Making Assistive Technology and Rehabilitation Engineering a Sure Bet

Play Preferences: Caregivers and Children

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ABSTRACT

This paper has attempted to improve our current knowledge of play, indoor play, and inclusive indoor play as well as generate criteria for designing inclusive playthings. The studies have provided children's preferences for independent and collective play, and why they vary significantly. They explain play behaviors of children with and without disabilities and outline play preferences of children by age, gender and disabilities. The paper concludes with offering three principles for designing an inclusive play environment.

KEYWORDS:

Play; Children; Inclusive Indoor Play

BACKGROUND

In looking at the conscious and unconscious motivation behind play, Piaget pointed out that play was motivated by wish fulfillment in effort to gain mastery over difficult and traumatic experiences [1]. Using a cognitive perspective, child's play is explained as behavior designed to facilitate mastery of thought and reason [2]. Play is said to be a result of the child's biological, neurological, and kinesiological functions that enable the child to act [3]. When a child achieves success in the player role, the child experiences feelings associated with productivity, satisfactory quality of life, meaningfulness and value [4].

Historically, traditional forms of play disadvantage children with disabilities. For example, mobility problems may make it difficult for children to play hide and seek. Visual impairments impede a child's ability to find and investigate play environments. Cognitive disabilities limit their development to pretend play. In fact, any disabilities pose barriers to spontaneous engagement in play and play environments [5]. As a result, play repertoires of children with disabilities' are reportedly more limited; their play is more often passive and sedentary [6]; and their play occurs less frequently when compared to able-bodied children [7]. Their play is more often solitary [8], social interaction is frequently delayed or distorted, and symbolic play is often significantly limited [9].

Toys are play tools that prompt children to find how things work, creating visions and provide schemes to imitate the actions of others around them. Playthings are larger than toys and smaller than outdoor play equipment [10]. (HFES) Playthings allow children to develop human-scale meaning and learn about physical interaction. Unlike outdoor playgrounds, indoor play environments are made up of playthings. Because the playthings are primarily for children without disabilities, they are underutilized as tools for social education for children with disabilities. In the absence of inclusive playthings, children with disabilities are unable to participate in play, which can lead to developmental delays.

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This study is part of a larger study called the Inclusive Indoor Play Study. The purpose of this research study was to learn from caregivers and children their views of 1) play, 2) indoor play, 3) inclusive indoor play and 4) the inclusive aspects of indoor playthings. The goal of the study was to collect qualitative data that would inform play needs and identify criteria for designing inclusive indoor playthings. From the caregivers, we wanted to know: What is play and how it is valued? What is indoor play and how it happens at home, daycare centers and in schools? What is inclusion in indoor play and how do adults coordinate play between children with and without disabilities? What make playthings inclusive and how their design fosters social inclusion? From the children we wanted to know: What are the play preferences for children with and without disabilities and do they differ? What are the play preferences across ages and gender and do they differ? What activities do children prefer when playing indoors?

METHODOLOGY

Focus Group

To learn from caregivers, we convened two focus groups. The first group probed inclusion in indoor play and the second group sought to learn further about inclusion in indoor play and validate information offered by the first group. Both focus groups had two parts: a discussion part to learn about play, indoor play and inclusion in indoor play, followed by a participation part wherein participants evaluated playthings for their inclusivity. The first focus group identified important design issues of playthings; the second evaluated and ranked the design issues identified by the first group. The final outcome was validated information and a hierarchical list of design criteria for inclusive playthings.

A total of 15 people participated in the two focus groups. They included professionals, parents of children with and without disabilities, teachers, therapists, daycare owners and toy designers. Parents represented 23 children, 9 whom have a disability: cerebral palsy, autism, Downs Syndrome, stroke, muscular dystrophy and deafness.

Focus group participants evaluated 16 playthings: a tunnel for crawling, art easel, ball popper & funnel, building blocks, toy crane, doctor's role play kit, electronic storybook, interchangeable magnetic gears, magnetic alphabet set, musical set, push cart, push/ride car, slide and play gym, train set & remote control, visual puzzle, water/sand play station. Color photos with brief descriptions were used to assess the playthings. Playthings were evaluated for their inclusive aspects and for problems applied to all children.

In the first focus group, participants completed evaluation of playthings, developed inclusive design criteria and ranked them through a dot voting system. During the second focus group, participants discussed the criteria list and ranked the criteria generated by the first focus group. At the end, the second group produced a validated list of inclusive design criteria for playthings.

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Drawing

Inspired by the works of Edward de Bono [11], hand drawn drawings were used to learn about the indoor play preferences of children. All children were asked to narrate their drawings to explain their play preferences.

Participants included children between the developmental ages of 4 to 8 years. They were recruited for diversity, and for their ability to communicate visually and/or verbally. Of the 39 children, 16 were male and 23 were female. There were 24 younger children between 4-6 years, and 15 older children between 7-8 years. There were 16 children with disabilities like ADHD, autism, cerebral palsy, Downs Syndrome, impaired hand dexterity, and loss of limb, and 3 children used wheelchairs.

Information from children was collected through drawings and narratives. The researchers took notes and made audio recordings of conversations. They asked children to draw by asking questions like, “What do you play when you can’t go outside to play, like when it is raining, or too hot or cold?” or “What places do you play at that are inside? Children drew six pictures of how they play indoors to demonstrate open play, exercise play, quiet play, pretend play, inventive play, and favorite play. Children were encouraged to verbally narrate play activities as they drew and those who did not actively verbalize were encouraged to describe their drawing at the end of each exercise. Children who could not express well through drawings spoke about playing indoors or sought assistance from the researcher in offering drawing details.

RESULTS

Focus Group

Due to the size of an indoor setting, inside play is generally cognitive/language, and social/ imaginative. To reduce physical activity level and supervision and foster imagination, indoor play needs to “be toned down” and sensory stimulation reduced. Participants supported collective interaction between children with and without disabilities to facilitate social inclusion. Support also exists for adaptable and adjustable playthings as well as remote/switch controlled playthings that could be adapted to suit developmental needs and individual differences of children. There is further support for designing these features into playthings, rather than adapting them after purchase.

There is a need for customizing playthings so a broad range of children can make it their own. To overcome the problems related to “difficult” or “non-challenging” playthings, participants want personalization by including features that regulate speed, pace, and challenge level.

Drawing

Researchers analyzed the drawings using two important play concepts, structured and unstructured play, from developmental and child psychology literature. The play concepts generated three play scales, guided - open play, educational – recreational play, and collective –

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independent play. There are six play qualities (guided, open, educational, recreational, collective and independent) from the scales that formed the evaluation criteria for the drawings.

Abilities

All children regardless of their disabling condition had similar play preferences in the guided – open play, and educational - recreational play. The primary difference between children with and without a disability was that the latter preferred collective play over where children with disabilities described both collective and independent play.

Gender

Female children generally preferred collective play in all of the play scales. Girls like playing with friends, siblings and parents in games like dress-up, with dolls and performing dances and songs. Male children enjoy collective play in their pretend, quiet and favorite play. Males described video games and sports as collective play activities.

Age

Play preferences varied greatly by age. Younger children preferred recreational play, including playing games on playgrounds, and with toys. Their play activities were also primarily collective. Older children described a wide variety of play preferences and their play activities tended to be more sophisticated involving a more detailed story, comprehensive sets of rules, or higher level of engagement.

DISCUSSION

The focus group and the children's study produced complimentary information, and the results helped understand the caregivers and children's perspectives needed to address the complexities and challenges of designing an inclusive indoor play area. The parents/caregivers offered a removed perspective and what is necessary for planning, managing play and coordinating play for a mixed group of children. Children, on the other hand, offered their play preferences as they would like to see across ages, disabling conditions and genders.

For parents/caregivers, playthings need to offer following characteristics to be inclusive:

- **Durability**-the plaything delivers continued operation for an extended period of time.
- **Safety**-the child/children must not experience pain or discomfort with use and the plaything protects from potential harm, bodily injury or infection.
- **Interestingness**-the plaything must attract and hold the interest of children.
- **Playability**-the plaything must present multiple play options.
- **Tactile, visual and auditory stimulating**-the plaything must use multiple modes to stimulate the child's sense of touch, sight and hearing.

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- **Inclusiveness**- the plaything must support a wide range of functional abilities.
- **Ease of use**-the use of plaything must be easy for children with a range of functional abilities.
- **Flexible**-the plaything is must be adaptable and adjustable to children with differing functional abilities.
- **Includes volume control**-the auditory output of playthings must be controllable.
- **Scale of Inclusion**-the information related to plaything must be understandable to a wide range of children

For children, inclusive play implies open and recreational play.

- Ability
  - Children with disabilities prefer collective and independent play
  - Children without disabilities prefer collective play
- Gender
  - Male children prefer collective and independent play
  - Female children preferred collective play
- Age
  - Younger children (4-6 yr) prefer collective play
  - Older children (7-8 yr) prefer a variety of play including both collective and Independent, and educational and recreational

This paper has attempted to improve our current knowledge of play, indoor play, and inclusive indoor play as well as generate design criteria that would improve inclusion in playthings. From this study we learned that children's preferences for independent and collective play varied significantly. The results from children with disabilities show that they prefer a mixture of independent and collective play, which supports literature on play and explains why children with disabilities choose to play independently. This study presents an important step towards understanding inclusive indoor play.

In conclusion, this study will offer important information in social inclusion. Three play principles, central to this study, will provide new directions to designing an inclusive play environment: 1) offer many play opportunities, 2) provide many modes of play, and 3) include

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many levels of play challenges. These principles are fundamental to inclusion in play and they will help formulate an inclusive indoor play environment.

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