

Playful Interaction: Occupational Therapy for All Children on the School Playground

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KEY WORDS

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- play and playthings
- socialization

We examined the impact of an intervention on the playfulness of 5- to 7-year-old children who are developing typically. Materials that had no defined purpose were placed on a school playground for 11 weeks. The Test of Playfulness (ToP) was used to compare videotaped play segments pre- and postintervention. Teachers who did playground duty were interviewed regarding changes in play. ToP data were analyzed using a Wilcoxon signed-ranks test. Interview data were analyzed for themes. ToP scores were significantly higher after intervention ($Z = -1.94$; $p = .025$, one-tailed; Cohen's $d = 0.55$). Teachers reported that children were more social, creative, and resilient when the materials were on the playground. Children who were creative, rather than very physically capable, became leaders in activity. Our results revealed a potential role for occupational therapists with typically developing children in schools. This finding has clear implications for children with disability.

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Play has long been known to contribute to the physical, cognitive, emotional, and social development of all children (e.g., Fisher, 1992), but the causal relationships are unclear. In particular, it is unknown which play activities contribute most to children's development or what characteristics of activities make them most valuable. Skard and Bundy (2008) offered a way around this problem by emphasizing children's approach to play—their playfulness—as a necessary complement to the play activities in which they engage. This approach is in keeping with thinking in the general play literature, where play is defined in a dispositional sense (e.g., Barnett, 1990; Rubin, Fein, & Vandenberg, 1983). Following a review of this literature, Skard and Bundy (2008), in an assessment called the Test of Playfulness (ToP), operationally defined *playfulness* as consisting of four elements: (1) intrinsic motivation, (2) internal control, (3) freedom from the constraints of reality, and (4) “framing” (i.e., the giving and reading of cues).

The ToP has been found to yield valid and reliable results with children who are typically developing (e.g., Bundy, Nelson, Metzger, & Bingaman, 2001) and children with disabilities (e.g., Okimoto, Bundy, & Hanzlik, 2000). Scores on the ToP correlate with coping ability with both typically developing children (e.g., Saunders, Sayer, & Goodale, 1999) and children with disabilities (Hess & Bundy, 2003). Evidence also suggests that children who are more playful may be more creative and confident (Barnett, 1991). These findings suggest that increased playfulness is a worthwhile goal for occupational therapy.

So far, however, attempts to increase children's playfulness have yielded mixed results. Interventions have focused on two broad clinical groups: children with cerebral palsy and children with autism and communication disorders (O'Brien et al., 2000; Okimoto et al., 2000; Reed, Dunbar, & Bundy, 2000; Reid, 2004; Rigby & Gaik, 2007). Findings from studies of children with cerebral palsy suggest that

interventions that reduce physical barriers to play (Okimoto et al., 2000; Reid, 2004) or enhance parental communication (Okimoto et al., 2000) have an effect on playfulness. By contrast, low levels of playfulness in children with autism have proven more resistant to intervention (O'Brien et al., 2000; Reed et al., 2000). Although neither O'Brien et al. (2000) nor Reed et al. (2000) were able to change playfulness of groups with autism, Reed et al. had an interesting incidental finding: 11 of 12 typically developing children in their comparison group improved their ToP scores after placement in a particular noninclusive class. Unfortunately, those children were not the focus of that study. Albeit incidentally, the authors observed that the teacher herself was an especially playful individual and surmised that this trait may have been an important factor in effecting the change.

Like children with disabilities, children who are typically developing represent a wide spectrum of playfulness. Also like children with disabilities, typically developing children stand to benefit from the secondary gains associated with playfulness (e.g., coping, confidence, creativity; e.g., Barnett, 1991; Saunders et al., 1999). Many schools, however, restrict the play of children through policies that remove play equipment from the school grounds and limit the time allotted for recess (e.g., Tranter & Malone, 2004).

In this study, we examined changes to playfulness in a group of typically developing children after new materials were introduced in the school playground. We also explored teachers' perceptions of the effects of the intervention. We changed the playground environment in a simple, inexpensive way by providing "loose-part" materials for the children to use as they wished. Loose parts are easily transported items amenable to a range of uses, often lending themselves to use in construction—for example, cardboard boxes. The lack of any single, overwhelming purpose stimulates children's imagination to use materials in new and inventive ways (e.g., Tranter & Malone, 2004).

Twenty years ago, children routinely played in neighborhood play spaces (e.g., woods, vacant lots) that tended to offer a wealth of loose parts. Those play spaces promoted fantasy and socialization. The social hierarchy was based on the ability to imagine what the space might become rather than on physical prowess (Herrington & Studtmann, 1998). Children engaged in creative, social, and active play as they constructed structures within the space; in turn, those structures facilitated social and imaginative play (Stephenson, 2003). As adults have become increasingly fearful for children's safety and risk averse, however, children's opportunities for such play have become severely reduced (Tranter & Pawson, 2001). Thus, children are left to play on conventional playgrounds with fixed equipment (e.g., slides and climbers). Playgrounds of this kind may be boring; they also

present special concerns for both physical and emotional safety—especially for less physically competent children.

Previous interventions aimed at improving playgrounds have focused on school playgrounds because schools have a responsibility to contribute to the health and development of children in their care and because children have no choice but to spend a certain period of time each school day within the playground environment. Most projects have taken a "greening" approach, through which whole playgrounds are effectively turned into natural play spaces (e.g., Bell & Dymont, 2006). Although playground greening has been found to benefit the quality of children's play, it is expensive and often means a playground is unusable for several weeks while work is under way. Even once the garden returns to use, it may take years of maturing before it reaches its potential as a play space. A cheaper and more convenient alternative that has not yet been tested in research is to make available carefully selected loose parts on supervised school playgrounds. The current project examined the effect of this approach on the playfulness of mainstream schoolchildren. Specifically, we examined whether ToP scores and teachers' perceptions of children's playfulness changed after the intervention.

Method

The study was conducted after ethics approval from the University of Sydney and the regional education office to which the school reported. Written informed consent was collected from participating teachers and parents of children who took part.

Participants

Participants were 20 children ages 5 to 7 years who attended a mainstream suburban primary school in western Sydney, Australia. The school was affiliated with the Catholic Archdiocese of Sydney. Data on socioeconomic status of the children were not gathered, but the postal code of the school places it in a middle-class area (Australian Bureau of Statistics, 2001). Children were recommended for participation by teachers, who were asked to identify children with a range of strengths and needs. Six of the children were boys.

In addition, 9 female teachers who were on the playground roster at the same school were interviewed regarding their perceptions of the effects of loose-part materials on children's play. Potential participants were identified and approached by the school principal. The principal was asked to approach teachers whom she believed would be broadly representative of the opinions held by the 30 staff members at the school. Teachers varied in age and years of experience, ranging from 2 young teachers in their late 20s who had

taught approximately 5 years to 1 teacher in her early 50s who had taught for more than 20 years.

Instrument

The ToP is an observational assessment administered by an unobtrusive rater during a 15-min sample of free play in a familiar environment with familiar peers. Playfulness is rated on 30 items, using a 4-point (0–3) scale that reflects extent, intensity, or skill. The ToP has been shown in numerous studies to have adequate evidence for reliability and validity (e.g., Bundy et al., 2001).

Procedures

Unless wet weather forced indoor play, children spent an extended lunchtime on the “junior playground” with approximately 150 other children of a similar age. The intervention consisted of the introduction of loose parts or scrounge materials to the junior playground for one and one-half terms (11 weeks of school time) during winter (average daytime temperature around 60 °F). Materials were items not conventionally considered to be play things for children, including car and bicycle tires, hay bales wrapped in plastic, cardboard boxes, plastic barrels and water containers, lengths of tubing, pieces of fabric, sacks stuffed with foam, crates, wooden planks, trash can lids, and strips of foam. Materials were regularly changed during the study period; new materials were added to ensure continued novelty, and materials that were broken or identified by teachers as being of concern with regard to safety were removed. The latter included plastic items that produced splinters and wooden planks, which, although no incidents were reported, were of concern to teachers regarding their potential as weapons.

The playground itself was typical for a Sydney school. It was approximately 60 sq yd of asphalt, bordered by large trees at intervals of approximately 5 yd, with benches between the trees. Beyond the trees on one side of the playground was a stretch of grass 80 × 20 yd on a shallow downward incline. Children were allowed to play on the grass in groups of two or three classes per recess or lunchtime, provided the grass was not wet from rain, in which case it was considered out of bounds.

Children also were given access to a “ball bag”—a sack that contained a selection of balls and skipping ropes. Fixed play equipment, consisting of a climbing frame with ladders, monkey bars, and walkways, was located in one corner of the asphalt area. In compliance with Australian safety standards, soft surfacing consisting of sand covered by fabric was provided under the play equipment and to a distance of approximately 8 ft beyond. Also in compliance with those standards,

hay bales, which had the potential to be stacked to a height of more than 20 in., had to remain on the soft surface around the fixed play equipment. Other materials were permitted to be taken anywhere on the playground.

Children were on the playground for approximately 55 min at lunch; this included 20 to 30 min of uninterrupted play. Two teachers were on playground duty at any given time, and there was a changeover in duty halfway through lunchtime. Teachers were briefed at a staff meeting before the project began; they were told that the research was aimed at encouraging children to become more active and interactive on the playground. Teachers had been asked by the school principal not to intervene in children’s play unless children’s safety was at risk.

Data Collection

Fifteen-minute video segments were taken of each child during lunchtime before the playground was changed and at the end of the 11 weeks. Children wore radio microphones to enable their speech to be taken into account in scoring the ToP. Each video segment was scored in random order by a single calibrated rater who was unaware of the purpose of the study.

Interviews examined teachers’ perceptions of the introduction of play materials on the playground, including its impact on children’s play. Before carrying out interviews with teachers, the interviewer reviewed methods of face-to-face interviewing (Patton, 2002) and received feedback regarding her interviewing technique and use of probes to reduce the risk of bias during data collection. After the materials had been on the playground for 6 weeks, teachers were interviewed in a quiet room at the school. Seven interviews were carried out with individual teachers; an eighth interview was carried out with two teachers together. At that point, theoretical saturation had occurred. That is, no new information was forthcoming.

Interviews ran for between 15 and 30 min and were audiotaped. Interviews followed a semistructured format; that is, different formulations of the same basic questions were asked of all interviewees, and points of interest were followed up on an individual basis. The same researcher conducted all interviews. She reflected on each interview at its completion and used the data to assist with the formulation of improved questions as she went along. Interviews usually started with a question about participants’ general impressions of the play materials. Further questions related to teachers’ perceptions of changes in levels of children’s activity, social and creative play, and safety. In conclusion, teachers were asked whether they had ideas for improving the selection of materials on offer to children.

Results

Descriptive statistics for scores on the ToP, pre- and postintervention, are presented in Table 1. A Wilcoxon signed ranks test (SPSS for Windows v. 13.0.0; SPSS, Inc., Chicago) was used because of the small sample size and the inability to assume a normal distribution; it revealed a significant difference between pre- and postintervention means ($Z = -1.94$; $p = .025$, one-tailed), corresponding to a Cohen's d effect size of .55 (95% confidence interval [CI], -0.08 to 1.19 with the approximate test mean at 0).

Data from the interviews with teachers were analyzed using an approach recommended by Bogden and Biklen (2003) to identify thematic content. To improve the credibility of our interpretations of the data, three authors shared in the process of developing, organizing, and validating themes. Data were analyzed in two stages. First, interviews were analyzed individually to identify key themes; second, themes were successively compared, compiled, and reorganized across interviews. This entire process was undertaken first by one author (GS) and then by a second (TL) working independently. The two researchers met afterward with the third team member, who served as an auditor (AB) of the process and interpretations, including ensuring that all data had been used. Disagreements regarding categorization were resolved through discussion before arriving at a final interpretation of the data.

Teachers' descriptions of children's activities and the benefits associated with these fell into three interrelated categories: active play, creative play, and social play. The themes will be described more fully in another article. An underlying subtheme concerned teachers' emphasis on the engaged and enjoyable qualities of children's play with the materials.

Teachers unanimously agreed that the children's play had become more creative as a result of the intervention. Moreover, play was perceived to have become progressively more creative over time. Children were reported to have made inventive use of the materials' potential for construction (e.g., building a pyramid), their mechanical properties (e.g., rolling balls down planks), their enhanced potential when combined with children's own toys and with preexisting fixed equipment and "ball bag" items, their potential for rule-based games (e.g., who was allowed to climb on a built structure), their potential for competitive games (e.g., tire-

rolling contests), their potential for testing children's physical prowess (e.g., walking along planks), and their potential for imaginative play (e.g., sitting in tires "pretending [to be] on some Caribbean cruise"). One teacher directly attributed the increase in creative play to the opportunities opened up by the materials' lack of fixed purpose:

They didn't seem to know what to do with it at first. It was sort of just there, and they had to make up what it was that they would know to do with it . . . so it did, I believe, fill in their creativity.

Teachers also made several explicit or implied references to a relationship between developments in children's creative use of the materials and an increase in social play. Teachers reported that children were more likely to discuss the content of their play as a result of its having become more imaginative and complex—"there's actual talking, imaginative games going on about whether they're being pirates or whatever they are. There is actually a story behind what they're doing." Moreover, teachers reported that children who did not usually play together—for example, children in different age groups or of differing ability levels—were more likely to do so given the availability of the materials.

Teachers also observed that children became more cooperative in play (e.g., stacking hay bales or organizing materials into a group obstacle course). Three teachers commented that incidents of aggressive behavior on the playground had become less frequent since the materials had become available; one teacher reported a belief that playground duty had been more "settled" since the introduction of the materials. Social gains were not universally reported for all children, however. One teacher reported that children sometimes became engaged with materials to the exclusion of interest in other children; another reported that children would sometimes actively defend materials against use by others.

Children's play was considered to have become more active, creative, and social at least in part because of the motivating quality of the materials. All the teachers agreed that the children enjoyed playing with the materials. An illustration of children's heightened engagement concerned an occasion in which it had been difficult to interrupt their play for a sports carnival. Teachers referred to children "having a great time" and "loving" the materials and to certain materials, like the wooden planks, being "really, really popular." One important consequence of children's motivation to play with the materials was reported to be an increased resilience: So engaged were they in play that children who fell were more likely to pick themselves up and continue playing rather than cry as they might previously have done.

Table 1. Descriptive Statistics for Pre- and Postintervention Test of Playfulness (ToP) Scores

ToP	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Prescores	20	-1.12	3.04	0.5895	0.92688
Postscores	20	-0.34	3.56	1.0955	0.90174

Discussion

We found that playfulness increased significantly in a sample of kindergarten and first-grade school children after we placed loose-part materials on the school playground for 11 weeks. This finding adds to previous evidence that children's playfulness may be amenable to intervention. Moreover, the cost-effective nature of the materials and the fact that no structural changes to the playground were involved means that a similar intervention could readily be replicated in any school.

Previous researchers working with children with cerebral palsy (Okimoto et al., 2000; Reid, 2004) found that removing barriers limiting the physical capabilities of children resulted in improvements to ToP scores, presumably because children were able to demonstrate playfulness that had been hidden or suppressed. Similarly, Reed et al. (2000) surmised that a very playful teacher promoted playfulness in typically developing children they studied.

The simple materials used in this study are readily available, allowing the children to recreate playful situations at home. The benefits to such interactions may be numerous because play has been positively associated with development in almost every domain. Teachers on playground duty attributed improvements in play to the motivating effects of the materials, which sparked children's imaginations and promoted new games. The teachers indicated that the children were highly motivated to keep playing regardless of minor falls or fallings out. Thus, we have upheld a basic premise of occupational therapy—that intrinsically motivating activity brings out the best in children. This study demonstrates the potential role of occupational therapists with typically developing children in schools.

Summary and Conclusion

ToP scores increased significantly in a sample of typically developing 5- to 7-year-old children after we placed loose-part materials on a school playground for 11 weeks. In addition, teachers reported that children were more social, creative, and resilient. Another benefit of this project was that the activities relied more on children's abilities to be creative than on their physical prowess. This was very different from the sport-based activity that had dominated the playground before the project's inception. In fact, teachers suggested that some children who became leaders in the new activities were the less physically capable children who had been sidelined in sport activities. Our results revealed a potential role for occupational therapists with typically developing children in schools and have clear implications for the adoption of such a project in schools where children with disabilities are included.

Limitations

The main limitation of the study concerns the absence of a control group. Without the capacity to compare outcomes with a group who did not receive the intervention, it remains possible that an increase in playfulness was a function of maturation or some other change that went unmeasured rather than the availability of materials. The short duration of the study period makes a change because of maturation unlikely; in previous research, scores on the ToP have been found to remain stable in children over a much longer period of 4 years (O'Brien & Shirley, 2001). The main reason we did not include a control group was that the intervention needed to affect the whole playground rather than a section available to just a few children. As a result, any comparison would have required a cluster design in which other schools were recruited and their children observed. The need to control for other, extraneous differences between the schools would have required a much larger study, with several schools in each condition.

Implications for Practice and Future Study

The current research provides preliminary evidence for a change in playfulness that now warrants further investigation. Future research should explore the correlates of increased playfulness arising from introduction of loose-part materials. The social nature of some ToP items and previous research suggest that we might expect concomitant increases in social interaction and coping ability as measured on standardized instruments. In previous research, implementation of a greening playground project (i.e., naturalizing play spaces with trees and landscaping) resulted in incidences of injuries, bullying, and fighting becoming almost nonexistent (Bell & Dymont, 2006). Qualitative data from the current research suggest that the less expensive strategy of introducing carefully selected loose-part materials on supervised playgrounds might be capable of producing similar effects. ▲

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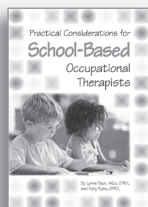
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