baseline Mean = 0.6/min; intervention Mean = 0.4/min). There was great variability (Range = 0.0-1.2/min) for most of the intervention.

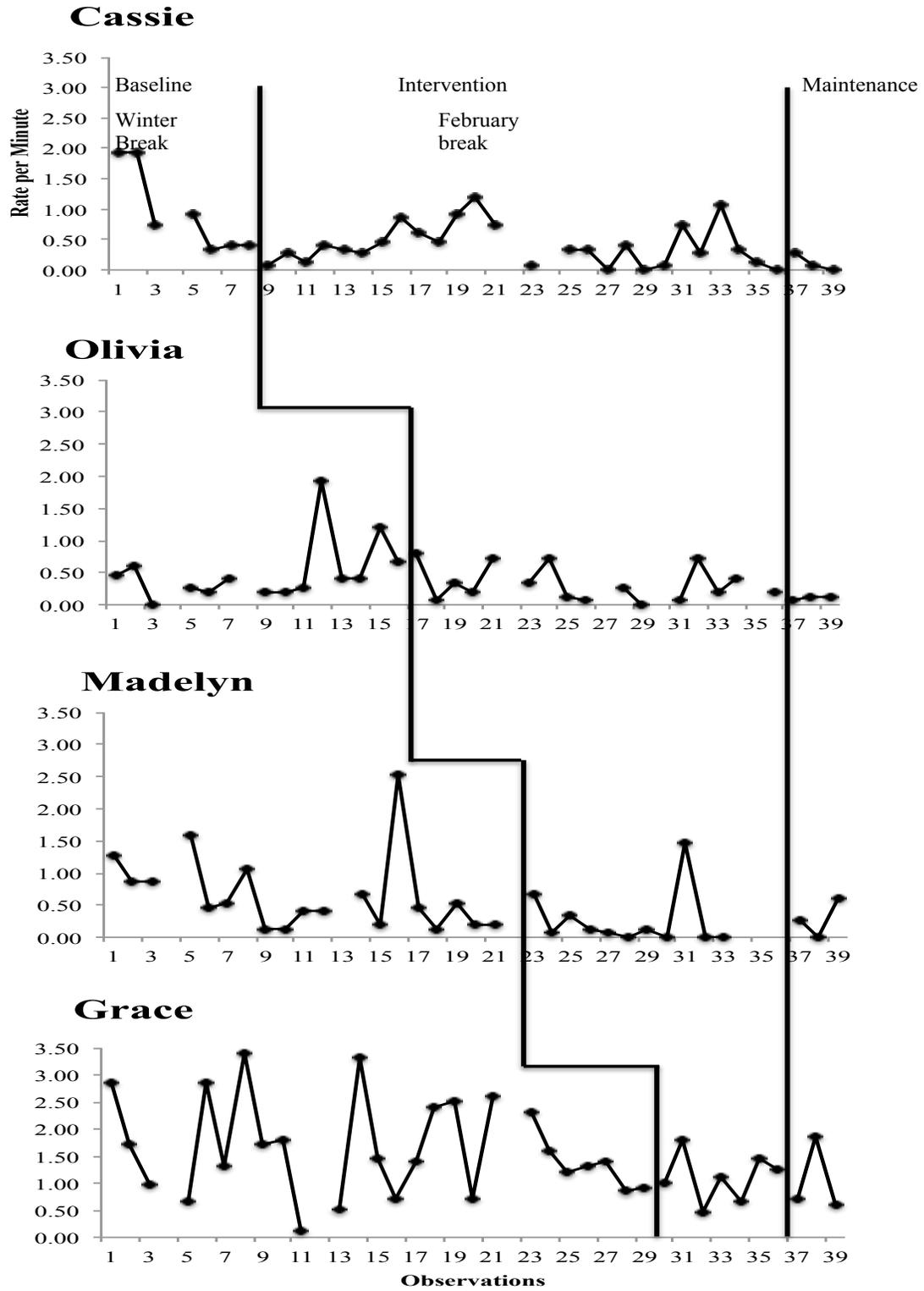
Olivia. Corrections were low (Mean = 0.6/min) and variable (Range = 0.2-1.9/min) at baseline largely due to two spikes in data. At intervention the corrections fell in average level (Mean = 0.3/min) and decreased in variability (Range = 0.0-0.8/min).

Madelyn. At baseline, the corrections were variable (Range = 0.1-2.5/min) with a decreasing trend and an average level of 0.7/min. The corrections increased in average level during the intervention (Mean = 0.3/min) with a spike toward the end of the intervention phase that contributed to the variability (Range = 0-1.5/min).

Grace. The corrections slightly decreased from an average of 1.7/min to 1.1/min and became less variable 0.1-3.4/min to 0.5-1.8/min. Baseline had a decreasing trend and intervention a small increasing trend.

Correcting summary across participants. Although this behavior showed some decrease in level for all participants, there was too much variability and overlap between the data points for the decrease to be a definite function of the intervention. See *Figure 8* and *Table 8*.

Figure 8. Correcting



Other interacting. This behavior included both student and adult initiated conversations with the frequency coded from the recorded interactions. The behavior did show some possible increase in level but not an increase across the participants..

Cassie. At baseline there was a decreasing trend with great variability (Range = 0.5-2.3/min) and an average level of 1.1/min. At the intervention, there was an immediate increase in level that was sustained until around observation 29 when the behavior fell to its lowest level and rose again at the end of the intervention. Overall the intervention level stayed the same as baseline 1.4/min with the same degree of bounce (Range = 0.2 to 2.6/min).

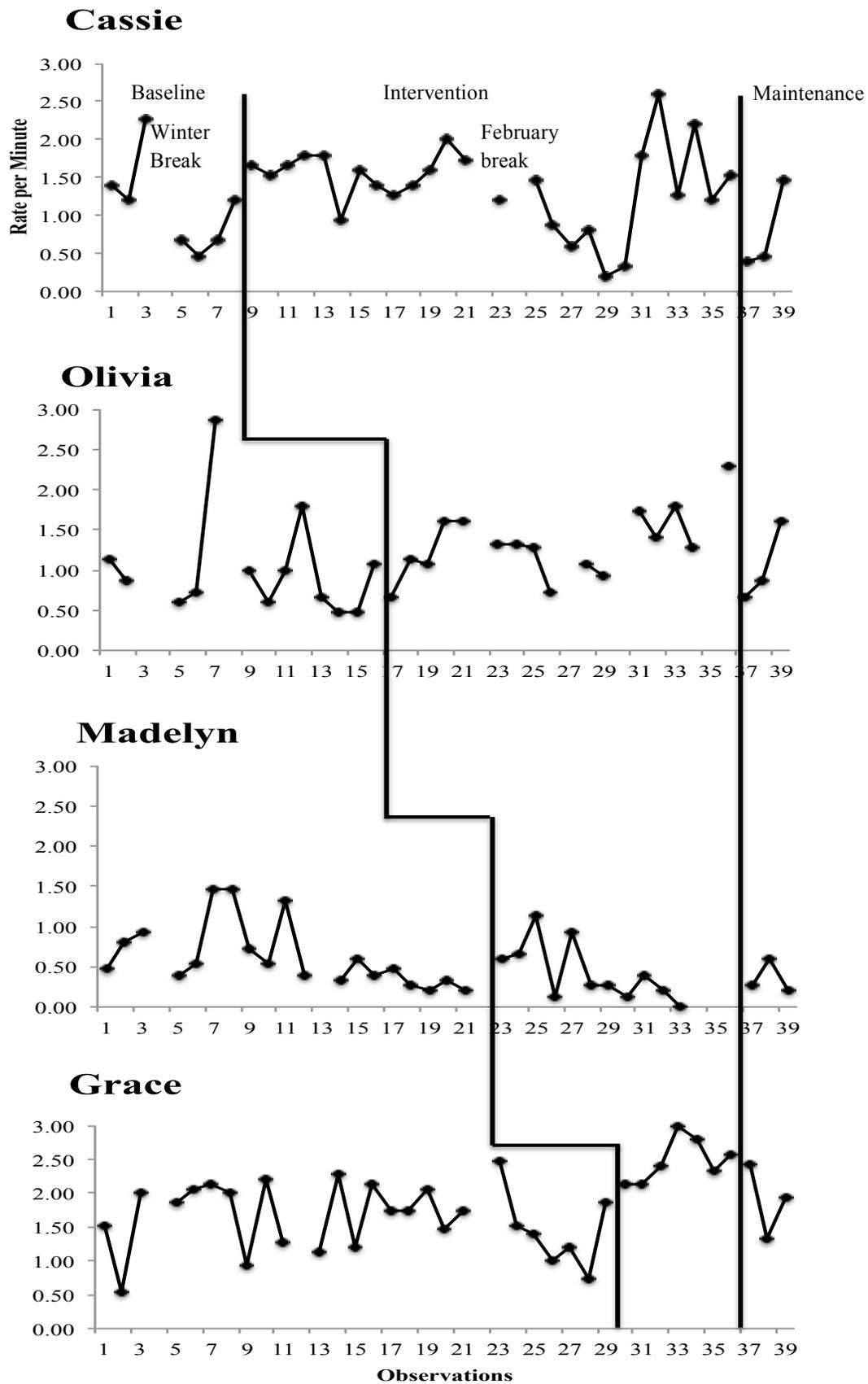
Olivia. Other interactions showed great variability at baseline (Range = 0.5-2.9/min) due to two spikes that correspond to the same spikes during the outside observation of interactions during the baseline, with an average level of 1.0/min. At intervention, the other interactions started at a slightly lower level than baseline and increased throughout the intervention with a positive trend and variability in the data, culminating with a spike on the last day (Range = 0.7-2.3/min). The intervention phase showed a small increase in the level to 1.3/min.

Madelyn. The other interactions were higher in level (Mean = 0.6/min) than the recorded behaviors, with variability (Range = 0.2-1.5/min). After the intervention, a slight decrease in average level can be seen for other interactions (Mean = 0.4/min), again with variability (Range = 0.0-1.1/min).

Grace. Other interactions jumped in level and sustained the increase from 1.6/min at baseline to 2.5/min at intervention. Through both phases, the data was variable ranging from a baseline of 0.5-2.5/min to 2.1-3.0/min. Neither phase showed a trend.

Other interacting summary across participants. Looking across the phases, this behavior did not show an immediate increase for Olivia and Grace. The trends were also different across the participants. There was also overlap between the data points across the phase for three out of four participants and the data had much bounce. As for level, there were increases in average but only Grace showed visual increases in this behavior. Overall, this behavior showed some increases, especially with Grace, but looking at the other three participants, there is not an effect for a functional relation. See *Figure 9* and Table 8.

Figure 9. Other Interacting



Handing out loops. The loops consisted of the participants handing out loops (e.g., bracelets) to students for instances of appropriate behavior. See Table 7.

Cassie. Cassie was the participant who was most consistent in giving out the loops, often giving out between 10-15 per day across 50% of the observations. Her average was 0.7/min across the longest period of time of 27 days ranging from 0.3-1.0/min.

Olivia. Olivia was also consistent in the number of loops handed out during the intervention. She averaged 0.4/min across 17 days ranging from 0.1-0.7/min.

Madelyn. Although Madelyn carried the bag of loops, she verbally indicated at the training that she would not give any out and did not give out loops throughout the intervention.

Grace. Grace did give out some loops during the intervention but the maximum handed out was 3 on one day. The average handed out was 0.1/min (Range = 0.0-0.1/min) across 7 days.

Handing out loops summary across participants. When looked at across participants, there was inconsistency in the frequency of handing out the loops across participants. As this behavior was not an option at baseline, no comparisons can be made on the effect of the intervention. Although it can be said that more loops were handed out after the intervention, it cannot be considered a function of the intervention as the loops were not available to hand out during baseline.

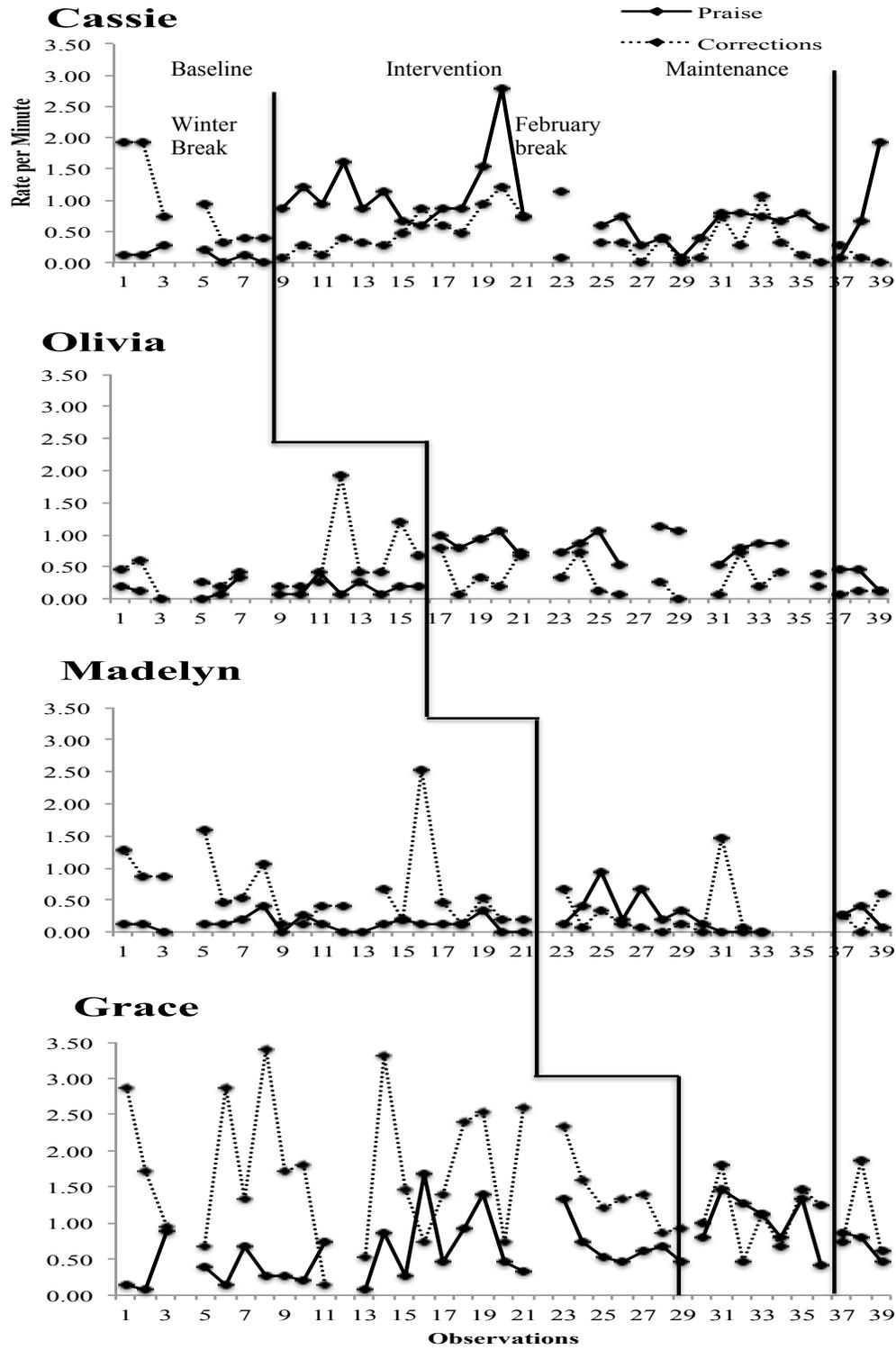
Additional findings. There were two additional finding of interest when looking at the overall results. One was on the comparison of the praise and corrections. Across all of the supervisors, most visibly seen in the graphs for Cassie and Olivia, after the intervention the praise and corrections rate changed with the praise lower during the baseline and higher during

the intervention and the corrections higher during the baseline and lower during the intervention. See *Figure 10*. For Cassie the baseline ratio was 0.2 : 1.0 for praise to correction and that flipped to 1.8 : 0.8. Likewise for Olivia the baseline was 0.4 : 1.0 for praise to correction and that flipped to 1.6 : 0.6. For Grace and Madelyn, the ratio changed from a higher rate of correction to an equal rate at the intervention. At baseline, Grace was at 0.4 : 1.1 and that dropped to 1.0 : 1.2, and Madelyn was at 0.2 : 1.4 and that stayed around 0.6 : 0.6. Looking at maintenance, the ratios changed with the praise being about the same at intervention level but corrections rose for Grace (0.7 : 1.1). For Cassie (1.8 : 0.2) and Olivia (1.4 : 0.2) praise and corrections ratio stayed similar to intervention with praise being higher and corrections lower than at baseline. With Madelyn the corrections remained the same (but at a lower rate than at baseline), but the praise dropped from intervention (0.4 : 0.6; See Table 9).

Table 9
Ratio of praise to corrections (averaged by phase)

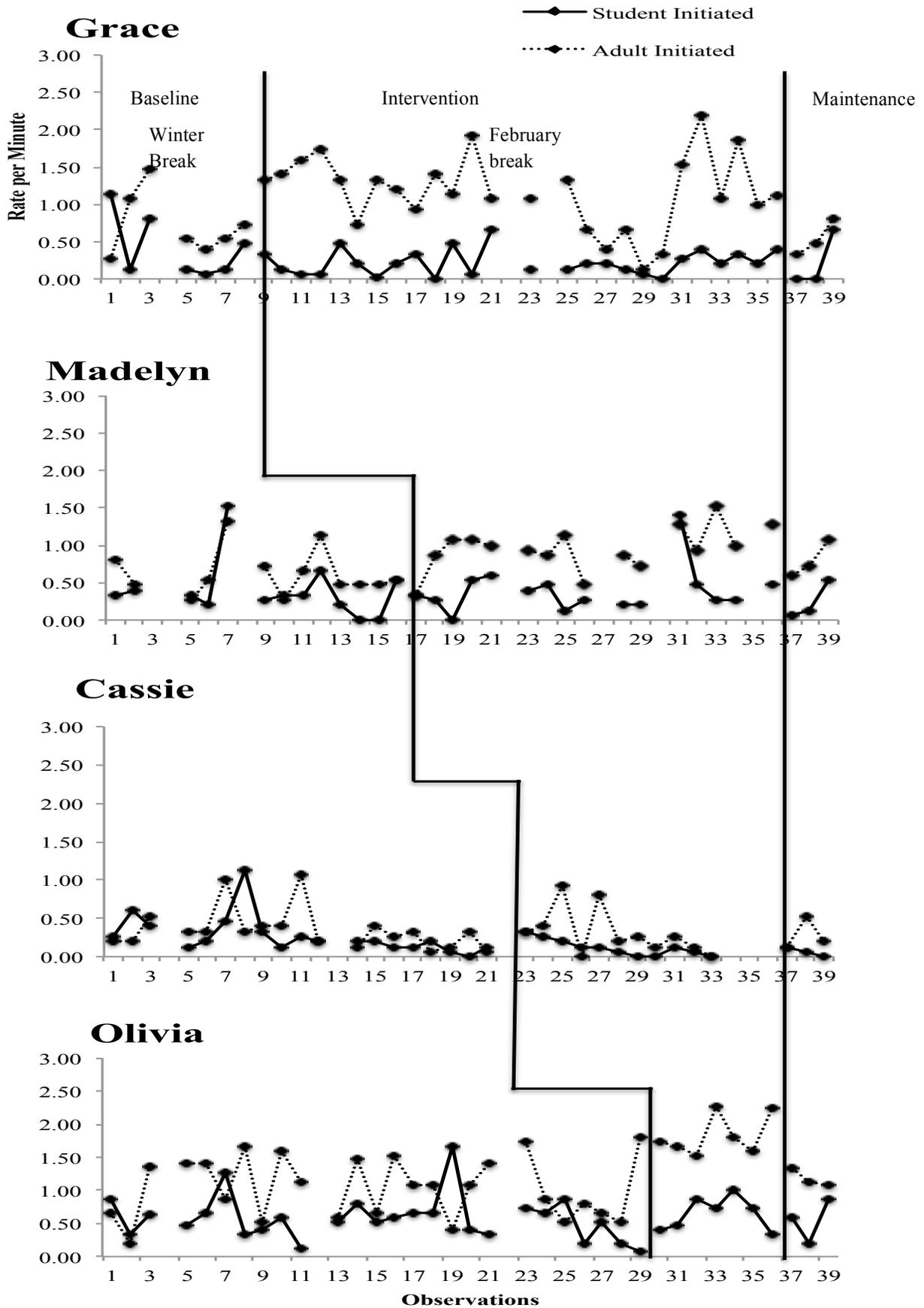
Participant	Baseline	Intervention	Maintenance
Cassie	0.2 : 1.0	1.8 : 0.8	1.8 : 0.2
Olivia	0.4 : 1.0	1.6 : 0.6	1.4 : 0.2
Madelyn	0.2 : 1.4	0.6 : 0.6	0.4 : 0.6
Grace	0.4 : 1.1	1.0 : 1.2	0.7 : 1.1

Figure 10. Comparison of Praising and Correcting



The second finding of interest relates to the types of other interactions during the recordings. I tracked whether each of the other interactions was adult or student initiated. Looking at the graph below, there is a change with the adult and student initiated in that more adult initiated interactions occurred after the intervention compared to student initiated interactions. See *Figure 11*.

Figure 11. General Interacting: Student and Adult



Effect sizes. I also calculated effect sizes for the results. Although traditionally single subject research relies upon visual analysis, quantitative methods have been gaining popularity to support the visual interpretation. Many of these methods focus on the overlap of data between the baseline and intervention. The Points Non-overlapping Data (PND) was one of the first methods to look at the non-overlap between the baseline and intervention by calculating highest level of the baseline data, the total number of intervention data points, and the intervention data points that do not overlap with the baseline data (Scruggs et al., 1987). Subsequently, other methods have been suggested such as the Improvement Rate Difference (IRD; Parker, Vannest, Davis & Sauber, 2009), the Nonoverlap of All Pairs (NAP; Parker & Vannest, 2009) and the Tau-U (Parker, Vannest, Davis & Sauber, 2010). The Tau-U measures the nonoverlap between baseline and intervention, but takes into account any positive trends from baseline as well as an overall effect size comparison across participants (Vannest & Ninci, 2005). In appendix V, I report effect size calculations for all variables for PND, IRD, NAP, and Tau-U (See also Scruggs et al., 1987 for NAP (Appendix S); Vannest, Parker, Gonen, and Adiguzel, 2016 for NAP (Appendix T) and Tau-U (Appendix U). Given that Tau-U is an accepted measure of effect size that simultaneously considers overlap and trend and can compare overall effect sizes across all participants, I report on the Tau-U effect size for this study in this section. To compare effect sizes across all calculations (e.g., PND, IRD, NAP, Tau-U), see Appendix V.

As far as calculations and magnitude of effect, for the Tau-U, I controlled for positive baseline trend across participants, with the rule of thumb being that a baseline trend “under 0.10 or even 0.20” does not need to be corrected (Vannest & Nincy, 2015, p. 407). Given that several of my baseline trends were between 0.10 and 0.20, I corrected for baselines that were above 0.10

to be as conservative as possible. I reported the overall effect size comparisons between participants (Table 10; Vannest, Parker, Gonen, and Adiguzel, 2016).

The findings for the Tau-U overall effect size across participants supported effects across several key variables. Vannest and Ninci (2015) suggest benchmarks of 0.20 as small, 0.20 to 0.60 as moderate, 0.60 as 0.80 is large, and above 0.80 as large or very large. With those benchmarks in mind, prompts matched a large effect (0.6246, $p=0.000$). Several other behaviors were moderate in effect size: interactions (0.3676, $p = 0.002$), praise (0.5636, $p = 0.000$), and other interactions (0.3445, $p = 0.004$). For these calculations, scanning just had a moderate effect (0.2631, $p = 0.025$), which is not as strongly supported in the visual analysis. See Table 10. For more details on each participant's effect size for the variables, see Appendix V. In summary, the overall effect size calculations support the visual analysis that demonstrates a functional relation with the interactions, with the strongest support being for a change in prompting.

Interestingly, the data from the effect size calculations do not directly match the findings of the visual analysis. I did not see increases for several of the behaviors that were considered to have a moderate effect size (e.g., interactions and scanning). The large effect for prompts did not match the visual analysis for this behavior that suggested a more modest and possible effect.

Table 10.

Effect Size: Tau-U Comparisons across the variables (all participants)

Variable	Tau	Var-Tau	Z	P-Value	CI 95%	Effect Size Level
Interactions	0.3676	0.12	3.14	0.002	0.1383<>0.5969	Moderate
Scanning	0.2631	0.12	2.25	0.025	0.0338<>0.4924	Moderate
Movement					-	
Intervals	0.1369	0.12	1.17	0.242	0.0925<>0.3662	None
Movement					-	
Steps	0.1878	0.12	1.59	0.111	0.0431<>0.4187	None
Prompts	0.6246	0.12	5.30	0.000	0.3937<>0.8555	Large

					-0.7244<>-	
Corrections	-0.4935	0.12	-4.19	0.000	0.2626	None
Praise	0.5636	0.12	4.78	0.000	0.3327<>0.7945	Moderate
Other						
Interactions	0.3445	0.12	2.92	0.004	0.1136<>0.5754	Moderate
Children					-	
High	0.059	0.12	0.50	0.615	0.1709<>0.2890	None
Children					-	
Moderate	-0.1219	0.12	-1.04	0.299	0.3518<>0.1080	None

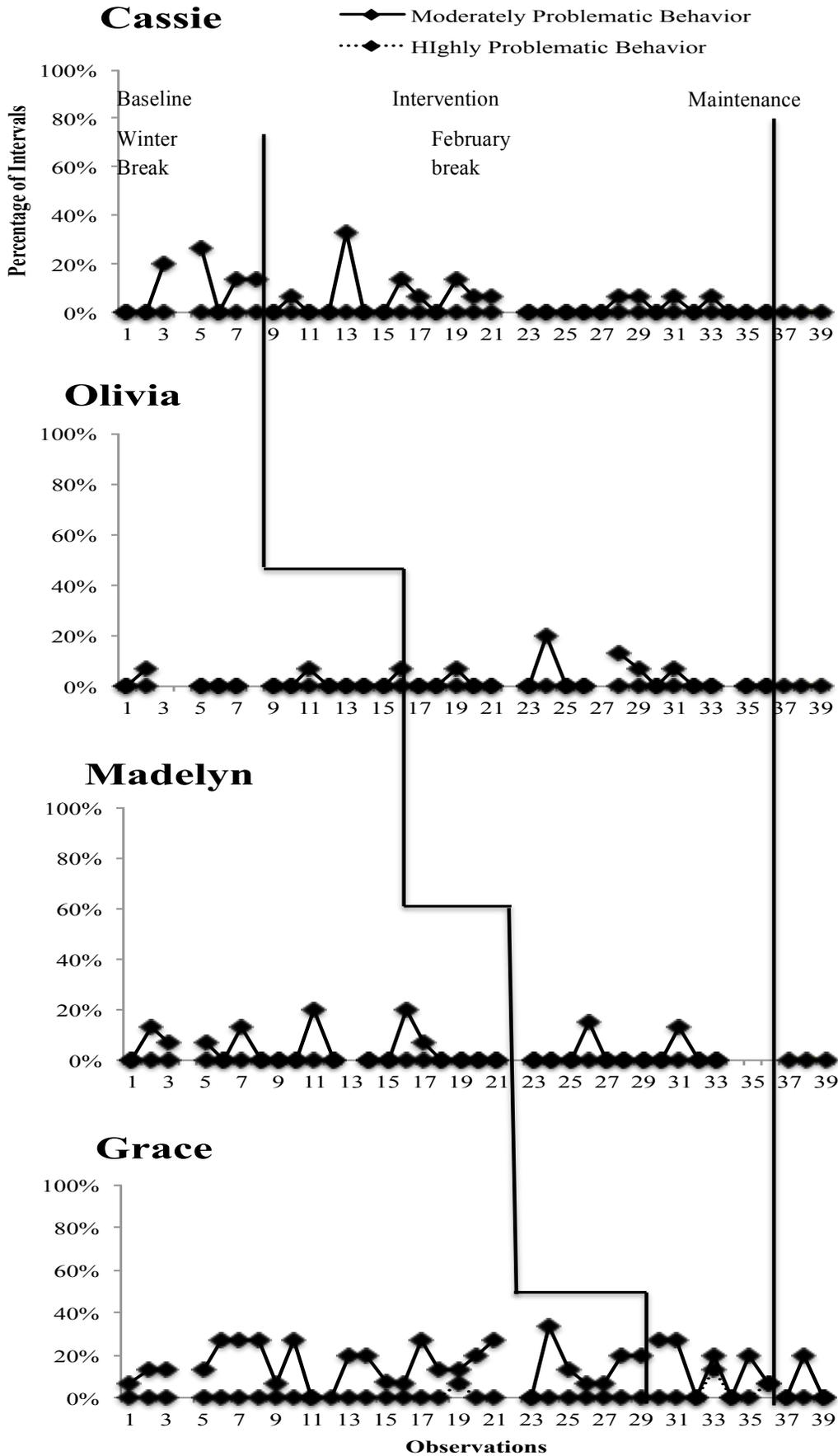
Summary of research question 1. Results of the study show possible behavioral changes across the participants. Using visual analysis, it is possible that there are some increases, suggesting a potential functional relation between the intervention and the interactions of supervisors, specifically prompting and praising. These results were supported by changes in levels and overall magnitude of effect size. For the outside behaviors of scanning, moving, and interacting, I did not see enough change on the graphs and there was too much variability in the data across three participants to demonstrate a functional relation. In summary, data may support a potential functional relation between the intervention and interacting behaviors of praising and prompting.

Research Question 2: What are the effects of increasing active supervision on students' problematic behavior during recess?

For this intervention, I looked at the student behavior for moderately problematic and highly problematic behavior. The supervisors helped to select an area they believed was where students tended to misbehave. This area ended up being around where they were monitoring. Overall, there was not a functional change in either moderately or highly problematic student behavior.

For Cassie, Olivia, and Madelyn, there was no highly problematic behavior observed for students in their areas. For Grace, there were a few instances of highly problematic behavior. All phases of the graph display low rates of student behavior for all of the participants across the phases. Students in Grace's area showed variable levels of moderately problematic behavior (in that it occurred more often than the other participants) with no changes. The mean for students in Cassie's area slightly decreased in moderately problematic behaviors from 5% (0-13%) to 2% (0-17%). The lines for the highly problematic behavior overlap on the 0% bottom-line of the graph. All in all, the intervention did not change student behavior. See *Figure 12* and *Table 7*.

Figure 12. Student Problematic Behavior



Research Question 3: Was any increase in recess supervisor's self-managed behavior maintained with the sole use of direct behavior rating scales as part of a self-management strategy of the adult active supervision?

For the most part, the intervention did not result in functional increases in behaviors with the possible exceptions of praising and prompting. Therefore this section will focus on these two behaviors. Overall neither behavior maintained across the supervisors after the intervention phase ended.

Continuation of Self-Management. When moving into the maintenance phase, the participants were asked to use the DBR's independently and were provided with the DBR's and offered to have the loops. None of the participants used the DBR independently, gave out the loops, or asked for materials. During the three maintenance observations when the data collector provided the clipboard, the loops, and the DBR's and collected them after the observation, all supervisors filled out the DBR's (100%) and Grace, Cassie, and Olivia handed out some loops. In essence, when the data collector gave the participants the material, they filled them out, but when independent they did not fill out the DBR's or hand out loops.

Prompting. As prompting had showed a potential increase as a result of the intervention, the maintenance of the behaviors can be examined to see if the use of DBR's maintained the behavior. At this phase for all participants, the prompting fell back to baseline levels. On the recordings, maintenance for Cassie for prompting shows a decrease in level back to baseline (Mean = 0.1/min) and fairly stable non-existent prompting behavior (Range = 0.0-0.2/min). In this phase Olivia's prompting behavior declined in level to 0.0/min and stayed flat. Although Madelyn had not increased in her prompting functionally, she did show some

movement until maintenance when she barely prompted (Mean = 0.0/min). Grace's level of prompting also fell from an intervention average of 1.0/min to maintenance of 0.2/min that was the same as at baseline with a decreasing trend in this phase. The increase in prompting did not maintain across participants. See *Figure 6*.

Praising. Similar to prompting, praise might have increased as a function of the intervention and maintenance can be considered. This behavior fell across participants in level compared to the intervention, but not lower than baseline average level for Cassie and Olivia. For Cassie, there was a sharp rise and ascending trend for praise with great variability (Range = 0.1-1.9/min). She stayed the same level at intervention and maintenance (Mean = 0.9/min) and this was higher than the baseline average level (Mean = 0.1/min). With Olivia, maintenance for praise had an increasing trend line and maintained its increase in average level, showing the baseline rate of 0.2/min that increased to 0.8/min and maintained at 0.7/min. There was some variability during this phase (Range = 0.5-1.1/min). Madelyn's praise level of 0.2/min (Range = 0.1-0.4/in) was lower than intervention at 0.3/min but higher than baseline 0.1/min. As for Grace, she had shown increases in praise and this dropped a little in level at maintenance (Mean = 0.7/min) compared to intervention (Mean = 1.0/min), only slightly higher than baseline (Mean = 0.6/min). There was slightly less variability at maintenance (Range = 0.5-0.9/min) compared to intervention (Range = 0.4-1.5/min). Looking at the data, there was not maintenance of this behavior across the four participants. See *Figure 7*. and Table 8.

Handing out loops. For the loops, no supervisor requested loops to hand out independently. When observed, several participants handed out less loops than during the

intervention.

Cassie. Cassie slightly increased her handing out of loops at maintenance from 0.7 to 0.8/min.

Olivia. Olivia dropped in the rate of loops handed out to 0.2/min for maintenance from intervention levels of 0.4/min.

Madelyn. Madelyn did not hand out any loops at maintenance.

Grace. Grace only handed out 1 loop during maintenance across three day, which calculates at 0/min.

Handing out loops summary across participants. Although I did not compare the intervention rates to baseline for this behavior, there was no maintenance and a decrease in this behavior across most participants. See Table 7.

Summary of maintenance findings. Across the four participants, there was no evidence of maintenance in the increases of praising and prompting that had been the two behaviors that might have increased as a result of this intervention. Additionally, none of the supervisors decided to independently neither use the DBR's to self-manage their behaviors nor give out loops without the presence of the data collector/s. In summary, any potential increases in praising and prompting were not maintained with the sole use of DBR's for self-management.

Social Validity

After the observations had ended, I assessed the social validity of the intervention, asking each recess supervisor to fill out the TPDAQ, with the question about the use of an electronic checklist and any additional comments and the Usage Rating Profile-Intervention Revised (URP-IR; Appendix Q).

TPDAQ. The TPDAQ included 15 questions, which the participants answered on a scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), a question requiring a yes or no response, and a question asking for an open-ended response (comment). All of the supervisors filled out the surveys. Overall results from the survey were positive with a total average of 4.7 (out of 6; ranging from means of 3.9-5.5), indicating that participants were moderately satisfied with the intervention. They rated that the professional development was a good way to increase supervision ($M = 5.0$; range = 4-6) and was beneficial ($M = 5.0$; range = 4-6) but that recess behavior of the students was not severe ($M = 1.5$, range = 1-3). The results are listed in Table 11.

Table 11
Social validity ratings by recess supervisors: TPDAQ

	Survey Item	Mean	Range
1	Targeted professional development was an acceptable intervention for increasing active supervision.	4.8	4-6
2	Most recess supervisors would find targeted professional development appropriate for increasing active supervision.	4.5	4-5
3	Targeted professional development proved effective in increasing active supervision.	4.3	3-6
4	I would recommend the use of targeted professional development to other recess supervisors.	4.8	4-6
5	The recess behavior of students was severe enough to warrant use of targeted professional development.	1.5	1-3
6	Most recess supervisors would find targeted professional development appropriate for increasing active supervision.	4.5	4-6
7	I would be willing to continue using the targeted professional development in recess settings.	3.8	2-5
8	Targeted professional development would not	4.8	4-6

	result in negative side-effects for recess supervisors.		
9	The targeted professional development would be appropriate for a variety of recess supervisors.	4.8	5-6
10	The targeted professional development is consistent with trainings I have had before in the school setting.	4.5	4-5
11	Targeted professional development is a fair way to increase use of active supervision.	4.8	4-6
12	Targeted professional development is reasonable for increasing active supervision.	4.8	4-6
13	I liked the procedures used in the targeted professional development.	4.5	2-6
14	Targeted professional development is a good way to increase active supervision.	5.0	4-6
15	Overall, targeted professional development was beneficial for increasing active supervision.	5.0	4-6
16	I would prefer using an electronic version of the checklist (Yes or No) 2: Yes 2: No		
17	Please provide any comments about the checklist and/or direct behavior rating scales as a way to increase self-management. Comment 1: "I found the checklist and behavior lists helpful." Comment 2: "I feel that my management skills were already good."		

URP-IR. The URP-IR consisted of 29 questions across 5 factors answered on a scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The results are tallied by each validated factor. I received all four surveys back. The total results are listed in Table 12.

More specifically, the scores for the URP-IR include 6 factors of social validity: acceptability, understanding, home school collaboration, feasibility, system climate, and system support. The first factor, acceptability, scored an average of 4.4 (out of 6; ranging from an

average of 3.2-5.1) across participants. The total score for understanding was the highest rating of all factors (M=5.5 Range 5-6), indicating that the participants understood how to do the intervention. Most did not rate highly home school collaboration (M = 2.6, 1-4.3) or system support (M = 2.8, 2.3-3.3), suggesting that assistance at home or from the school was not necessary for this intervention. As far as the intervention fitting into the school, system climate was rated 4.8 (4-5.2). Finally, for feasibility, the overall average was 4.9 (4.7-5.3). In summary, the results of the UPR-IR suggest that home or system support is not necessary, that the intervention moderately fits into the climate of the school system and was reasonably feasible and acceptable.

Table 12
Social validity ratings by recess supervisors: URP-IR

Factor	Survey Item	Mean	Range
Acceptability	Overall	4.4	3-5
	1. This intervention is an effective choice for addressing a variety of problems.	5.5	5-6
	7. The intervention is a fair way to handle the child's behavior problem.	5.3	5-6
	9. I would not be interested in implementing this intervention (Reverse coded)	3.0	1-5
	11. I would have positive attitudes about implementing this intervention	4.5	2-6
	12. This intervention is a good way to handle the child's behavior problems	4.8	4-5
	18. I would implement this intervention with a good deal of enthusiasm	4.3	2-6
	21. This intervention would not be disruptive to other students	4.8	4-5
	22. I would be committed to carrying out this intervention	4.0	2-5
	23. The intervention procedures easily fit in with my current practices.	4.0	2-5
Understanding	Overall	5.5	5-6

	4. I understand how to use this intervention	5.5	5-6
	6. I am knowledgeable about the intervention procedures	5.5	5-6
	25. I understand the procedures of this intervention.	5.5	5-6
Home School Collaboration	Overall	2.6	1-4
	5. A positive home-school relationship is needed to implement this intervention	2.8	1-5
	15. Parental collaboration is required in order to use this intervention	2.5	1-4
	28. Regular home-school communication is needed to implement intervention procedures	2.5	1-4
Feasibility	Overall	4.9	4-5
	3. I would be able to allocate my time to implement this intervention	4.5	4-5
	8. The total time required to implement the intervention procedures would be manageable	5.3	5-6
	13. Preparation of materials needed for this intervention would be minimal.	4.8	4-5
	17. Material resources needed for this intervention are reasonable.	4.8	4-5
	19. This intervention is too complex to carry out accurately. (Reverse coded)	5.3	5-6
	27. The amount of time required for record keeping would be reasonable.	4.8	4-5
System Climate	Overall	4.8	4-5
	10. My administrator would be supportive of my use of this intervention.	5.0	5-5
	14. Use of this intervention would be consistent with the mission of my school	4.8	4-5
	16. Implementation of this intervention is well matched to what is expected in my job.	4.8	4-5
	20. These intervention procedures are consistent with the way things are done in my system	5.0	5-5
	26. My work environment is conducive to implementation of an intervention like this one.	4.5	2-6
System Support	Overall	2.8	2-3
	2. I would need additional resources to carry out this intervention.	2.0	1-4
	24. I would need consultative support to implement this intervention	3.5	2-5
	29. I would require additional professional development to implement this intervention	2.8	2-4

Summary of Results

For Project RECESS, the interacting behavior of praising and prompting showed a possible evidence of a functional relation from using self-management (e.g., checklists and DBR's), but no effects were maintained. In contrast, data did not support a functional relation between self-management and other active supervision behaviors (i.e., moving, scanning) or student behavior.

Chapter IV

Discussion

Active supervision is an important way to address challenging behavior on the playground. Prior studies have found that student behavior has improved, but have not always documented an increase in the active supervision level of recess supervisors (e.g., Lewis et al., 2000). A notable exception was the study of Franzen and Kamp (2008) that demonstrated an increase in active supervision, although there was an intervening summer vacation during the data collection and scanning and movement was not measured. Evidence also suggests that using self-management can help to increase the frequency of adult behavior. Simonsen and colleagues (2013, 2014, 2017) have been able to demonstrate success on increasing teachers' classroom management interactions (e.g., praise) using a self-management technique (graphing) in combination with a brief professional development training.

The current exploratory study used a self-management intervention combined with a brief professional development during a recess in an elementary school. Specifically, recess supervisors were trained on the elements of active supervision (e.g., moving, scanning, and interacting) and used a checklist and direct behavior rating scales to monitor their active supervision before and after recess. Participants also were given the option to hand out loops to students who exhibited appropriate behavior. Entering the intervention in random order, the supervisors were observed during the recess period for the percentage of intervals they engaged in interactions, scanning, and movement between quadrants and the number of loops handed out during the intervention and maintenance phases. Students were also observed for their levels of moderately and highly problematic behavior. After the observations, recordings

of interactions were listened to and coded for more specific behaviors of prompting, praise (specific and general), corrections (specific and general), and other interactions (e.g., other communications with students; adult-initiated or student-initiated). I also looked to see if the supervisors would use the DBR for self-management and if any increase in behavior could be maintained with the sole use of direct behavior rating scales. This chapter discusses key results, limitations, and implications.

Overall, this study suggests that using a brief training in combination with self-management strategies might improve facets of active supervision behavior. Overall, active supervision behaviors (moving, scanning, and interactions) did not increase as a function of introducing the intervention, when considered together in an overall composite score. However, I found a possible functional relation when the intervention was introduced for the specific interaction behaviors of prompting and praising. I did not see changes in scanning, moving, or student's moderately or highly problematic behavior during recess. Finally, no behavior changes were maintained, and the supervisors did not use the direct behavior rating scales independently.

Recess supervisor outcomes. Although overall effects were not observed, the potential increases in prompts and praise are in line with several studies on the use of self-management to increase adult behaviors of specific praise (Simonsen, et al., 2013, 2014, 2017) and supervision (Franzen & Kamp, 2008). In their study, Franzen and Kamps defined active supervision as: “precorrection, conversational remarks, positive feedback on appropriate behavior, and delivery of recess loops” (p. 159). These type of interactive behaviors were then aggregated to show a change in mean from baseline to the intervention across 2nd, 3rd, and 4th

grade recess supervisors. Movement and scanning were not measured as part of the experiment. Similar to the results of this study, my participants showed some possible improvements in interacting, which matches the results of Franzen and Kamps (2008), but goes beyond by specifically looking at which interactive behaviors were increased. Similar to Franzen and Kamps (2008), Lewis et al. (2000) looked at interactions as part of active supervision, but broke it down into non-active (interact with adult, and whistle/gesture) and active behaviors (e.g., interact with student and move beyond 15 feet). As part of that study, they measured movement (but not scanning) and separately looked at precorrections that were tied in with reminders of school expectations, and not as part of the active supervision interactions. This study did not see an increase in active supervision behaviors. Across both studies, similar to my study, there were not increases in movement and scanning (with my study measuring for it). Unlike Lewis et al., I did see some increases in interactions, including prompts (e.g., precorrections) and praise that might suggest a potential functional increase for these behaviors. As this study is the first to look at the three behaviors at the same time using the composite, it is not possible to consider the lack of increase in the composite compared to prior studies. The results will be discussed more specifically looking at the three behaviors of active supervision behaviors measured in this the study.

Moving. During this study, I did not observe increases in moving as measured by the percentage of change in location across the quadrants or in the number of steps taken. The recess supervisors had been assigned to specific locations on the playground where students clustered and where they believed there was more likely to be problematic behavior. The practical implication of this strategy was that either the supervisor was already in the area that

she would have walked to (e.g., she did not walk across quadrants) or was walking less (e.g., she used less steps) if she was moving within the quadrant. An additional impact of this strategy was that several of the supervisors were in the area they called the “field.” There was movement across the periphery of this area, but within this quadrant, the supervisors stayed in certain areas. Looked at as a whole, movement was not as necessary at this school and had less chance of occurring because of prior strategies.

Scanning. From the start of the intervention, all four of the supervisors were scanning across the observed intervals. I did not observe an increase in the scanning behavior across the participants. This behavior was occurring at baseline similar to the behavior after the intervention.

Interacting. I observed the most changes in this study for the behavior of interacting. To measure interacting, I used several measurements: observed interactions at the beginning of 15 one- minute intervals, frequency of specific behaviors captured during the recordings, and the giving out of loops. For the outside observations, there was not a discernable visual change on the graphs for the observed interacting. For interacting behavior, the graphs demonstrated increases in the changes in level and increased stability for the interaction behaviors of praising and prompting, suggesting possible increases in these behaviors. The loops produced mixed results with three giving them out at varying rates and one refusing to do so. In summary, the observed interacting or handing out loops did not demonstrate change but the recordings showed some increases in prompting and praising that suggest potential functional relations.

Student outcomes. Overall the behavior of the students did not decrease over the course of the study. These findings are inconsistent with Franzen and Kamps (2008) and Lewis et al.

(2000) that showed decreases. As the adult behavior did not show large increases in active supervision, the student behavior did not have as strong of a chance to be impacted by changes in adult behaviors. Both moderately and highly problematic behaviors rarely occurred at baseline (floor effect). On days with weather conditions that were challenging (e.g., sliding down an hill on a sled), the behaviors were not problematic. Additionally, I observed very few instances of highly problematic behavior through the entire study.

Maintenance. Although there were some increases in praising and prompting, none of the behaviors maintained after the intervention ended, and the supervisors did not independently give out the loops and fill out the DBR's. After the first observation was done, I contacted all by email, offering to provide the loops and attached an email version of the DBR. None of the participants contacted me, handed out the loops, or filled out the DBR's. When I came to observe and handed the clipboards with the DBR's and a bag of loops, the three participants who had done so before did hand out loops (one only handed out one) and the fourth continued to decline to hand them out. All of the supervisors filled out the DBR's at the end of the study when the clipboard was collected as it was in the baseline and intervention phases. In essence, there was no maintaining in any of the possible increases in behaviors and the supervisors did not use the DBR's to self-monitor their behavior in the absence of the data collectors.

Social validity. For the most part, recess supervisors were satisfied with the intervention. The TPDAQ average rating was 4.7 (out of 6) and the URP ranged across factors, with acceptability averaging at 4.4, understanding at 5.5, and feasibility at 4.9 (all out of 6). Interestingly the URP detected more differences with the social validity across factors.

The supervisors rated understanding higher than acceptability and feasibility. On the TPDAQ, the question directly asking about acceptability averaged 4.8. This suggests that there might be an overall problem with the acceptability of this intervention for participants. One of the reasons might be due to issues related to the handing out of the loops and that made her not sure what to do. During the closing meeting, the two supervisors who met with me indicated they did not mind doing the checklists or DBR's, which were the most fundamental components of the intervention. One said she did not like the loops at all (she had refused to hand any out) and the other that she thought there were differences in the attitudes of the supervisors on handing out the loops. Even though care was taken to maintain confidentiality, the supervisors were aware of who was using a clipboard during the recess period. As to carrying the clipboards, on the additional TPDAQ question, half would have preferred an electronic version and that might suggest that carrying the checklist was a hindrance, although this question should have been asked specifically to find out more details on why they would prefer electronic. Additionally, the rating of continuing with the intervention was the lowest rating for all of the questions on the TPDAQ (3.8). This suggests that most would not wish to continue doing this intervention, which matches that none decided to fill out the DBR's or hand out loops independently. Most importantly, this intervention was assuming that the behavior for the supervisor was being reinforced by improvement in the student behavior, which increase did not happen and which was not monitored. If the loops or carrying the clipboard was aversive, they were not self-reinforcing, and the student behavior was not able to improve, then I did not tap into contrived or natural reinforcers for the adults that would sustain the intervention effects, especially if the behaviors were a new skill. If there were not

reinforcers tied in with this intervention for the adults, then this might impact ratings of acceptability and desire to continue. Overall, more needs to be done to determine why there is a discrepancy on the URP between the constructs and what can be done to improve all aspects of social validity to make this intervention less aversive and increase the reinforcer to support maintenance of the increases in behaviors.

Limitations

Results from this study should be interpreted with regard to limitations related to the weather, potential influence of other supervisors on each other, and other contextual considerations related to this specific setting. This sub-section will describe each of these key limitations in greater detail.

There were a few weather related limitations. The start of the intervention occurred the week before winter break in December and continued through the end of April. This is a time of year in the region of New England that is characterized by snowy, icy, and cold weather—all of which interrupt the study because they lead to cancellations of outdoor recess. In fact, for many of the weeks, I was only able to observe for 2-3 times a week. This suggests an intervention effect that could not be controlled as ideally collection would occur daily. However, there was no possibility to observe outside recess on those days as it did not occur and the behaviors for inside recess might be different. To help control for this, I kept a weather log that I could examine for any differences in behavioral patterns, and I either did not detect any or reported them in the results section. Finally, across the intervention phase, I went out on any day that recess was held and did the observations at the same time to be as consistent as possible.

There were also contextual limitations related to the timing of recess. There were only two recess sessions for the school. For one of the recess periods, I observed three of the supervisors at the same time. Although I did my best to assure that the supervisors were not aware of who was in the intervention and asked them not to talk to the others at the trainings, they were self-aware as they were carrying around clipboards that needed to be handed out and collected. They also became more aware of who was in the intervention as loops were handed out in the intervention phase. This might have influenced the supervisors in that they might have adjusted their behaviors based on the other supervisors. For one of the supervisors in the closing meeting, she reported that it was difficult to give out the loops as one of the supervisors did not like them. I assume she was also aware when the third person entered into the intervention as she switched places with her on the playground, which led to an increase in movement on that day (and a decrease in her movement). With that being said, the supervisor who was last to enter the intervention phase responded the best and was not aware of the others behaviors as her recess session was during a different time. In essence, this is a limitation that I tried to control but proved difficult given the set timings of one of the recess period and the realities of a defined outside area for observations.

Finally, this experiment is a single subject multiple baseline design with a small group of supervisors in one school. There were contextual considerations that did impact the study findings. For example, the student behavior was not problematic for the most part. Some of the behaviors for the supervisors were not able to improve because they were already high (e.g., scanning). The need for movement was reduced by the strategies already in place. These types of considerations may have contributed to the lack of change in some active

supervision behaviors or in student behavior. Generalization of the results is thereby limited due to such contextual considerations. More research should be done, perhaps with better pre-screening in other settings, to test for intervention effects and to see if this intervention might increase movement and scanning and decrease student inappropriate behavior if done in other settings. Care should be taken in generalizing these results to settings without the strategies the school was already using or in settings with more problematic student behavior.

Implications

Project RECESS sought to explore the effect of a professional development and self-management plan on adult active supervision in the playground, and the findings of this exploratory study might have implications for schools and researchers. Additionally, the effect of the change of the adult behavior on the student behavior was measured, and two positive behaviors showed possible increases (e.g., prompting and praising). Overall, the results from this study address an area of interest for schools and researchers.

Implications for schools. By addressing the behavior of adults and the impact on students through an intervention targeting the adult behavior, the project might support behavioral based interventions in schools that address challenging behavior. Looking at aggressive, problematic behavior as one that is influenced by adult reactions can help to re-focus schools on how to reduce aggressive behavior effectively. Also, an intervention that addresses aggressive behavior through changing adult behavior is important given the ongoing emphasis to address such behaviors in school settings. Including a preventive approach is helpful as it addresses the behavior pro-actively in a way that reduces the behavior from the onset. Furthermore, although programs are readily available, schools often find challenges in

accessing and evaluating practices and interventions that are evidence-based.

Implications for recess supervisors. Recess is a time at school with unstructured play. It can be a time for students to learn how to interact with peers positively but it can also be a time when aggressive behavior surfaces. The behaviors of active supervision are often lost in the opportunities for adults to spend down-time in an outside setting with each other. By providing direct instruction on active supervision and asking the adults to monitor their own behavior, this intervention, this intervention clearly defines the expected behaviors for adults and provides supports for them to be able to do them successfully in the recess environment.. Additionally, the intervention is not designed for a specific level of knowledge for the supervisor. The intervention introduces the material and includes the potential of a review of the material based on an assessment in between the part 1 and 2 of the training. This would allow a practitioner to review the material if they were learning the skills for the first time. As well, the intervention is designed to work with all supervisors, including paraprofessionals and teachers. Overall schools might be able to use this intervention easily in natural settings.

Supporting previous findings on active supervision, this study demonstrates that self-management might be a strategy for schools to improve the interaction behavior of recess supervisors. Based on prior research and potential effects observed in the present study, I suggest the following recommendations for schools:

- a) Incorporate the assistance of adults in the management of their own behavioral change
- b) Provide professional development that is efficient and relevant for the jobs that staff do in schools; if an adult will be supervising recess, provide targeted

professional development for the relevant behaviors for this task

Implications for researchers. Given the limited results of this study, researchers should continue to explore ways to increase active supervision in all its facets and in the most positive ways available. The study demonstrates that it is possible to measure every behavior of active supervision during one study (e.g., scanning, moving, and interacting). Thus, in addition to focusing on interactions, researchers are encouraged to examine the extent to which active supervision interventions increase movement and scanning. In addition, future research should explore the role each of active supervision behaviors plays in supporting student behavior. It might be that one of the behaviors (e.g., scanning) may already be fluent for some participants and may require less direct instruction. Interacting might be more difficult and benefit from more detailed professional development. Using a different measurement system might also be tested to see if different behavioral change can be determined when observing. It might also be considered if the changes in a behavior might be impacted by an unintended emphasis in professional development material and more can be done to test the directed effect of the material in a professional development. Systematically replicating this study would be beneficial to see if different results are obtained in schools where student behavior might be less appropriate or the scanning and moving behavior might be lower initially and more likely to increase in a different contextual environment.

Future research might also consider whether interventions targeting active supervision are more effective when including additional components (such as teaching social skills for the students) and if interventions will work to increase supervision in other unstructured settings (such as the bus, cafeteria, or hallway).

Future research might also see if the behavioral changes can be maintained if greater increases are seen in the measured behaviors. Ways to maintain behavior should be explored, such as the use of fading of the checklist itself or more exploration of the use of DBR's to increase adults' awareness of observed behavior change. Also, more work can be done to incorporate recess supervisor feedback before the intervention occurs to help identify reinforcers for the staff that might help to maintain the behavior naturally or to address when a component of the intervention serves as a punishing aversive.

Considering prior research and the study results, I recommend the following:

- a) Explore the use of self-management of active supervision across different student and staff with initial behavioral levels, varying staff populations (e.g., teacher and other involved staff), and with differing school demographics (e.g., rural, urban, suburban)
- b) Develop better measurement tools to capture adult behavioral change in challenging settings
- c) Explore the relative effectiveness of each of the three active supervision behaviors for different settings (e.g., is moving more important in some situations than others; is interaction more important than the other behaviors)
- d) Explore ways to maintain behavioral gains gained from self-management techniques

Conclusion

Playgrounds are often areas with less structure and increases in student inappropriate behavior. Active supervision is a proven technique to reduce the negative student behavior

(Lewis et al., 2000). Recess supervisors benefit from instruction on how to actively supervise and provide positive places for students to thrive on the playground. Increasing interactions with students, scanning the problematic areas, and moving through the playground are key to actively supervising in this setting. The purpose of this study was to explore the relationship between a brief training on active supervision and self-management and the use of a simple strategy of self-management (checklist and DBR) to change adult behavior. This proposal is one of the first to look at the role of active supervision and its impact on students' problematic behavior through the consideration of the changing of adult behavior by using self-management.

This exploratory study suggests that a brief training combined with self-management might lead to increases in the positive interactions of recess supervisors. Although there were no overall effects for active supervision (when examining a composite score), visual analysis indicated potential increases in stability and level for prompts and praise, which was supported by changes in means and effect sizes calculations. The data for the students' problematic behavior did not demonstrate a change, but the problematic behavior of the students was very low through all phases. After the intervention phase ended, the supervisors did not independently use DBR's and any potential effects for praise and prompts were not maintained. By demonstrating possible positive increases in interactions, this study serves as an initial first step to identifying strategies to support active supervision on school playground. Overall, the study begins to address an area of public and school interest as well a current gap in the literature, and highlights the need for additional research to identify strategies to increase active supervision in non-classroom settings, like the playground.

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Appendix A: Abstract Review Coding and Definitions

Abstract Review: Specific coding and inclusion definitions

Coding Categories	Definition
English*	Written in the English language
Human Subject*	Is about humans, such as interventions or programs (e.g., not statistical methods or policy papers)
Non-Autism Spectrum Disorder*	Not specific intervention or program focusing only on students with autism spectrum disorder
School-Based*	Focuses on school setting
Playground/ Recess*	Focuses on playground or recess settings
Adult Behavior*	Addresses the social and emotional overt behaviors of adults
Active Supervision*	Specifically mentions the behavior of supervision by adults
Other*	Specifically mentions other behaviors of adults (e.g., coaching)
Student Behavior*	Addresses the social and emotional overt behaviors of students
Aggression/ Bullying*	Specifically mentions the behavior of bullying or aggression
Social Skills*	Specifically or generally addresses behaviors related to social skills (e.g., initiating social interactions, problem-solving)
Other Behavior*	Generally addresses other behaviors of students (both appropriate and inappropriate behaviors)
Not Clear*	Abstract is not clear and article needs to be looked at more closely
Physical Fitness/ Health	Addresses physical fitness or health of students (e.g., exercise frequency)
Change of Equipment	Addresses change of equipment on the playground (e.g., markings, swings, providing games)
Injury/Safety Related	Addresses injuries or safety concerns for students (e.g., number of falls off equipment)
Observations of Children	Addresses observations of students playing or interacting on the playground
Other	Addresses other issues or material related to playgrounds (e.g., literature review of other interventions)

Note: * definitions indicate inclusion criteria

Appendix B: Full Article Coding and Definitions

Full Article Review: Specific coding and inclusion definitions

Articles meet all above criteria plus the following

Coding Categories	Definition
Population Characteristics	
Elementary School Aged*	Children ages 5 to 12
Birth to 3	Children ages 0-3
4 -7*	Children ages 4-7
8-11*	Children ages 8-11
12-15*	Children ages 12-15
16-19	Children ages 16-19
19 +	Adults ages 19 and over who are in school (generally in transition programs for special education)
Pre-K	Students in schools before kindergarten (usually ages 3-5 or 6)
Elementary (K-5 or 6)*	Students in grades K-5/6 OR students ages 5-12 (when students are not identified by grade) served in an elementary setting
Middle School (6-8, 7-8)	Students in some combination of grades from 5-9 OR students age 10-14 (when students are not identified by grade) served in middle or junior high setting.
High School (9-12)	Students in grades 9-12 or ages 14-18 (when students are not identified by grade) served in high school setting.
Child (only if not specified in another column)*	Students not identified by age or school level but labeled a “child”
Adolescent (only if not specified if not specified in another column)	Students not identified by age or school level but labeled an “adolescent”
Adult	Adults (ages 18 and over) (not students identified for special education) (e.g., teachers, staff, parents)
U.S.	Identification of the geographical setting of the U.S.A.
Any identified Disability Status	Students labeled with a disability
PDD/Autism	Pervasive Developmental Disorder or Autism Spectrum Disorder (if combined with other students and not solely autism-based study)
Developmental Disorder/Mental Retardation/Intellectual Disability	Developmental Disorder/Mental Retardation/Intellectual Disability
ADHD	Attention Deficit Disorder
EBD/BD	Emotional Behavior Disorder or Behavioral Disorder

Other	Any additional disability label
Included Gender Split	Study includes the number of males and females
Included Ethnic Background	Study includes the ethnic background of the students
Included SES (or equivalent)	Study includes the socio-economic status of the students (or its equivalent (e.g., free and reduced lunch))
Setting	
School and Recess*	
Traditional Public School*	Pre-K thru grade 12 provided within traditional school settings (e.g., district elementary, middle/junior high, or high schools)
Non-Traditional School*	Pre-K thru 12 educational program provided within privately funded school, which may be affiliated with a particular religious organization or alternative school setting (including therapeutic day schools, schools within a school)
Recess/Playground*	Outside area in the school where students spend leisure time, might include equipment (e.g., slides or swings)
Lunch/Cafeteria	Area where students eat
Hallway	Area where students transition from one area to another
Classroom	Area where students spend the majority of the day with a classroom teacher
Other	Other areas
Dependent Variable	Variable being manipulated or changed by the intervention
Behaviorally-based DV*	Variable addresses social and emotional overt behavior
Adult*	Ages 21 and over
Student*	Ages 3 – 21 (participating in school setting)
Paper Type	
Empirical*	Includes all data-based and quantitative articles (e.g., single subject, correlational descriptive, group design, meta-analyses, etc.)
Program Description	Description of a strategy or a practice without original supporting data
Conceptual Paper	Paper proposing or discussing future areas of research or hypotheses without original supporting data
Other	Paper addresses other concerns (e.g., literature reviews)
Research Design	
Experimental Group Design*	Group study in which participants are randomly assigned to intervention (independent variable) conditions with analyses comparing differences between groups on levels of dependent variable(s) resulting of an independent variable
Quasi-experimental Group Design*	Group study in which participants are NOT randomly assigned to intervention (independent variable) conditions with analyses comparing differences between groups on a dependent variable as a result of an independent variable, includes non-equivalent or in-tact groups, time series, and regression-discontinuity

	designs
Experimental Single Case Design*	Researcher uses repeated measures of participant behavior across time to examine effects of one or more independent variables at a minimum of three points in time (e.g., reversal withdrawal, multiple baseline, alternating treatments, changing criterion, and other modifications of these designs)
Non-Experimental Causal Comparative	Group study examines the effects of something (e.g., smoking) between groups who had different levels of exposure to the “thing” (e.g., smokers vs. non-smokers), but an intervention was not manipulated/implemented (i.e., no one was assigned to smoke)
Non-Experimental Correlational	Group study examines the relationship between two (or more) variables without implementing an intervention.
Descriptive Case Study	Study “describes” a phenomenon in a group of people without manipulating any intervention or examining relationships (e.g., survey of teacher perceptions of school violence where results are summarized)
Descriptive Group Study	Researcher uses repeated measures of participant behavior across time to examine effects of one or more independent variables at fewer than three points in time (e.g., AB design)
Qualitative	Researcher uses rich narrative, systematic descriptions intended to explore/understand a phenomenon via intensive direct observation (field notes), interview, record review, or similarly anecdotal methods
Behaviorally-Based Intervention	Intervention addresses social and emotional overt behaviors
Behavior*	Social and emotional overt behaviors
Adult*	Addresses adult behavior
Student*	Addresses student behavior
Scope of IV	
Staff	Interventions involving staff, including teachers and playground aides
Student	Interventions involving students
Universal	Interventions applied either school-wide (i.e., tier 1 school-wide interventions) or class-wide
Small/Targeted Group	Interventions targeted at a specific group (sub-group) of students (i.e., tier 2 interventions)
Individual	Interventions implemented with one student at a time (i.e., tier 3 interventions)
Components of IV	
Increase in Adult Supervision*	Addresses strategies to increase adult supervision (e.g., moving, scanning, interacting)
Adult Interaction*	Addresses strategies to increase adult interactions, including

	moving and scanning (not verbal)
Adult Feedback *	Addresses strategies to increase adult verbal interactions (positive or negative)
Social Skills Training*	Addresses instructional strategies aimed at teaching appropriate social behavior (e.g., Second Step, PBIS lesson plans, Steps to Respect, Cool Tools, Skill Streaming)
Reinforcement Strategies (no punishment)*	Addresses strategies aimed at increasing appropriate behavior by adding pleasant stimuli (positive reinforcement) or removing aversive stimuli (negative reinforcement) delivered contingent on appropriate behavior (including praise, token economies, group contingencies, positively stated behavioral contracts)
Punishment Strategies (no reinforcement)*	Addresses strategies aimed at decreasing inappropriate behavior by adding aversive stimuli (positive punishment) or removing pleasant stimuli (negative punishment) delivered contingent on inappropriate behavior (including response cost, time out, reprimands)
Combined Consequence Strategies*	Addresses strategies that include both reinforcement (e.g., token) and punishment (e.g., response cost), such as a token economy, level system, and similar interventions
Antecedent Strategies*	Addresses changes to the environment or structure intended to occasion/prompt appropriate behavior (e.g., schedule, posters, prompts)
Cognitive Behavioral Interventions	Addresses strategies that include changes in mental processing that lead to behavioral change (e.g., problem solving, conflict resolution)
Staff Training/Professional Development	Addresses professional development and training for adults
Policy Review/Revision	Addresses changes to existing policies or systems within the settings
Mental Health Therapy	Addresses psychologically-related issues
Physical Activity/Health Related	Addresses physical fitness or health of students (e.g., exercise frequency)
Environmental Modifications	Addresses change of equipment on the playground (e.g., markings, swings, providing games)
Injury/Safety Related	Addresses injuries or safety concerns for students (e.g., number of falls off equipment)
Discipline Referrals	Addresses referrals made for inappropriate, aggressive, or bullying behaviors (e.g., office discipline referrals, suspensions)
Academic instruction	Addresses curriculum and academic skills (e.g., study skills, literacy instruction)
Other	Addresses other components
Focus of IV	Describes what the intervention is including
Adult Supervision*	Includes adult behavior that is meant to increase active

	supervision consisting of moving around the playground, visually scanning the playground area, and interacting (positively or negatively) with students
Aggressive/Bullying Behavior*	Includes student behavior that is intentional toward another individual to inflict harm, can be verbal and/or physical (e.g., fighting, kicking, spreading gossip)
Inappropriate Behavior*	Includes student behavior that is maladaptive and interferes with academic and social functioning/environment
Appropriate Behavior	Includes student voluntary behavior that establishes and maintains positive peer and adult interactions
Measures	
Observation	Includes primary sources or first-person reports documenting observations within the natural setting
Observation with Tool	Includes a named tool for the observational measure
Rating Scale	Includes instruments utilizing a Likert or ordinal scale (not survey based on perceptions)
Student Self-Report	Includes instruments based on student perceptions (e.g., surveys)
Teacher/Staff Self-Report	Includes instruments based on adult perceptions (e.g., surveys)
Other	Includes additional measures (e.g., peer nomination, parent self-reports, disciplinary records)
Results	
Change in Student Behavior	Reports a difference in the social and emotional overt behaviors of students
Reduction in Aggression/Bullying	Reports a decrease in the aggressive or bullying behavior of students
Increase in Aggression/Bullying	Reports an increase in the aggressive or bullying behavior of students
No Significant Change in Aggression/Bullying	Reports no change in the aggressive or bullying behavior of students (when this behavior is being measured)
Reduction in Student Inappropriate Behavior	Reports a decrease in the inappropriate behavior of students
Increase in Student Inappropriate Behavior	Reports an increase in the inappropriate behavior of students
No Significant Change in Student Inappropriate Behavior	Reports no change in the inappropriate behavior of students (when this behavior is being measured)
Reduction in Student Appropriate Behavior	Reports a decrease in the appropriate behavior of students
Increase in Student Appropriate Behavior	Reports an increase in the appropriate behavior of students
No Significant Change in Student Appropriate Behavior	Reports no change in the appropriate behavior of students (when this behavior is being measured)
Reduction in Physical	Reports a decrease in the physical activity level or health of

Activity/Health	students
Increase in Physical Activity/Health	Reports an increase in the physical activity level or health of students
No Significant Change in Physical Activity/Health	Reports no change in the physical activity level or health of students (when this is being measured)
Reduction in Injuries/Safety Concerns	Reports a decrease in the injury level or safety of students
Increase in Injuries/Safety Concerns	Reports an increase in injury level or safety of students
No Significant Change in Injuries/Safety Concerns	Reports no change in the injury level or safety of students (when this is being measured)
Change in Adult Behavior	Reports a difference in the social and emotional overt behaviors of students
Increase in Active Supervision	Reports an increase in the active supervision of adults
Reduction in Active Supervision	Reports a decrease in the active supervision of adults
No Significant Change in Active Supervision	Reports no change in the active supervision of adults (when this behavior being measured)
Other	Reports on any other findings of changes in adult behavior
Implementation Measures	Describes measures related to the way the intervention is carried out
ANY Fidelity Measures	Addresses the extent to which an intervention was implemented as intended. Fidelity is a multi-dimensional construct that may comprise measures of exposure, quality, adherence, or dosage of intervention (Dane & Schneider, 1998)
ANY IOA Measures	Addresses the extent to which inter-observer agreement is met during data collection
ANY Social Validity Measures	Addresses the extent to which stakeholders (e.g., teachers/staff, students, parents) believe effects are important and effective

Note: * definitions indicate inclusion criteria

Appendix C: Abstract Screening: Number and Percentage of Coding Categories

Abstract Screening: number and percentage of abstracts by coding categories

Coding Categories	Numbers Passed	Percentage
Total Abstracts	381	
English*	373	98%
Human Subject*	368	99%
Non-Autism Spectrum Disorder*	339	92%
School-Based*	345	94%
Playground/ Recess*	267	73%
Abstracts Passed Non-ASD, School, & Recess	241	65%
Adult Behavior*		
Active Supervision*	9	4%
Other*	21	9%
Student Behavior*		
Aggression/ Bullying*	36	15%
Social Skills*	19	8%
Other Behavior*	36	15%
Not Clear*	5	2%
Physical Fitness/ Health	92	38%
Change of Equipment	35	15%
Injury/Safety Related	16	7%
Observations of Children	8	3%
Other	40	17%
Abstracts Passed	91	24%

Note: * Coding Categories indicate inclusion criteria

**Appendix D: Ancestral Abstract Screening: Number and Percentage of Abstracts by
Coding Categories**

Ancestral Abstract Screening: number and percentage of abstracts by coding categories

Coding Categories	Numbers Passed	Percentage
Total Abstracts	871	
Peer-Reviewed Journal Article*	524	60%
English*	524	100%
Human Subject*	497	95%
Non-Autism Spectrum Disorder*	493	99%
School-Based*	361	73%
Playground/ Recess*	47	9%
Abstracts Passed Non-ASD, School, & Recess Adult Behavior*	43	9%
Active Supervision*	4	9%
Other*	2	5%
Student Behavior*		
Aggression/ Bullying*	11	26%
Social Skills*	18	42%
Other Behavior*	10	23%
Not Clear*	1	2%
Physical Fitness/ Health Change Equipment Injury/Safety Related	0	0%
Observations of Children Other	2	5%
Abstracts Passed Articles Repeated Final Abstracts Passed	1	2%
	8	19%
	3	7%
	31	4%
	19	2%
	12	1%

Note: * Coding Categories indicate inclusion criteria

Appendix E: Full Article Code: Number and Percentage of Articles by Coding Categories

Full Article Code: number and percentage of articles by coding categories (n=103)

Coding Categories	Numbers Passed	Percentage
Population Characteristics		
Elementary School Aged*	92	89%
Birth to 3	1	1%
4 -7 *	23	22%
8-11*	33	32%
12-15*	12	12%
16-19	2	2%
19 +	0	0%
Pre-K	6	6%
Elementary (K-5 or 6)	91	88%
Middle School (6-8, 7-8)	11	11%
High School (9-12)	2	2%
Child (only if not specified in another column)*	2	2%
Adolescent (only if not specified if not specified in another column)	1	1%
Adult	37	36%
U.S.	74	72%
Any identified Disability Status	22	21%
PDD/Autism	3	3%
Developmental Disorder/Mental Retardation/Intellectual Disability	8	8%
ADD/H	6	6%
EBD/BD	8	8%
Other	12	12%
Included Gender Split	59	57%
Included Ethnic Background	38	37%
Included SES (or	29	28%

equivalent)

Setting

School and Recess*	96	93%
Traditional Public School*	97	94%
Non-Traditional School*	6	6%
Recess/Playground*	94	91%
Lunch/Cafeteria	17	17%
Hallway	1	1%
Classroom	50	49%
Other	15	15%

Dependent Variable

Behaviorally-based DV*	72	70%
Adult*	10	10%
Student*	72	70%

Paper Type

Empirical*	68	66%
Program Description	14	14%
Conceptual Paper	9	9%
Other	5	5%

Research Design

Experimental Group Design*	17	17%
Quasi-experimental Group Design*	3	3%
Experimental Single Subject Design*	24	23%
Non-Experimental Causal Comparative	0	0%
Non-Experimental Correlational	1	1%
Descriptive Case Study	4	4%
Descriptive Group Study	27	26%
Qualitative	12	12%

Behaviorally-based IV

Behavior*	67	65%
Adult*	25	24%
Student*	59	57%

Scope of IV

Staff*	42	41%
Student*	86	83%
Universal	20	20%
Small/Targeted Group	47	46%
Individual	21	20%

Components of IV

Adult Supervision*	25	24%
--------------------	----	-----

Adult Interaction*	17	17%
Adult Feedback*	21	20%
Social Skills Training*	45	44%
Reinforcement Strategies (no punishment)*	17	17%
Punishment Strategies (no reinforcement)*	1	1%
Combined Consequence Strategies*	19	18%
Antecedent Strategies*	15	15%
Cognitive Behavioral Interventions	18	17%
Staff	25	24%
Training/Professional Development		
Policy Review/Revision	15	15%
Mental Health Therapy	1	1%
Physical Activity/ Health Related	7	7%
Environmental Modifications	11	11%
Injury/Safety Related	0	0%
Discipline Referrals	0	0%
Academic Instruction	14	14%
Other	8	8%
Focus of IV		
Adult Supervision (Move, Scan, Interact)*	26	25%
Aggressive/Bullying Behavior*	38	38%
Inappropriate Behavior*	44	43%
Appropriate Behavior	40	39%
Measures		
Observation	63	61%
Observation with Tool	16	16%
Rating Scale	28	27%
Student Self-Report	19	18%
Teacher/Staff Self-Report	17	17%
Other	44	43%
Results		
Change in Student Behavior	38	37%
Reduction in Aggression/Bullying	23	22%
Increase in Aggression/Bullying	1	1%

No Significant Change in Aggression/Bullying	2	2%
Reduction in Student Inappropriate Behavior	27	26%
Increase in Student Inappropriate Behavior	2	2%
No Significant Change in Student Inappropriate Behavior	7	7%
Reduction in Student Appropriate Behavior	0	0%
Increase in Student Appropriate Behavior	26	25%
No Significant Change in Student Appropriate Behavior	4	4%
Reduction in Physical Activity/Health	0	0%
Increase in Physical Activity/Health	1	1%
No Significant Change in Physical Activity/Health	1	1%
Reduction in Injuries/Safety Concerns	0	0%
Increase in Injuries/Safety Concerns	0	0%
No Significant Change in Injuries/Safety Concerns	0	0%
Effective Change in Adult Behavior	4	4%
Increase in Active Supervision	1	1%
Reduction in Active Supervision	0	0%
No Significant Change in Active Supervision	1	1%
Other Increase (Adult)	1	1%
Other Decrease (Adult)	2	2%
Other No Sig. (Adult)	1	1%
Implementation Measures		
ANY Fidelity Measures	25	24%
ANY IOA Measures	46	45%
ANY Social Validity Measures	19	18%
Passed Key Criterion	31	30%

Note: * Coding Categories indicate inclusion criteria

Appendix F: Final Article Coding: Number and Percentage of Articles by Coding Categories

Final Article Coding: number and percentage of articles by coding categories (n=31)

Coding Categories	Numbers Passed	Percentage
Population Characteristics		
Elementary School Aged*	31	100%
Birth to 3	0	0%
4 -7 *	8	26%
8-11*	13	42%
12-15*	2	7%
16-19	1	3%
19 +	0	0%
Pre-K	0	0%
Elementary	31	100%
(K-5 or 6)		
Middle School	3	10%
(6-8, 7-8)		
High School	0	0%
(9-12)		
Child (only if not specified in another column)*	0	0%
Adolescent (only if not specified if not specified in another column)	0	0%
Adult	17	55%
U.S.	29	94%
Any identified Disability Status	9	29%
PDD/Autism	2	6%
Developmental Disorder/Mental Retardation/Intellectual Disability	2	6%
ADD/H	3	10%
EBD/BD	5	16%
Other	4	13%
Included Gender Split	25	81%
Included Ethnic Background	17	55%

Included SES (or equivalent)	11	35%
Setting		
School and Recess*	31	100%
Traditional Public School*	28	90%
Non-Traditional School*	3	10%
Recess/Playground*	31	100%
Lunch/Cafeteria	3	10%
Hallway	0	0%
Classroom	21	68%
Other	7	23%
Dependent Variable		
Behavioral*	31	100%
Adult*	7	23%
Student*	31	100%
Paper Type		
Empirical*	31	100%
Program Description	0	0%
Conceptual Paper	0	0%
Other	0	0%
Research Design		
Experimental Group Design*	11	35%
Quasi-experimental Group Design*	2	6%
Experimental Single Subject Design*	18	58%
Non-Experimental Causal Comparative	0	0%
Non-Experimental Correlational	0	0%
Descriptive Case Study	0	0%
Descriptive Group Study	0	0%
Qualitative	0	0%
Scope of IV		
Staff*	17	55%
Student*	30	97%
Universal	16	52%
Small/Targeted Group	22	71%
Individual	14	45%
Behaviorally-Based IV	31	100%
Adult	10	32%
Student	31	100%
Both	10	32%

Components of IV

Increase in Adult Supervision*	11	35%
Adult Interaction*	7	23%
Adult Feedback*	11	35%
Social Skills Training*	25	81%
Reinforcement Strategies (no punishment)*	8	26%
Punishment Strategies (no reinforcement)*	0	0%
Combined Consequence Strategies*	12	39%
Antecedent Strategies*	7	23%
Cognitive Behavioral Interventions	8	26%
Staff Training/Professional Development	12	39%
Policy Review/Revision	9	29%
Mental Health Therapy	0	0%
Physical Activity/Health Related Environmental Modifications	1	3%
Injury/Safety Related Discipline Referrals	0	0%
Academic Instruction	5	16%
Other	2	6%
Focus of IV		
Adult Supervision (Move, Scan, Interact)*	11	35%
Aggressive/Bullying Behavior*	19	61%
Inappropriate Behavior*	23	74%
Appropriate Behavior	18	58%
Measures		
Observation	30	97%
Observation with Tool	8	26%
Rating Scale	13	42%
Student Self-Report	6	19%
Teacher/Staff Self-Report	3	10%
Other	12	39%
Results		
Change in Student Behavior	27	87%
Reduction in Aggression/Bullying	17	55%

Increase in Aggression/Bullying	0	0%
No Significant Change in Aggression/Bullying	1	3%
Reduction in Student Inappropriate Behavior	20	65%
Increase in Student Inappropriate Behavior	1	3%
No Significant Change in Student Inappropriate Behavior	3	10%
Reduction in Student Appropriate Behavior	0	0%
Increase in Student Appropriate Behavior	15	48%
No Significant Change in Student Appropriate Behavior	1	3%
Reduction in Physical Activity/Health	0	0%
Increase in Physical Activity/Health	0	0%
No Significant Change in Physical Activity/Health	0	0%
Reduction in Injuries/Safety Concerns	0	0%
Increase in Injuries/Safety Concerns	0	0%
No Significant Change in Injuries/Safety Concerns	0	0%
Change in Adult Behavior	4	13%
Increase in Active Supervision	1	3%
Reduction in Active Supervision	0	0%
No Significant Change in Active Supervision	1	3%
Other Increase (Adult)	1	3%
Other Decrease (Adult)	3	10%
Other No Sig. (Adult)	2	6%
Implementation Measures		
ANY Fidelity Measures	15	48%
ANY IOA Measures	29	94%
ANY Social Validity Measures	9	29%

Note: * Coding Categories indicate inclusion criteria

Appendix G: Email Recruitment Letter

Dear (fill in administrator/school name):

I am a doctoral student in special education at UConn and work with Brandi Simonsen on promoting school discipline through positive behavioral strategies. Currently, I am working on putting together my dissertation study on strategies to support recess supervisors in actively supervising students. It's a fairly simple and small study (but still rigorous research that would help contribute to the research literature).

As a quick overview, I would like to recruit few (3-5) recess supervisors, to train in active supervision. Then, the supervisor would use a checklist to rate their use of active supervision and a few other things on a daily basis during recess. Before training and throughout the intervention, I would have data collectors observe 15 min of recess on a daily (or close to daily) basis. Most of the intervention would take place during their normal supervision time, and it would only require a minute or two for them to complete the checklist (other than the one training, which should take about 20 min). We hope it will benefit the supervisors and students, and potentially address a need area in the school.

I would like to begin to recruit for this study at the start of school so it could be done during the fall. Do you think this may be a fit for your school?

Please let me know if you'd like more information.

Thanks!

Laura Kern

Graduate Student

University of Connecticut

Neag School of Education

Laura.kern@uconn.edu; brandi.simonsen@uconn.edu

Appendix H: Talking Points for Recruitment Meetings

Study Title: Project RECESS: Restructuring Environmental Contingencies and Enhancing Self-Managed Supervision

Principal Investigator: *Brandi Simonsen, PhD* **Student Investigator:** *Laura Kern, JD*

Talking points for meetings with recess supervisors:

- Study focused on recess supervisor training in active supervision
- Great way to get feedback on aspects of your active supervision
- Not a big time commitment...the goal is to improve the efficiency with which PD is delivered by promoting staff management of their own behavior
- Describe study
 - Focused on recess supervisor's self management of OWN performance
 - Study will target active supervision (moving, scanning, and interacting)
 - At the end, we'll share feedback on active supervision behaviors and be available to meet with you (if desired) to give consultation on active supervision, in general
 - So, you'll experience
 - a couple of meetings before or after school to train in active supervision and the self-management intervention
 - an observer coming to a portion (e.g., 15-20 min) of ONE or MORE recess periods to observe your active supervision and the behavior of kids on the playground

- observations will occur daily for approximately 4-6 weeks and less often after that (if improvement is observed)
- the observer will touch base with you after
- self-management supports, and additional help if needed
- Questions? (Distribute ½ page sheets and collect.)

Appendix I: Recess Supervisor Contact Sheet

Study Title: Project RECESS: Restructuring Environmental Contingencies and Enhancing Self-Managed Supervision

Principal Investigator: *Brandi Simonsen, PhD*

Student Investigator: *Laura Kern, JD*

Please check the box corresponding to the option you prefer.

- I am interested in participating in the present study. The best way to reach me is:
 - Name: _____
 - Email: _____
 - Phone: _____

- I may be interested in participating at a later time (i.e., spring, or next fall), so feel free to contact me. The best way to reach me is:
 - Name: _____
 - Email: _____
 - Phone: _____

- I am not interested in participating in this study.

Please identify a 15-min block of recess that can be used for observation during recess:

Appendix J: Recess Supervisor Consent Letter and Parent Notification Form

Recess Supervisor Consent Form for Participation in a Research Study



Principal Investigator: Brandi Simonsen, Ph.D.

Student Investigator: Laura Kern, JD

Study Title: Project RECESS: Restructuring Environmental Contingencies; Enhancing Self-Managed Supervision

Introduction

You are invited to participate in a research study to examine the effects of recess supervisor training and self-management on recess supervisors' implementation of active supervision during recess (e.g., moving around the playground, scanning or looking around, and interacting with students).

Why is this study being done?

This study is being conducted to learn more about the best ways to support recess supervisors in active supervision. So far, research has taught us that typical in-service training approaches may not be the most effective ways to help recess supervisors learn or refine their skills.

What are the study procedures? What will I be asked to do?

If you agree to participate, observers will come to your recess session and take data on how often you engage in active supervision. We might observe for 1 - 3 sessions to see if you would benefit from the intervention. If we do those initial observations, and you would not benefit from the intervention, we will set up a meeting to share that information. If we proceed, we will observe you over approximately 5 –7 observations or until the observations show that the behavior is not showing any changes. We will collect information using an observation form, and a tablet that will record your movement and an audio recording of your interactions with students. Observers will include trained undergraduate and graduate students from UConn. Then, we will randomly select which order you will receive the training and meet with you to provide a brief training in active supervision (e.g., moving, scanning, and interacting). We will also teach you how to use self-management to increase your active supervision. As part of the monitoring of your own use of active supervision, we will ask you to carry a clipboard with an active supervision checklist, review and complete this checklist and a *brief* (3 item) rating of your active supervision and your students recess behavior at the end of each observation. We will also ask that you carry a tablet that records the number of steps you take and your verbal interactions during the 15-min observation (see separate signature for audio recording).

After that meeting, you will use self-management strategies to monitor your active supervision daily. During this process, observers will continue to take data on your active supervision for at least 5 – 7 observations before the next randomly assigned supervisor is trained. Until all of the participant's have received training and have had at least 5 - 7 observation sessions, the observations will continue. This is done to make sure that there are no other reasons that might explain changes in the behavior. If data show progress, then we may observe less often. Finally, once all of the supervisors have participated we will ask you to continue using part of the intervention (the direct behavior rating scales) for approximately 3 - 4 weeks, and we will observe occasionally. At the end of the study, we'll share the data we collected and ask for feedback about the intervention. If it looks like we are not seeing behavior change, we might include more coaching and feedback (more one-on-one than the training). We will also ask you to fill out two surveys after the training and after the intervention is completed on your thoughts about the intervention as well as a page of information about you (demographic information).

In addition, observers will watch student behavior during each observation in a pre-identified problem areas on the playground and note whether students are displaying problematic behaviors about once every thirty seconds.

What other options are there?

You always have the option not to participate.

What are the risks or inconveniences of the study?

Although the risks associated with participation in this study are minimal, you may experience low levels of anxiety or stress or altered behaviors related to being observed or participating in this study. Keep in mind that you can decide to stop participating at any time without penalty.

Also, your decision to participate will not affect your employment. The data collected for this study will only be used for research. Summary data will be shared with you, not your school.

What are the benefits of the study?

First, although you may not directly benefit, we hope that you may learn or increase your active supervision and practices on the playground. Second, we believe that the results from this study will contribute to the literature on recess supervisor training in active supervision and show a reduction in student problem behavior.

Will I receive payment for participation? Are there costs to participate?

To acknowledge you for participating, we will provide a \$50 Amazon gift card upon the completion of the study. There are no costs to participate.

How will my personal information be protected?

Access to all raw data will be limited to the primary data collectors and investigators. Random numbers or pseudonyms will be assigned and used for all participants at all times and on all documents. A code sheet of identifying numbers/pseudonyms will be stored separately from the rest of the data and maintained and accessed only by the PI and SI. Hard copy raw data will be stored inside a locked file cabinet inside a locked office within your school, and later transported to a locked file cabinet in the Department

of Educational Psychology at the University of Connecticut. Electronic data will be maintained in a password protected computer on a secure server, and data with any subject information attached will be accessed only by the PIs. Raw data and electronic data will be stored in secured locations (i.e., locked file cabinet and password protected computer) for 3 years. Audio recordings on the tablet will be transcribed into a coding sheet and will be deleted from the tablet ideally within 48 hours, but not longer than 5 days after the observation. Data stripped of identifiers will be stored for 5 years, as data are being analyzed and published.

You should also know that the UConn Institutional Review Board (IRB) and Research Compliance Services may inspect study records as part of its auditing program, but these reviews will only focus on the researchers and not on your responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

Can I stop being in the study and what are my rights?

You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate.

You will be notified of all significant new findings during the course of the study that may affect your willingness to continue.

Who do I contact if I have questions about the study?

Take as long as you like before you make a decision. We will be happy to answer any question you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact the principal investigator, Brandi Simonsen, PI at 860-486-2763 or Laura Kern, Student investigator at 203-556-4608. If you have any questions concerning your rights as a research subject, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802.

I understand that I can withdraw at any time. Specifically, audio recordings will be transcribed (put into the observation sheet) and deleted ideally within 48 hours, but not longer than 5 days after the observation. If I do not wish to include audio recordings of my voice, I might still participate in the other parts of the study and observations under the general documentation of consent described above.

Participant Signature:

Print Name:

Date:

Signature of Person
Obtaining Consent

Print Name:

Date:

Parental Notification Form for Participation in a Research Study



Principal Investigator: Brandi Simonsen, Ph.D.

Student Investigator: Laura Kern, JD

Study Title: Project RECESS: Restructuring Environmental Contingencies; Enhancing Self-Managed Supervision

Your son or daughter participates in a recess period that might have been selected as a setting for a research study being conducted by Dr. Brandi Simonsen, her student, Laura Kern, and their colleagues from the University of Connecticut's Neag School of Education as part of a dissertation study for completion of a PhD.

Researchers might be working with your child's recess supervisor to observe how s/he uses active supervision (e.g., moving around, scanning or looking around, and interacting with students) during recess. Your child may be observed or their voice might be recorded during this process, but the focus of the research is the recess supervisor, not the students. Any audio recordings will not have identifying student information and will be deleted ideally within 48 hours, but not longer than 5 days after the observation. Your child does not need to have any interaction with the researchers, and the observations will be done in such a way that it will not interrupt normal recess activities. Researchers will not know the identities of any students.

We will be happy to answer any question you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact the principal investigator, Brandi Simonsen (brandi.simonsen@uconn.edu or 860-487-2763), or, the student investigator, Laura Kern, (laura.kern@uconn.edu or 203-556-4608). If you have any questions concerning your child's rights as a research participant, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802.

Appendix K: Training Scripts for Active Supervision

Part 1: Active Supervision

Core Components:

Presentation

- Definition of active supervision
- Rationale for using active supervision
- Critical features of active supervision
- Examples of active supervision

Activity

- Identifying examples of active supervision in your context

Discuss active supervision strategies

ACTIVE SUPERVISION

What is active supervision?

Active supervision is: "...specific and overt behaviors . . . displayed by supervisors designed to prevent problem behavior and to promote rule-following behavior."

(Colvin, Sugai, Good, & Lee, 1997, p. 346)

Basically active supervision is what we want to see playground supervisors to do to help students behave better on the playground.

Why use active supervision?

- Schools include areas that are not in classrooms, such as playgrounds, hallways, and lunchrooms.
- Non-classroom settings have more students in the same area with less structure and fewer activities, and this can lead to increases in problematic behavior (Haydon & Scott, 2008).
- **Playgrounds** have been areas where there has been more bullying and problematic behavior compared to classrooms, lunchrooms, and hallways (Craig, Pepler, & Atlas, 2000; Fite et al., 2013)
- Using **Active Supervision** during non-classroom settings decreases inappropriate student behavior (Lewis et al., 2000).
- Active supervision is an effective way to **reduce bullying behavior** (Ttofi & Farrington, 2010)

What is active supervision?

- *Moving*: actively walking around a playground, especially in areas where students are in groups or where you know there are usually problems
- *Scanning/looking around*: looking up at the students and following their movements around the playground, especially in areas where you know there are usually problems

- *Interacting*: communicating with a student or group of students
 - **Prompting** (precorrecting) students by reminding them what behavior you would like to see before they do that behavior
 - **Praising** them for doing the behavior you would like to see
 - **Correcting** them (quickly and calmly) for doing behavior you would not like to see, with the goal that you prompt and praise more than you would correct

We also want the students to behave better. When we talk about student behavior, we are thinking of 3 main types:

- *Moderately Problematic Behavior:* teasing, refusing to play with other children, pushing; basically low intense aggressive behavior
- *Highly Problematic Behaviors:* verbal teasing and harassment, physical fighting, such as with punching or kicking; basically more intense physical aggression
- *Appropriate Behavior:* cooperatively playing with others, such as participating in sport and/or games; using playground material the way it should be used, such as sliding down the slide feet-first; following school-wide behavioral playground expectations (which might be part of a behavior matrix of the school)

Highlight:

The goal is to praise the behavior we want to see and correct quickly and calmly the behavior we do not want to see. Often a school will have formal procedures (such as being sent to the office) for highly problematic behaviors.

We can praise the behavior we want to see by telling students (That was a great job taking turns on the swings!) or by handing out something when we see the behavior (like a sticker).

For this study, we will have you give out playground loops (instead of stickers) that you can wear around your wrist and hand out to students when you see them behaving appropriately, and we also encourage you to praise the students when you see them showing appropriate playground behavior.

What are other examples (and non-examples) of active supervision?

Examples	Non-examples
<ul style="list-style-type: none"> • The recess supervisor moves (walks) around during recess, especially in the problem areas. • The recess supervisor scans (looks around) at the students to watch their behavior. • The recess supervisor interacts with students that are showing appropriate playground behavior by praising the students for doing well (such as: “That’s great how you slid down the slide feet first!”). • The recess supervisor interacts with the student by reminding them at the beginning of recess that he wants to see good behavior. • The recess supervisor interacts with students that are showing appropriate playground behavior by handing out loops to the students for doing the behavior she would like to see. • The recess supervisor interacts with students that are showing appropriate playground behavior by handing out loops and telling them that they are doing a great job! • The recess supervisor interacts with students that are showing minor inappropriate playground behavior quickly and quietly by correcting the students and/or specifically mentioning the behavior to change (such as: “Please remember to slide down the slide feet first!” or “Please don’t push your friend.”). • The recess supervisor follows the school procedures for major rule violations (highly problematic behaviors) for his/her school (such as sending students to the office for bullying behavior). • The recess supervisor interacts at least 4 positive (praise) for 1 negative (correction) with students. 	<ul style="list-style-type: none"> • The recess supervisor stays in the same area all recess. • The recess supervisor catches up with email or checks Facebook on his/her smartphone. • The recess supervisor/s chat with each other during recess and look up when they hear yelling. • The recess supervisor sends students to the office for mild teasing. • The recess supervisor tells the students what they did wrong all of the time instead of reminding them the behavior he/she would like to see. • The recess supervisor yells at the students without telling why (such as: “Stop doing that!”) • The recess supervisor is always yelling at the students for going down the slide the wrong way. • The recess supervisor corrects the student but never praises them. • The recess supervisor has one or two students that are her favorites and she gives them loops because they are really great kids. • The recess supervisor tells the kids that they had better behave or they won’t get any loops. • The recess supervisor tells the kids that if they promise to behave, he will give them loops (this is bribery).

How do you actively supervise on the playground?

Write three (or more) examples of how you actively supervise during recess.

1. _____

2. _____

3. _____

Do you have any questions?

Remember to use these strategies on the playground!!!! See you soon for Part 2 of the Training!

Part 2: Self-Management of Active Supervision

Core Components:

Presentation

- Review of active supervision

Develop self-management strategies

- Define self-management
- Describe self-management for this skill
- Review/discuss materials needed to implement
- Practice using strategies

REVIEW OF ACTIVE SUPERVISION

What is active supervision?

Active supervision is: "...specific and overt behaviors . . . displayed by supervisors designed to prevent problem behavior and to promote rule-following behavior." (Colvin, Sugai, Good, & Lee, 1997, p. 346)

What is active supervision?

- *Moving*: actively walking around a playground, especially in areas where students are in groups or where you know there are usually problems
- *Scanning/looking around*: looking up at the students and following their movements around the playground, especially in areas where you know there are usually problems
- *Interacting*: communicating with a student or group of students
 - **Prompting** (precorrecting) students by reminding them what behavior you would like to see before they do that behavior
 - **Praising** them for doing the behavior you would like to see
 - **Correcting** them (quickly and calmly) for doing behavior you would not like to see, with the goal that you prompt and praise more than you would correct

We also want the students to behave better. When we talk about student behavior, we are thinking of 3 main types:

- *Moderately Problematic Behavior*: teasing, refusing to play with other children, pushing; basically low intense aggressive behavior
- *Highly Problematic Behaviors*: verbal teasing and harassment, physical fighting, such as with punching or kicking; basically more intense physical aggression
- *Appropriate Behavior*: cooperatively playing with others, such as participating in sport and/or games; using playground material the way it should be used, such as sliding down the slide feet-first; following school-wide behavioral playground expectations (which might be part of a behavior matrix of the school)

Do you have any questions about any of these strategies?

How will you increase active supervision during recess?

- Self-management
 - According to a leading researcher in behavior, we manage our own behavior in the same way as we manage anyone others—“through the **manipulation of variables** of which behavior is a function” (Skinner, 1953, p. 228).
 - Self-management is doing one response (the **self-management** behavior) that makes another behavior more likely (the **target** or desired behavior). For example, keeping a “to do” list (self-management behavior) may increase the chance that you “do” the things on your list (target behaviors).

- Self-management in this study
 - In this study, we will ask you to (a) **arrange your environment** to increase the chance that you will actively supervise by **reviewing a checklist** on active supervision before the recess period, (b) **self-monitor and self-evaluating** by **filling out the checklist** before and after a 15-min segment of recess and **rating** your active supervision using the direct behavior rating scales after the 15-minute segment, and (c) **self-reinforce** (give yourself a privilege/reward on days you filled out the checklist and met your goal).
 - **Arrange your environment.** Today, we will review the checklist that you will use right before and after the recess period.
 - **Self-monitor and Self-evaluate.** Ongoing use of the checklist and rating of your active supervision and student behavior
 - **Self-reinforce.** Select a **privilege/reward** that you’ll allow yourself (e.g., a cup of coffee on the way home, an extra 15 min of TV) each day that you meet your goal. It needs to be something you like, and will allow yourself **ONLY** on days when you fill out the checklist and reach your rating goal.

What does the Checklist look like? (See next page)

**Active Supervision Self-Management Checklist
and Direct Behavior Rating Scales**

I reviewed the checklist before the observation.	Yes		No	
	I did the following:			
	Always	Sometimes	Never	
Move				
I moved throughout the area I was supervising.				
Scan (look around)				
I frequently scanned the area I was supervising.				
Interact				
I positively interacted with most of the students in the area.				
I positively acknowledged at least 5 different students for displaying school-wide expectations and/or appropriate playground behavior.				
I handled most minor rule violations (moderately problematic behaviors) quickly and quietly.				
I followed school procedures for handling major rule violations (highly problematic behaviors).				
I interacted for at least 4 positive for 1 negative student contacts.				

How do I use the Checklist?

To use the Checklist, you will fill out the top section at the beginning of the 15-minute segment.

I reviewed the checklist before the observation.	Yes	No
--	-----	----

At the end of the 15-minutes, you will fill out the rest of the checklist by answering the questions on whether you did the behaviors as either *always*, *sometimes*, or *never*. For example, if you sometimes moved during the observation session, you can indicate *sometimes*.

What do the Direct Behavior Rating Scales look like?

- In addition to monitoring your own behavior we will ask you to briefly rate two target behaviors using a **Direct Behavior Rating (DBR) Scale**.
- Use the following **definitions** when considering your rating on the DBR scale.

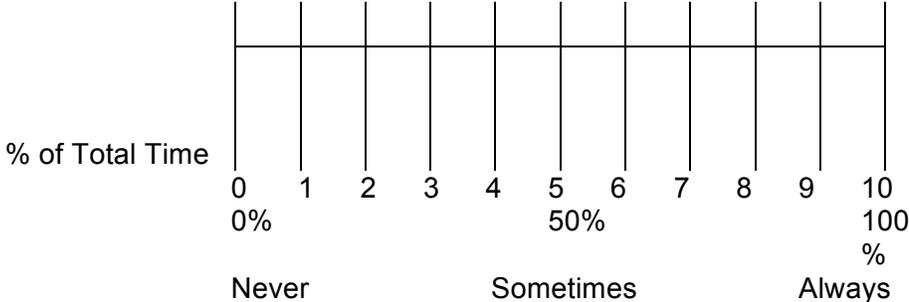
Active Supervision: adult is moving, scanning (looking around), and interacting (prompt/remind, praise (including giving out loops), and correcting students)

Appropriate behavior: student is following rules, cooperatively playing, and using equipment as they should

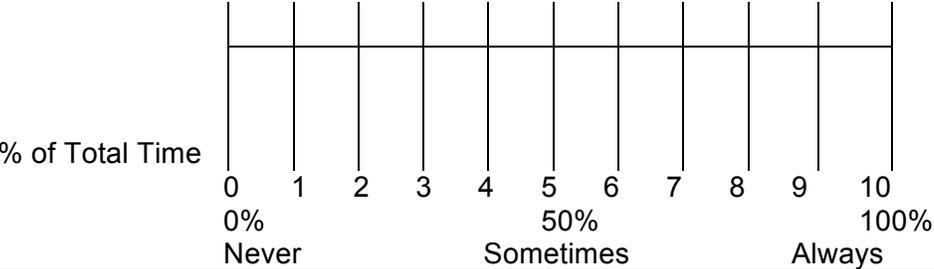
Directions for completing a DBR: Place a mark along the line that best reflects the *percentage of total time you or the students* exhibited each target behavior. Note that the percentages do not need to total 100% across behaviors since some behaviors may co-occur.

Direct Behavior Rating: Please rate following behaviors using the provided scale.

Active Supervision



Students engaged in Appropriate Behavior



(Modified from: V1.4 DBR Standard Form was created by Sandra M. Chafouleas, T. Chris Riley-Tillman, Theodore J. Christ, and Dr. George Sugai. Copyright © 2009 by the University of Connecticut.)

Remember to self-reinforce/reward yourself for filling out the checklist and direct behavior rating scales!

How will I self-manage my active supervision?

We will use the following table to further develop your self-management plan.

Example of a filled out form:

How will you remember to use the checklist before recess?	I will set my phone to remind me to fill out the checklist.
What is your goal for filling out the checklist (some of the time, all of the time?)	All of the time
What is your current rating for active supervision (10%? 50%? 100%?)?	# on rating scale: 50%
What is your goal for rating for active supervision (10%? 50% 100%)?	# on rating scale: 75%
<i>How would you like to reinforce (e.g., give yourself a reward) when you fill out the checklist and reach your rating goal?</i>	I will get myself an espresso if I fill out the checklist all of the time and meet my goal of 75%.
<i>When would you like to reinforce yourself?</i>	I will get the espresso on the way home from school.

Your turn! Please fill out the form:

How will you remember to use the checklist before recess?	
What is your goal for filling out the checklist (some of the time, all of the time?)	
What is your current rating for active supervision (10%? 50%? 100%?)?	# on rating scale:
What is your goal for rating for active supervision (10%? 50% 100%)?	# on rating scale:
<i>How would you like to reinforce (e.g., give yourself a reward) when you filling out the checklist and reach your rating goal?</i>	
<i>When would you like to reinforce yourself?</i>	

Any other questions?

Please remember to fill out the Acceptability and Usability Questionnaires.

Thanks so much for attending this training! See you on the playground!

Appendix L: Fidelity of Training

Trainer: _____ _____	Observer: _____
School: _____	Cohort: _____
Time started: _____	Time ended: _____
Date: _____	

Fidelity Measure for Active Supervision Training: Part 1

Instructions: For each component, record whether trainer covered the content:

- (a) fully (covered all content, addressed questions),
- (b) partially (covered some content, addressed parts of question), or
- (c) not at all (skipped that portion of training).

Core Components:

Presentation

- Definition of active supervision
- Rationale for using active supervision
- Critical features of active supervision
- Examples of active supervision

Activity

- Identifying examples of active supervision in your context

Discuss active supervision strategies

Component	It was covered...		
	Fully	Partially	Not at all
Definition: What is active supervision?			
<i>Active supervision is: "...specific and overt behaviors . . . displayed by supervisors designed to prevent problem behavior and to promote rule-following behavior."</i>			
(Colvin, Sugai, Good, & Lee, 1997, p. 346)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Basically active supervision is what we want to see playground supervisors to do to help students behave better on the playground.			

Component	It was covered...		
	Fully	Partially	Not at all
Rationale: Why use active supervision?			
<ul style="list-style-type: none"> Schools include areas that are not in classrooms, such as playgrounds, hallways, and lunchrooms. Non-classroom settings have more students in the same area with less structure and fewer activities, and this can lead to increases in problematic behavior (Haydon & Scott, 2008). Playgrounds have been areas where there has been more bullying and problematic behavior compared to classrooms, lunchrooms, and hallways (Craig, Pepler, & Atlas, 2000; Fite et al., 2013) Using Active Supervision during non-classroom settings decreases inappropriate student behavior (Lewis et al., 2000). Active supervision is an effective way to reduce bullying behavior (Ttofi & Farrington, 2010) 	□	□	□

Component	It was covered...		
	Fully	Partially	Not at all

Critical Features: What is active supervision?

- *Moving*: actively walking around a playground, especially in areas where students are in groups or where you know there are usually problems

- *Scanning/looking around*: looking up at the students and following their movements around the playground, especially in areas where you know there are usually problems

□ □ □

- *Interacting*: communicating with a student or group of students
 - **Prompting** (precorrecting) students by reminding them what behavior you would like to see before they do that behavior
 - **Praising** them for doing the behavior you would like to see
 - **Correcting** them (quickly and calmly) for doing behavior you would not like to see, with the goal that you prompt and praise more than you would correct

Component	It was covered...		
	Fully	Partially	Not at all
<p>We also want the students to behave better. When we talk about student behavior, we are thinking of 3 main types:</p> <ul style="list-style-type: none"> <p><i>Moderately Problematic Behavior:</i> teasing, refusing to play with other children, pushing; basically low intense aggressive behavior</p> <p><i>Highly Problematic Behaviors:</i> verbal teasing and harassment, physical fighting, such as with punching or kicking; basically more intense physical aggression</p> <p><i>Appropriate Behavior:</i> cooperatively playing with others, such as participating in sport and/or games; using playground material the way it should be used, such as sliding down the slide feet-first; following school-wide behavioral playground expectations (which might be part of the behavior matrix of the school)</p> 			
Has the Trainer reviewed the Highlight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Examples and Non-Examples:

Examples of Active Supervision	Non-Examples of Active Supervision
<ul style="list-style-type: none"> • The recess supervisor moves (walks) around during recess, especially in the problem areas. • The recess supervisor scans (looks around) at the students to watch their behavior. • The recess supervisor interacts with students that are showing appropriate playground behavior by praising the students for doing well (such as: "That's great how you slid down the slide feet first!"). • The recess supervisor interacts with the student by reminding them at the beginning of recess that he wants to see good behavior. • The recess supervisor interacts with students that are showing appropriate playground behavior by handing out loops to the students for doing the behavior she would like to see. • The recess supervisor interacts with students that are showing appropriate playground behavior by handing out loops and telling them that they are doing a great job! • The recess supervisor interacts with students that are showing minor inappropriate playground behavior quickly and quietly by correcting the students and/or specifically mentioning the behavior to change (such as: "Please remember to slide down the slide feet first!" or "Please don't push your friend."). • The recess supervisor follows the school procedures for major rule violations (highly problematic behaviors) for his/her school (such as sending students to the office for bullying behavior). • The recess supervisor interacts at least 4 positive (praise) for 1 negative (correction) with students. 	<ul style="list-style-type: none"> • The recess supervisor stays in the same area all recess. • The recess supervisor catches up with email or checks Facebook on his/her smartphone. • The recess supervisor/s chat with each other during recess and look up when they hear yelling. • The recess supervisor sends students to the office for mild teasing. • The recess supervisor tells the students what they did wrong all of the time instead of reminding them the behavior he/she would like to see. • The recess supervisor yells at the students without telling why (such as: "Stop doing that!") • The recess supervisor is always yelling at the students for going down the slide the wrong way. • The recess supervisor corrects the student but never praises them. • The recess supervisor has one or two students that are her favorites and she gives them loops because they are really great kids. • The recess supervisor tells the kids that they had better behave or they won't get any loops. • The recess supervisor tells the kids that if they promise to behave, he will give them loops (this is bribery).



Application (Generalization):

How do you actively supervise on the playground?

Write three (or more) examples of how you actively supervise during recess.

1. _____

2. _____

3. _____

Trainer: _____ _____	Observer: _____
School: _____	Cohort: _____
Time started: _____	Time ended: _____
Date: _____	

Fidelity Measure for Active Supervision Training: Part 2

Instructions: For each component, record whether trainer covered the content:

- (a) fully (covered all content, addressed questions),
- (b) partially (covered some content, addressed parts of question), or
- (c) not at all (skipped that portion of training).

Core Components:

Presentation

- Review of active supervision

Develop self-management strategies

- Define self-management
- Describe self-management for this skill
- Review/discuss materials needed to implement
- Practice using strategies

Review and wrap-up

REVIEW	It was covered...		
	Fully	Partially	Not at all
<p>Definition: What is active supervision?</p> <p><i>Active supervision is: "...specific and overt behaviors . . . displayed by supervisors designed to prevent problem behavior and to promote rule-following behavior."</i></p> <p><i>(Colvin, Sugai, Good, & Lee, 1997, p. 346)</i></p> <p>Basically active supervision is what we want to see playground supervisors to do to help students behave better on the playground.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Critical Features: What is active supervision?</p> <ul style="list-style-type: none"> • <i>Moving</i>: actively walking around a playground, especially in areas where students are in groups or where you know there are usually problems • <i>Scanning/looking around</i>: looking up at the students and following their movements around the playground, especially in areas where you know there are usually problems • <i>Interacting</i>: communicating with a student or group of students <ul style="list-style-type: none"> ○ Prompting (precorrecting) students by reminding them what behavior you would like to see before they do that behavior ○ Praising them for doing the behavior you would like to see ○ Correcting them (quickly and calmly) for doing behavior you would not like to see, with the goal that you prompt and praise more than you would correct 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REVIEW	It was covered...		
	Fully	Partially	Not at all
Do you have any questions about any of these strategies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Definition of Self-Management:

How will you increase active supervision during recess?

- Self-management
 - According to a leading researcher in behavior, we manage our own behavior in the same way as we manage anyone others—“through the manipulation of variables of which behavior is a function” (Skinner, 1953, p. 228).
 - Self-management is doing one response (the self-management behavior) that makes another behavior more likely (the target or desired behavior). For example, keeping a “to do” list (self-management behavior) may increase the chance that you “do” the things on your list (target behaviors).
-

Explanation of Self-Management in this study:

- In this study, we will ask you to (a) **arrange your environment** to increase the chance that you will actively supervise by **reviewing a checklist** on active supervision before the recess period, (b) **self-monitor** and self-evaluate by **filling out the checklist** before and after a 15-min segment of recess and **rating** your active supervision using the direct behavior rating scales after the 15-minute segment, and (c) **self-reinforce** (give yourself a privilege/reward on days you filled out the checklist and met your goal).

□ □ □

- **Arrange your environment.** Today, we will review the checklist that you will use right before and after the recess period.
- **Self-monitor and Self-evaluate.** Ongoing use of the checklist and rating of your active supervision and student behavior
- **Self-reinforce.** Select a **privilege/reward** that you'll allow yourself (e.g., a cup of coffee on the way home, an extra 15 min of TV) each day that you meet your goal. It needs to be something you like, and will allow yourself **ONLY** on days when you fill out the checklist and reach your rating goal.

Checklists and DBR explanation and practice:

□ □ □

Has the Trainer shown an example of the Checklist?

Has the Trainer explained how to use the Checklist?

Has the Trainer shown an example and explained how to use the Direct Behavior Rating Scales?

Has the Trainer reminded the Supervisors to self-reinforce?

Has the Trainer shown and explained the example of the Self-Management Chart and had the participant/s fill out the chart below?

<p><i>How will you remember to use the checklist before recess?</i></p>	
<p><i>What is your goal for filling out the checklist (some of the time, all of the time?)</i></p>	
<p><i>What is your current rating for active supervision (10%? 50%? 100%)?</i></p>	<p># on rating scale:</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </p>
<p><i>What is your goal for rating for active supervision (10%? 50% 100%)?</i></p>	<p># on rating scale:</p>
<p><i>How would you like to reinforce (e.g., give yourself a reward) when you filling out the checklist and reach your rating goal?</i></p>	
<p><i>When would you like to reinforce yourself?</i></p>	

Appendix M: Checklist used between Training Part 1 and 2

	Supervisor did the following:		
	Always	Sometimes	Never
Move			
Supervisor moved throughout the area he/she was supervising.			
Scan (look around)			
Supervisor frequently scanned the area he/she was supervising.			
Interact			
Supervisor positively interacted with most of the students in the area.			
Supervisor positively acknowledged at least 5 different students for displaying school-wide expectations and/or appropriate playground behavior.			
Supervisor handled most minor rule violations (moderately problematic behaviors) quickly and quietly.			
Supervisor followed school procedures for handling major rule violations (highly problematic behaviors).			
Supervisor interacted for at least 4 positive for 1 negative student contacts.			

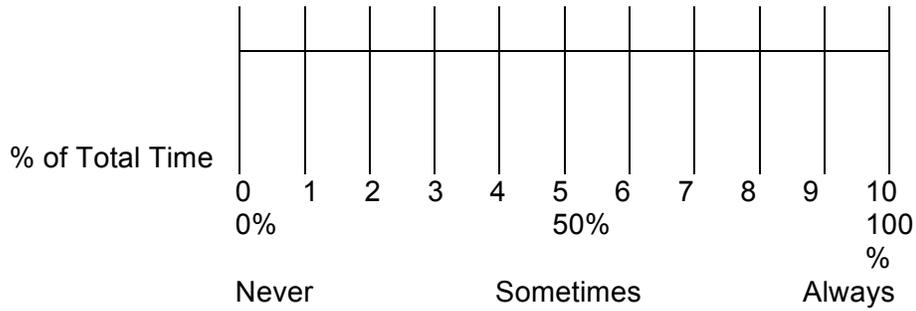
Appendix N: Active Supervision Self-Management Checklist and Direct Behavior Rating Scales

**Active Supervision Self-Management Checklist
and Direct Behavior Rating Scales**

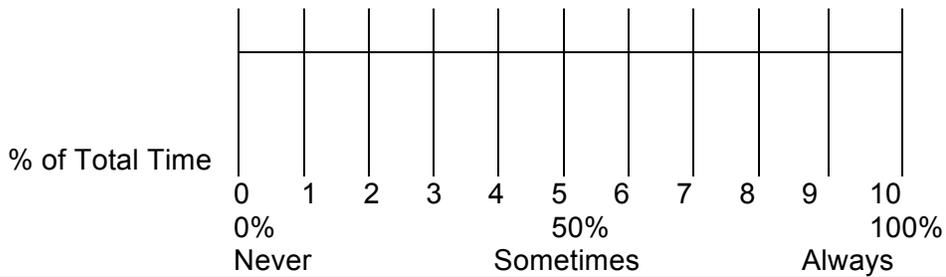
I reviewed the checklist before the observation.	Yes		No	
	I did the following:			
	Always	Sometimes	Never	
Move				
I moved throughout the area I was supervising.				
Scan (look around)				
I frequently scanned the area I was supervising.				
Interact				
I positively interacted with most of the students in the area.				
I positively acknowledged at least 5 different students for displaying school-wide expectations and/or appropriate playground behavior.				
I handled most minor rule violations (moderately problematic behaviors) quickly and quietly.				
I followed school procedures for handling major rule violations (highly problematic behaviors).				
I interacted for at least 4 positive for 1 negative student contacts.				

Direct Behavior Rating: Please rate following behaviors using the provided scale.

Active Supervision



Students engaged in Appropriate Behavior

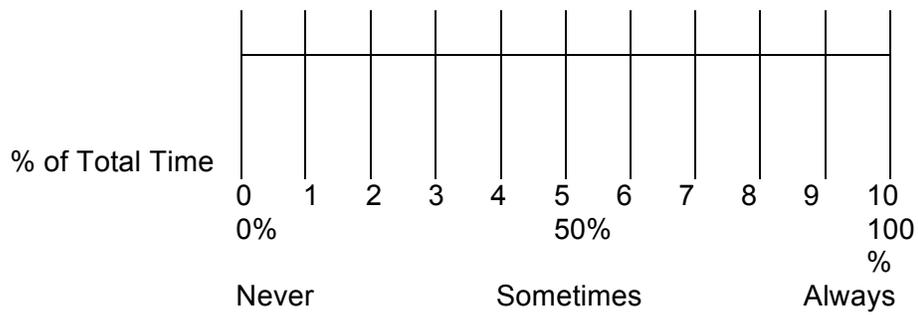


Remember to reward yourself for filling out the checklist and increasing your active supervision!

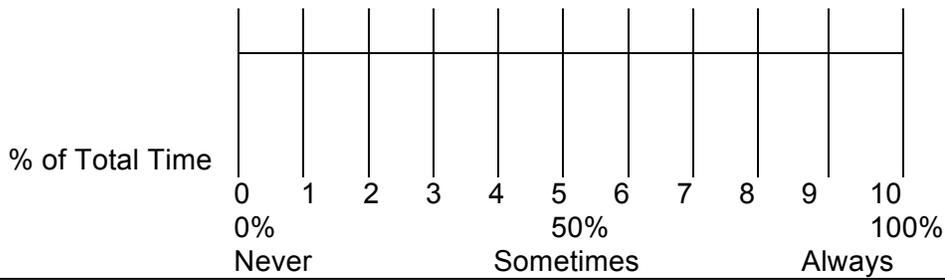
Appendix O: Direct Behavior Rating Scales (Maintenance Phase)

Direct Behavior Rating: Please rate following behaviors using the provided scale.

Active Supervision



Students engaged in Appropriate Behavior



Appendix P: Active Supervision Systematic Direct Observation Tools

Active Supervision Systematic Direct Observation Tool

Participant: _____	Date: _____
Observer: _____	Start Time: _____
<input type="checkbox"/> IOA with: _____	End Time: _____

30 sec	Frequency Count of recess supervisor's interactions (From Recording)	Partial Interval Coding (Observations on Playground)
---------------	---	---

1	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective		Students: Highly Problematic:	
	Specific Corrective			
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
Adult Initiated		Number of Corrective Actions:		
2	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective		Students: Highly Problematic:	
	Specific Corrective			
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
Adult Initiated		Number of Corrective Actions:		

3	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:		Students: Highly Problematic:	
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
4	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:		Students: Highly Problematic:	
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
5	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:		Students: Highly Problematic:	
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

6	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
7	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
8	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

9	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
10	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
11	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

12	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
13	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
14	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

15	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
16	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
17	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

18	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
19	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
20	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

21	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
22	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
23	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

24	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
25	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
26	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

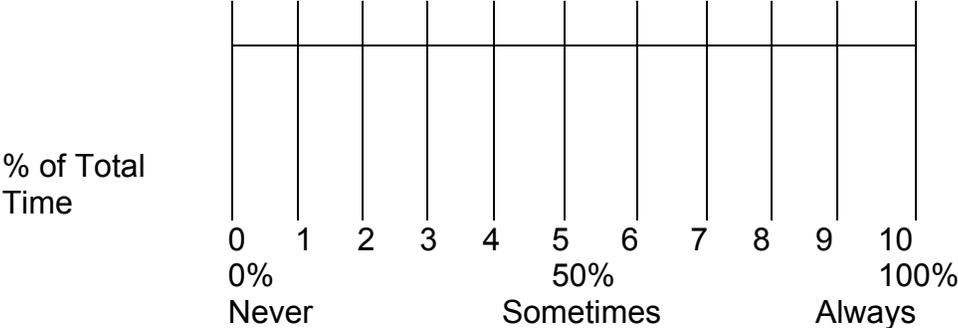
27	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
		Location of Supervisor at Interval end		
28	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
29	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	

30	Frequency (30 second intervals)		Partial Interval (30 second intervals)	Mark if occurred during Interval
	Prompt/Precorrection:		Adult: Interactions	
	General Praise:		Adult: Scanning:	
	Specific Praise		Students: Moderately Problematic:	
	General Corrective			
	Specific Corrective		Students: Highly Problematic:	
	Other Interactions:			
	Student Initiated		Number of Students Interacted with:	
	Adult Initiated		Number of Corrective Actions:	
			Location of Supervisor at Interval end	

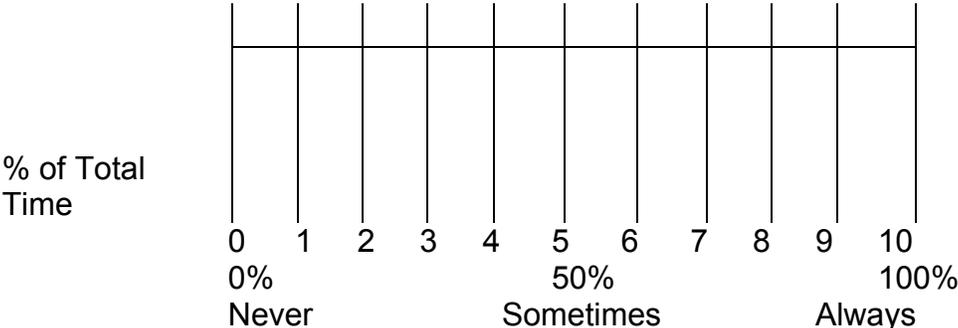
Please indicate any unusual events or reasons for ending an observation early:

Direct Behavior Rating: Please rate following behaviors using the provided scale.

Active Supervision



Students engaged in Appropriate Behavior



Please complete the fidelity tool on the back!

Active Supervision Fidelity Tool

Adherence to Intervention (Self-monitoring) Condition	
Please check the box corresponding to the extent to which the supervisor adhered to the strategy specified in the self-monitoring condition.	
<input type="checkbox"/> Not at all <input type="checkbox"/> Fully	Comment:

Direct Behavior Rating			
Please record data from the DBR scale for the period of time you observed			
Recess Supervisor's Rating		Your Rating	
Active Supervision:		Active Supervision:	
Appropriate Behavior:		Appropriate Behavior:	

Summary					
Recess Supervisor	Total Count	# Intervals Observed	Students		
Scanning:				Total Count	# Intervals Observed
Interactions (observations)					
Prompts:					
Specific Praise:			Moderately Problematic Behavior		
General Praise					
Specific Corrective:					
General Corrective					
Other: Adult Initiated			Highly Problematic Behavior		
Other: Student Initiated					
Number of Loops Handed Out					
Number of Steps Taken:					
			Number of Students Interacted with		
			Number of Corrective Actions		

Active Supervision Assessment (based on Sugai & Colvin, 2004)

Recess Supervisor _____ Observer _____	Date _____
Playground Setting _____	Time Start _____ Time End _____

The recess supervisor reviewed the checklist before the observation.	Yes	No	Not Sure
	The recess supervisor did the following:		
	Always	Sometimes	Never
Move			
The recess supervisor moved throughout the area she/he was supervising.			
Scan (look around)			
The recess supervisor frequently scanned the area she/he was supervising.			
Interact			
The recess supervisor positively interacted with most of the students in the area.			
The recess supervisor positively acknowledged at least 5 different students for displaying school-wide expectations and/or appropriate playground behavior.			
The recess supervisor handled most minor rule violations (moderately problematic behaviors) quickly and quietly.			
The recess supervisor followed school procedures for handling major rule violations (highly problematic behaviors).			
The recess supervisor interacted for at least 4 positive for 1 negative student contacts.			

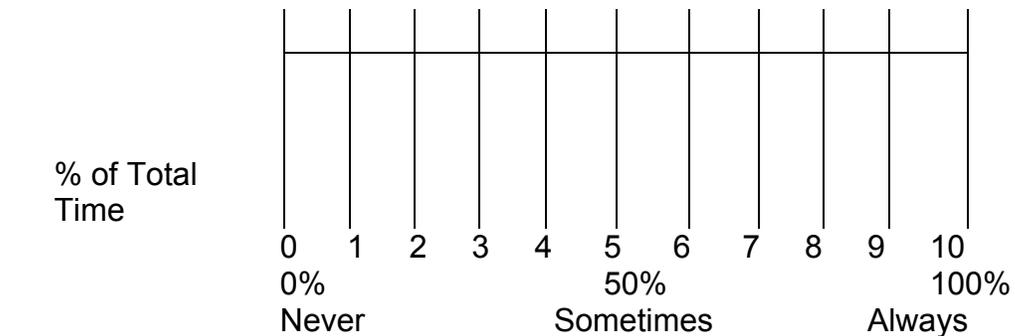
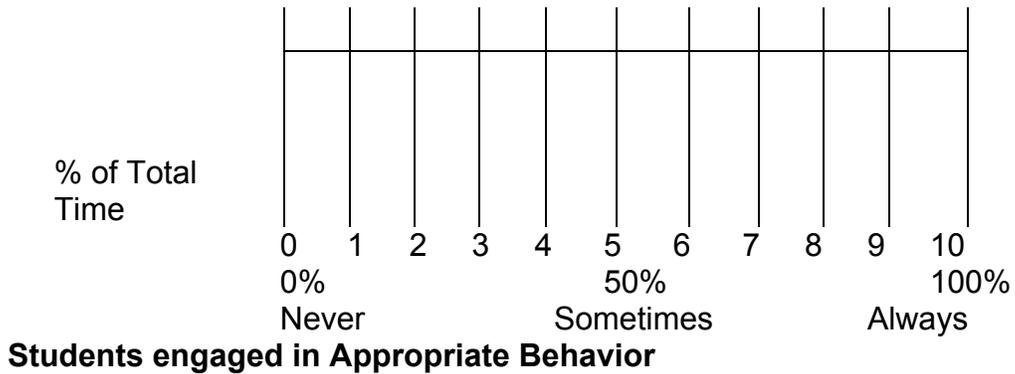
Intervals	17	17	15	13	18	18	14	19	19	15
Momentary Time Sampling (Mark if Occurring at End of Time)			16:15	16:30			17:30			18:30
Adult: Interactions			Supervisor 3	Supervisor 4			Supervisor 4			Supervisor 4
Adult: Scanning										
Students: Moderately Problematic										
Students: Highly Problematic										
Nonverbal Corrective Actions										
Location at End of Interval										

Steps Taken

Supervisor	Beginning	End
S1		
S2		
S3		
S4		

Direct Behavior Rating: Please rate following behaviors using the provided scale.

Active Supervision



Active Supervision Systematic Direct Observation Tool

Participant: _____	Date: _____
Observer: _____	Start Time: _____
<input type="checkbox"/> IOA with: _____	End Time: _____

Please indicate any unusual events or reasons for ending an observation early:

Active Supervision Fidelity Tool

Adherence to Intervention (Self-monitoring) Condition	
Please check the box corresponding to the extent to which the supervisor adhered to the strategy specified in the self-monitoring condition.	
<input type="checkbox"/> Not at all <input type="checkbox"/> Fully	Comment:

Direct Behavior Rating			
Please record data from the DBR scale for the period of time you observed			
Recess Supervisor's Rating		Your Rating	
Active Supervision:		Active Supervision:	
Appropriate Behavior:		Appropriate Behavior:	

Summary					
Recess Supervisor	Total Count	# Intervals Observed	Students		
Interactions (observations)				Total Count	# Intervals Observed
Scanning:					
Prompts:					
Specific Praise:			Moderately Problematic Behavior		
General Praise					
Specific Corrective:					
General Corrective					
Other: Adult Initiated			Highly Problematic Behavior		
Other: Student Initiated					
Number of Loops Handed Out					
Number of Steps Taken:					
Number of Interval Changes			Number of Nonverbal Correctives		

Active Supervision Assessment (based on Sugai & Colvin, 2004)

Recess Supervisor _____	Date _____
Observer _____	
Playground Setting	Time Start _____ Time End _____

The recess supervisor reviewed the checklist before the observation.	Yes	No	Not Sure
	The recess supervisor did the following:		
	Always	Sometimes	Never
Move			
The recess supervisor moved throughout the area she/he was supervising.			
Scan (look around)			
The recess supervisor frequently scanned the area she/he was supervising.			
Interact			
The recess supervisor positively interacted with most of the students in the area.			
The recess supervisor positively acknowledged at least 5 different students for displaying school-wide expectations and/or appropriate playground behavior.			
The recess supervisor handled most minor rule violations (moderately problematic behaviors) quickly and quietly.			
The recess supervisor followed school procedures for handling major rule violations (highly problematic behaviors).			
The recess supervisor interacted for at least 4 positive for 1 negative student contacts.			

Appendix Q: Social Validity Measures

IRP-15

Targeted Professional Development Acceptability Questionnaire

Intervention Rating Profile – 15

(adapted from Martens, Witt, Elliott, & Darveaux, 1985)

Today's date: _____

The purpose of this questionnaire is to obtain information that will aid in the evaluation of Targeted Professional Development. Please indicate the extent to which you agree with each of the statements below.

	Please rate each item from <i>strongly disagree</i> (1) to <i>strongly agree</i> (6). Circle one answer.					
	Strongly Disagree				Strongly Agree	
1. Targeted professional development was an acceptable intervention for increasing active supervision.	1	2	3	4	5	6
2. Most recess supervisors would find targeted professional development appropriate for increasing active supervision.	1	2	3	4	5	6
3. Targeted professional development proved effective in increasing active supervision.	1	2	3	4	5	6
4. I would recommend the use of targeted professional development to other recess supervisors.	1	2	3	4	5	6
5. The recess behavior of students were severe enough to warrant use of targeted professional development.	1	2	3	4	5	6
6. Most recess supervisors would find targeted professional development appropriate for increasing active supervision.	1	2	3	4	5	6
7. I would be willing to continue using the targeted professional development in recess settings.	1	2	3	4	5	6
8. Targeted professional development would not result in negative side-effects for recess supervisors.	1	2	3	4	5	6
9. The targeted professional development would be appropriate for a variety of recess supervisors.	1	2	3	4	5	6
10. The targeted professional development is consistent with trainings I have had before in the school setting.	1	2	3	4	5	6
11. Targeted professional development is a fair way to increase use of active supervision.	1	2	3	4	5	6

12. Targeted professional development is reasonable for increasing active supervision.	1	2	3	4	5	6
13. I liked the procedures used in the targeted professional development .	1	2	3	4	5	6
14. Targeted professional development is a good way to increase active supervision.	1	2	3	4	5	6
15. Overall, targeted professional development was beneficial for increasing active supervision.	1	2	3	4	5	6

Please indicate Yes or No to the following question:

16. I would prefer using an electronic version of the checklist: Yes No

17. Please provide any comments about the checklist and/or direct behavior rating scales as a way to increase self-management.

Usage Rating Profile-Intervention Revised (URP-IR)						
--	--	--	--	--	--	--

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1. This intervention is an effective choice for addressing a variety of problems.	1	2	3	4	5	6
2. I would need additional resources to carry out this intervention.	1	2	3	4	5	6
3. I would be able to allocate my time to implement this intervention.	1	2	3	4	5	6
4. I understand how to use this intervention.	1	2	3	4	5	6
5. A positive home-school relationship is needed to implement this intervention.	1	2	3	4	5	6
6. I am knowledgeable about the intervention procedures.	1	2	3	4	5	6
7. The intervention is a fair way to handle the child's behavior problem.	1	2	3	4	5	6
8. The total time required to implement the intervention procedures would be manageable.	1	2	3	4	5	6
9. I would not be interested in implementing this intervention.	1	2	3	4	5	6
10. My administrator would be supportive of my use of this intervention.	1	2	3	4	5	6
11. I would have positive attitudes about implementing this intervention.	1	2	3	4	5	6
12. This intervention is a good way to handle the child's behavior problem.	1	2	3	4	5	6
13. Preparation of materials needed for this intervention would be minimal.	1	2	3	4	5	6
14. Use of this intervention would be consistent with the mission of my school.	1	2	3	4	5	6
15. Parental collaboration is required in order to use this intervention.	1	2	3	4	5	6

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
16. Implementation of this intervention is well matched to what is expected in my job.	1	2	3	4	5	6
17. Material resources needed for this intervention are reasonable.	1	2	3	4	5	6
18. I would implement this intervention with a good deal of enthusiasm.	1	2	3	4	5	6
19. This intervention is too complex to carry out accurately.	1	2	3	4	5	6
20. These intervention procedures are consistent with the way things are done in my system.	1	2	3	4	5	6
21. This intervention would not be disruptive to other students.	1	2	3	4	5	6
22. I would be committed to carrying out this intervention.	1	2	3	4	5	6
23. The intervention procedures easily fit in with my current practices.	1	2	3	4	5	6
24. I would need consultative support to implement this intervention.	1	2	3	4	5	6
25. I understand the procedures of this intervention.	1	2	3	4	5	6
26. My work environment is conducive to implementation of an intervention like this one.	1	2	3	4	5	6
27. The amount of time required for record keeping would be reasonable.	1	2	3	4	5	6
28. Regular home-school communication is needed to implement intervention procedures.	1	2	3	4	5	6
29. I would require additional professional development in order to implement this intervention.	1	2	3	4	5	6

URP- I SCORING GUIDE

Factor I: ACCEPTABILITYItems - 1, 7, 9^a, 11, 12, 18, 21, 22, 23**Factor II: UNDERSTANDING**

Items - 4, 6, 25

Factor III: HOME SCHOOL COLLABORATION

Items - 5, 13, 28

Factor IV: FEASIBILITYItems - 3, 8, 13, 17, 19^a, 27**Factor V: SYSTEM CLIMATE**

Items - 10, 14, 16, 20, 26

Factor VI: SYSTEM SUPPORT

Items - 2, 24, 29

^a REVERSE CODE THESE ITEMS WHEN SCORING

Note: Use care when interpreting individual factors and in combination. For example, a LOW score for system support reflects greater ability to independently implement the intervention. Thus, if aggregating across all factors to find an overall mean indicative of more favorable responses, consider reverse coding all items in this factor.

Citation for the measure:

Chafouleas, S.M., Briesch, A.M., Neugebauer, S. R., & Riley-Tillman, T. C. (2011). *Usage Rating Profile – Intervention (Revised)*. Storrs, CT: University of Connecticut.

Suggested citation for the associated publication is as follows:

Briesch, A.M., Chafouleas, S. M., Neugebauer, S. R., & Riley-Tillman, T.C., (in press). Exploring the multi-dimensional influences on intervention usage: Revision of the Usage Rating Profile-Intervention (URP-IR). *Journal of School Psychology*.

URP-IR was created by Sandra M. Chafouleas, Amy M. Briesch, Sabrina Falk Neugebauer, & T. Chris Riley-Tillman. Copyright © 2011 by the University of Connecticut. All rights reserved. Permission granted to photocopy for personal and educational use as long as the names of the creators and the full copyright notice are included in all copies.

NOTE: For IRB submission, we cut and pasted from a PDF to insert the URP-IR into the word document. We will use the original (clean and clear) version to make copies for participants.

Appendix R: Demographic Questionnaire

Recess Supervisor Name/Code:	Date:
------------------------------	-------

1. What grade(s) do you teach/work with?
2. What is your role in the school (teacher, paraprofessional)?
3. Briefly describe the student population you work with during recess.
4. How many years have you been supervising recess?
5. What is the highest level of education you have currently completed (e.g., High school, GED, B.S., M.A., other)? If a degree(s) is in progress please note that and do not count it as complete)?
6. Please describe your prior training in active supervision (e.g., none, # of classes in pre-service training, in-service supports).
7. What is/are your certification area(s), if any?
8. Please describe your demographic information (age, race, gender, etc.).

Appendix S: PND Calculations*PND Calculations*

Participant	Behavior	Baseline high (or low)	Total Intervention Points	# of Overlap	PND
Grace	Interaction	80%	7	1	0.14
	Scanning	93%	7	1	0.14
	Move (intervals)	50%	7	1	0.14
	Move (Steps)	44.2	7	0	0.00
	Prompt	0.5	7	7	1.00
	Praise	1.7	7	0	0.00
	Corrections (lowest)	0.1	7	0	0.00
	Specific Interactions	2.5	7	3	0.43
	Child Moderate (lowest)	0%	7	0	0.00
	Child High (lowest)	0%	7	0	0.00
Madelyn	Interaction	40%	11	0	0.00
	Scanning	100%	11	0	0.00
	Move (intervals)	33%	11	0	0.00
	Move (Steps)	12.7	11	1	0.09
	Prompt	0.3	11	3	0.27
	Praise	0.4	11	2	0.18
	Corrections (lowest)	0.1	11	4	0.36
	Specific Interactions	1.5	11	0	0.00
	Child Moderate (lowest)	0%	11	0	0.00
	Child High (lowest)	0%	11	0	0.00
Cassie	Interaction	53%	27	6	0.22
	Scanning	73%	27	17	0.63
	Move (intervals)	33%	27	3	0.11
	Move (Steps)	32.4	26	0	0.00
	Prompt	0.4	26	7	0.27
	Praise	0.3	26	24	0.92
	Corrections (lowest)	0.3	26	11	0.42
	Specific Interactions	2.3	26	1	0.04
	Child Moderate (lowest)	0%	27	0	0.00
	Child High (lowest)	0%	27	0	0.00
Olivia	Interaction	87%	18	0	0.00
	Scanning	93%	18	2	0.11
	Move (intervals)	27%	18	1	0.06
	Move (Steps)	29.3	16	2	0.13
	Prompt	0.1	16	12	0.75
	Praise	0.4	16	15	0.94

Corrections (lowest)	0.2	16	5	0.31
Specific Interactions	2.9	16	0	0.00
Child Moderate				
(lowest)	0%	17	0	0.00
Child High (lowest)	0%	17	0	0.00

Appendix T: NAP Effect Sizes

Effect Size: NAP results for each supervisor

Participant	Behavior	S	Pairs	NAP	VARs	SD	Sdnap	Z	P Value	CI 90%
Grace	Interaction	146	182	0.9011*	2062.67	45.42	0.25	3.21	0.001	0.392<>1
	Scanning	111	182	0.8049*	2062.67	45.42	0.25	2.44	0.015	0.199<>1
	Move Intervals	60	182	0.6648	2062.67	45.42	0.25	1.32	0.187	-0.081<>0.740
	Move Steps	130	182	0.8571*	2062.67	45.42	0.25	2.86	0.004	0.304<>1
	Prompt	182	182	1.000**	2062.67	46.47	0.22	-2.84	0.000	-0.997<>-0.266
	Praise	107	182	0.7940*	2062.67	46.47	0.22	-1.51	0.019	-0.701<>0.031
	Corrections	-63	182	0.3269	2062.67	45.42	0.25	4.01	0.165	0.590<>1
	Specific Interactions	162	182	0.9451*	2062.67	45.42	0.25	3.57	0.000	0.480<>1
	Child Moderate	-14	182	0.4615	2062.67	47.79	0.22	0.00	0.76	-0.356<>0.356
Madelyn	Child High	46	182	0.6264	2062.67	46.47	0.22	-0.75	0.31	-0.533<>0.198
	Interaction	-28	209	0.433	2159.67	46.47	0.22	-0.60	0.547	-0.500<>0.232
	Scanning	67	209	0.6603	2159.67	46.47	0.22	1.44	0.149	-0.045<>0.686
	Move Intervals	31	209	0.5742	2159.67	46.47	0.22	0.67	0.505	-0.217<>0.514
	Move Steps	-19	209	0.4545	2159.67	46.47	0.22	-0.41	0.683	-0.457<>0.275
	Prompt	83	209	0.6986	2159.67	45.61	0.22	2.37	0.074	0.159<>0.880
	Praise	52	209	0.6244	2159.67	46.47	0.22	1.79	0.263	0.031<>0.763
	Corrections	-132	209	0.1842	2159.67	46.47	0.22	1.12	0.005	-0.117<>0.615
	Specific Interactions	-70	209	0.3325	2159.67	46.47	0.22	-1.51	0.132	-0.701<>0.031
Cassie	Child Moderate	-35	209	0.4163	2159.67	46.96	0.25	0.00	0.45	-0.409<>0.409
	Child High	0	209	0.5	2159.67	47.79	0.22	0.42	1.00	-0.265<>0.446
	Interaction	57	189	0.6508	2205.00	46.96	0.25	1.21	0.225	-0.107<>0.710
	Scanning	96	189	0.7540*	2205.00	46.96	0.25	2.04	0.041	0.099<>0.917
	Move Intervals	39	189	0.6032	2205.00	46.96	0.25	0.83	0.406	-0.202<>0.615
Move Steps	-6	182	0.4835	2062.67	45.42	0.25	-0.13	0.895	-0.443<>0.378	

Olivia	Prompt	67	182	0.6841	2062.67	45.42	0.25	1.48	0.140	-0.042<>0.779
	Praise	171	182	0.9698**	2062.67	45.42	0.25	3.77	0.000	0.529<>1
	Corrections	-101	182	0.2225	2062.67	45.42	0.25	-2.22	0.026	-0.965<>-0.144
	Specific Interactions	66	182	0.6813	2062.67	45.42	0.25	1.45	0.146	-0.048<>0.773
	Child Moderate	-63	189	0.3333	2205.00	45.42	0.25	2.36	0.180	0.177<>0.998
	Child High	0	189	0.5	2205.00	45.42	0.25	-1.39	1.00	-0.757<>0.064
	Interaction	125	234	0.7671*	2496.00	49.96	0.21	2.50	0.012	0.183<>0.885
	Scanning	41	234	0.5876	2496.00	49.96	0.21	0.82	0.412	-0.176<>0.526
	Move Intervals	9	234	0.5192	2496.00	49.96	0.21	0.18	0.857	-0.313<>0.390
	Move Steps	68	208	0.6635	2080.00	45.61	0.22	1.49	0.136	-0.034<>0.688
	Prompt	192	208	0.9615**	2080.00	45.42	0.25	1.45	0.000	-0.048<>0.773
	Praise	206	208	0.9952**	2080.00	45.61	0.22	4.21	0.000	0.562<>1
	Corrections	-73	208	0.3245	2080.00	45.61	0.22	4.52	0.110	0.630<>1
	Specific Interactions	108	208	0.7596	2080.00	45.61	0.22	2.37	0.018	0.159<>0.880
	Child Moderate	20	221	0.5452	2283.67	45.42	0.25	3.57	0.68	0.480<>1
	Child High	0	221	0.5	2283.67	46.96	0.25	-1.34	1.00	-0.742<>0.075

* medium/moderate effects (when statistically significant at $p < .05$)

**large/strong effects (when statistically significant at $p < .05$)

Appendix U: Tau-U Effect Sizes

Effect Size: Tau-U Baseline Trends

Participant	Variable	S	PAIRS	TAU	TAUb	Z	P Value	CI 90%
Grace	Interactions	-122	325	-0.3754	-0.3917	-2.69	0.007	-0.605 <> -0.146
	Scanning	63	325	0.1938	0.2045	1.39	0.165	-0.036 <> 0.423
	Movement Intervals	-15	325	-0.0462	-0.0495	-0.33	0.741	-0.276 <> 0.183
	Movement Steps	-15	325	-0.0462	-0.0462	-0.33	0.741	-0.276 <> 0.183
	Prompt	37	325	0.1138	0.1217	0.82	0.415	-0.116 <> 0.343
	Praise	88	325	0.2708	0.2763	1.94	0.052	0.041 <> 0.500
	Corrections	-44	325	-0.1354	-0.1364	-0.97	0.332	-0.365 <> 0.094
	Spec Interactions	-36	325	-0.1108	-0.1123	-0.79	0.428	-0.340 <> 0.119
	Children Moderate	1	325	0.0031	0.0034	0.02	0.982	-0.227 <> 0.233
	Children High	7	325	0.0215	0.04	0.15	0.877	-0.208 <> 0.251
Madelyn	Interactions	-23	171	-0.1345	-0.1456	-0.80	0.421	-0.409 <> 0.140
	Scanning	5	171	0.0292	0.0313	0.17	0.861	-0.246 <> 0.304
	Movement Intervals	19	171	0.1111	0.161	0.66	0.506	-0.164 <> 0.386
	Movement Steps	21	171	0.1228	0.1228	0.73	0.463	-0.152 <> 0.398
	Prompt	-46	171	-0.269	-0.3525	-1.61	0.108	-0.544 <> 0.006
	Praise	-8	171	-0.0468	-0.0542	-0.28	0.780	-0.322 <> 0.228
	Corrections	-57	171	-0.3333	-0.3434	-1.99	0.046	-0.608 <> -0.058
	Spec Interactions	-83	171	-0.4854	-0.497	-2.90	0.004	-0.760 <> -0.210
	Children Moderate	-28	171	-0.1637	-0.2066	-0.98	0.327	-0.439 <> 0.111
	Children Highly	0	171	0	0	0.00	1.000	-0.275 <> 0.275
Cassie	Interactions	-14	21	-0.6667	-0.6829	-2.10	0.036	-1 <> -0.145
	Scanning	11	21	0.5238	0.5789	1.65	0.099	0.002 <> 1
	Movement Intervals	11	21	0.5238	0.5789	1.65	0.099	0.002 <> 1
	Movement Steps	7	21	0.3333	0.3333	1.05	0.293	-0.188 <> 0.855
	Prompt	-9	21	-0.4286	-0.4737	-1.35	0.177	-0.950 <> 0.093
	Praise	-7	21	-0.3333	-0.3684	-1.05	0.293	-0.855 <> 0.188

Olivia	Corrections	-13	21	-0.619	-0.65	-1.95	0.051	-1.097
	Specific Interactions	-7	21	-0.3333	-0.35	-1.05	0.293	-0.855
	Children Moderate	5	21	0.2381	0.2632	0.75	0.453	-0.283
	Children High	0	21	0	0	0.00	1.000	-0.522
	Interactions	-25	78	-0.3205	-0.3401	-1.53	0.127	-0.666
	Scanning	30	78	0.3846	0.411	1.83	0.067	0.039
	Movement Intervals	-13	78	-0.1667	-0.1793	-0.79	0.428	-0.512
	Movement Steps	-12	78	-0.1538	-0.1538	-0.73	0.464	-0.500
	Prompt	-1	78	-0.0128	-0.016	-0.06	0.951	-0.359
	Praise	9	78	0.1154	0.1259	0.55	0.583	-0.230
	Corrections	17	78	0.2179	0.2282	1.04	0.300	-0.128
	Specific Interactions	-15	78	-0.1923	-0.1961	-0.92	0.360	-0.538
	Children Moderate	4	78	0.0513	0.0741	0.24	0.807	-0.294
	Children High	0	78	0	0	0.00	1.000	-0.346

Effect Size: Tau-U for Baseline and Intervention Contrasts

Participant	Variable	S	PAIRS	TAU	TAU _b	Z	P Value	CI 90%
Grace	Interactions	146	182	0.8022****	0.8111	3.21	0.001	0.392
	Scanning*	48	182	0.2637	0.2751	1.06	0.291	-0.147
	Movement Intervals	60	182	0.3297	0.3352	1.32	0.187	-0.081
	Movement Steps	130	182	0.7143***	0.7143	2.86	0.004	0.304
	Praise*	19	182	0.1044	0.1047	0.42	0.676	-0.306
	Prompt*	145	182	0.7967***	0.7967	3.19	0.001	0.386
	Corrections	-63	182	-0.3462	-0.349	-1.39	0.165	-0.757
	Specific Interactions	162	182	0.8901****	0.9	3.57	0.000	0.480
	Child Moderate	-14	182	-0.0769	-0.0843	-0.31	0.758	-0.487
	Child High	46	182	0.2527	0.3866	1.01	0.311	-0.158
Madelyn	Interactions	-28	209	-0.134	-0.1462	-0.60	0.547	-0.500
	Scanning	67	209	0.3206	0.3508	1.44	0.149	-0.045
	Movement Intervals*	12	209	0.0574	0.0779	0.26	0.796	-0.308

Cassie	Movement Scanning*	-40	209	-0.1914	-0.1914	-0.86	0.389	-0.557<>0.174
	Prompt	83	209	0.3971	0.4637	1.79	0.074	0.031<>0.763
	Praise	52	209	0.2488	0.2744	1.12	0.263	-0.117<>0.615
	Corrections	-132	209	-0.6316	-0.6423	-2.84	0.005	-0.997<>-0.266
	Specific Interactions	-70	209	-0.3349	-0.3423	-1.51	0.132	-0.701<>0.031
	Child Moderate	-35	209	-0.1675	-0.2273	-0.75	0.451	-0.533<>0.198
	Child High	0	209	0	0	0.00	1.000	-0.366<>0.366
	Interactions	57	189	0.3016	0.3149	1.21	0.225	-0.107<>0.710
	Scanning*	85	189	0.4497	0.4632	1.81	0.070	0.041<>0.858
	Movement Intervals*	28	189	0.1481	0.1618	0.60	0.551	-0.261<>0.557
	Movement Scanning*	-13	182	-0.0714	-0.0714	-0.29	0.775	-0.482<>0.339
	Prompt	67	182	0.3681	0.3884	1.48	0.140	-0.042<>0.779
	Praise	171	182	0.9396****	0.9421	3.77	0.000	0.529<>1
	Corrections	-101	182	-0.5549	-0.5722	-2.22	0.026	-0.965<>-0.144
Olivia	Specific Interactions	66	182	0.3626	0.3687	1.45	0.146	-0.048<>0.773
	Child Moderate*	-68	189	-0.3598	-0.4172	-1.45	0.148	-0.768<>0.049
	Child High	0	189	0	0	0.00	1.000	-0.409<>0.409
	Interactions	125	234	0.5342**	0.5519	2.50	0.012	0.183<>0.885
	Scanning*	11	234	0.047	0.0518	0.22	0.826	-0.304<>0.398
	Movement Intervals	9	234	0.0385	0.0412	0.18	0.857	-0.313<>0.390
	Movement Steps	68	208	0.3269	0.3269	1.49	0.136	-0.034<>0.688
	Prompt	192	208	0.9231****	0.9505	4.21	0.000	0.562<>1
	Praise*	197	208	0.9471****	0.9471	4.32	0.000	0.586<>1
	Corrections*	-90	208	-0.4327	-0.4444	-1.97	0.049	-0.793<>-0.072
	Specific Interactions	108	208	0.5192**	0.5268	2.37	0.018	0.159<>0.880
	Child Moderate	20	221	0.0905	0.1278	0.42	0.676	-0.265<>0.446
	Child High	0	221	0	0	0.00	1.000	-0.356<>0.356

* indicates phase comparison includes corrected baseline when trend is below .20

** Moderate effect size at $p < .05$

***Large effect size at $p < .05$

**** Large/Very large effect size at $p < .05$

Appendix V
Effect size calculations for each participant

Participant	Behavior	PND	IRD	NAP	Tau -
Cassie	Interaction	.22	0.2698	0.6508 (p = 0.225)	0.30 (p =
	Scanning	.63	0.4550	0.7540* (p = .0409)	0.44 (p =
	Move (quadrants)	.11	0.2751	0.6032 (p = 0.406)	0.14 (p =
	Move (Steps)	0.0	0.1868	0.4835 (p = 0.895)	-0.07 (p =
	Prompt	.27	0.4066	0.6841 (p = 0.140)	0.36 (p =
	Praise	.92**	0.9231**	0.9698** (p = 0.000)	0.93 (p =
	Corrections	.42	0.3407	0.2225 (p = 0.026)	-0.55 (p =
	Other Interactions	.38	0.4066	0.6813 (p = 0.146)	0.36 (p =
	Student Moderately Problematic	0.0	0.4603	0.3333 (p = 0.180)	-0.35 (p =
	Student Highly Problematic	0.0	0.00	0.5000 (p = 1.000)	0 (p =
	Olivia	Interaction	0.0	0.5812*	0.7671* (p = 0.012)
Scanning		.11	-0.0726	0.5876 (p = 0.412)	0.04 (p =
Move (quadrants)		.56	-0.0513	0.5192 (p = 0.857)	0.03 (p =
Move (Steps)		.13	0.4135	0.6635 (p = 0.136)	0.32 (p =
Prompt		.75*	0.7981**	0.9615** (p = 0.000)	0.92 (p =
Praise		.94**	0.9375**	0.9952** (p = 0.000)	0.94 (p =
Corrections		.31	0.3750	0.3245 (p = 0.110)	-0.43 (p =
Other Interactions		0.0	0.5048*	0.7596* (p = 0.018)	0.51 (p =
Student Moderately Problematic		0.0	0.000	0.5452 (p = 0.676)	0.09 (p =
Student Highly Problematic		0.0	0.000	0.5000	0

Madelyn	Problematic Interaction	0.0	0.000	(p = 1.000) 0.4330	(p = 1.000) -0.134
	Scanning	0.0	0.2440	(p = 0.547) 0.6603	(p = 0.547) 0.3206
	Move (Quadrants)	0.0	0.000	(p = 0.149) 0.5742	(p = 0.149) 0.0574
	Move (Steps)	.91	0.2823	(p = 0.505) 0.4545	(p = 0.796) -0.1914
	Prompt	.27	0.2727	(p = 0.683) 0.6986	(p = 0.389) 0.3971
	Praise	.18	0.1818	(p = 0.074) 0.6244	(p = 0.074) 0.2488
	Corrections	.36	0.5455*	(p = 0.263) 0.1842	(p = 0.263) -0.6316
	Other interactions	0.0	0.2727	(p = 0.005) 0.3325	(p = 0.005) -0.3349
	Student Moderately Problematic	0.0	0.00	(p = 0.132) 0.4163	(p = 0.132) -0.1675
	Student Highly Problematic	0.0	0.00	(p = 0.451) 0.5000	(p = 0.451) 0
Grace	Problematic Interaction	.14.	0.7802**	(p = 1.000) 0.9011*	(p = 1.000) 0.8022**
	Scanning	.14	0.1429	(p = 0.001) 0.8049*	(p = 0.001) 0.2637
	Move (Quadrants)	.14	0.1429	(p = 0.015) 0.6648	(p = 0.291) 0.3297
	Move (Steps)	0.0	0.6374*	(p = 0.187) 0.8571*	(p = 0.187) 0.7143**
	Prompt	1.0**	1.000**	(p = 0.004) 1.000**	(p = 0.004) 0.7967**
	Praise	0.0	0.4560	(p = .0000) 0.7940*	(p = 0.001) 0.1044
	Corrections	0.0	0.000	(p = 0.019) 0.3269	(p = 0.676) -0.3462
	Other interactions	.43	0.6758*	(p = 0.165) 0.9451**	(p = 0.165) 0.8901**
	Student Moderately Problematic	0.0	0.000	(p = 0.000) 0.4615	(p = 0.000) -0.0769
	Student Highly Problematic	0.0	0.000	(p = 0.758) 0.6264	(p = 0.758) 0.2527
			(p = 0.311)	(p = 0.311)	

*medium/moderate effects (statistically significant for NAP and Tau-U at $p < .05$)

** large/strong effects (statistically significant for NAP and Tau-U at $p < .05$)