

Playworks in the Wake County Public School System (WCPSS), 2014-15 and 2015-16

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WCPSS adopted Playworks at three elementary schools beginning in 2013-14 and another three beginning in 2014-15. The Playworks program includes four key components: structured grade-level activities during recess and class game time, a Junior Coach Leadership Program, and after-school sports leagues (see Appendix A). Each component was implemented by a full-time Playworks Coach assigned to the school. Following the national model, the program intended to promote student character building in terms of leadership, positive peer interactions, and conflict resolution skills, resulting in fewer behaviors that lead to discipline referrals at recess and the classroom. In turn, these behavioral improvements were expected to increase students' ability to focus on class work and reduce bullying in general, creating a more positive school climate.

Title I has been the funding source for Playworks within WCPSS. Thus, the program schools were selected because of their large economically disadvantaged student populations and related Title I status. Since the schools did not necessarily have high rates of short-term suspensions, the need for a behavioral intervention such as Playworks may not have been strong.

In 2014-15, Data, Research, and Accountability (DRA) began a one-year quasi-experimental evaluation of the Playworks program for the six implementing schools and six matched-comparison schools (Rhea, 2015). Following a review of 2014-15 results, WCPSS leadership and program staff requested that DRA extend the study into the 2015-16 school year. This evaluation summarizes the evidence gathered from a variety of sources covering implementation and student outcome data across those two years.

Abstract

This quasi-experimental study used multiple data sources to examine Playworks implementation and outcomes across two school years (2014-15 and 2015-16) at six WCPSS elementary schools. Differences in outcomes between Playworks and matched-comparison schools were examined. Similar to other national studies (Beeker et al., 2012; Fortson et al., 2013), the findings of impact are mixed. Coaches implemented program elements with fidelity, yet WCPSS encountered coach turnover as well as inconsistent teacher training and lower engagement with students at recess than desired. Significant differences found in the recess structures and activities between Playworks and traditional schools did not translate into positive impacts on student behavior or school climate. Prior to adopting new initiatives, WCPSS should consider the following: 1) carefully matching initiatives with root causes of school needs and funding sources; and 2) increasing the completeness and consistency of behavioral data collection when reducing students' negative behavior is an expected outcome. Improvements in both areas could strengthen the likelihood of impact and the ability to measure that impact.

Table of Contents

Background	2
Methodology	4
Results	5
Discussion and Recommendations	11
References	13
Appendices	15

Background

Research has found many benefits of recess including opportunities for physical activity and social interaction (Centers for Disease Control and Prevention, 2010; Jarrett, 2013). Physical activity is associated with increased cognition, on-task behavior, problem solving, concentration, and attentiveness, which may promote academic achievement (Mathematica, 2012). Following the research, many pediatricians recommend a daily break of at least 15 minutes during the school day to help promote elementary school-aged children's health and learning (Barros, Silver, & Stein, 2009).

Despite these benefits, a 2005 National Center for Education Statistics survey (NCES, 2007) found that around 85% of U.S. elementary school children have recess, yet the length and frequency of daily recess has been declining over the past thirty years. This decline is seen more often among schools with high populations of children from low-income families. In their analyses of the same survey, the Robert Wood Johnson Foundation (RWJF, 2007) found that large urban schools with high poverty and minority student populations tend to have short recesses, and in some cases, no recess at all. Additionally, these schools were found to disproportionately use recess deprivation as a form of punishment for African-American/Black and Hispanic/Latino male students. Discipline challenges on the playground, coupled with increasing pressure to perform on standardized tests, have contributed to schools offering fewer opportunities for physical activity during the school day (RWJF, 2007). Other research has found that schools have reduced recess time because of problem behavior and bullying on the playground (Todd, Haugen, Anderson, & Spriggs, 2002; Craig, Pepler, & Atlas, 2000).

The North Carolina State Board of Education Healthy Active Children Policy (HRS-E-000) requires students in grades K-8 to participate in physical activity as part of the district's physical education curriculum. This policy encourages elementary schools to consider providing 150 minutes of physical activity a week and middle schools to provide 225 minutes per week including a minimum of physical education every other day. It also prohibits taking away physical activity (including physical education) or using severe and inappropriate exercise as a form of student punishment. At the district level, WCPSS provides regulations and procedures related to physical education as part of Policy 5120 (see Appendix B).

In 2013-14, WCPSS began to implement a program called Playworks at a small number of schools serving large proportions of students from economically disadvantaged households. Playworks is a national non-profit organization whose mission is to improve the health and well-being of children by increasing opportunities for physical activity and safe, meaningful play. Jill Vialet started the program in Oakland, California in 1996, after meeting with a principal who expressed concern about the frequency of negative incidents occurring during recess (Playworks, 2013). She developed the program to support positive play experiences on the playground by assigning each implementing school a full-time coach who partners with teachers, principals, and parents to build a culture of play. Playworks currently operates in hundreds of low-income elementary schools nationwide.

The goals of the program are to engage students in physical activity, improve students' ability to focus on class work, develop social skills related to cooperation, decrease behavioral problems, and improve school climate (Fortson et al., 2013). Another program goal is that children will develop conflict resolution strategies (Playworks, 2013). The primary conflict resolution strategy is "ro-sham-bo," which is a version of "rock-paper-scissors". This strategy, when applied to situations like whose turn is next in a game, provides children with a simple tool for addressing conflict (Playworks, 2013). London, Westrich, Stokes-Guinan, and McLaughlin (2015) found that this tool works best for non-emotional

issues like negotiating game rules but not serious interpersonal issues, which usually require adult intervention.

Existing research on the Playworks program has typically been conducted during early stages of program implementation (primary funders and evaluators include the Robert Wood Johnson Foundation, John W. Gardner Center for Youth and Their Communities, and Mathematica Policy Research). The various studies on Playworks include:

1. Studies based on a randomized experiment which demonstrated increases in physical activity for girls at Playworks schools (Bleeker, Beyler, James-Burdumy, & Fortson, 2015) and various other positive impacts of the program during recess, as discussed below (Bleeker et al., 2012; Fortson et al., 2013).
2. A quasi-experimental study which found higher levels of physical activity and better problem-solving skills among students at longer-implementing schools (Madsen, Hicks, & Thompson, 2011).
3. Descriptive studies of program implementation (London et al., 2015) and outcomes showing, for instance, improved school climate at high-implementing schools (Mallonee, London, Stokes-Guinan, Westrich, & McLaughlin, 2011).

In the national, randomized study of Playworks, there is some evidence of positive impacts on teacher perceptions of student safety, student engagement in inclusive behavior during recess, student bullying and exclusionary behavior during recess, student transitions and attention after recess, and overall school climate (Bleeker et al., 2012; Fortson et al., 2013). Students at Playworks schools reported better behavior and attention in class after play. These studies showed no negative impacts of the program in any assessed domain. Nevertheless, the same research suggests that Playworks had no significant impact on any of the following:

- how well students and teachers treated each other within the school (Bleeker et al., 2012; Fortson et al., 2013),
- teacher reports of student use of positive and encouraging language and aggressive behavior (Bleeker et al., 2012; Fortson et al., 2013),
- student feelings of safety at recess or school, positive peer relationships, and perceptions of overall school climate (Bleeker et al., 2012; Fortson et al., 2013),
- youth development based on eight measures of youth development including problem solving and conflict resolution (Bleeker et al., 2012), or
- negative student behavior during school (U.S. Department of Education, 2013; Bleeker et al., 2012).

Methodology

In 2014-15, DRA was asked to evaluate the implementation and short-term outcomes of the Playworks program in the six WCPSS schools¹. This report presents findings across 2014-15 and 2015-16. As shown in Table 1, the data summarized in this report are based on a quasi-experimental design. Cluster analysis was used to match each Playworks school (Brentwood, Bugg, Creech Road, Fox Road, Smith, and Walnut Creek Elementary Schools) to another school (Lincoln Heights, Cary, East Garner, Dillard Drive, North Ridge, and Lynn Road Elementary Schools) based on five measures of student behavior from 2013-14. The use of matching generates a counterfactual condition that in theory allows the study to assess what would have happened if an individual who was exposed to the treatment (e.g., Playworks) had not experienced that treatment.

Table 1
Nature of the Data Provided and Valid Uses

Research Design	Conclusions that Can be Drawn
<input type="checkbox"/> Experimental	We can conclude that the program or policy caused changes in outcomes because the research design used random assignment.
<input checked="" type="checkbox"/> Quasi-Experimental	We can reasonably conclude that the program or policy caused changes in outcomes because an appropriate comparison strategy was used.
<input checked="" type="checkbox"/> Descriptive <input checked="" type="checkbox"/> Quantitative <input checked="" type="checkbox"/> Qualitative	These designs provide outcome data for the program or policy, but differences cannot be attributed directly to it due to lack of a comparative control group.

Sources: List, Sadoff, & Wagner (2011) and What Works Clearinghouse (2014).

DRA staff used a mixed methods approach to answer several research questions, as shown in Table 2. Data collection activities employed in 2014-15 and 2015-16 included a survey of Playworks coaches, a teacher survey, recess observations, and analyses of major behavior incident data captured within the district’s Student Incident and Referral System (SIRS). In 2015-16, DRA staff conducted a Playworks school principal survey and a 4th grade student survey. We also analyzed data from two existing sources, the WCPSS Student Engagement Survey (5th grade students) and the North Carolina Teacher Working Conditions Survey. Each data collection activity is described in Appendix C.

¹ In January of 2015, Barwell Road Elementary School started implementing the program; however, it is not included as a study school in this report.

Table 2
Data Sources

	Research Questions	Data Sources (2014-15 and 2015-16)
Implementation	What training did teachers receive in 2015-16? How were expectations communicated?	<ul style="list-style-type: none"> • Playworks School Principal Survey
	Did coaches continue to implement the key program components: recess, class game-time, the Junior Coach Leadership Program (JCLP), and after-school leagues?	<ul style="list-style-type: none"> • Playworks Coach Survey • Recess Observations • 4th Grade Student Survey
	Were teachers more engaged with students at recess in 2015-16 than in 2014-15?	<ul style="list-style-type: none"> • Recess Observations
Post-Implementation Outcomes	Was there an increase in students showing character building—leadership, positive interactions with peers, and conflict resolution skills?	<ul style="list-style-type: none"> • Playworks Coach Survey • Teacher Survey • Recess Observations
	Were there fewer student discipline referrals and problem behaviors/bullying and improved student ability to focus on classwork?	<ul style="list-style-type: none"> • Teacher Survey • Recess Observations • Student Incident and Referral System (SIRS) Data (Major Behavior Incidents) • 4th Grade Student Survey
	Did school climate improve?	<ul style="list-style-type: none"> • 4th Grade Student Survey • WCPSS Student Engagement Survey (5th Grade Students) • Teacher Working Conditions Survey

Results

Overall, the findings of this study do not support the efficacy of Playworks in attaining the stated program goals. Following the national model, within WCPSS the program was expected to promote student character building in terms of leadership, positive peer interactions, and conflict resolution skills, resulting in fewer behaviors leading to discipline referrals at recess and the classroom. It was anticipated that this improved behavior would then increase students’ ability to focus on class work and reduce bullying in general, ultimately leading to an improved school climate (see Appendix D).

Coach implementation of the key program components was strong, although teacher implementation was lower than the desired level (see Table 4). There were some issues including coach turnover and inconsistent teacher training at the school level. In 2015-16, Playworks teachers were less actively involved in recess activities than expected, yet their engagement was still significantly greater than teachers at comparison schools. Significant differences in the structures and activities of play between Playworks schools compared to more traditional recesses, were not sufficient to result in the intended positive impacts on student behavior and school climate (see Table 5).

Implementation in 2015-16 compared to 2014-15

What training did teachers receive? How were expectations communicated?

In 2014-15, principals gave teachers little information about their role in implementing Playworks, so DRA recommended additional teacher training in 2015-16 to better define expectations and increase engagement. As such, in a survey, principals of Playworks schools were asked how they explained the program to their teachers and communicated their expectations for teacher participation during the 2015-16 school year (see Appendix E). Four out of the six principals participated in this survey. Their responses ranged from simply introducing the coach at the beginning of the year to giving a more formal, data-based presentation of the program. Three of the four principals reported that they discussed teacher expectations at the training. Additionally, all four communicated with and/or received feedback from their coach, primarily via email or face-to-face meetings and discussions.

Did coaches continue to implement the four key program components?

According to recess observation data, recess implementation was generally strong in both 2014-15 and 2015-16 with one exception. In 2014-15, DRA recommended that Playworks offer more creative play options at recess; however, this did not occur in 2015-16. Survey results based on 4th grade student responses indicate that students at both Playworks and comparison schools enjoyed recess, regardless of its structure.

Based on the survey results from five of the six Playworks Coaches in 2015-16, coaches² implemented class game time, Junior Coach Leadership Programs (JCLPs), and after-school leagues (see Appendix F). Specific findings include the following:

- Similar to 2014-15, coaches provided class game time on a rotating schedule, so students had class game time every three to four weeks. Coaches mentioned the challenge of scheduling class game time with teachers.
- Coaches led a JCLP, which typically consisted of 15 students at each school. Data from 2014-15 indicated a need for a more consistent use of Junior Coaches (JCs) as active leaders during recess, and results suggest that this occurred. In 2015-16, an increase was observed in the percentage of recesses that included at least three recess activities led by JCs (49% during the first year and 64% during the second year). According to reports from coaches as well as 23 teachers who had JCs in their classes, all JCs facilitated some lower grade level recesses. It was often a challenge to get teacher permission for JCs to serve during K-3 recesses, according to coaches.
- Four of five coaches offered after-school leagues, typically basketball and volleyball. Similar to 2014-15, some coaches had a difficult time getting students to participate, particularly if transportation was not readily available.

Were teachers more engaged with students at recess in 2015-16 than in 2014-15?

Based on recess observations, Playworks school teachers showed similar levels of engagement with students in 2015-16 compared to 2014-15. As in 2014-15, Playworks coaches were more highly engaged with students than the teachers were. However, teachers at Playworks schools were more

² Three of the six Playworks coaches were first-year coaches in 2015-16.

actively engaged in terms of leading games and playing with students than comparison school teachers (see Appendix G).

Table 4
Implementation Outcomes

Outcomes	2015-16	Change from 2014-15 to 2015-16	
	Playworks relative to Comparison Schools	Playworks Schools	Comparison Schools
Did teachers at Playworks schools receive training and expectation guidelines?	NA	Mixed-Evidence Four out of six principals responded to the survey and three indicated that training occurred and expectations were discussed in 2015-16.	NA
Did Playworks coaches continue to implement the four key program components?	NA	Yes Five out of six coaches responded to the survey and indicated that program implementation continued as expected in 2015-16.	NA
Were teachers more engaged with students during recess?	Yes * More teachers in Playworks than comparison schools led games and played with students	No Moderate engagement overall which declined	No Low engagement overall with <i>little change</i> over time

Note: * indicates a statistically significance difference between Playworks and comparison schools in 2015-16 at the $p < .01$ level.

Outcomes in 2015-16 compared to 2014-15

Was there an increase in students showing character building—leadership, positive peer interactions, and conflict resolution skills?

There is mixed evidence of students showing leadership during recess (see Appendix H). In 2014-15, recess games were led by students (other than JCs) during a significantly higher percentage of recesses at Playworks schools than at comparison schools recesses. Observers saw the inverse of this relationship in 2015-16, in which students at Playworks schools were seen leading games at a significantly lower percentage of recesses than at comparison schools.

With regard to conflict resolution, observational and survey data point to a greater use of specific strategies at Playworks schools, but little to no difference in other positive student interactions as shown in the following evidence:

- The percentage of observed Playworks recesses where students demonstrated conflict resolution strategies, such as ro-sham-bo³ more than doubled (from 24% to 56%) between 2014-15 and 2015-16. Student and teacher survey results also support this finding. Conversely, observed use of conflict resolution strategies used at comparison school recesses declined slightly. As such, in 2015-16, a significantly higher percentage of Playworks students were seen using conflict resolution strategies than comparison students.
- Between 2014-15 and 2015-16, there was a decrease in student displays of positive messages at both Playworks and comparison school recesses, although the difference between groups was still significant (32.5 percentage points) and favored Playworks schools as it had in 2014-15. There continued to be no differences between Playworks and comparison school teacher reports of students positively working out problems.

Were there fewer student discipline referrals and problem behaviors/bullying and improved student ability to focus on classwork?

The Playworks program did not appear to improve student behavior overall (see Appendix I). This study found no evidence of fewer discipline referrals at Playworks schools and mixed results for problem behaviors/bullying. Measures of student transitions from recess to the classroom also indicate that students' ability to focus on classwork did not improve.

Although Playworks schools were expected to record minor student incidents to monitor program implementation; there was considerable school variation in the follow through. As such, major student behavioral incidents, which the district requires schools to report, were analyzed instead. In term of discipline referrals, as shown in Table 3, at both Playworks and comparison schools, major incidents most commonly occurred in the classroom rather than on the playground, and the rates of incidents occurring at both of these locations increased since 2014-15.

³ Ro-sham-bo is a version of the rock-paper-scissors conflict resolution strategy that Playwork coaches teach and promote among students.

Table 3
Playground, Classroom, and Total Major Behavioral Incident Rates, 2014-15 and 2015-16

	2014-15				2015-16			
	Incident Rate			School Membership	Incident Rate			School Membership
	Playground	Classroom	Total		Playground	Classroom	Total	
Playworks Schools (n=6)	1.4	9.3	17.2	3,711	2.8	17.1*	31.3	3,532
Comparison Schools (n=6)	2.2	9.3	19.0	3,664	4.1	15.9	35.2	3,636

Data source: WCPSS Student Incident and Referral System.

Note: Incident rates are calculated as (# Incidents at Location/School Membership)*100. * indicates a statistically significance difference between Playworks and comparison schools at the $p < .01$ level.

In 2015-16, student survey reports of problem behavior were actually greater among Playworks schools than comparison schools, whereas observational and teacher survey data indicate no differences as the following findings show:

- Fourth grade Playworks students were significantly more likely to report their engagement in and punishment for problem behavior than comparison school students, including being sent to the principal's office for doing something wrong during recess, being sent to the principal's office for bad behavior in the classroom, and having to stay after school or sit by themselves during lunch because of bad behavior.
- Conversely, recess observational data show little overall difference in problem behaviors between Playworks and comparison school students. The only difference found was the frequency of peer teasing, which occurred considerably less often at Playworks schools than at comparison schools in 2015-16.
- Similar to 2014-15, there were no significant differences between the two groups of schools in teacher reports of students teasing, arguing, or fighting at recess or in teacher responses of bullying (based on students reporting the behavior to them) at Playworks or comparison schools.

Improved student ability to focus on classwork was not found based on the teacher perception data. For instance, compared to 2014-15, teachers within both Playworks and comparison schools reported an increase in problematic transitions to learning activities after recess in 2015-16.

Did school climate improve?

This report used student and teacher survey data to measure school climate (see Appendix J). Students answered questions gauging their feelings about school safety and the extent to which others cared about them. Teachers responded to questions about school safety and student conduct. The findings reveal mixed evidence of improved school climate:

- In both 2014-15 and 2015-16, a significantly lower percentage of fifth grade students at Playworks schools reported feeling safe at school than comparison school students, although this was not found for fourth grade students.
- Also a significantly lower percentage of Playworks school teachers than comparison school teachers agreed that their students follow rules of conduct. Although significantly different in 2014-15, by 2015-16, both Playworks and comparison school teachers held similarly positive views about the safety of their school environment and their school's atmosphere of trust and respect.

Table 5
Comparative Outcomes

Outcomes	2015-16	Change from 2014-15 to 2015-16	
	Playworks relative to Comparison Schools	Playworks Schools	Comparison Schools
<p>Were there increases in student character building in terms of...?</p> <ul style="list-style-type: none"> • Leadership 	No	Mixed-Evidence Games led by Junior Coaches increased, games led by other students <i>decreased</i> ,	Yes Student-led games <i>increased</i>
<ul style="list-style-type: none"> • Positive interactions with peers 	Mixed-Evidence * More students displayed positive messages during recess No difference in students positively working out problems	No Moderate overall, <i>some decline</i>	No Low overall, <i>some decline</i>
<ul style="list-style-type: none"> • Use of conflict strategies 	Yes *More students used conflict resolution strategies during recess	Yes Low overall, <i>increased</i>	No Low overall, <i>decreased</i>
<p>Were there fewer student discipline referrals?</p>	No Lower overall rate, yet increased considerably for both groups Greater classroom incident rate No difference between playground incident rate	No High number, rates <i>increased</i>	No High number, rates <i>increased</i>
<p>Were there fewer student problem behaviors/bullying?</p>	Mixed-Evidence *More students sent to the principal's office or stayed after school as a behavior consequence *Less student isolation and teasing at recess No difference in bullying overall	Mixed-Evidence Aggression at recess <i>increased</i> , arguing <i>decreased</i> Little change in overall bullying	No Teasing at recess and overall bullying <i>increased</i>
<p>Was there improved student ability to focus on classwork?</p>	No No difference in student transitions after recess	No Problematic student transitions after recess <i>increased</i>	No Problematic student transitions after recess <i>increased</i>
<p>Did school climate improve?</p>	No *Fewer 5 th -grade students reported feeling safe at school *Fewer teachers agreed students follow rules No difference in other measures	No Positive climate with <i>some decline</i> over time	No Positive climate with <i>some decline</i> over time

Note: * indicates a statistically significance difference between Playworks and comparison schools in 2015-16 at the $p < .01$ level.

Discussion and Recommendations

Prior studies have suggested that Playworks improves physical activity for girls and impacts teacher, but not student, perceptions of recess; however, it has not been shown to positively impact problem solving, conflict resolution, or inclusive behavior for students in general (Bleeker et al., 2012; Fortson et al., 2013; Madsen et al., 2011). Our study did not yield results that were clearly supportive of the program either. Significant differences in the structures, activities, and strategies of play between Playworks schools compared to more traditional recesses were apparent, but were not sufficient to bring about impact in terms of the key student and school outcomes.

While this report's findings pertain to one specific program, the recommendations have broader implications for WCPSS programs in terms of effectively aligning interventions with school needs and capturing the necessary data to determine effectiveness.

Recommendation 1: Ensure a tight fit between program interventions and school needs.

Playworks was created in part to offer students opportunities for positive play experiences. Research on the program argues that schools often provide students with no or little time to play because negative incidents are often more than twice as likely on the playground compared to in the classroom (Craig, Pepler, & Atlas, 2000; Todd, Haugen, Anderson, & Spriggs, 2002). It is assumed that if students do not possess the conflict resolution strategies necessary to resolve recess disputes, negative incidents may carry over into the classroom and result in the loss of instructional time.

Our findings suggest that the need for Playworks in the targeted schools may not have been strong. Negative incidents in WCPSS elementary schools have historically occurred primarily in the classroom, rather than on the playground as described in the studies by Craig, Pepler, & Atlas (2000) and Todd et al. (2002). WCPSS also did not specifically rely on school indicators such as inadequate play/recess time, extensive reports of negative incidents on playgrounds, and/or high suspension rates to select Playworks schools. The use of Title I funds to support Playworks obligated the district to select schools for service because of their large economically disadvantaged student populations, rather than their student behavioral needs. This meant that there was a suboptimal match between the program goals and the schools selected for implementation.

Moving forward, the district should utilize established processes to determine the root causes of school issues so that appropriate interventions are selected. For example, the National Implementation Research Network suggests the use of the Hexagon Tool. This tool helps districts evaluate evidence-based initiatives by considering needs, fit, resource availability, evidence, readiness for replication, and capacity to implement (Blasé, Kiser, & Van Dyke, 2013).

Recommendation 2: Improve efforts in coach retention and teacher training

Comparisons of low and high implementing schools are mixed within the research on Playworks. Similar to the findings of this report, London et al. (2015) did not find significantly less conflict or bullying when comparing Playworks schools with high or low levels of implementation. Conversely, Mallonee et al. (2011) found that teachers reported that Playworks contributed to fewer conflicts during recess and in the classroom. London et al. (2015) also noted two factors that consistently influence Playworks implementation: 1) coaches who are skilled and committed to establishing positive

relationships with students, and 2) teachers who receive Playworks training are more likely to buy-in to the program and support the coach in implementing the program. Consistency of coaches and teacher training was not strong within WCPSS. Coach turnover was an issue, particularly in 2015-16, and although Playworks school principals were encouraged to better define teacher expectations and increase engagement, teacher training was inconsistent across the schools. As such, WCPSS should improve efforts to retain coaches and support teachers' contributions to program implementation if this or similar programs are pursued in the future.

Recommendation 3: Greater consistency in student behavioral incident data reporting

We recommend that WCPSS leadership create a more standardized minor and major incident rubric with stronger reporting expectations and more school-level accountability across the district. Currently, the district requires that schools record major incidents, although schools establish their own behavioral expectations and consequences, which can lead to considerable school variation. Currently, recording minor incident data is encouraged, but not required. As such, there was no opportunity to examine possible effects of Playworks on more minor behavioral incidents, except through proxy reports like teacher and student surveys, which are valuable data sources, but may be more general than specific behavioral frequency counts.

This recommendation has implications beyond this evaluation of Playworks. Many interventions within the district are implemented with the intention of positively impacting student behavior. Thus, analyses of both minor and major behavioral infractions are essential for assessing impact, necessitating more consistent and reliable data collection systemwide.

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Appendices

- Appendix A: Playworks Program Components
- Appendix B: WCPSS 5120 R&P Healthful Living
- Appendix C: Data Sources 2014-15 and 2015-16
- Appendix D: Playworks Pathway of Change
- Appendix E: What training did teachers receive in 2015-16? How were expectations communicated?
- Appendix F: Did coaches continue to implement the key program components: recess, class game-time, the Junior Coach Leadership Program (JCLP), and after-school leagues?
- Appendix G: Were teachers more engaged with students at recess in 2015-16 than in 2014-15?
- Appendix H: Was there an increase in students showing character building—leadership, positive peer interactions, and conflict resolution skills?
- Appendix I: Were there fewer student discipline referrals and problem behaviors/ bullying and improved student ability to focus on classwork?
- Appendix J: Did school climate improve?

Appendix A

Playworks Program Components

The Playworks program includes four key components which the Playworks coach is expected to implement: structured grade-level activities during recess and class game time, the Junior Coach Leadership Program, and after-school sports leagues. Guidelines for the successful implementation of each component are described below.

Recess: During all grade-level recess, Playworks coaches are expected to coordinate the playing of recess games and sports as well as to introduce skill-building exercises. The Playworks coach is required to be at all regularly scheduled recess periods and serves as a recess facilitator rather than as a recess supervisor. Teachers and/or other school staff are expected to provide supervision during all recess periods. Adults are encouraged to play alongside children, rather than give instructions for play from the sidelines. Pelligrini and Bohn (2005) found that adults tend to inhibit students' exhibition of complex forms of play; whereas, peers facilitate social competence and problem solving. During recess activities, it is critical that students take leadership and ownership of the games and adults are primarily participants in the games. Playworks does not support the limiting or removal of recess privileges for extended periods of time as a method of discipline. Each school is expected to have an indoor recess plan for inclement weather days.

Class Game Time: Playworks coaches are expected to provide class game time during which they teach students and teachers the rules, expectations, and skills of the recess games and activities. The classroom teacher is also required to be present during each session, which should not occur during any regularly scheduled recess period. In order to serve all grade levels, it is typical for class game time to occur on a rotating schedule and to last 30-40 minutes. According to London, Mallonee, Stokes-Guinan, and Westrich (2010), class game time was the most important and enjoyed aspect of Playworks for students and teachers. However, class game time is often difficult to implement due to the potential for loss in instructional time. Fourth and fifth grade teachers are least likely to implement this component (London et al., 2015).

Junior Coach Leadership Program (JCLP): Part of being a Playworks coach includes facilitating a Junior Coach Leadership Program (JCLP) geared toward fourth and fifth grade students. The purpose of the JCLP is to build student leadership and ownership of key school functions. Junior coaches are selected in the fourth week of Playworks' programming through a process that includes student application, teacher recommendation, and parent permission.

- During the school day, junior coaches lead games and activities and help students manage conflicts at recess. They also have academic expectations such as making up missed work and maintaining good grades.
- After school, junior coaches are expected to attend weekly trainings held throughout the school year based on Playworks JCLP curricula designed to help students learn about healthy nutrition and violence prevention and support students in taking charge of their health and the wellbeing of their communities (RWFJ, 2007). Playworks coaches lead the trainings, which typically include team-building games and skill-building activities. Junior coaches are required to attend the trainings in order to serve in a leadership role during recess.

After-School Leagues: Playworks coaches organize non-competitive girls' basketball and co-ed volleyball leagues for fourth and fifth grade students. The Playworks Coach is responsible for recruiting students and for coaching at least one practice per week, generally at the school site. There are also weekly evening games in which students at implementing schools play against each other. Game nights are typically held at one of the program schools, necessitating travel for the visiting school. Playworks leagues take place over a period of approximately 6-12 weeks during the school year. Playworks does not provide any student transportation to or from games or practices.

Appendix B

WCPSS 5120 R&P Healthful Living

Physical Education

Students enrolled in kindergarten through eighth grade will participate in physical activity as part of the district's physical education program. Physical education courses will follow the North Carolina Healthful Living Standard Course of Study.

Elementary School Physical Education

A minimum of thirty minutes of moderate to vigorous physical activity shall be provided for all elementary school students daily. Each elementary school student shall receive 150 minutes of physical activity per week. This may include physical education, recess, or other class activities. Included in this physical activity shall be at least one day per week of physical education with a certified physical education specialist. This physical activity shall be in addition to classroom instruction in health.

Middle School Healthful Living

A minimum of thirty minutes of moderate to vigorous physical activity shall be provided for all middle school students daily. This may include physical education, recess, or other class activities. Each middle school student shall receive Healthful Living instruction for a combined total of 225 minutes per week with a certified health and physical education specialist.

High School Healthful Living

Each high school student is required to fulfill one credit of Healthful Living with a certified health and physical education specialist for graduation from high school. In addition to the Healthful Living course requirement, opportunities shall be provided for continuing health and physical education through electives.

- Healthful Living is not to be withheld as a form of punishment for misbehavior or used as work make-up time.
- Severe exercise may not be used as punishment.
- Students shall be given fitness assessments as defined by a system-wide plan. Assessment results will be used to determine areas of program emphasis.
- Sufficient opportunities for intramural activities shall be provided for students.

Appendix C

Data Sources 2014-15 and 2015-16

Playworks Coach Survey

In April 2015 and 2016, we conducted a short online survey of Playworks coaches. Respondents were asked to reflect on the current school year and share their experiences. Five of the six coaches responded to the survey in 2015-16, compared to responses from every coach in 2014-15.

Teacher Survey

In April 2015 and 2016, we asked teachers at Playworks and comparison schools to participate in a short, online survey to gain information about program implementation and perceptions of student activities and behaviors. The WCPSS teacher survey questions were based on the survey instrument used in the national evaluation study of the Playworks and comparison schools (Bleeker, et al., 2012). Permission was obtained to use selected survey questions. All classroom teachers were asked to respond to questions that measured their perceptions of students' behaviors, activities, and use of conflict resolution skills during recess as well as questions that gauged their level of support for organized plan/activities during recess. Classroom teachers at Playworks schools answered additional questions about the Playworks program at their school

We had usable responses from a total of 138 teachers, 77 at Playworks schools and 61 at comparison schools, compared to 251 teachers in 2015-16. In 2015-16, the approximate overall response rate was under half (44%) of all K-5 classroom teachers in the study schools compared to 75% in 2014-15.

Table C-1
Teacher Survey Responses by School Type

School Type	2014-15	2015-16	Total
Playworks	121	77	198
Comparison	130	61	191
Total	251	138	389

Recess Observations

In collaboration with WCPSS Title I administrators, DRA conducted recess observations at each grade level (K-5) at the six Playworks and six comparison schools in 2015-16. The purpose of these observations was to gather information about implementation of the program, and also to compare recess behaviors between Playworks and comparison schools. In addition, maintaining the structured protocol utilized in our 2014-15 observations allowed us to compare data across two years (2014-15 and 2015-16). As displayed in Table C-2, we observed a total of 212 recesses. In 2014-15, DRA administrators conducted two recess observations for each grade at each Playworks and comparison school (the first observation in March or April and the second in April or May). In 2015-16, Title I and DRA administrators conducted one recess observation for each grade level at the same schools during

March or April. Observers received observation protocol training and subsequently observed one recess with an expert observer.

Table C-2
Number of Recess Observations by School Type

School Type	2014-15	2015-16	Total
Playworks	71	36	107
Comparison	70	35	105
Total	141	71	212

WCPSS Student Incident and Referral System (SIRS) Data

SIRS contains school reported major and minor student incident data for the district. Major incidents are managed by school administrators and minor incidents are managed by teachers. In 2014-15, the district mandated the recording of all major incidents in SIRS, even if they did not result in an In-School Suspension (ISS), Out-of-School Suspension (OSS), or an Alternative Learning Center (ALC) placement. Given the inconsistencies in reporting of minor student behavior incidents addressed in 2014-15, this study examines the impact of Playworks on student behavior as measured by reports of major incidents in 2015-16.

Playworks Principal Survey

In April 2016, we conducted a short online survey of Playworks principals. Respondents were asked to reflect on the 2015-16 school year and share their experiences. Four of the six principals at the Playworks schools in our study responded to the survey.

Student Survey (Fourth Grade Students)

In April 2016, we asked fourth grade teachers at Playworks and comparison schools to administer a short, online survey to their students. Respondents were asked questions related to their behavior at school, their enjoyment of recess, and their school climate. Students who attend a Playworks school were also asked questions related to the program. We had usable responses from a total of 814 fourth grade students from six Playworks schools and five comparison schools. One comparison school did not participate in the survey. The approximate overall response rate was 67%.

District and State Surveys (WCPSS Student Engagement Survey and NC Teacher Working Conditions Survey)

School climate was measured with seven items on our student survey of 4th grade students at both Playworks and comparison schools. In addition, we analyzed WCPSS Student Engagement Survey (SES) results for 2014-15 and 2015-16 that reflect 5th grade student responses to the same items. In addition, we analyzed NC Teacher Working Conditions (TWC) Survey results from the state administered survey in 2013-14 and 2015-16 and the district survey in 2014-15.

Appendix D
Pathway of Change

Need: Recess is a less structured time for students to engage in play and physical activity. This structure may also provide an environment for students to engage in behaviors that will illicit discipline referrals. Students who receive discipline referrals may experience a loss in instructional time because they are expected to go to the office to have the issue addressed. As such, there is a need for greater structured recess activities.

INPUTS	STRATEGIES	OUTCOMES – IMPACT		
		Short-Term	Intermediate	Long-Term
<p>Playworks places full-time coaches in low-income elementary schools to provide opportunities for organized play during recess.</p>	<p>Recess and Class Game Time: Coaches set-up structured activities by grade level during recess and class game time. Coaches model positive play for students to emulate, provide positive conflict resolutions, and act as role models for teachers who may participate in or monitor the activities.</p> <p>Junior Coach Leadership Program: 4th and 5th grade students can participate. Coaches train these students in leadership and conflict resolution so the students can act as role models and facilitators to lower-grade students during recess.</p> <p>After-school leagues: Coaches provide opportunities for 4th and 5th grade students to participate in co-ed volleyball and girls’ basketball skill-building leagues.</p>	<p>Primary short-term</p> <ul style="list-style-type: none"> Greater student engagement in physical activity Positive social development such as character building in terms of positive role model, leadership, cooperation, and conflict resolution skills. <p>Secondary short-term</p> <ul style="list-style-type: none"> Positive play and conflict resolution will result in fewer behaviors that lead to discipline referrals. 	<p>Primary Intermediate:</p> <ul style="list-style-type: none"> Fewer discipline referrals (at recess and in the classroom) <p>Secondary Intermediate</p> <ul style="list-style-type: none"> Improve students’ ability to focus on class work Less bullying 	<ul style="list-style-type: none"> Improved school climate

Appendix E

What training did teachers receive in 2015-16? How were expectations communicated?

Of the six principals at Playworks schools, two were new to the school in 2015-16. Principals' responses to how they explained the Playworks program to teachers and communicated their expectations for teacher participation ranged from providing very little information to a more formal, data-based presentation. Individual principals reported that they...

- “Didn’t introduce the program (because school had it the prior year), but did introduce the coach. Teachers already had a good understanding of the expectations.” This principal also mentioned wanting to have a “Playworks Kick-Off” for staff and students at the beginning of the 2016-17 school year, with an introductory component for new hires and new students.
- Discussed expectations at a staff meeting at the beginning of the year.
- Had a meeting before the start of the school year in which teachers were introduced to the program, participated in activities, and discussed expectations such as their participation in daily recess activities.
- Explained the details of the Playworks program, shared recess observational data for 2014-15, provided by DRA, and used it to support expectations for 2015-16, and provided examples of specific activities teachers should engage in during recess each day.

Principals said they monitored teacher involvement by conducting unplanned recess observations or randomly participating in Playworks activities with students. Three of the four principals reported giving teachers feedback about what they observed and reminders of expectations through various means such as conversations and emails, staff meeting announcements, or weekly memos. Each of the four principals said that they communicate with and/or receive feedback from their coach. Three specified that they do so via both email and face-to-face meetings, while the other mentioned having periodic discussions with the coach.

Principals described the services coaches provide at their schools.

- Three principals mentioned how helpful it is to teachers to have a coach who sets up and organizes recess activities, providing a more structured recess for students.
- Three principals spoke about the coach organizing and leading the after-school leagues.
- Two principals referred to the coaches' work with the JCLP in developing student leaders and how it would be more difficult to have this program without a Playworks coach.

Principals also offered different ideas for changes and improvements for implementing Playworks in 2016-17. Two principals would like to establish weekly meetings with the coach. Other ideas from individual principals included:

- Having the Playworks coach work with teachers to bring Playworks elements into the classroom (like norms and routines of behavior and teamwork)
- Increasing the use of conflict resolution strategies
- Continuing efforts to encourage teacher involvement in the program

Appendix F

Did coaches continue to implement the key program components: recess, class game-time, the Junior Coach Leadership Program (JCLP), and after-school leagues?

Similar to 2014-15, coaches implemented class game time, the Junior Coach Leadership Program, and after-school leagues. It is worth noting that three of the five coaches were first-year coaches at their school, with one hired late in the school year after the previous coach left the position.

Recess: During the 2015-16 year of implementation, 100% of observed Playworks recesses featured a variety of games that were set up prior to students' arrival, marked play boundaries, and an adequate amount of play equipment for students (Table F-1). Playworks coaches were observed reviewing recess rules at a lower percentage of recesses in 2015-16 than in 2014-15. The percentage point difference between these recess structures at Playworks and comparison schools remained fairly consistent across years, with more frequent observations of the structures seen during recesses at Playworks school.

There was a notable change in 2015-16 in the variety of sports and games that were offered to students during recess at the comparison schools. Between the Playworks and comparison schools, there was a 41 percentage point difference in the first year and a three percentage point difference in the second year. This decline in difference appears to be a result of a greater variety sport and game offerings at the comparison schools.

Table F-1
Recess Observation Results: Percentage of Recesses with Observed Structures

Structures	2014-15			2015-16		
	Playworks School Recesses	Comparison School Recesses	Difference	Playworks School Recesses	Comparison School Recesses	Difference
Variety of sports/games to choose	100.0	58.6	41.4**	100.0	97.1	2.9
Play boundaries marked	98.6	68.6	30.0**	100.0	71.4	28.6*
Indoor recess plan	98.6	58.6	40.0**	100.0	68.6	31.4**
Adequate play equipment	97.2	58.6	38.6**	100.0	74.3	25.7*
Recess rules reviewed prior to play	97.2	10.0	87.2**	75.0	5.7	69.3**

Note: Observed behavior across all observed grade-level recesses. Asterisks denote statistically significant differences between observed behaviors of teachers at Playworks and comparison schools. * $p < .01$; ** $p < .001$ level. Difference reflects a percentage point increase within implementation year for Playworks schools relative to comparison schools. Substantial differences across years are indicated in bold.

Fourth grade students at Playworks and comparison schools did not differ in significant ways with regard to their enjoyment of recess. Nearly all students at both types of schools reported that they like and look forward to recess (97.3% and 96% at Playworks schools and 95.6% and 96.7% at comparison schools). Students at Playworks were significantly more likely than their comparison schools counterparts to report that they play their choice of game during recess (57.9% of Playworks students reported doing this a lot compared to 45.4% of their counterparts). They were also significantly more likely to report that they play a game that adults want them to play during recess (19.7% of Playworks students reported this happening a lot compared to 10.5% of their counterparts). These results suggest that students at Playworks schools tend to play more games in general when compared to students at comparison schools.

Table F-2
Student Survey: Student Activities

Average and Standard Deviation			
How often do you do the following...	Playwork School Students	Comparison School Students	Difference
Play a game that I want during recess	1.54 (.57)	1.37 (.63)	0.17***
Play a game that adults want me to play during recess	0.83 (.73)	0.63 (.67)	0.20***

Note: Asterisks denote statistically significant differences between Playworks and comparison schools. *** p < .001 level. Scale ranges from 0-Never, 1-Sometimes, 2-A Lot.

Table F-3
Student Survey: Student Activities

How often do you do the following...	% Never		% Sometimes		% A Lot	
	Playworks	Comparison	Playworks	Comparison	Playworks	Comparison
Play a game that I want during recess	3.6	8.1	38.5	46.6	57.9	45.4
Play a game that adults want me to play during recess	36.6	47.6	43.7	41.9	19.7	10.5

Teacher feedback on student activities and behavior during recess was collected from our 2015-16 teacher survey, and the differences in responses tended to follow the pattern seen in 2014-15. The three significant differences between Playworks and comparison schools held relatively constant across the years, indicating little change in student activities at either Playworks or comparison school recesses.

- Teachers at comparison schools reported seeing their students playing on recess equipment or structures (96.7% and 77.9%, respectively) and participating in imaginary games (77.1% and 53.9%) more frequently than Playworks teachers reported seeing these activities.
- Conversely, Playworks teachers saw students were more frequently engaged in playing sports or games with adults, such as the coach or a teacher, than comparison teachers did (62.3% and 11.5%).

Table F-4

Teacher Survey Results: Teacher Reported Perspectives of Student Recess Activities

Percentage of teachers who reported that they Often/Always see their students doing the following during recess:	2014-15			2015-16		
	Playworks Teachers	Comparison Teachers	Diff	Playworks Teachers	Comparison Teachers	Diff
Talking with friends	90.9	96.5	-5.6	na	na	na
Playing games or sports with other students	98.2	93.1	5.1	92.2	91.8	0.4
Playing on recess equipment or structures	78.2	94.4	-16.2*	77.9	96.7	-18.8*
Playing games or sports with adults (including yourself)	63.6	21.0	42.6*	62.3	11.5	50.8*
Playing creative/imaginary games	51.9	75.7	-23.8*	53.9	77.1	-23.2*
Sitting or standing someplace	10.1	13.3	-3.2	8.0	18.0	-10.0
Playing alone	8.3	6.4	1.9	3.9	4.9	-1.0

Note: "na" indicates the question was not asked in 2015-16.

Asterisks denote statistically significant differences between teachers at Playworks schools and comparison schools. * p < .01 level. Substantial differences across years are indicated in bold.

Class Game Time: Similar to 2014-15, all five coaches stated that they provide class game time every week using a rotating schedule to serve all students; so ideally, a student would have class game time every three to four weeks. Two coaches mentioned that they begin class game time with an ice-breaker, followed by a main game. Four of five coaches described class game time as an opportunity for students to learn and practice the games and social skills that they can transfer to recess. When asked to describe some of the successes of class game time, coaches provided the following responses:

- Students were able to transfer their knowledge of games and social skills like high-fives and ro-sham-bo to recess (four of five coaches)
- Teachers and students were engaged in the class game time activities (three of five coaches)

Similar to 2014-15 findings, scheduling class game time continued to be a challenge for coaches. Four out of five coaches mentioned scheduling challenges such as having a full 30 minutes, fitting into teachers' instructional schedules, and teachers needing to cancel or reschedule. Two coaches mentioned that getting teachers and students involved in class game time was sometimes a challenge.

Junior Coach Leadership Program (JCLP): Five of the six Playworks coaches led a JCLP, which typically consisted of 15 students at each school. The coaches reported that their junior coaches (JCs) attend lower grade-level recesses to serve as facilitators. Three of the five said that JCs do this once or twice a week, whereas one coach mentioned that this happens daily, and another coach reported a frequency of once or twice a month. Frequency varied across schools: three of the coaches specifically mentioned that after-school trainings for JCs occur once a week. The main success of the JCLP that was mentioned by three coaches was that JCs develop leadership and social skills.

In 2015-16, no one mentioned recruiting students into the program as a challenge, yet no one mentioned it as a success either. Three coaches mentioned the challenges of either gaining teacher permission for JCs to miss instructional time to serve during K-3 recesses or getting JCs to sign up to do this. The coach who was recently hired faced the challenge of restarting the JCLP late in the year and getting the JCs back on track in terms of training, expectations, and serving at recess.

Twenty-three out of the 77 teachers at the Playworks schools (30%) had at least one student in their class who was a junior coach (JC). Each of the 23 teachers said that the JC serves at lower grade level recesses. Similar to the national study, most teachers gave positive feedback about the JCs. Three-fourths of all teachers agreed that the junior coach helps resolve conflicts at recess. WCPSS JCs appear to have been more likely to facilitate conflict resolutions yet less likely to teach other students games than national study findings (Bleeker et al., 2015).

Table F-5
Playworks Teachers Feedback on Their Junior Coach

Percentage of teachers in agreement that their Playworks junior coach	WCPSS Study (N=23)	National Study (N=106)
Serves at a lower grade-level recess	100	na
Helps resolve conflicts at recess	77.3	66.7
Teaches other students games at recess	69.6	80.2
Is a good role model	69.6	74.4
Has reduced own incidents of conflict with others	65.2	64.4

Note: "na" indicates the question was not asked in the National Study (Bleeker et al., 2015). Tests of significance were not conducted.

After-School Leagues: Four of five coaches offered after-school leagues, which were typically basketball and volleyball leagues. A couple of coaches also offered soccer leagues and one offered football. The coach who was hired late in the school year did not offer any leagues, and did not mention if the previous coach had done so. Coaches mentioned that they recruited students and led practices and league game nights.

Individual coaches mentioned that the leagues were successful because of parent and school support and because they promoted student enjoyment of the sport and gave students a chance to learn skills and to be part of a team. Two coaches mentioned that securing transportation for students after practice and on game nights was a challenge and another two said getting students to show up to practices and games was a challenge (this may or may not be related to transportation issues).

Appendix G

Were teachers more engaged with students at recess in 2015-16 than in 2014-15?

As shown in Table G-1, overall, Playworks teachers were not more engaged with students during recess in 2015-16 than in 2014-15; though their engagement was still higher than what comparison school teachers exhibited. Recess observations show the following results:

- A lower percentage of Playworks teachers were observed modeling positive messages in 2015-16 compared to the previous year, resulting in no difference in this behavior compared to teachers at comparison schools.
- Relative to comparison schools, teachers at Playworks schools were still more actively engaged with students during recess, based on observations of teachers supervising or leading a game (even though observations of this behavior declined among Playworks teachers) or playing with students (observations of this behavior declined among Playworks teachers and increased among comparison school teachers).
- No observed difference in Playworks and comparison school teachers walking around and monitoring students during recess persisted in 2015-16, although this behavior increased slightly among Playworks teachers.

Table G-1

Recess Observation Results: Percentage of Teachers Engaged in Behaviors across Recesses

	2014-15			2015-16		
	Playworks Teachers	Comparison Teachers	Difference	Playworks Teachers	Comparison Teachers	Difference
Supervising/leading a game	41.9	9.8	32.1**	30.4	4.3	26.1**
Playing with students	29.5	9.0	20.4**	32.9	14.8	18.1*
Modeling positive messages	30.7	14.0	16.7*	19.5	15.8	3.7
Encouraging student participation	33.2	21.8	11.4	20.6	16.9	3.7
Walking around monitoring students	48.1	53.8	-5.7	60.9	51.1	9.7

Note: Average percentage of teachers engaged in behaviors across all observed grade-level recesses. Teachers may have been observed engaging in multiple behaviors. Asterisks denote statistically significant differences between observed behaviors of teachers at Playworks and comparison schools. * p < .01 level, ** p < .001 level. Difference reflects percentage point increase or decrease within year for Playworks relative to comparison schools. Substantial differences across years are indicated in bold.

During 2015-16, coaches engaged in a variety of behaviors with students during nearly all recesses (Table G-2). The largest increase was observed in the percentage of recesses where coaches monitored students, which increased by almost a third from the first to second year.

Table G-2
Recess Observation Results: Percentage of Recesses Including Observed Behaviors of the Coach

	2014-15	2015-16	Difference
	Playworks Coach	Playworks Coach	
Playing with students	88.7	97.2	8.5
Encouraging student participation	84.5	97.2	12.7
Modeling positive messages	80.3	97.2	16.9
Supervising/leading a game	80.3	97.2	16.9
Monitoring students	70.4	94.4	24.0*

Note: Observed behavior of coaches across all observed grade-level recesses. * p < .01. Difference reflects the percentage point increase from 2014-15 to 2015-16.

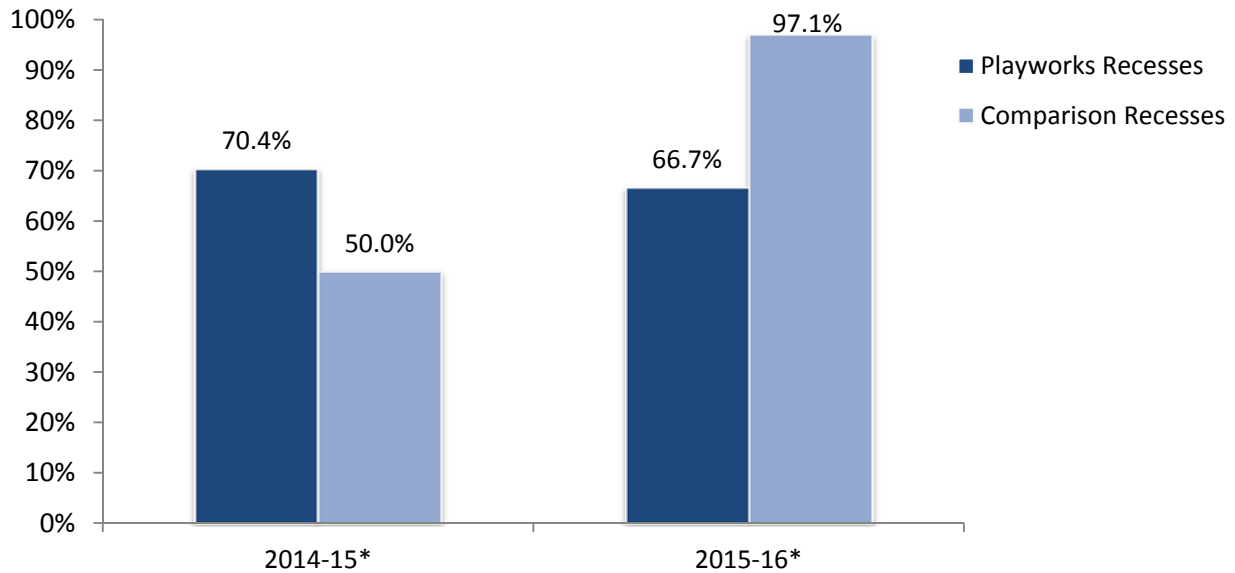
Appendix H

Was there an increase in students showing character building—leadership, positive peer interactions, and conflict resolution skills?

We measured leadership based on our observations of students leading games during recess. In 2014-15, recess games were student-led during a significantly higher percentage of recesses at Playworks schools than comparison schools. Observers saw the inverse of this relationship in 2015-16 due to a large increase in the percentage of recesses with students leading games at comparison schools (50% in 2014-15 to 97.1% in 2015-16).

Figure H-1

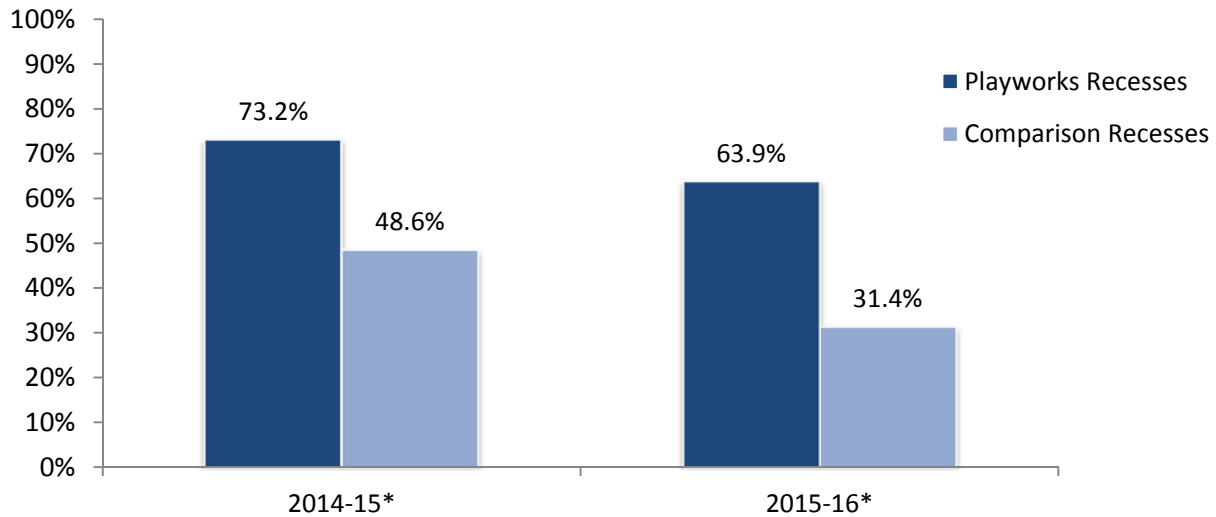
Recess Observation Results: Percentage of Recesses with Students Leading At Least 3 Games



Note: Asterisks denote statistically significant differences between observed behaviors of students at Playworks and comparison schools with the given year. * p < .01 level .

In terms of positive peer interactions, in 2014-15 and 2015-16, relative to comparison schools, students at Playworks schools were observed displaying positive messages, such as high fives, fist bumps, and encouraging language, during a significantly higher percentage of recesses. However, among both groups, this behavior was observed at fewer recesses in 2015-16 than in 2014-15.

Figure H-2
Recess Observation Results: Percentage of Recesses with Students Displaying Positive Messages



Note: Asterisks denote statistically significant differences between observed behaviors of students at Playworks and comparison schools with the given year. * p < .01 level .

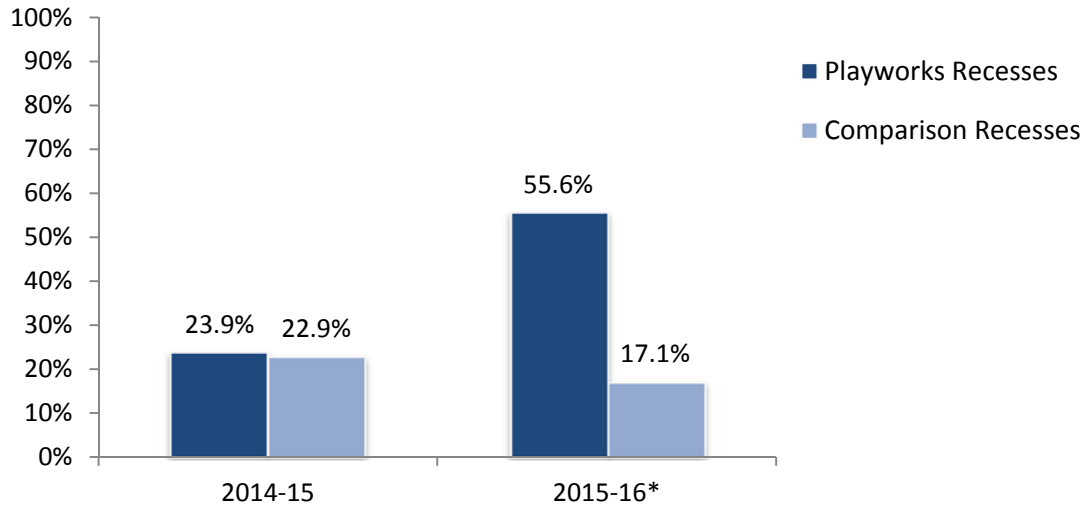
Ro-sham-bo is intended to be the core strategy for resolving conflicts at Playworks schools. As shown in Figure H-3, relative to comparison students, in 2015-16, Playworks students were observed demonstrating conflict resolution strategies, including but not limited to ro-sham-bo, during a significantly higher number of recesses (55.6% compared to 17.1% at comparison schools). This difference is a result of the percentage of Playworks recesses where students used conflict resolution strategies doubling between 2014-15 and 2015-16.

Interestingly, we did not find statistically significant differences in teacher reports of students often/always positively working out problems together or asking them for help resolving a conflict, as shown in Table H-1.

In 2015-16, we also asked fourth grade students attending Playworks schools how often they use ro-sham-bo to resolve conflicts during a normal day at recess. Over half reported that they use ro-sham-bo three or more times during recess, and most students (85.5%) reported using it at least once. Both years, a great majority of Playworks teachers also agreed that their students used conflict resolution skills, like ro-sham-bo, both in class (86.5% in 2014-15 and 82.9% in 2015-16) and during recess (85.6% in 2014-15 and 90.8% in 2015-16).

Figure H-3

Recess Observation Results: Percentage of Recesses with Students Demonstrating Conflict Resolution



Note: Asterisks denote statistically significant differences between observed behaviors of students at Playworks and comparison schools with the given year. * p < .01 level .

Table H-1

Teacher Survey Results: Teacher Reported Perceptions of Student Recess Conflict Resolution

Percentage of teachers who reported that students often/always do the following during recess...	2014-15			2015-16		
	Playworks Teachers	Comparison Teachers	Difference	Playworks Teachers	Comparison Teachers	Difference
Positively work out problems with other students	51.8	47.6	4.2	55.9	53.3	2.6
Ask teachers to help them solve a conflict	36.0	28.0	8.0	32.5	32.8	-0.3

Note: Differences across years were not statistically significant.

Appendix I

Were there fewer student discipline referrals and problem behaviors/bullying and improved student ability to focus on classwork?**Student Discipline Referrals**

Given the inconsistencies in school-level reporting of minor student behavior incidents that we encountered, this study examines changes in reports of major student behavior incidents. Beginning in the 2014-15 school year, all WCPSS schools were expected to use the Student Incident and Referral System (SIRS) to record major incidents, i.e., behavioral infractions resulting in an office discipline referral that required administrative action. Similar to 2014-15, in 2015-16 the largest proportion of major incidents occurred in the classroom. In 2015-16, Playworks schools had significantly higher rates of classroom and total incidents than comparison schools, yet there were large increases within both groups compared to 2014-15.

Table I-1
Number and Percentage of Major Behavioral Incidents on the Playground and in the Classroom, 2014-15 and 2015-16

	2014-15					2015-16				
	Playground Incidents		Classroom Incidents		Total # Major Incidents	Playground Incidents		Classroom Incidents		Total # Major Incidents
	#	% of Total	#	% of Total		#	% of Total	#	% of Total	
Playworks Schools (n=6)	51	8.0%	344	53.8%	640	100	9.0%	605	54.7%	1,107
Comparison Schools (n=6)	81	11.7%	340	48.9%	695	149	11.6%	577	45.0%	1,281

Note: Percentages of playground and classroom incidents are interpreted as the proportion of all major incidents that were reported as occurring at those locations. The remaining incidents occurred at other locations such as the bus, the cafeteria, the hallway, the restroom, the gym and other school areas.

Tables I-2 and I-3 show the total major incident rates for schools that began Playworks implementation in 2014-15⁴. Although the Playworks schools yielded a higher pre-implementation major incident rate than comparison schools, by 2015-16, the group had a lower major incident rate than comparison schools. The rates for both groups increased considerably after two years of implementation.

Table I-2
Major Behavioral Incident Rates Before Implementation, 2013-14

	Pre-Implementation		
	2013-14		
	Major Incident Rate	Total # Incidents	School Membership
Playworks Schools (n=3)	8.0	155	1,934
Comparison Schools (n=3)	5.0	86	1,705

Note: The incident rate is calculated as (# Incidents/School Membership)*100

Table I-3
Major Behavioral Incident Rates After Implementation, 2014-15 and 2015-16

	Post-Implementation					
	Year 1 (2014-15)			Year 2 (2015-16)		
	Major Incident Rate	Total # Incidents	School Membership	Major Incident Rate*	Total # Incidents	School Membership
Playworks Schools (n=3)	14.0	250	1,938	26.7	476	1,783
Comparison Schools (n=3)	15.4	260	1,718	32.4	545	1,683

Note: The incident rate is calculated as (# Incidents/School Membership)*100. Asterisk denotes statistically significant differences between the major incident rate at Playworks and comparison schools in 2014-15. * p < .01 level .

⁴ Brentwood, Fox Road, and Walnut Creek implemented in 2014-15 and 2015-16. We selected these schools for our pre- to post-implementation analysis because we had pre-implementation incident data in 2013-14.

Student Problem Behavior and Bullying

During 2015-16, relative to comparison students, Playworks students were observed:

- teasing peers at significantly fewer recesses (3% for Playworks schools and 26% for comparison schools). The percentage of Playworks recesses that included student teasing decreased somewhat across years; the percentage of recesses at comparison schools that included teasing increased by more than eight fold from the first to second year.
- arguing with peers at slightly fewer recesses (27% during the first year to 22% during the second year), yet Playworks recesses were not statistically different from comparison recesses during either year.
- showing aggression toward peers at more recesses, although the difference was not significant. This behavior increased for both groups across years (13.7 percentage point increase for Playworks schools and 5.7 for comparison schools).

Table I-4

Recess Observation Results: Percentage of Recesses Including Observed Behaviors by Students

Student Behavior	2014-15			2015-16		
	Playworks School Recesses	Comparison School Recesses	Difference	Playworks School Recesses	Comparison School Recesses	Difference
Tease peers	5.6	2.9	2.8	2.8	25.7	-22.9*
Argue with peers	26.8	35.7	-9.0	22.2	20.0	2.2
Show aggression toward peers	14.1	11.4	2.7	27.8	17.1	10.7

Note: Observed behaviors across all observed grade-level recesses. Average percentage of students engaged in behavior across all recesses. Asterisks denote statistically significant differences between observed behaviors of students at Playworks and comparison schools. * p < .01 level; ** < .001 level. Difference reflects percentage point increase or decrease within year for Playworks relative to comparison schools. Substantial differences across years are indicated in bold.

Both years had no statistically significant differences in *teacher reports* of students often/always arguing or teasing or fighting at recess. Interestingly, Table I-9 (item #3) shows that significantly higher percentages of Playworks teachers agreed that arguing/fighting or conflict are reduced when student have structured recess.

Table I-5
Teacher Survey Results: Teacher Reported Perceptions of Student Recess Behavior

Percentage of teachers who reported that students Often/Always do the following during recess...	2014-15			2015-16		
	Playworks Teachers	Comparison Teachers	Difference	Playworks Teachers	Comparison Teachers	Difference
Tease other students about not being good at games/sports	6.3	4.2	2.1	5.2	6.6	-1.4
Get into an argument with other students	18.9	14.6	4.3	15.6	24.6	-9.0
Fight or hit other students	5.4	2.8	2.6	4.0	8.2	-4.2

Note: Differences across years were not statistically significant.

Teacher Reports of Student Bullying

A student bullying/exclusion scale score was calculated by averaging responses to six survey items representing various aspects of behaviors leading to student isolation or exclusion. The average differences between groups were not statistically significant during either year, although both appear to be trending upward.

Table H-6 shows the percentage of teachers who indicated that students reported each of the six measures of bullying and exclusion and the scale score. Findings include the following:

- A significantly lower percentage of teachers at Playworks schools than comparison schools reported student isolation from their peers.
- Additionally, in 2015-16 there was no longer a significant difference between teacher reports of students' fear of being bullied at school, due to an increase in reports from comparison teachers.

Table I-6
Teacher Survey Results: Percentage of Teachers Reporting Student Bullying/Exclusion

In the past 30 days, how often have your students reported to you that they have been:	2014-15			2015-16		
	Once or twice in the past 30 days		Diff	Once or twice in the past 30 days		Diff
	Playworks Teachers	Comparison Teachers		Playworks Teachers	Comparison Teachers	
Hit or pushed by another student during recess	57.4	57.3	0.1	70.1	54.1	16.0
Name-called during recess	58.3	60.4	-2.1	62.3	59.0	3.3
Isolated from their normal peer group during recess	39.3	49.7	-10.4*	33.8	50.8	-17.0*
Bossed or coerced into doing something they didn't want to do at recess	27.1	34.7	-7.6	23.4	29.5	-6.1
Afraid to go to recess for fear of being bullied	8.3	4.9	3.4	11.7	4.9	6.8
Afraid to come to school for fear of being bullied	14.7	4.9	9.8*	10.4	11.5	-1.1
Student Bullying/Exclusion Scale Score	Total Scale Average		Average Diff	Total Scale Average		Average Diff
WCPSS (N=251)	0.63	0.59	0.04	0.68	0.81	0.13
National Study (N=245)	0.6	1.0	-0.5*	na	na	na

Note: The scale in the WCPSS study included responses from 0-3 with 0 representing "never" and 3 corresponding to "3 or more times." The scale in the national study ranged from 0-3 with 0 representing "never" and 3 corresponding to "5 or more times." A higher average scale score indicates a higher frequency of bullying/exclusionary behavior. Asterisks denote statistically significant differences between teacher reports at Playworks and comparison schools. * p < .05 level. Note: "na" indicates that the national study (Bleeker et al., 2015) was conducted in 2014-15 only.

Student Reports of Being Disciplined for Problem Behavior

Six items on the student survey comprised a measure of the punishments students received for their problem behavior. We examined averages and standard deviations for each item and also calculated a Student Behavior Scale Score, which is an average across the six items for each student. Higher averages suggest that students experienced the behavior more frequently throughout the year.

Students predominately reported that these behaviors never occurred or if they did occur, they did so only once or twice during the school year. Still, the scale score means for Playworks and comparison schools were statistically different indicating that Playworks students reported that the frequency of problem behavior was significantly higher than reports by comparison school students. This finding differs from the national study (Bleeker et al., 2015) in which no significant mean difference was found.

Table I-7
Student Survey: Student Behavior

During this school year, how often have you	Average and Standard Deviation		Difference
	Playworks School Students	Comparison School Students	
Gotten in trouble for something that happened during recess	0.58 (.80)	0.51 (.70)	0.07
Had to sit out at recess for bad behavior	0.38 (.69)	0.32 (.62)	0.07
Been sent to the principal's office for doing something wrong during recess	0.14 (.48)	0.05 (.22)	0.09***
Been sent to principal's office for bad behavior in the classroom	0.26 (.67)	0.12 (.39)	0.14***
Had to stay after school or sit by yourself at lunch because of bad behavior	0.43 (.76)	0.18 (.46)	0.25***
Been suspended from school	0.12 (.49)	0.08 (.38)	0.04
<i>WCPSS Study Behavior Scale Score</i>	0.32 (.46)	0.21 (.31)	0.11***
<i>National Study Behavior Scale Score (Bleeker et al., 2015)</i>	0.3	0.4	-0.1

Note: Asterisks denote statistically significant differences between Playworks and comparison schools.

*** p < .001 level. Scale for WCPSS study: 0 = Never; 1 = Once or Twice; 2 = Three or Four Times; and 3 = Five or More Times during the school year.

Student Transitions After Recess

The percentage of teachers within both groups who reported problematic transitions to learning activities after recess increased considerably in 2015-16 for both groups. Group differences were not statistically significant.

Table I-8

Teacher Survey Results: Percent of Teachers Who Reported Student-Transitions

Think about the most recent school day in which your students participated in recess. In the 15 minutes just after recess, please indicate which, if any, of the following were true:	2014-15			2015-16		
	Playworks Teachers	Comparison Teachers	Diff	Playworks Teachers	Comparison Teachers	Diff
Some students became restless and lost focus on their tasks	28.6	27.9	0.7	57.9	65.4	-7.5
There were incidents of negative behavior toward peers (teasing, name-calling, aggression, or exclusionary behavior)	19.5	16.4	3.1	39.5	38.5	1.0
I spent more time than I would have liked redirecting student misbehavior	24.7	18.0	6.7	50.0	42.3	7.7

Note: Differences across years were not statistically significant.

As shown in Table I-9, classroom teachers at Playworks and comparison schools were asked to respond to eight items to gauge their support for organized play/activities during recess. These activities include traditional sports, new games, and creative play with specified rules and designated spaces for participation that are taught or led by an adult or students.

- Similar to 2014-15, Playworks teachers were significantly more supportive of organized play than comparison school teachers, although their support appeared to have declined in 2015-16.
- Significantly more Playworks teachers agreed or strongly agreed that when students participate in organized play they are more likely have increased physical activity levels and to feel included, and that fights and conflict in the classroom are reduced and the transition back to class is shortened.
- Comparison school teachers were overall less positive about organized play and were more concerned about students losing time for unstructured play.

Table I-9
Teacher Survey Results: Teacher Support for Organized Play

Percentage of teachers who Agree/Strongly Agree with the following statements...	2014-15			2015-16		
	Playworks Teachers	Comparison Teachers	Diff	Playworks Teachers	Comparison Teachers	Diff
1. Participating in organized play/activities during recess helps increase students' physical activity levels.	91.0	62.6	28.4*	90.8	67.2	23.6*
2. Students are more likely to feel included if they participate in organized play/activities during recess.	93.7	62.3	31.4*	88.2	67.2	21.0*
3. When there are organized play/activities during recess, students are less likely to get involved in arguments or fights.	83.8	45.3	38.5*	76.6	50.8	25.8*
4. Conflict in the classroom is reduced if students have participated in organized play/activities during recess.	78.9	40.8	38.1*	75.0	39.4	35.6*
5. The transition back to class after recess is shortened if students have participated in organized play/activities during recess.	66.7	37.4	29.3*	59.7	41.0	18.7*
6. Participating in organized play/activities during recess takes away important time that students have for unstructured play.	35.1	62.9	-27.8*	36.9	68.3	-31.4*
7. Scheduling physical activity programs during the school day takes away important time that students need to focus on academic achievement.	32.4	23.5	8.9	23.4	23.3	0.1
8. It is important for students to have the opportunity to have recess during the school day.	93.7	98.5	1.2	94.8	98.4	-3.6

Asterisks denote statistically significant differences between observed behaviors of teachers at Playworks and comparison schools. * $p < .01$ level .

Appendix J
Did school climate improve?

School climate was measured with seven items on our student survey of 4th grade students at both Playworks and comparison schools. We also analyzed WCPSS Student Engagement Survey (SES) results for 2014-15 and 2015-16 that reflect 5th grade student responses to the same items. Overall results suggest that the school climate between Playworks and comparison schools were not significantly different in 2014-15 and 2015-16.

Table J-1
Student Survey: Fourth and Fifth Grade Student Survey Results, 2014-15-to 2015-16

Percentage of students agreeing with the following statements:	2014-15 5 th Grade		2015-16 5 th Grade		2015-16 4 th Grade	
	Playworks Students	Difference from Comparison Students	Playworks Students	Difference from Comparison Students	Playworks Students	Difference from Comparison Students
At my school, teachers care about students.	94.2	-1.1	91.1	-0.3	95.2	-0.1
My teachers are there for me when I need them.	87.9	1.3	81.7	-4.9	91.7	-4.1
Most teachers at my school are interested in me as a person, not just as a student.	75.8	1.7	72.2	-0.2	82.8	-1.4
I feel safe at school.	79.6	-7.9*	79.1	-7.8*	90.4	0.1
Other students at school care about me.	62.7	-7.6	69.6	-1.4	74.6	-6.5
Students at my school are there for me when I need them.	69.4	-4.7	75.1	-3.8	78.2	-2.3
Students here respect what I have to say.	56.9	-11.5*	61.3	-4.3	65.1	-2.6

Note: Agreement includes “Strongly Agree” and “Agree” response categories.

Bold asterisks denote statistically significant differences between teachers at Playworks schools and comparison schools * p < .01 level .

In addition, we analyzed several items related to school climate from the Teacher Working Conditions (TWC) Survey results from the state administered survey in 2013-14 and 2015-16 and the district teacher’s survey in 2014-15. In 2013-14, a significantly higher percentage of comparison school teachers than Playworks teachers agreed that their students follow rules of conduct. This difference persisted in 2015-16. By 2015-16, there were no longer significant differences across the groups in terms of teacher agreement about the safety of the school environment and the school’s atmosphere of trust and respect.

Table J-2
Teacher Survey: North Carolina Teacher Working Conditions (NC TWC)
and WCPSS Teacher Survey Results, 2013-to 2015-16

	NC TWC Survey 2013-14			WCPSS Teacher Survey 2014-15			NC TWC Survey 2015-16		
	Playworks School	Comparison School	Diff	Playworks School	Comparison School	Diff	Playworks School	Comparison School	Diff
Percentage of teachers agreeing with the following statements:									
Students at this school follow rules of conduct.	65.2	78.3	-13.1*	na	na	na	51.4	67.7	-16.3**
The faculty work in a school environment that is safe.	95.6	95.6	0.0	73.0	90.0	-17.0**	89.0	89.0	0.1
There is an atmosphere of trust and mutual respect in this school.	68.8	77.1	-8.3*	60.4	73.8	-13.4**	66.2	74.7	-8.5
Which aspect of your teaching conditions is most important to you in promoting student learning?									
Managing student conduct	17.8	11.1	6.8	na	na	na	21.2	16.6	4.6
Total Responses	319	225		282	261		290	263	

Note: Agreement includes “Strongly Agree” and “Agree” response categories.

Bold asterisks denote statistically significant differences between teachers at Playworks schools and comparison schools * p < .01 level ** p < .001 level. “na” indicates the question was not asked on the WCPSS TWC Survey.