

# A Research-Based Case for Recess: Position Paper (2019)

US Play Coalition in collaboration with  
American Association for the Child's Right to Play (IPA/USA)  
and the Alliance for Childhood



*A partnership to promote the VALUE OF PLAY throughout life*



# A Research-Based Case for Recess: Position Paper (2019)

Olga S. Jarrett, Ph. D, Professor Emerita, Georgia State University

US Play Coalition in collaboration with  
American Association for the Child's Right to Play (IPA/USA)  
and the Alliance for Childhood

**The recess issue.** Breaktime --- playtime --- recess --- this is how various countries describe what is often the favorite part of the child's school day. Recess provides a break from academics and a time when children can organize their own games, play on playground equipment, run and chase each other, carry on cultural traditions of clapping games or jump rope rhymes, dig in the dirt/sand, investigate nature, or talk with their friends. Compared to the rest of the school day, recess is a time when children have more freedom to choose what they want to do and with whom, as long as it is safe and appropriate. For many children, recess is their favorite time in the day and "it may be the only time in the school day when they can play without getting into trouble."<sup>1</sup> In 2003, the speaker of Georgia's General Assembly agreed to co-sponsor legislation mandating recess while admitting: "I would not have survived elementary school if it hadn't been for recess."

The **Centers for Disease Control and Prevention (CDC)** define recess as "a regularly scheduled period in the school day for physical activity and play that is monitored by trained staff or volunteers." According to the CDC, "during recess, students are encouraged to be physically active and engaged with their peers in activities of their choice, at all grade levels, kindergarten through 12<sup>th</sup> grade." To the CDC, recess is a health issue.<sup>2</sup>

The purpose of this position paper is to explore the current state of recess, identify best recess practices, and disseminate effective ways to advocate for recess.

**Who gets recess?** Article 31 of the UN Convention on the Rights of the Child states that children have the right to play. Many other countries, some of them top-ranking in standardized tests, give their children more frequent or extensive play breaks than does the United States. English primary children have breaks in the morning and in the afternoon as well as a long lunch break. Japanese children get 10-20-minute breaks between 45 minute lessons or five minute breaks and a long lunch. Finnish and Turkish children have 15 minutes of play after each 45 minutes of work. Ugandan students have an eight-hour school day, but they have a half hour of play in the morning, one hour for lunch and play, and 1.5 hours of afternoon activity time (sports, music, art, free-choice playtime).

In the U.S., policy and practice vary considerably from state to state and from school to school. Over the past 20-30 years, recess has been cut back in some schools and completely cut at others. On a 1989 survey of state superintendents conducted by the National Association of Elementary School Principals (NAESP), 96% of school districts reported they had recess.<sup>3</sup> However, in the next 10 years, the number of schools with recess had decreased. By the late 1990's, the lack of recess in many schools received considerable notoriety. A front-page article in *The New York Times* pictured a school built without a playground and quoted Atlanta Public School Superintendent Benjamin O. Canada as saying: "We are intent on improving academic performance. You don't do that by having kids hanging on the monkey bars."<sup>4</sup> No Child Left Behind's (NCLB) focus on test scores resulted in cutbacks in both the arts and in physical activity.

According to official figures provided by school systems following the enactment of NCLB, 20% of U.S. school systems decreased recess time, averaging recess cuts of 50 minutes per week.<sup>5</sup> In 2008, National Center for Educational Statistics (NCES) data from 173 randomly selected school districts found that 5.3% reported increases in recess while 32.3% reported decreases.<sup>6</sup> A study conducted in 2006 indicated 57% of school systems claimed to require regularly scheduled recess in elementary school.<sup>7</sup> However, according to a study published in 2011, only 40% of school systems had an explicit recess policy.<sup>6</sup>

School systems may claim on surveys they *have* recess when they *sometimes* have it. But *who* actually gets recess is another matter, and it may have social justice implications. For example, in a randomly selected sample of children on a randomly selected school day in 2002, researchers found that 79% of the children had recess. But only 61% of the African American students and 75% of other minority students had recess compared to 85% of white students. Also, only 56% of those living below the poverty line had recess compared to 83% of those above the poverty line.<sup>8</sup> In another example, in 2003, Atlanta area school systems with high percentages of white suburban children had recess, whereas school systems with high percentages of African American children had no recess.<sup>9</sup> In a survey of 1,055 schools, the Robert Wood Johnson Foundation (2007) also found disparities between the recess haves and have-nots.<sup>10</sup> Length of recess was affected by school size, location, region, minority enrollment, and eligibility for free and reduced-price lunch. Large, urban, Southeastern schools with high poverty and high minority populations had the least recess, sometimes none at all. Children attending private schools have 30 minutes more recess a week than children attending public school.<sup>11</sup>

Although many children in the U.S. still do not get daily recess, in the past ten years, there have been some encouraging signs. Some school systems have since re-instated recess. Chicago public schools lengthened the school day to allow for 20 minutes of mandated recess.<sup>12</sup> Some schools in Oklahoma and Texas have begun to have recess four times a day, inspired by Finnish

schools,<sup>13</sup> and a school district on Long Island doubled its recess to 40 minutes a day.<sup>14</sup>

Atlanta area school systems with policies forbidding recess twenty years ago have since changed their policies to allow or require recess. In 2017, the Atlanta Board of Education, moved by the testimony of an elementary school student, approved a policy mandating 20-minute, unstructured recess breaks for students through grade eight while prohibiting the withholding of recess as punishment. However, this policy did not completely eliminate the denial of recess as punishment as noted below.

### **Prohibition of withholding of recess or the use of physical activity as punishment.**

The American Academy of Pediatrics, as well as leading national associations for school administrators, educators and parents, do not recommend withholding recess as punishment (to be discussed further in the “Supporters of Research” section). Unfortunately, the practice of denying recess as punishment still runs deep. The student who got recess reinstated in Atlanta schools is unhappy because his principal found a way around the spirit of the mandate, allowing 20 minutes that can’t be taken away but scheduling 25 minutes so that teachers can take away five minutes as punishment. Surveys conducted by the author with student teachers and new teachers in high poverty schools (2011-2014) found that taking away recess was widely used for punishment.<sup>15</sup>

Some states both with and without recess mandates have requirements against either *withholding* physical activity (e.g., “standing on the wall” during recess) or *requiring* activity (e.g., running laps) as punishment. As of 2016, Connecticut and Colorado prohibit denying physical activity (e.g., recess) as punishment; and Oregon, Delaware, West Virginia, and Arkansas prohibit using physical activity (such as running laps) as punishment. Seven states plus the District of Columbia have laws prohibiting both kinds of punishment. They are North Carolina, New York, Massachusetts, Louisiana, Hawaii, California, and Alabama.<sup>16</sup> Often decisions on using recess deprivation as punishment are made at the school level. One study found that children were

deprived of recess for poor behavior or academic reasons in approximately 73% of the over 1900 schools surveyed but that requiring physical activity as punishment was rare.<sup>17</sup>

**Recess legislation.** The most recent comprehensive report of state requirements through 2015 was compiled by *Shape of the Nation*.<sup>16</sup> Since then, there have been several more states that mandated recess or explicitly *allowed* inclusion of recess in the instructional day. Many of those states consulted with the American Association for the Child's Right to Play (IPA/USA) as part of their recess campaign. Unfortunately, recess bills in Georgia and Texas were vetoed by their governors in 2019.

- Delaware<sup>16</sup> (2005) requires daily recess for elementary students but does not specify duration.
- Virginia<sup>16</sup> (2006) state board rule required 20 minutes of recess daily and 2018 legislation<sup>18</sup> allows schools to spend about 50 minutes of their instructional day in recess/downtime.
- Hawaii<sup>16</sup> (2006) Wellness Guidelines mandate at least 20 minutes of daily recess not withheld as punishment.
- Indiana<sup>16</sup> (2006) requires daily physical activity for elementary school students that may include recess.
- Missouri<sup>16</sup> (2009) requires a minimum of a 20-minute recess period per day and at least 150 minutes per week of physical activity (recess and physical education).
- Michigan<sup>16</sup> (2012) State Board of Education recommends at least 30 minutes of physical activity including at least 20 minutes of recess and/or activity breaks for all grades.
- Connecticut<sup>16</sup> (2013) – state law requires at least 20-minute daily periods of physical exercise for K-5 students.
- Vermont<sup>16</sup> (2015) requires a minimum of 30 minutes per day of physical activity time for elementary school --- high school. May include recess but cannot replace physical education.
- Colorado<sup>16</sup> (2015) has no weekly requirements for recess but requires 600 minutes a month for physical activity opportunities for elementary school that can include recess.
- North Carolina<sup>19</sup> (nd) state survey reported

that 30 minutes of daily recess are required in elementary school and at least 30 minutes per day of physical activity are required in elementary and middle school/junior high.

- Rhode Island<sup>20</sup> (2016) requires at least 20 minutes of recess a day.
- Tennessee<sup>21</sup> (2017) after requiring at least three 15 minute periods a day for grades K-1, two 20 minute periods at least 4 days a week for grades 2-6 and 90 minutes per week for grades 7-12 of unstructured physical activity (2016), the law was weakened to require up to 130 minutes a week of physical activity for elementary school, not necessarily free play.
- Florida<sup>22</sup> (2017) requires at least 20 consecutive minutes of free-play recess a day. Does not apply to charter schools and does not specify outdoors.
- Arizona<sup>23</sup> (2018) required two recess periods a day for K-3 initially, with fourth and fifth grades to be added in 2019.
- New Jersey<sup>24</sup> (2018) requires at least 20 minutes of recess daily for all children grades K-5, outdoors, if feasible. Students cannot be denied recess for any reason other than a violation of the code of student conduct including harassment, intimidation, or bullying. The recess requirement begins during the 2019-2020 school year.
- Arkansas<sup>25</sup> (2019), passed a bill requiring 40 minutes of recess a day.

**Benefits of recess.** Recess is “a break from instruction, a chance to freely move, run, and play; unstructured time where kids control their own activities.”<sup>16</sup>

According to the **American Academy of Pediatrics**, recess is “a necessary break in the day for optimizing a child’s social, emotional, physical, and cognitive development.”<sup>26</sup> There is no other time in the school day that has this range of benefits.

**Academic and classroom management benefits of recess.** Employees, from factory workers to long distance truck drivers to legislators, have breaks built into their schedules to promote mental alertness. Students require breaks for the same reason.

**Brain research** on attention suggests why breaks are needed: (a) the brain cannot maintain attention for long periods of time, requiring contrast (such as a new location or novel stimuli) to regain focus; (b) for information to be processed, down time is needed to recycle chemicals crucial for long-term memory formation; and (c) attention is cyclical, involving 90-110 minute rhythmical patterns throughout the day.<sup>27</sup>

Teachers, parents, and community leaders often wonder whether recess influences test scores. Research on physical activity indicates that activity before testing is beneficial.<sup>28</sup> There is little research that compares the same children with and without recess, and there is no longitudinal research that examines the long-term effects of recess deprivation. It would be unethical to deprive children of recess over the years just to examine the long-term effects. Hopefully, children who are deprived of recess one year might have recess the next year. So, conclusions about recess need to be pieced together from a variety of studies.

In research with fourth-graders, children were less fidgety and more on-task when they had recess. Also, children with hyperactivity were among those who benefited the most.<sup>29</sup> These results are consistent with the findings of a meta-analysis of nearly 200 studies on the effect of exercise on cognitive functioning that suggest physical activity supports learning.<sup>30</sup> Other studies indicate that children perform better on literacy tasks after they have had recess<sup>31</sup> and that children raise their hands more often after recess breaks.<sup>32</sup>—Research with third, fourth and fifth graders, tested before and after recess, found

increases in their sustained attention after recess;<sup>33</sup> and 12 fifth graders in another study significantly increased on-task behavior after recess.<sup>34</sup>—The Centers for Disease Control and Prevention issued a report in 2010 that explored the associations between school-based physical activity and academic performance. Of the eight recess studies they reviewed, six tested the effect of interventions on various aspects of academic performance (attention/ concentration), and two explored relationships between recess and on-task behavior. Each of the studies found at least one positive relationship between having recess and some aspect of classroom behavior. None found negative effects of recess.<sup>35</sup>

Improvements in on-task behavior and attention after breaks strongly suggest recess might improve achievement. At the very least, it suggests that abolishing recess to include more instructional time in the school day might be counter-productive. A Canadian study compared attitudes, achievement, and fitness before and after the school system decided to devote a third of the school day to physical activity, art, and music.<sup>36</sup> Though there was less time for academics, student test scores increased slightly, and attitudes and fitness increased significantly.

A few studies have examined relationships between recess and behavior or achievement, but their conclusions are confounded by socio-economic status. Researchers found teachers rate children's behavior as better when the children have at least 15 minutes of recess per day,<sup>37</sup> but the schools with fewer than 15 minutes of recess a day tend to be high-poverty schools where teacher turnover and economic deprivation are correlated with behavior issues. Another study found two schools that abolished recess subsequently had lower test scores than a school that kept recess,<sup>38</sup> suggesting that abolishing recess does not raise scores. However, the two schools that abolished recess served more children in poverty, making comparisons difficult. Clearly, more controlled research is needed. Recess plays an important role as a change of pace from academics. But that is not its only purpose.

**Physical benefits of recess.** Obesity of children ages 2-19 increased three-fold between 1980 and 1999. In a 2008 ethnic comparison of children ages 2-19, 20.8% of Mexican American children, 20% of black children, and 15.3% of white children were found to be obese.<sup>39</sup> Although cause and effect cannot be assumed, the ethnic groups with the highest incidence of childhood obesity are also those least likely to get recess.

The Robert Wood Johnson Foundation concluded from the body of research on activity in various settings that *opportunity* for physical activity is higher during recess than at other times of the day, with 42% of the activity occurring at recess, 32% during physical education (PE), and 26% during after-school programs/activities.<sup>10</sup> Of great concern is the finding that children who do not have the opportunity to be active during the school day do not tend to compensate after school. Experimental research has found that children were less active after school on days when they had no recess and PE classes in school,<sup>40</sup> suggesting that inactivity breeds inactivity.

There is considerable research on ways to increase physical activity by organizing games, encouraging teachers to participate in play with the children, experimenting with the timing of recess and lunchtime, varying the amount of structure during recess and using playground markings to encourage games. These experiments are assessed by accelerometers,<sup>41,42</sup> fitbits,<sup>43</sup> GPS<sup>42</sup> and observers.<sup>44</sup> One study established that “reinforcement, self-monitoring, goal setting, and feedback” increased number of steps by 47%.<sup>43</sup> A comparison between unstructured (no equipment) and semi-structured (equipment and games) recess found that children did not differ in level of enjoyment but took more steps (measured by accelerometer) during semi-structured recess.<sup>45</sup> And the use of moveable/ recycled materials during lunchtime recess increased physical activity and enjoyment compared to a control school.<sup>46</sup> A program called Ready for Recess used accelerometers to determine the effect of staff training, play equipment, or both with mixed results.<sup>47, 48</sup> However, increasing activity is only one of the purposes of recess.

"The playground during recess is one of the few places where today's children can actively confront, interpret, and learn from meaningful social experience."

- Tom Jambor, Ed. D.

**Recess and Social Competency.** According to Jambor, "The playground during recess is one of the few places where today's children can actively confront, interpret, and learn from meaningful social experience."<sup>49</sup> Much of what children do during recess, including the sharing of folk culture,<sup>50, 51</sup> deciding what is fair, making choices, and developing rules for play, involves the development of social skills, opportunities that may be missed by children who don't have recess. One young girl at a school without recess was asked on a local TV program whether she would like to have recess. Her response? "No, because then I would have to make up my own games and that would be boring." Some physical education teachers assign students the task of designing their own games<sup>52</sup> which can then be played at recess. Other children adapt games they learned in PE.<sup>53</sup> Educators and counselors have asserted that in organizing their own games, children learn respect for rules, self-discipline, and control of aggression;<sup>52</sup> develop problem solving and planning strategies;<sup>53</sup> practice leadership, resolve conflicts, develop an understanding of playing by the rules;<sup>54</sup> and associate with children of other ethnicities.<sup>55</sup>

Research on an urban low-income elementary school playground employed a checklist to explore what children did during recess.<sup>53</sup> Observations of first, third, and fifth-graders over several months found that they played games they learned in PE, made up their own games (including a rough game they called "Jerry Springer") chased one another, engaged in rough and tumble play, jumped rope, played clapping games, used the playground equipment constantly, played softball with their teacher, talked with their friends, and exhibited very little negative behavior. The students in one

class had created a book on how to play games they learned from their grandparents and other older community members and played some of those games during recess. Generally, three teachers were assigned to supervise, two of whom often chatted while the third chose to play ball games with the children. The same checklist with middle-schoolers (playing on a strip mall parking lot) found creative use of the space and very little negative behavior.<sup>58</sup> Using similar methodology on an urban parochial school "playground" without playground structures, another study found comparable results, including children chasing one another, playing games, and engaging in little negative behavior.<sup>59</sup> In a separate study, one researcher noted the only negative behavior occurred, not during play, but during lining up.<sup>50</sup> Two ethnographic studies noted rich discourse and opportunities to negotiate moral dilemmas during recess.<sup>60 61</sup>

Game playing can occur in the classroom as well as on the playground. However, according to some researchers, game playing in the classroom is typically in a "closed setting" where the children cannot withdraw from the game.<sup>62</sup> Recess provides a more "open setting" where children are free to leave the play situation. In open settings, children must learn to resolve conflicts to keep the game going, resulting in low levels of aggression on the playground.<sup>59 62</sup> Interviews with fourth-graders suggest recess may be the only opportunity for some children to practice their social skills with other children.<sup>63</sup> Many classrooms allow very little interaction. Furthermore, latchkey children, who lock themselves at home after school with TV and computer games as companions, often have no peer interactions once they leave school.

An important aspect of play is the ability to choose and make decisions. One study found that 8-9 year-olds were able to set goals for their recess experience that included achievement, social relationships, and the need for fun and challenge.<sup>62</sup> In interviews on the difference between PE and recess, the children's dominant response was that recess involved choice of activities and play partners, whereas in PE they were told what to do and with whom. Some of the children noted recess was the only time of the day

when they could make choices and that the ability to choose made them feel respected.<sup>64</sup>

Recess provides an excellent opportunity for learning and practicing social skills. Children who have had recess each year gain a lot of practice in organization, cooperation, conflict resolution, and leadership. Students who have long been deprived of recess may not know how to behave when recess is introduced or reinstated. In an urban public school, researchers noted many children with challenging recess behaviors at the beginning of the year made dramatic progress over the year, becoming happier and easier to get along with due to the attention and support of the staff.<sup>65</sup> Some schools train peer coaches as conflict managers<sup>66</sup> and play partners to help individual students manage their own behaviors.<sup>67</sup> And, bullying can better be dealt with during recess than at other places (restrooms and school buses) where bullying is like to occur. There is evidence that playground interventions generalize to better behavior in other settings. Learning social skills is an important outcome of recess.

**Recess Programs.** The following are examples of programs have been designed to help elementary schools facilitate recess:<sup>68</sup>

**Peaceful Playgrounds<sup>69</sup>** is a nonprofit in its 21<sup>st</sup> year. It offers courses on playground supervision, resources for grant writing, free rainy-day ideas, and sale of game stencils. Peaceful Playgrounds has also been evaluated to determine whether playground markings increased children's physical activity and prosocial behaviors. Yes, but in the two studies reviewed, the control group also made changes, contaminating the results.<sup>70 71</sup>

**Playworks<sup>72</sup>**, also a nonprofit over 20 years old, trains recess coaches to work specifically in low income schools where they organize games and teach conflict resolution during recess, hold physical activity sessions in classrooms, train teachers and junior coaches (4<sup>th</sup> and 5<sup>th</sup> graders), and organize after-school programs for children not traditionally involved in sports. Their website offers free game ideas. There has been considerable research on Playworks programs that show benefits such as less conflict and bullying, more vigorous physical activity, smoother transitions, and approval of teachers and

principals.<sup>73 74</sup> Massey, et al.<sup>75</sup> identified five Playworks strategies that could be successfully employed in other schools as well: training peer coaches, introducing classroom physical activity breaks in addition to recess, engaging non-active children in active after school programs, encouraging adults to participate in recess, and recruiting leaders willing to engage with the youth.

**LiiNK<sup>76</sup> (Let's Inspire Innovation 'N Kids)**, inspired by recess in Finland, was initiated in 2013. Teachers are prepared by three days of training. Children in LiiNK schools have four unstructured outdoor recess breaks a day for whatever they want to do, "role play, physical activity, sitting and reading, socializing, imagining, or just reflecting."<sup>76</sup> Rhea concludes children are happier with multiple recesses and that learning games and how to play fair can be useful especially for children not experienced with recess, with the caveat that structured activities should not be required and that children also be allowed to organize their own games, play on playground equipment, and simply socialize.<sup>76</sup>

**Ready for Recess** focuses on increasing moderate to vigorous activity during recess with an intervention program involving staff training, *or* providing recreational equipment, such as balls, hula hoops, frisbees, bases, and cones, *or* a combination of the two.<sup>47 48</sup> Results were mixed, with children benefitting from a combination of staff training and equipment but the intervention was uneven across groups.

**Lunchtime Enjoyment Activity and Play (LEAP)** is a lunchtime play intervention that added recyclable materials such as boxes, tires, hoses, buckets, exercise mats and hay bales as well as balls, hoops, and skipping ropes to the play area and found the children increased their activity level.<sup>46</sup>

**Zoning** is an additional intervention where sections called "zones" are designated on the playground for different types of activities during recess. Creating zones, increased activity for both boys and girls.<sup>77</sup>

#### **Middle/Secondary School Recess**

The CDC recommends recess-type breaks through high school.<sup>78</sup> The form of such breaks can be different from elementary school recess. A Danish school has recently redesigned a "playspot" for

11-14 year olds.<sup>79</sup> And one Minnesota high school, is giving students "big kid recess," breaks extending lunchtime to play games, chat with friends, or go to the gym.<sup>80</sup> No states have yet mandated high school recess-type breaks, but the need for down-time among high school students is obvious.

## **SUPPORTERS OF RECESS**

The U.S. Play Coalition, the Alliance for Childhood, the International Play Association: Promoting the Child's Right to Play (IPA), and the American Association for the Child's Right to Play (IPAUSA) are strong supporters of recess.

The following organizations, representing classroom teachers, PE teachers, elementary and middle school principals, early childhood specialists, parents, and pediatricians, have also made major pro-recess statements (each detailed below the box):

- National Association for the Education of Young Children (NAEYC)
- National Association for Sport and Physical Education (NASPE)
- National Association of Early Childhood Specialists in State Departments of Education
- National Association of Elementary School Principals
- American Academy of Pediatrics
- Society of Health and Physical Educators (SHAPE)
- National Parent Teacher Association
- American Heart Association/American Diabetes Association/ American Stroke Association
- American Federation of Teachers
- National Education Association



- ◆ **National Association for the Education of Young Children (NAEYC) – 1997<sup>81</sup>** Children need “unstructured outdoor play,” i.e. recess.
  - ◆ **National Association for Sport and Physical Education (NASPE) – 2001<sup>82</sup>** Recommends daily recess for preK - fifth or sixth grade, not used as a reward or denied as punishment.
  - ◆ **National Association of Early Childhood Specialists in State Departments of Education<sup>83</sup> (NAECS/SDE) – 2001** Recess is the right of every child, and preschool and elementary school children must have regular periods of active, free play with peers.
  - ◆ **National Association of Elementary School Principals – 2010<sup>84</sup>; 2017<sup>85</sup>** “Recess is a vital component to student well-being and success.” Planning includes training staff and volunteers, teaching conflict resolution, ensuring safety standards, providing enough equipment, and adding playground markings.
  - ◆ **American Academy of Pediatrics – 2013<sup>86</sup>** Daily recess is a child’s personal time which should not be withheld for academic or disciplinary reasons.
  - ◆ **Society of Health and Physical Educators (SHAPE) – 2013<sup>87</sup>** Provide daily elementary school recess of not less than 20 minutes and extend lunch in secondary school to allow physical activity breaks. **2009<sup>88</sup>** Not appropriate to administer or withdraw physical activity as punishment.
  - ◆ **National Parent Teacher Association – 2013<sup>89</sup>** Supports at least 20 minutes of recess a day, not to be denied for academic or disciplinary reasons.
  - ◆ **American Heart Association/American Diabetes Association/ American Stroke Association – 2016<sup>90</sup>** Supports daily elementary school recess for at least 20 minutes.
  - ◆ **American Federation of Teachers – 2017<sup>91</sup>** Supports no less than 30 minutes of recess daily.
  - ◆ **National Education Association – 2019<sup>92</sup>** Will pursue strategies to publicize the importance of recess and free play, especially in PreK through eighth grade.
- Recess Policy.** The CDC has developed five resources, as well as a recess brief,<sup>93</sup> that are helpful as schools plan for recess. They are highly recommended.

## RECESS RECOMMENDATIONS

The following are based on the beliefs of the sponsoring organizations of this paper, the positions of the aforementioned recess supporters, and research findings presented in this document:

1. Every child, Kindergarten through high school,<sup>78</sup> should have at least 20-40 minutes of recess each day. Two or more breaks are preferred. Planning is needed on what recess could look like at the high school level.
2. If recess is held at lunch time it should be held before rather than after lunch.<sup>78</sup>
3. Play equipment and materials (game markings, “loose parts” such as balls, jump ropes, hula hoops, and even recycled materials like boxes, soda bottles, and cardboard tubes) should be available during recess. Choices promote activity and decrease negative behavior.
4. “Recess is a time that is unstructured and undirected by adults.”<sup>94</sup> Children should be able to engage in activities of their own choosing<sup>78</sup> that allow “down time” including vigorously active (e.g., swinging and playing ball) and more sedentary activities (e.g., socializing, digging in sand).
5. Physical Education teachers or playworkers should teach games that children can then adapt for recess. Recess supervisors should be trained on playground safety and ways to make recess fun. It is appropriate for adults to sometimes join in the children’s play. Children should be shown ways to include others and resolve conflicts.
6. To best ensure that all children have recess, pass laws at the state level to mandate recess and not allow it to be taken away as punishment.

**Taking action.** Decisions about recess are made at many levels: classroom, school, school system, or state. However, a study examining state requirements found that schools were more apt to have recess if state law at least encouraged it.<sup>95</sup> Also, teachers were less apt to deprive children of recess if there were policies against it.<sup>17</sup>

The following actions by a variety of advocates could help insure all children have recess:

*Organizations:* The organizations with positions supporting recess, including the sponsors of this position paper, are in an excellent position to publicize their position and give expert testimony where recess-supporting decisions are being made.

*Researchers:* More research is needed, especially on the effect of recess or different types of recess on student learning, test-taking success, problem solving ability, empathy, and classroom management. Research on the value of recess specifically for middle and high school aged children is also needed.

*Parents and concerned citizens:* Recess advocates have changed recess policy through letter-writing campaigns, petitions, visiting school board meetings, and talking with many people. The mother who convinced the Virginia Board of Education to require recess did not have a child in the public school system. She succeeded by creating a network of people who gathered signatures on a recess petition. The common good requires people be concerned not only about their own children, but also about other people's children. Being a recess advocate benefits society.

*Teachers:* If you have been using recess deprivation as punishment, do your own action research on its effects. Do children behave better or worse after being deprived of recess? Find alternatives to depriving recess as punishment on the Peaceful Playground website.<sup>69</sup> Share research on recess with your principal.

*Principals, superintendents, and policy makers:* Inform yourself on what the research says about the value of recess. This position paper includes many of the studies showing the benefits of recess. Make research-based decisions on recess policy.

*Students:* Children can make a difference on an issue that directly affects them like recess. By

taking action through debates, petitions, making signs, and writing articles/letters in school as well as community newspapers, children can learn about political action and empowerment. Some students have tried to get recess reinstated in their school as a classroom project.<sup>96</sup> Children's data collection during recess could become a science fair or social studies fair project and the advocacy could lead to political involvement. The second grader, mentioned earlier, convinced his mother to become a recess advocate, and they testified together at a local school board meeting and at the state legislature.

## IN CONCLUSION

Advocates for the wellbeing of all children need to be concerned about the number of children deprived of recess. Given the strong evidence suggesting recess meets so many physical, social, emotional, and academic needs, **recess for all is a goal worth pursuing.** State mandates that require daily recess for ALL students seem to be the best way to ensure that every child gets recess.

## REFERENCES

- <sup>1</sup> Jarrett, O. S. (2015). Recess and learning: Research on the effects of recess on children and teachers. In J. Johnson and S. Eberle (Eds.) *Handbook of the Study of Play* (pp. 295-313). Rowman & Littlefield, Publishers, Inc.
- <sup>2</sup> Centers for Disease Control and Prevention (2018). Recess. See <https://www.cdc.gov/healthyschools/physicalactivity/recess.htm>
- <sup>3</sup> Pellegrini, A. D. & Bohn, C. M. (2005). The role of recess in children's cognitive performance and school adjustment. *Educational Researcher*, 34(1), 13-19.
- <sup>4</sup> Johnson, D. (1998). *Many schools putting an end to child's play*. *New York Times*, April 7, 1.
- <sup>5</sup> Center on Education Policy (2008). Instructional time in elementary schools: A closer look at changes for specific subjects. Washington, DC. See <https://www.cep-dc.org/displayDocument.cfm?DocumentID=309>
- <sup>6</sup> Burris, K. & Burris, L. (2011). Outdoor play and learning: Policy and practice. *International Journal of Education Policy and Leadership*, 6(8).
- <sup>7</sup> Lee, S. M., Burgeson, C. R., Fulton, J. E., & Spain, C. G. (2007). Physical education and physical activity: Results from the School Health Policies and Programs Study 2006. *Journal of School Health*, 77(8), 435-463.
- <sup>8</sup> Roth, J., Brooks-Gunn, J., Linver, M., & Hofferth, S. (2002). What happens during the school day? Time diaries from a national sample of elementary school teachers. *Teachers College Record*, ID Number: 11018 - <https://www.tcrecord.org/content.asp?contentid=11018>
- <sup>9</sup> Jarrett, O. S. (2003). Urban school recess: The haves and the have nots. *Play, Policy, & Practice Connections*, 8(1), 1-3, 7-10.
- <sup>10</sup> Robert Wood Johnson Foundation (2007). *Recess Rules: Why the undervalued playtime may be America's best investment for healthy kids and healthy schools*. See <https://www.rwjf.org/en/library/research/2007/09/recess-rules.html>
- <sup>11</sup> IES. National Center for Education Statistics (2007-2008). Schools and staffing. See [https://nces.ed.gov/surveys/sass/tables/sass0708\\_039\\_s12n.asp](https://nces.ed.gov/surveys/sass/tables/sass0708_039_s12n.asp)
- <sup>12</sup> Chicago Public Schools (2012). Adding recess to the school day. See <http://www.nationalacademies.org/hmd/~media/C2C7DF88364E4336A18FA27A55F7542E.ashx>
- <sup>13</sup> Strauss, V. (2016) Why some schools are sending kids out for recess four times a day. See [https://www.washingtonpost.com/news/answer-sheet/wp/2016/09/13/recess-four-times-a-day-why-some-schools-are-now-letting-kids-play-an-hour-a-day/?utm\\_term=.84e25dd5c317](https://www.washingtonpost.com/news/answer-sheet/wp/2016/09/13/recess-four-times-a-day-why-some-schools-are-now-letting-kids-play-an-hour-a-day/?utm_term=.84e25dd5c317)
- <sup>14</sup> Bonner, R. (2016). Long Island School District doubles recess time for K-5, should other districts follow?[poll]. Patch: Sayville, NY. See <https://patch.com/new-york/sayville/long-island-school-district-doubles-recess-time-k-5-should-other-districts-follow>
- <sup>15</sup> Jarrett, O. S., Sutterby, J., DeMarie, D., Stenhouse, V. (2015). Children's play opportunities are not equitable: Access to quality play experiences as a social justice issue. *Spotlight on Play*. Washington, DC: National Association for the Education of Young Children.
- <sup>16</sup> *2016 Shape of the Nation: Status of physical education in the USA*. Download from <https://www.shapeamerica.org/advocacy/son/>
- <sup>17</sup> Turner, L, Chriqui, J. F., Chaloupka, F. J. (2013). Withholding recess from elementary school students: Policies matter. *Journal of School Health*, 83(8), 533541.
- <sup>18</sup> More recess for Virginians. Understanding the recess bill (2018) See <https://morerecessforvirginians.org/wp-content/uploads/2018/04/VA-Recess-Bill-Explanation.pdf>
- <sup>19</sup> Education Commission of the States (2016). See <https://www.ecs.org/wp-content/uploads/SIRRecess2.pdf>
- <sup>20</sup> Steiny, J. 2016). Rhode Island's new law mandates recess for kids. *Education News*. See <https://www.educationnews.org/k-12-schools/rhode-islands-new-law-mandates-recess-for-kids/>

- <sup>21</sup> Tatter, G., 2017. "Tennessee lawmakers revise school recess law to strike the right balance on playtime."  
<https://www.chalkbeat.org/posts/tn/2017/03/20/tennessee-lawmakers-revise-school-recess-law-in-effort-to-strike-the-right-balance-on-playtime/>
- <sup>22</sup> Online Sunshine (2019). The 2018 Florida Statutes. See  
[http://www.leg.state.fl.us/statutes/index.cfm?App\\_mode=Display\\_Statute&URL=1000-1099/1003/Sections/1003.455.html](http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=1000-1099/1003/Sections/1003.455.html)
- <sup>23</sup> Bledsoe, M. A.(2018).Cronkite News – Arizona PBS.  
<https://cronkitenews.azpbs.org/2018/09/17/new-arizona-law-requires-two-recesses/>
- <sup>24</sup> Davis, T. (2018). Gov. Murphy signs 19 bills into law, mandates school recess in NJ. See  
<https://patch.com/new-jersey/manasquan/gov-murphy-signs-19-bills-law-mandates-school-recess-nj>
- <sup>25</sup> Froelich, J. (2019). Public School kids get more recess next school year.  
<https://www.kuaf.com/post/public-school-kids-get-more-recess-next-school-year#stream/0>
- <sup>26</sup> American Academy of Pediatrics (2013). Policy statement: The crucial role of recess in school. *Pediatrics*, 131(1), 183-188, p. 186
- <sup>27</sup> Jensen, E. (2005). *Teaching with the brain in mind, 2<sup>nd</sup> Edition*. Alexandria, VA: ASCD.
- <sup>28</sup> Conyers, M. & Wilson, D. (2015). Smart moves: Powering up the brain with physical activity. *Phi Delta Kappan*, 96(8), 38-42.
- <sup>29</sup> Jarrett, O. S., Maxwell, D. M., Dickerson, C., Hoge, P., Davies, G., & Yetley, A. (1998). The impact of recess on classroom behavior: Group effects and individual differences. *The Journal of Educational Research*, 92(2), 121-126.
- <sup>30</sup> Etner, J. L., Salazar, W., Landers, D. M., Petruzzello, S. J., Han, M., & Nowell, P. (1997). The influence of physical fitness and exercise upon cognitive functioning: A meta-analysis. *Journal of Sport and Exercise Psychology*, 19(3), 249-277.
- <sup>31</sup> Hall, B. N. (2006). An examination of the effects of recess on first graders' use of written symbol representations. (Doctoral dissertation, Auburn University).
- <sup>32</sup> Cady, J. R. (2009). A qualitative case study on the impact of recess and in-class breaks, in the American public schools, through the eyes of elementary school administrators, teachers, and students. (Doctoral dissertation, Capella University).
- <sup>33</sup> Brez, C. & Sheets, V. (2017). Classroom benefits of recess. *Learning Environments Research*, 20(3), 433-445.
- <sup>34</sup> Stapp, A. C. & Karr, J. K. (2018). Effect of recess on fifth grade students' time on-task in an elementary classroom. *iejee: International electronic journal of elementary education*, 10(4), 449-456.
- <sup>35</sup> Centers for Disease Control and Prevention (CDC) (2010). The association between school-based physical activity, including physical education, and academic performance. U.S. Department of Health and Human Services. See [http://www.cdc.gov/healthyyouth/health\\_and\\_academics/pdf/pa-pe\\_paper.pdf](http://www.cdc.gov/healthyyouth/health_and_academics/pdf/pa-pe_paper.pdf)
- <sup>36</sup> Martens, F. L. (1982). Daily physical education—a boon to Canadian elementary schools. *Journal of Physical Education, Recreation, & Dance*, 53(3), 55-58.
- <sup>37</sup> Barros, R.M., Silver, E.J., & Stein, R.E. (2009). School recess and group classroom behavior. *Pediatrics*, 123, 431-436.
- <sup>38</sup> Banner, A. C. B. (2005). A comparative study of the perceptions of elementary school administrators, teachers, and students regarding recess and free play in the public school. (Doctoral dissertation, East Tennessee State University).
- <sup>39</sup> Ogden, C. L., Carroll, M. D., & Flegal, K. M. (2010). A review of prevalence and trends in childhood obesity in the United States. In J. A. O'Dea & M. Eriksen (Eds.). *Childhood obesity prevention: International research, controversies, and interventions* (pp. 84-94). New York: Oxford University Press.
- <sup>40</sup> Dale, D., Corbin, C. B., & Dale, K. S. (2000). Restricting opportunities to be active during school time: Do children compensate by increasing physical activity levels after school? *Research Quarterly for Exercise and Sport*, 71(3), 240-248.
- <sup>41</sup> Beck, J., Chard, C. A., Hilzendegen, C., Hill, J., Stroebele-Benschop, N. (2016). In-school versus

- out-of-school sedentary behavior patterns in U.S. children. *BMC Obesity*, 3:34.
- <sup>42</sup> Pawlowski, C. S., Andersen, H. B., Troelsen, J., Schipperijn, J. (2016). Children's physical activity behavior during school recess: A pilot study using GPS, accelerometer, participant observation, and go-along interview. *PLOS ONE* 11(2).
- <sup>43</sup> Hayes, L. B. & Van Camp, C. M. (2015). Increasing physical activity of children during school recess, *Journal of Behavior Analysis*, 48(3), 690-695.
- <sup>44</sup> Roberts, S. J., Fairclough, S. J., Ridgers, N. D., & Porteous, C. (2013). An observational assessment of physical activity levels and social behavior during elementary school recess. *Health Education Journal*, 72(3), 254-362.
- <sup>45</sup> Larson, J. N., Brusseau, T. A., Chase, B., Heinemann, A., Hannon, J. C., (2014). Youth physical activity and enjoyment during semi-structured versus unstructured school recess. *Open Journal of Preventive Medicine*, 4, 631-639.
- <sup>46</sup> Hyndman, B., Benson, A. C., Ullah, S., & Telford, A. (2014). Evaluating the effects of the lunchtime enjoyment activity and play (LEAP) school playground intervention on children's quality of life, enjoyment and participation in physical activity. *BMC Public Health*, 14, 164.
- <sup>47</sup> Huberty, J. L., Siahpush, M., Beighle, A., Fuhrmeister, E., Silva, P., & Welk, G. (2010). Ready for recess: A pilot study to increase physical activity in elementary school children. *Journal of School Health*, 81, 251-257.
- <sup>48</sup> Huberty, J. L., Beets, M. W., Beihle, A. Saint-Maurice, P. F., Welk, G. (2014). Effects of Ready for Recess, an environmental intervention, on physical activity in third-through sixth grade children. *Journal of Physical Activity and Health*, 11(2), 384-395.
- <sup>49</sup> Jambor, T. (1994, Fall). School recess and social development. *Dimensions of Early Childhood*, 17-20.
- <sup>50</sup> Beresin, A. R. (1993). The play of peer cultures in a city school yard: "reeling," "writhing," and "a rhythmic kick." (Doctoral dissertation, University of Pennsylvania).
- <sup>51</sup> Bishop, J. C. & Curtis, M. (Eds.). (2001). *Play today in the primary school playground*. Philadelphia: Open University
- <sup>52</sup> Leech, T. & Marston, R. (2016). Promoting physical activity beyond physical education by facilitating student-designed games. *Journal of physical education, recreation and dance*, 87(9), 8-13/
- <sup>53</sup> Jarrett, O. S., Farokhi, B., Young, C., & Davies, G. (2001). Boys and girls at play: Games and recess at a Southern urban elementary school. In Stuart Reifel (Ed.), *Play and Culture Studies, Vol. 3: Theory in context and out* (pp. 147-179). Westport, CT: Ablex.
- <sup>54</sup> Schaefer, C. E. & Reid, S. E. (Eds.) (1986). *Game play: Therapeutic use of children's games*. New York: John Wiley & Sons.
- <sup>55</sup> Nichols, B. (1995). Games: The means or the end? In R. L. Clements (Ed.), *Games & great ideas: A guide for elementary school physical educators and classroom teachers* (pp. 3-9). Westport, Connecticut: Greenwood Press.
- <sup>56</sup> DeVries, R. (1998). Games with rules. In D. P. Fromberg & D. Bergen (Eds.), *Play from birth to twelve and beyond: Contexts, perspectives, and meanings* (pp. 409-415). New York: Garland Publishing, Inc.
- <sup>57</sup> Blatchford, P., Baines, E., & Pellegrini, A. (2003). The social context of school playground games: Sex and ethnic differences, and changes over time after entry to junior school. *British Journal of Developmental Psychology*, 21, 481-505.
- <sup>58</sup> Jarrett, O. S. & Duckett-Hedgebeth, M. (2003). Recess in middle school: What do the students DO? In D. E. Lytle (Ed.) *Play and educational theory and practice: Play and culture studies, Vol. 5* (pp. 227-242). Westport, Connecticut: Praeger.
- <sup>59</sup> Holmes, R. M. (2012). The outdoor recess activities of children at an urban school: Longitudinal and intraperiod patterns. *American Journal of Play*, 4(3), 327-351.
- <sup>60</sup> Carmichael, C. M. (2008). On the playground: Discourse, gender and ideology in English learner peer cultures. (Doctoral dissertation, The University of Arizona).
- <sup>61</sup> Huecker, E. M. (2005). Something's happening: Emergence of social worlds on the school

- playground. (Doctoral dissertation, University of Southern California).
- <sup>62</sup> Hartup, W. W. & Laursen, B. (1993). Conflict and context in peer relations. In C. H. Hart (Ed.), *Children on playgrounds: Research perspectives and applications* (pp.44-84). Albany: State University of New York Press.
- <sup>63</sup> Dwyer, S. A. (1999). Exploring children's goals for recess engagement. (Master's Thesis, University of Alberta).
- <sup>64</sup> Maxwell, D. M., Jarrett, O. S., & Roetger, C. D. (1999, January). Recess through the children's eyes. Paper presented at the Conference on Qualitative Research in Education, University of GA.
- <sup>65</sup> Meier, D., Engel, B. S., & Taylor, B. (2010). *Playing for keeps: Life and learning on a public school playground*. New York: Teachers College Press.
- <sup>66</sup> Evans, K. C. & Eversole, D. (1992). Children as conflict managers. *Journal of emotional and behavioral problems*, 1(2), 39-40.
- <sup>67</sup> Nelson, J. R., Smith, D. J., Colvin, G. (1995). The effects of a peer-mediated self-evaluation procedure on the recess behavior of students with behavior problems. *Remedial and Special Education*, 16(2), 117-126.
- <sup>68</sup> Ramstetter, C. & Murray, R. (2017). Time to play: Recognizing the benefits of recess. *American Educator, Spring*, 17-24.
- <sup>69</sup> Peaceful Playgrounds. See <https://peacefulplaygrounds.com/>
- <sup>70</sup> Mayfield, C. A., Child, S., Weaver, R. G., Zarrett, N., Beets, M. W., Moore, J. B. 2017. Effectiveness of a playground intervention for antisocial, prosocial, and physical activity behaviors. *Journal of School Health*, 67, 338-345.
- <sup>71</sup> Elder, J. P., McKenzie, T. L., Arredondo, E. M., Crespo, N. C., Ayala, G. X. (2011), Effects of a multi-pronged intervention on children's activity levels at recess: The aventuras para niños study. *Advances in Nutrition*, 2(2), 1715-1765.
- <sup>72</sup> Playworks. See [www.playworks.org](http://www.playworks.org)
- <sup>73</sup> London, R. A., Westrich, L., Stokes-Guinan, McLaughlin, M. (2014). Playing fair: The contribution of high-functioning recess to overall school climate in low-income elementary schools. *Journal of School Health*, 85, 53-60.
- <sup>74</sup> Playworks (2012). *Research Reveals Playworks Reduces Bullying*. See <https://www.playworks.org/news/research-reveals-playworks-reduces-bullying/>
- <sup>75</sup> Massey, W. V., Stellino, M. B., Claassen, J., Dykstra, S., & Henning, A. (2018). Evidence-based strategies for socially, emotionally, and physically beneficial school recess. *Journal of Physical Education, Recreation & Dance*, 89(5), 48-52.
- <sup>76</sup> Rhea, D. (2016). Recess: The forgotten classroom. *Instructional Leader*, 29(1), 1-4.
- <sup>77</sup> Barnas, J., Wunder, C. II, Ball, S. (2018). In the zone: An investigation into physical activity during recess on traditional versus zoned playgrounds. *The Physical Educator*, 75(1), 116-137.
- <sup>78</sup> Zavacky, F. & Michael, S. L. (2017). Keeping recess in schools, *The Journal of Physical Education, Recreation & Dance*, 88(5), 46-53.
- <sup>79</sup> Christiansen, L. B., Toftanger, M. Powlowski, C. S., Andersen, H. B., Ersb, A. K., & Troeisen, J. (2017). Schoolyard upgrade in a randomized controlled study design--- how are school interventions associated with adolescents' perception of opportunities and recess physical activity. *Health Education Research*, 32(1), 58-68.
- <sup>80</sup> Hinrichs, E. (2017). How is Centennial High supporting students' emotional well-being? 'Big kid recess.' MINNPOST. See <https://www.minnpost.com/education/2017/03/how-centennial-high-supporting-students-emotional-well-being-big-kid-recess/>
- <sup>81</sup> <https://files.eric.ed.gov/fulltext/ED463047.pdf>
- <sup>82</sup> <https://files.eric.ed.gov/fulltext/ED541609.pdf>
- <sup>83</sup> [https://docs.wixstatic.com/ugd/6a47e3\\_dc5c1493685f4f27a55046fcabf039ea.pdf](https://docs.wixstatic.com/ugd/6a47e3_dc5c1493685f4f27a55046fcabf039ea.pdf)
- <sup>84</sup> <http://www.naesp.org/presidents-perspective-march-2010>
- <sup>85</sup> <https://www.naesp.org/communicator-june-2017/5-strategies-recess-planning>
- <sup>86</sup> <http://pediatrics.aappublications.org/content/131/1/183.full>.
- <sup>87</sup> <https://www.shapeamerica.org/uploads/pdfs/2019/advocacy/position->

[statements/pa/Physical-Activity-as-Punishment.pdf](#)

<sup>88</sup> <https://www.shapeamerica.org/uploads/pdfs/2018/advocacy/position-statements/CSPAP-final.pdf>

<sup>89</sup> <https://www.pta.org/home/advocacy/ptas-positions/Individual-PTA-Resolutions/Approved-Convention-Resolutions/2013-Approved-Bylaws-and-Resolutions>

<sup>90</sup> <https://www.heart.org/-/media/files/about-us/policy-research/policy-positions/physical-activity/physical-education-in-schools-policy-statement-aha-acscan-ada.pdf?la=en&hash=C35FE1C137D676C04148AC1A81ED3D8AECBD6488>

<sup>91</sup> <https://www.aft.org/resolution/healthy-student-student-recess-time>

<sup>92</sup> NEA (2019). New Business item 18. <https://ra.nea.org/business-item/2019-nbi-018/>

<sup>93</sup> CDC Healthy Schools. See <https://www.cdc.gov/healthyschools/physicalactivity/recess.htm>

<sup>94</sup> Bohn-Gettler, C. & Pellegrini, A. D. (2014). Recess in primary school: The disjuncture between educational policy and scientific research. In B. H. Bornstein & R. L. Wiener (Eds.), *Justice, conflict, and wellbeing: Multidisciplinary perspectives* (pp. 313-354). New York: Springer.

<sup>95</sup> Slater, S. J., Nicholson, L., Chriqui, J., Turner, L., & Chaloupka, F. (2012). The impact of state laws and district policies on physical education and recess practices in a nationally-representative sample of U.S. public elementary schools. *Archives of Pediatrics & Adolescent Medicine*, 166(4), 311-316.

<sup>96</sup> Stenhouse, V., Jarrett, O. S., Williams, R. F., & Chilungu, E. N. (2014) *In the service of learning and empowerment: Service-learning, critical pedagogy, and the problem-solution project*. Charlotte, NC: Information Age Publishing Inc.

**Olga S. Jarrett**, Ph. D., Professor Emerita of science education in the Department of Early Childhood and Elementary Education at Georgia State University, is a play researcher and recess advocate. She is a past president of The Association for the Study of Play and the American Association for the Child’s Right to play (IPAUSA) and was one of the first US Play Coalition research grant recipients. She is the recipient of four play awards: **Brian Sutton-Smith Lifetime Achievement Award** (for play scholarship and leadership) from The Association for the Study of Play, 2010; **Patricia Monighan Nourot Award** For Building the Foundation of Play Scholarship, NAEYC Play, Policy, and Practice Interest Forum, 2014; **Doctor of Play Award**, IPAUSA, 2016; and the **Joe L. Frost Award for Distinguished Research** U.S. Play Coalition, Clemson, SC, 2018.

Published by:



In collaboration with:

