4-2-2020

An exploratory investigation of proximity control in a large-group unstructured setting

Adam D. Weaver
University of Nebraska at Omaha, adamweaver@unomaha.edu

Philip Scherer
University of Nebraska at Omaha

Stephanie Hengen
University of Nebraska at Omaha

Mark D. Shriver
Munroe-Meyer Institute

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Adam D. Weaver, Philip Scherer, and Stephanie Hengen

University of Nebraska at Omaha

Mark D. Shriver

Munroe-Meyer Institute

Author Note

Adam D. Weaver, Department of Psychology, University of Nebraska at Omaha; Philip Scherer, Department of Psychology, University of Nebraska at Omaha; Stephanie Hengen, Department of Psychology, University of Nebraska at Omaha; Mark D. Shriver, Department of Psychology, Munroe-Meyer Institute, University of Nebraska Medical Center.

Philip Scherer is now at Nebraska Educational Service Unit #2; Stephanie Hengen is now at Gretna Public Schools.

Conflict of Interest: Adam D. Weaver declares that he has no conflict of interest. Philip Scherer declares that he has no conflict of interest. Stephanie Hengen declares that she has no conflict of interest. Mark D. Shriver declares that he has no conflict of interest.

Address correspondence to Adam D. Weaver, Department of Psychology, University of Nebraska at Omaha, Arts & Sciences Hall 347, 6001 Dodge St., Omaha, NE 68182, USA; *adamweaver@unomaha.edu* *(e-mail)*

Abstract

Proximity control is a common component of many classroom management strategies and has been shown to reduce disruptive behavior as well as increase academic engagement among students. Much of the research on proximity control to date has been conducted in structured classroom settings or in combination with other behavioral management techniques. This applied study investigated the effect of proximity control on student behavior in a large, unstructured setting using an ABAB withdrawal design. Results indicate that staff proximity was effective at reducing inappropriate student behavior. The study also explored the acceptability of the treatment among staff participants. Staff reported lower levels of acceptability for the implementation of proximity control compared to pre-treatment methods of monitoring. A discussion of these findings and implications is included.

Keywords: behavior management; behavioral interventions; proximity control

An Exploratory Investigation of Proximity Control in a Large-Group Unstructured Setting

Proximity control is a behavior management technique in which an adult makes a consistent effort to be physically near a specified student or area of students. Numerous studies over the past 30 years have found this simple practice to be an effective and efficient behavior management technique for increasing on-task behavior (Conroy, Asmus, Ladwig, Sellers, & Valcante, 2004; Ervin et al., 2000), making smooth transitions from one task to another (Colvin, Sugai, Good, & Lee, 1997), and decreasing problem behaviors (Etscheidt, Stainback, & Stainback, 1984; Fifer, 1986; Haydon & Kroeger, 2016). Furthermore, proximity control has been reported to be an effective strategy for general education students (Fifer, 1986; Lampi, Fenty, & Beaunae, 2005), students demonstrating disruptive behaviors (Ervin et al., 2000; Etscheidt et al., 1984; Gunter, Shores, Jack, Rasmussen, & Flowers, 1995), and students with developmental disabilities (Conroy et al., 2004; Oliver, Oxener, Hearn, & Hall, 2001; Werts, Zigmond, & Leeper, 2001). In addition to research-supported efficacy, there are a number of practical benefits to the strategy as the process is simple and no formal training is necessary for a teacher to be able to use the technique (Conroy et al., 2004).

While teacher-student proximity has long been understood to affect the quality of instruction (e.g., Adams, 1969), studies utilizing single-case designs to investigate proximity control first began to appear in the 1980's. Van Houten, Nau, MacKenzie-Keating, Sameoto, and Colavecchia (1982) used an alternating treatments design to show that reprimands given to a student demonstrating disruptive behavior were more effective when given from a distance of 1 m than from a distance of 7 m. Etscheidt and colleagues (1984) presented a case study for a similar student with disruptive behavior. Using descriptive assessment data, they reported that

the student was significantly less disruptive when the teacher was within a 3-foot radius of the student compared to when the teacher was more than 3 feet away.

Similar results have been reported when looking at the effects of adult proximity on student engagement. Werts and colleagues (2001) used an alternating treatments design to compare the effects of proximity at two positions (less than 2 feet away and greater than 5 feet away) on the academic engagement of three students with disabilities. They found that students were academically engaged during a significantly higher number of intervals when paraprofessionals were positioned within close proximity than compared to when they were over 5 feet away. Conroy and colleagues (2004) also investigated the effects of proximity control on student engagement. Using descriptive data for six elementary-aged students with autism spectrum disorder, they reported that student engagement was significantly higher for all participants when an adult was within proximity (defined as within an arm's length of the child for 3 or more seconds).

On the basis of previous research and collective professional experience, the recommendation for teachers to implement proximity as a behavior management strategy has been a staple in the literature on classroom management (e.g., Fifer, 1986; Gunter et al., 1995; Lampi et al., 2005). In their discussion of proactive approaches to classroom management, Sprick, Garrison, and Howard (1998) state that one of the most effective ways to monitor student behavior during an activity or transition is to circulate throughout the classroom on a consistent basis. In doing so, the authors assert that students will be more likely to follow classroom expectations due to the teacher being physically close to them. In addition, they suggest that a teacher's close proximity will communicate concern for and interest in the students while also

making it clear to students that if they engage in inappropriate behaviors, the teacher will most likely notice it.

Support for proximity control can also be found in literature relating to School-wide Positive Behavioral Supports (SWPBS; McIntosh, Filter, Bennet, Ryan, & Sugai, 2010; Simonsen, Sugai, & Negron, 2008). The practice of "active supervision" incorporates proximity as it consists of actively scanning the area being supervised, moving about the area being monitored so as to be in closer proximity to areas in which behavior problems are more likely to occur, and initiating social interactions with students (Colvin et al., 1997). Thus, adult proximity can be seen as one of several elements of active supervision. While the research on proximity control has been conducted largely in structured classroom settings, active supervision has been shown to be an effective technique in classrooms as well as unstructured settings such as playgrounds (Franzen & Kamps, 2008; Lewis, Colvin, & Sugai, 2000) and hallways (Johnson-Gros, Lyons, & Griffin, 2008). However, while active supervision has been shown to decrease problem behavior, it is difficult to ascertain the role of proximity as an isolated variable as this body of research includes proximity as part of a treatment package which also typically includes social skill instruction, pre-correction, and increased social interactions with students (Colvin et al., 1997; Haydon & Kroeger, 2016; Lewis et al., 2000).

Despite the simplicity of proximity control, some teachers still do not use this technique. Some teachers may be resistant to changing their monitoring styles, and others may be simply unaware of the literature base supporting the practice. There also may be specific drawbacks to using this technique in a larger setting such as a playground, gymnasium, or lunchroom. These settings are much larger spaces than a classroom, thus requiring teachers to monitor a larger area. This can potentially be overwhelming for teachers as it requires more movement than they would

typically need to use in the classroom. In addition, some teachers may view these settings outside of the classroom as places in which they are able to socialize with other teachers and perhaps let down their guard (Novak & Strohmer, 1998). For this reason, there may be resistance from some teachers when asked to change their typical routine of student monitoring.

Proximity Control and Applied Behavior Analysis

One question often neglected in previous research has to do with how proximity "works." Within the framework of applied behavior analysis, there are two general approaches to the management of behavior: antecedent-based techniques and consequence-based techniques. These approaches can be used separately or in combination. Whereas consequence-based techniques focus on the responses that can be made to behavior after it occurs (e.g., praise or punishment), antecedent-based techniques focus on environmental variables that make the behavior more or less likely to occur in the first place. Within the literature on proximity control, some studies have conceptualized proximity as an antecedent-based technique that prevents problem behavior and promotes expected behavior (Conroy et al., 2004; Werts et al., 2001). In particular, the literature on active supervision has often classified the practice as an antecedent-based technique and emphasized its preventative nature as part of SWPBS (Haydon & Kroeger, 2016; Johnson-Gros et al., 2008). Other studies, however, have considered proximity as part of a consequence-based approach, for instance by making reprimands more effective (Van Houten et al., 1982).

As an antecedent-based strategy, the close proximity of the teacher to the student may serve as a visual prompt, resulting in the student engaging in a higher rate of appropriate behaviors than would be seen if the teacher were not in proximity. As a prompt or cue, proximity control acts as a discriminative stimulus (SD) in that the adult's nearness to a student signals the availability of reinforcement (e.g., praise) when expected behaviors are demonstrated, that would

otherwise not be available if the adult were not physically near. Conversely, the absence of the adult's proximity to the student acts as a stimulus delta (SΔ), in that reinforcement is less likely, resulting in a lower likelihood of the student engaging in expected behaviors. Although not explicitly stated in the active supervision literature, we may assume this process would explain the effects that active supervision might have. Because the technique generally starts with the pre-teaching of expectations and includes praise for observed expected behaviors (Haydon & Kroeger, 2016), active supervision combines antecedent-based strategies (proximity, pre-teaching) with consequence-based strategies (praise).

When not combined with other elements of active supervision, it is also possible that proximity control might work as a discriminative stimulus for punishment (SDp). The SDp signals to students the possibility of punishment in that the adult's close proximity to the student can indicate that inappropriate behavior is more likely to result in punishment (e.g., reprimand or office referral). When the adult is not in proximity, referred to as the SΔp, students are less likely to receive punishment, and thus more likely to engage in problem behaviors (O'Donnell, 2001).

Another possibility is that proximity control, absent other aspects of active supervision, functions almost entirely as a consequence-based strategy. Teachers in close proximity to students are more likely to notice, and react to, inappropriate behavior. Thus, rather than preventing inappropriate behavior from occurring by serving as a visual prompt, teacher proximity to students may simply impact teachers' ability to monitor student behavior and thereby increase the frequency of redirections or other consequences for inappropriate behavior.

Interestingly, the operant features of proximity can also be applied to the teacher's perspective. There is a coercive aspect to many of the teacher-student interactions in schools (Shores, Gunter, & Jack, 1993). While receiving directions and reprimands may be aversive to

many students, these same interactions may also be aversive to teachers. Thus, even when isolated from other elements of active supervision, there is likely more to proximity control than teachers' nearness to students as this proximity may set the stage for social interactions (some potentially reinforcing and others potentially aversive) that would not have occurred otherwise. This may explain, in part, why teachers may at times be reluctant to engage in proximity control.

Current Gaps in the Literature

There are several gaps that currently exist in the literature relating to proximity control. One relates to the fact that there is limited research concerning the use of proximity control in larger school settings such as a gymnasium, lunchroom, or playground. While the active supervision literature includes studies conducted in these larger settings, proximity was examined in combination with several other behavioral strategies. For instance, Lewis et al. (2000) found that the use of proximity control during recess resulted in a decrease in problem behaviors and an increase in safety for students during recess. However, proximity control was implemented concurrently with teaching expectations, properly redirecting children, and having at least five positive interactions with students for every one negative interaction. Previous studies examining only proximity control have examined the technique on only a small number of participants. Of the studies that have included multiple students, the vast majority have only involved participants that are in special education programs rather than general education. Another gap in the literature relates to the fact that existing studies have not taken the teacher's perceptions regarding proximity control into account. Put differently, previous studies have not examined whether or not the individuals involved in implementing proximity control found the technique to be feasible, easy to implement, or appropriate.

In this applied research study, we endeavored to address these gaps in the literature. First, we attempted to isolate proximity from other treatment variables often implemented in conjunction with proximity, such as pre-correction and increased levels of praise, and to compare its effects to baseline levels of student behavior using a withdrawal design. The study was conducted on a playground at a summer school program, addressing the setting gap identified above by investigating proximity control in a large-group unstructured setting. In addition, this large-group setting allowed us to examine the effect of proximity on a larger number of students in general education whereas previous research has largely focused on smaller number of students and students in special education. We hypothesized that when adults were in closer proximity to students on the playground, there would be a decrease in observed inappropriate student behavior. We also wanted to look at the acceptability of the technique by asking staff members to complete a rating scale regarding their perceptions of methods of monitoring student behavior, both before and during the implementation of the proximity control intervention.

Method

Participants

The participants in this study included approximately 100 students in first through eighth grades who attended a summer day program in a middle-class, suburban school district. The attendees of this program were representative of the school's student population of approximately 500 students. For the 2014-2015 school year, the student population was characterized as: White (60%), Black (18%), Hispanic (9%), identifying as two or more races (8%), Asian (4%), and Native American (1%). Approximately 60% of students received Free and Reduced lunch and 14% of students received special education services.

There were 12 staff members who were responsible for monitoring students during the recess portion at the day program and who were asked to adjust their monitoring location on the playground area as part of the study. The backgrounds of staff members varied with a majority still in college studying education and a small portion already certified as teachers. Each staff member had completed a mandatory training developed and conducted by the day program director before the summer program began. This training included information on how staff members should monitor and redirect students in the program, including training on what staff members were to do if they witnessed a student engaging in inappropriate behavior. Staff members were taught that when monitoring recess, they were to first provide students engaging in problem behavior with a simple redirection, such as directing them to a more appropriate behavior. If the inappropriate behavior continued, staff members were to have the students take a "break" for five minutes. While staff members were taught how to redirect inappropriate student behavior, they were not taught how to praise appropriate student behavior. No further instructions on how to praise or redirect students were provided to staff as part of this study.

Setting

This study was conducted at a summer day program housed at a public school in a suburban district in the Midwest. Observations took place at the program's outdoor playground area (see Figure 1) at midday. For the purposes of the study, the playground was demarcated into five zones to better assess staff members' proximity to students on the playground. By dividing the setting into five zones, researchers were able to systematically observe specific areas of the playground for an equal duration. As seen in Figure 1, the total playground area was roughly 46 m long and 18 m wide (838 square m) with multiple slides, swings, and other recreational

equipment, as well as an open area to play soccer and football. The size of each zone ranged from roughly 120 square m to 220 square m.

Dependent Variables

Student Behavior. Student behavior was systematically observed and coded as "appropriate" or "inappropriate" on the behavior observation form. These behaviors were operationalized based on their accordance with the playground rules established by the program (see Table 1). The playground rules dictated which areas students were permitted to be in, how recreational equipment was to be used, and what types of student behaviors were considered unsafe. These behaviors were selected because they represented the general behavioral expectations for the playground setting, because they were easily monitored, and because staff members reported that they had reviewed these rules with all students at the start of the program.

Proximity. Adult proximity was determined based on whether or not a staff member was physically present within the demarcated zone of the playground being observed. Thus, each observation interval was coded as "proximity" or "not in proximity" based on whether at least one adult was simply within the demarcated area being observed for at least part of that interval.

Staff Redirections. Since staff members had been explicitly trained prior to the study to provide redirections, we assessed the frequency of redirections to explore any changes in teacher behavior that occurred in conjunction with changes in the independent variable of proximity. Staff redirections involved any instance in which a staff member observed inappropriate student behavior and provided a direct verbal direction to change the behavior. We relied on staff members to self-monitor and report on the number of these instances each day.

Acceptability. The relative acceptability of the monitoring styles (proximity control compared to baseline methods) was determined based on average scores of the Revised Usage

Rating Profile-Intervention (URP-IR) scale (Chafouleas, Briesch, Neugebauer, & Riley-Tillman, 2011) completed by staff. We were particularly interested in the Acceptability, Understanding, and Feasibility subscale scores.

Measures and Materials

Systematic Direct Observation. Systematic direct observations using a 10 s partial-interval recording system occurred throughout the study in order to determine both the percentage of intervals in which an adult was within the area being observed and the percentage of intervals in which students were demonstrating inappropriate behavior. For an interval to be coded with adult proximity, at least one supervising adult had to be in the demarcated area of the playground being observed during at least a portion of the interval. Otherwise, the interval was coded as "Not in Proximity." Student behavior was coded based on whether the students in the observed area were in compliance with playground rules. During each interval, researchers scanned the observed area. If any student behavior not aligned with the rules and expectations was observed, "inappropriate" was coded for that interval. Otherwise, the interval was coded as "appropriate."

Data were collected from a centralized location in which each of the five designated zones of the playground could be observed. After observing one zone for 2 min, the researcher observed the next zone and collected data there for 2 min. This process continued in a clockwise manner systematically for 30 min each session. This resulted in all five demarcated zones being observed for a total of six minutes each day. Upon completion, the total percentage of intervals in which students were demonstrating inappropriate behavior was calculated along with the percentage of intervals in which an adult was within the observed area.

Because video recording of students was not possible in this setting, the observation system described above was selected in order to provide a representative sample of behavior on the playground setting that would not overwhelm the capacity of the observers to accurately record data. By focusing on one designated area at a time, observers were able to carefully monitor the behavior of students as well as adult presence in that area.

Staff Redirections. Throughout the duration of the study, each staff member was asked to record the number of instances on the playground in which they provided any redirection to a student. Each staff member was provided with a tracking sheet on which to make tally marks for these verbal corrections to students. Daily totals from each staff member were collected by a program supervisor and turned in to researchers at the end of each week of the study.

Revised Usage Rating Profile – Intervention. Staff members were also asked to complete the Revised Usage Rating Profile-Intervention (URP-IR) Scale (Chafouleas et al., 2011) once near the beginning of the study to assess perceptions of their typical, baseline levels of student monitoring and once again after the final treatment phase of the study to assess perceptions of their student monitoring while in proximity to students. The URP-IR was developed to examine the social validity of particular practices in education and allows researchers to gain insight regarding what features of an intervention may be acceptable to the implementers and which ones may be less acceptable due to reasons such as feasibility, acceptability, or understanding.

The URP-IR uses a 6-point Likert-type scale (strongly disagree to strongly agree), and is made up of 29 items which load into six subscales: Acceptability, Understanding, Home School Collaboration, Feasibility, System Climate, and System Support. The URP-IR has been found to be a reliable and valid measure of behavioral intervention usage with acceptable levels of

internal consistency found for all subscales (α = .72 to .95; Briesch, Chafouleas, Neugebauer, & Riley-Tillman, 2013).

Independent Variables

While much of the past research in this area has examined proximity as one part of a larger treatment package, we were interested in proximity as a standalone behavior management technique. Thus, no instructions were given to staff members regarding the way in which they were to monitor students, the type of feedback they were to provide (e.g., reprimands or praise), or any review of expectations. The only direction given to staff members during treatment phases was the physical location from which they were to monitor students. Treatment integrity was monitored simply by directly observing and recording whether staff members remained in their designated areas as they had been asked to do.

Research Design

An ABAB withdrawal design was used to compare the effects of adult proximity on student behavior to control levels. With this design, we could observe whether student behavior changed with the introduction of treatment, reversed in direction when the treatment was withdrawn, and improved again when treatment was reintroduced.

Procedures

Prior to beginning the study, approval was secured from the summer day program administrator and our university institutional review board. Throughout each day of the study, systematic direct observations were conducted for 30 min during the recess portion of the day. The entire recess lasted 45 min, and the 30 min observation began near the beginning after all students had transitioned to the playground area.

Baseline 1. At the beginning of the study, staff members were instructed to begin self-monitoring the number of redirections given to students on the playground and to record this number daily on the provided tracking sheet. Staff members were not provided with any instructions pertaining to strategies they should use while monitoring the students, only to monitor and record their number of student redirections. Baseline levels of adult proximity and student behavior were collected for five days utilizing the observation system described above. During the third day, staff members were asked to complete the URP-IR regarding their current strategies of monitoring students on the playground.

Treatment 1. Following five days of baseline, staff members were instructed by their supervisor to spread out through the playground area, specifically requesting that staff members be evenly distributed and assigned to each of the five areas of the playground. Staff were asked to continue self-monitoring the number of student redirections given each day. No other training or instructions regarding monitoring strategies were provided to staff members. Data collection for this treatment phase continued as described above.

Baseline 2. After five days of treatment, a return to baseline was initiated. Staff members were told by their supervisor that they could return to the places on the playground where they had been observing the children during the baseline phase. Because of the limited time of the summer program, this phase continued for only four days.

Treatment 2. Treatment was then re-introduced and staff members were again assigned to supervise in each of the five designated areas on the playground. After the final session, staff members were again asked to complete the URP-IR – this time in regards to the increased physical proximity they had been asked to assume during the treatment phases.

Inter-observer Agreement

An independent observer was present for six of the 19 observation sessions (31.6%) so that inter-observer agreement (IOA) could be calculated. The second observer was a graduate student with training in direct observation and was directed to not discuss observation results with the primary researcher during observation sessions. Any interval with inconsistent coding of either student behavior or adult proximity across observers was marked as a disagreement. The number of intervals in which both observers agreed was then divided by the total number of intervals for that session. IOA across the six sessions ranged from 85% to 94%, with an overall IOA of 90%. To correct for agreements between observers that may have occurred by chance, Cohen's kappa was calculated (Kazdin, 2011). Kappa across the six observation sessions was .789 (range = .701–.882). According to Landis and Koch's (1977) magnitude guidelines, this would be considered "substantial" agreement.

Results

Playground Observation Data

Figure 2 displays a graph of the results of direct observations, and Table 2 presents the means and standard deviation for proximity and inappropriate behavior across phases. During the first baseline phase, the percentage of intervals in which staff were within proximity to students averaged 43% (range = 34–55%). During this phase, the percentage of intervals in which students were observed to demonstrate inappropriate behavior averaged 58% (range = 51–65%).

During the first treatment phase, the percentage of intervals with staff members within proximity increased from baseline to a mean of 94.4% (range = 89–98%), and the percentage of intervals with inappropriate student behavior decreased to a mean of 30.6% (range = 28–33%).

In Phase 3, staff were no longer asked to remain in the monitoring areas they had been asked to assume in Phase 2. While there was an immediate drop in staff members' proximity to

students (average 65%; range 60-71%), a complete return to baseline levels was not seen. The percentage of intervals with inappropriate student behavior increased to an average of 37.5% (range = 34–42%). While not completely returning to baseline levels, there was a decreasing trend in adult proximity corresponding to an increasing trend in inappropriate student behavior.

Last, during the second treatment phase, the percentage of intervals in which staff members were within proximity to students increased to an average of 92% (range = 87–98%), while the percentage of intervals in which inappropriate behavior was observed decreased from the previous phase to 29.4% (range= 27–34%).

In addition to visual analysis, the Tau-U index was calculated to estimate the strength of the intervention. A web-based effect size calculator (Vannest, Parker, Gonen, & Adiguzel, 2016) was used to obtain an overall Tau for the two contrasts (initial baseline to treatment, and second baseline to treatment) in the research design. The obtained Tau value was 1.073, $p = .0001$. A Pearson correlation was also calculated based on the 19 observation sessions, revealing a significant negative relationship between adult proximity and inappropriate student behavior, $r = –0.88$, $n = 19$, $p < .005$.

Staff Redirections

During the first baseline phase, an average of 15.98 instances of redirections per staff member per session were reported. During the first treatment phase, this number increased to 19.44 per session, representing a 21.7% increase from baseline. Upon returning to baseline, staff members reported an average of 15.68 redirections per session, a 19.3% decrease from the first treatment phase. Last, upon the reintroduction of the intervention, staff members reported an average of 19.16 redirections per session, a 22.2% increase from the second baseline phase.

Overall, staff members reported an average of 15.83 redirections per session during baseline phases and an average of 19.3 during treatment phases.

Treatment Acceptability

Table 3 shows the URP-IR scores for staff in regards to baseline levels of student monitoring and for increased proximity during treatment. The average total score reported on the URP-IR completed by staff prior to treatment was 3.75, whereas the average total score on the URP-IR completed in regards to implementing the proximity control intervention was 3.56. This indicates a higher level of perceived social validity toward the original monitoring strategy, and a relatively lower level toward implementation of proximity control strategies. With the exception of the System Support subscale, all subscale score averages of the URP-IR were higher in regards to baseline monitoring strategies than in regards to the treatment.

Discussion

Our first research question examined whether the increased proximity of adults to a large number of general education students in a large, unstructured environment would result in a decrease in inappropriate student behavior. We hypothesized that when proximity control techniques were implemented, with no attempts to incorporate additional elements of active supervision, there would be a decrease in instances of inappropriate student behavior. As seen in Figure 2, this hypothesis was confirmed. The results suggest that schools and programs working with children should consider the proximity and the location from which adults monitor unstructured settings as a simple means to decrease inappropriate student behavior.

Our second research question had to do with staff members' perceptions of the proximity control technique they were asked to use during the treatment phases compared to the techniques used during baseline. We found the average total score on the URP-IR pertaining to baseline

monitoring strategies was higher than the average total score pertaining to the proximity control technique. Similar differences were seen in five of the six subscales of the URP-IR. Although these results were somewhat unexpected, they make more sense in hindsight. As seen in Table 3, the most significant subscale difference observed was on the Understanding subscale. Lower scores in this area indicate that staff members may have been more confused with the technique and rationale for the intervention than for the monitoring strategies they were using initially. However, this may be more of an indictment of our method of communicating the intervention strategy to staff than of the intervention itself. As described above, staff were not coached in the procedure or provided with any instructions other than where to stand each day. Thus, even though staff members were able to implement the strategy with integrity and the strategy proved effective, more training may be needed for them to perceive an adequate understanding of how and why to implement proximity control.

Large differences were also seen in the Feasibility and Acceptability subscales of the URP-IR, indicating that school personnel may have found proximity control to be less practical, convenient, and appropriate than the behavior monitoring strategies used during baseline. Taken together, the difference in results observed in the URP-IR may provide some insight into why proximity control techniques are not more widely used. Without adequate rationale and coaching, school personnel may lack an understanding as to what exactly proximity control techniques involve doing or may think that other techniques are more feasible and effective. This is in addition to the increased effort required with proximity control.

Staff perceptions toward the intervention may also be related to the differences in teacher-student interactions that occurred with increased proximity. We asked staff to self-monitor the number of redirections given to students during each session. Interestingly, we found

that while the level of inappropriate student behavior was lower during treatment phases, staff reported delivering a higher average number of redirections during these phases. The likely explanation is that staff members were in closer proximity to students during the treatment phases and therefore had a greater chance of observing inappropriate behavior. For example, during the baseline phases, the majority of the staff members would often gather in the shade due to the high temperatures in the middle of the day. While huddled together at one corner of the playground, they were unable to observe students on the far side of the playground and therefore were much less likely to catch students engaging in inappropriate behavior. Conversely, when staff members were required to spread out to each of the five demarcated zones during the treatment phases, it was much easier for them to see when students were engaged in inappropriate behavior.

These results have implications regarding how proximity control "works" to reduce problem behavior. While we did not ask staff to track the number of praise statements given to students, anecdotally, we can report that few, if any, were observed during data collection. This is not surprising as staff members were not provided any training in how to praise students, and lack of training in this area was the primary reason that we did not elect to collect this data. Thus, rather than the presence of staff serving as a SD for reinforcement, it is more likely that the increased proximity served as a SDp signaling that inappropriate behavior would be more likely to result in a reprimand. However, our results also indicate that the effectiveness of proximity may not have been due to the antecedent-based nature of the intervention, as often described in the literature. Because the number of redirections increased during treatment phases, this suggests that proximity control may not have had much of a preventative effect, but instead resulted in the application of more consequences.

Implications for Schools

While the researchers observed an overall lower level of inappropriate student behavior during the treatment phases, it would appear that staff observed – and responded to – more. This means that the implementation of proximity control required adults to (a) stand and monitor students from a location which they did not originally choose, (b) observe a higher number of inappropriate student behaviors, and (c) respond to these inappropriate behaviors by correcting or reprimanding students. Clearly, this requires more response effort than the monitoring strategies employed during baseline. In addition, if staff perceived lower levels of problem behavior during baseline phases, this could have contributed to a negative view regarding the efficacy of proximity control.

For educators and school administrators, these results have interesting implications. First, they suggest that teachers using proximity control will come into contact with more students – some engaged in appropriate behaviors and others in problem behaviors – than those who don't. When teachers observe students engaged in inappropriate behavior, this sets the stage for coercive teacher-student interactions that may be aversive to both teachers and students. Unless teachers are informed of the purpose for proximity control and are provided a rationale for the extra effort it requires, there may be low understanding and acceptability leading to avoidance or resistance.

When increased proximity results in teachers encountering students behaving appropriately, teachers should have the training and skills necessary to deliver positive praise to these students. If these encounters become commonplace, teachers may become conditioned reinforcers to students and proximity control may begin to serve as a preventative, antecedent-based technique rather than the largely consequence-based practice seen in our study.

School administrators should be cognizant of the additional work proximity control requires for teachers and staff in large settings. Sufficient training in both the method and rationale for this strategy will likely be necessary for teachers and staff to do it well and willingly. This training should include both the practice of proximity control (location and circulating among students) as well as how to respond to appropriate student behavior and problem behavior. As a resource issue, the results of this study showed that more effective monitoring could be accomplished without additional staff members. Thus, effective monitoring may not be a numbers issue as much as an efficiency issue, as it may be possible for two or three teachers to effectively supervise a large area using proximity control.

Limitations

Because of the applied nature of this study, there are several limitations that should be mentioned. First, the fact that only one area of the playground could be observed at a time limited the researchers in being able to obtain a completely accurate depiction of students' behavior on the entire playground during any one interval. However, the observation methods used in this study represented our best efforts of gathering a representative sample of student behavior each day.

Next, while there was a decrease in staff proximity upon returning to baseline in Phase 3, staff members did not immediately or completely return back to the level of proximity that was seen in the initial baseline phase. Instead, there was a carryover effect as some of the staff members continued to be more active than they had been in the initial baseline phase. We saw an immediate drop and then a gradually decreasing trend in adult proximity corresponding with an increasing trend in inappropriate student behavior during this phase. Given these trendlines, we would anticipate that baseline levels of adult proximity and student behavior would have

eventually been reached. However, due to time constraints of the summer program, we elected to reintroduce the treatment once Phase 3 trends were evident. This resulted in a decrease in the level and trend of inappropriate student behavior.

Our request for staff to self-monitor the number of redirections given to students each day may be seen as a confounding variable as it may have impacted the dependent variable. While we cannot rule that out, the fact that staff were requested to self-monitor across all phases of the study rather than during the treatment phases alone reduces this concern.

Regarding the low perceived acceptability of proximity control among participants, as mentioned above, this was assessed in the absence of any discussion regarding intervention options, any explanation or rationale for the intervention, or any other component of behavioral consultation (Bergan & Kratochwill, 1990). For that reason, we cannot conclude that these results would be seen had the intervention been sufficiently explained, modeled, and coached.

Areas for Future Research

Future studies should attempt intersubject and systematic replication to ensure generalizability of these results. Future research should also examine the acceptability of this intervention when more effective behavioral consultation practices are followed. We would anticipate that these practices would help adults working with children have a better understanding of the strategy and the rationale for the practice, and thus higher acceptability.

Another interesting area of research has to do with the learning history of the participating students and how that might impact the type of discriminative stimulus presented by adult proximity. That is, if supervising adults have a history of providing praise and other types of reinforcement to students contingent upon appropriate behavior, we would expect proximity to serve as a SD. However, if there is a greater history of reprimands and redirections,

the presence of adults may serve as a SDp signaling that inappropriate behavior will likely be admonished. Because we did not collect data on praise statements from teachers during the study, nor any data on teacher feedback (positive or negative) prior to the start of the study, we were unable to address this question. Relatedly, future research should further examine the extent to which proximity control effectively reduces inappropriate behavior by prevention, or by punishment. The practice has usually been conceptualized as an antecedent-based strategy; however, our data showed a greater amount of reactive behavior on the part of adults implementing the strategy compared to baseline levels.

Conclusion

This study showed that proximity control can be instrumental in improving student behavior in unstructured settings, such as the playground used in this study. Staff members' use of proximity control was associated with higher levels of redirections to students. Although it involved more work and corresponded to lower acceptability ratings for those monitoring the students, it ultimately resulted in a decrease in inappropriate behavior.

Author Notes

- *Adam D. Weaver is an associate professor in the School Psychology program at the University of Nebraska at Omaha. His research interests are behavioral assessment and behavioral interventions.*
- *Philip Scherer is a school psychologist at Nebraska Educational Service Unit 2.*
- *Stephanie Hengen is a school psychologist with Gretna (NE) Public Schools.*
- *Mark D. Shriver is a professor in the Psychology Department at the Munroe-Meyer Institute of the University of Nebraska Medical Center. His research interests are behavioral interventions and interdisciplinary training in behavioral consultation.*

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Table 1
Playground Rules at Summer Day Program

Off limits:

- Retaining wall
- Dumpster
- Behind Wall by building landscaping
- Parking Lot
- Bike Rack

Not permitted:

- Walking and/or sitting on top of playground structures
- Playing in water
- Rough Sports
- Fighting
- Spitting
- Piggy back riding or carrying another student
- Balls on equipment
- Tag/chase games on equipment
- Throwing woodchips or sticks
- Climbing trees
- Chasing balls into parking lot and street without permission
- Kicking/throwing/hitting ball against music room wall or windows
- Running gymnastics i.e. flips and handsprings
- Jumping/Flipping out of swings

Other guidelines:

- Outerwear must remain with student at all times if taken to recess
- One person sitting on a swing at a time
- Go down the slides one at a time feet first
- Two students at a time going up the climbing hill
- Two hands on the fire pole
- You may enter the building only with adult permission
- Line up when a signal is given
- Return all equipment to classroom
- Clean shoes off before entering building.

Playground Equipment Rules:

- One person on log roll at a time
- One person standing on each side of teeter totter facing the other person
- Hands and feet to self on monkey bars
- Go same direction on monkey bars
- Stay upright on all equipment
- Pyramid is for climbing only
- Tennis shoes must be worn on the pyramid
- 10 students or fewer on the pyramid
- Sit on the wave only

Table 2
Means and Standard Deviations for Adult Proximity and Inappropriate Student Behavior.

Phase	Adult Proximity		Inappropriate Behavior	
	M	SD	M	SD
Baseline 1	43.0	8.22	58.0	6.78
Treatment 1	94.4	3.51	30.6	2.07
Baseline 2	65.0	4.69	37.5	3.70
Treatment 2	92.0	4.74	29.4	2.70

Table 3
Average subscale and total scores on the Revised Usage Rating Profile-Intervention (URP-IR) completed by staff members during the baseline phase and after the treatment phase of the study.

URP-IR Subscales	Baseline Score	Treatment Score
Acceptability	3.75	3.56
Understanding	3.96	3.04
Home School Collaboration	3.42	3.00
Feasibility	3.85	3.29
System Climate	3.85	3.65
System Support	3.46	3.46
Total	3.75	3.56

Figure 1

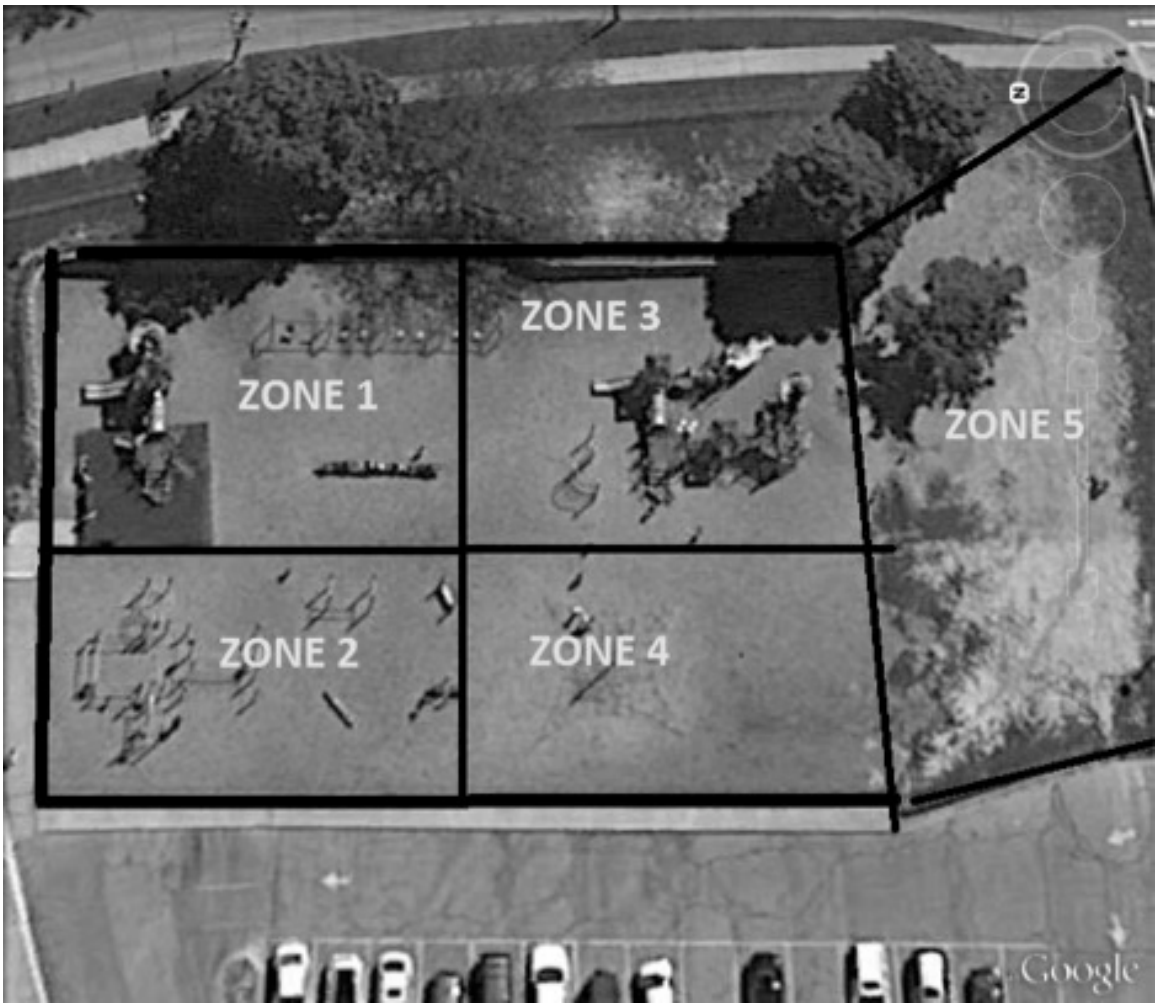

Figure 1. Image of the playground area and the five demarcated zones where the observations occurred throughout the study.

Figure 2

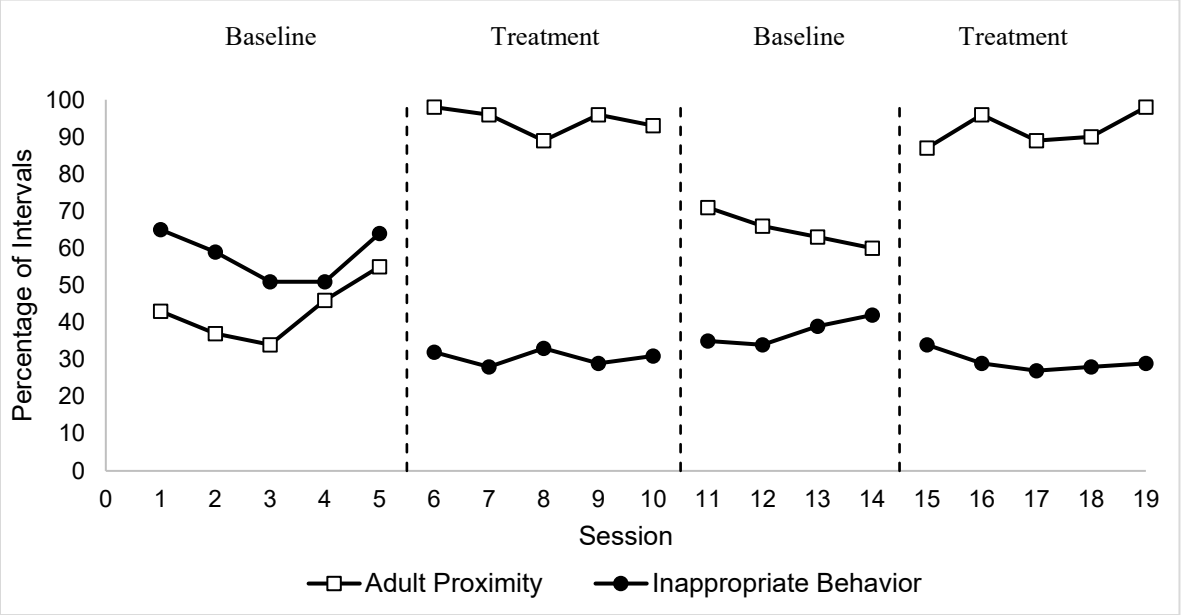

Figure 2. Percentage of intervals in which inappropriate student behavior was observed and percentage of intervals in which staff members were within proximity of students.