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A COLLABORATION PROCESS TO PRODUCE A NATURAL PLAYSCAPE

Authors: K. Ryan*, L. Bruya, B. Shumate, C.J. Woytovech, A. Woytovech, B. Martensen*, A. Malkusak*, and J.A. Sievers

Abstract

The purpose was to determine emergent themes across three sources of information. Guiding Question: Did data sets define design themes? Data sets were: 1) children's drawings, 2) university student drawings, and 3) writing. Children (ages 6-10 years; n=6) completed drawings of the playscape. University students (n=33) responded using the children's drawings and a site visit. Data Set #1 and Data Set #2 were coded using three aspects of each drawing: 1) depiction, 2) activity, and 3) word association. Five categories were used to sort information in each aspect. These included 1) gross motor, 2) fine motor, 3) cognition, 4) sensory, or 5) multiple category. Data Set #3 was sorted using five skills categories for each aspect. Coders were trained to interpret drawings and word associations. Reliability required 100% agreement between two coders. Five emergent themes included 1) Visual, 2) Auditory, 3) Movement, 4) Semi-enclosed Spaces, and 5) Natural Elements.

INTRODUCTION

Several theories for design of play environments for children were found (Bruya & Langendorfer, 1988; Schappet, Malkusak, & Bruya, 2002; Bruya & Schappet, 2002; Malkusak, Schappet, & Bruya, 2003). No organized theories of natural playscape design were reported in the literature. The intention of this study was to initiate the development of a playscape design theory to facilitate the developmental needs of children.

Children's views were incorporated to include perspective on the value of play in nature as active participants in the design process (Knowles-Yánez, 2005; Iltus & Hart, 1995; Sanoff, 2006). The playscape was featured as the play experience because of its focus on natural features that offered flexible experiences (Frost, 1992).

Based on discussion with and drawings from children, a child's view of play was incorporated in a collaborative process with university students and with an environmental education organization. After a report of interaction with children about the natural playscape (a play environment for children with a focus on the natural setting in the out-of-doors), student teams worked in a participatory design workshop (Francis & Lorenzo, 2002; Luck, 2007; Sanoff, 2006) with child drawings as the foundation. University students identified concepts and specific natural installations that met the expressed interests of the children and the environmental educators (Fjùrtoft & Sageie, 2000; Brown & Berger, 1984; Herrington & Studtmann, 1998). The participatory workshop (daylong meeting included

discussion, drawn suggestions, and model construction in small groups of six participants) resulted in university student drawings, models and writing.

Content analysis (Krippendorf, 2004; Merriman & Guerin, 2006; Francis & Lorenzo, 2002) of three data sets was incorporated as a part of this qualitative process. Content analysis for similarities included phrases, objects, communications, and expressions that were grouped together. Data sets included: 1) drawings children completed answering the question "What do you like to do outside?" 2) university student drawings for design of the natural playscape, and 3) writing completed by university students in response to the children's drawings and personal experience with the playscape site.

Qualitative research techniques were used as a basis for establishing a grounded theory of playscape design in a natural environment in this geographic locale (Glaser & Strauss, 1967; Creswell, 1998; Creswell, 2003). The purpose of this study was to determine emergent themes related to data sets generated as a part of playscape design process. The emergent themes were used to provide the basis for design to meet the developmental needs of the children who played there.

Guiding Question: Did drawn and written representations of play activities by children and university students define unified ideas or themes between populations and across data recording techniques?

METHODOLOGY

A mixed methods approach was used (Creswell, 2003). Method included quantitative (frequency of occurrence) and qualitative technique (content analysis interpretation of depiction, interpretation of activity, interpretation of word association).

Population

Children (ages 6-10 years; n = 6) completed drawings that answered the question, "What do you like to do outside?" at an environmental education site. University students (n = 33) responded to the children's drawings, considered specific sensory experiences from personal past experiences (Keeler, 2008), and interpreted the same physical site as did the children, using a site visit and analysis. In the student group there were eighteen females (n_f=18) and fifteen males (n_m =15).

Instrumentation

Three data sets were used to generate themes for a grounded theory of collaborative playscape design. The data sets included: Data Set #1) children's drawings of the playscape, Data Set #2) university student drawings of the playscape, and Data Set #3) university student written responses to discussion regarding expected play behaviors in a natural environment (playscape). These data sets served as a triangulated system to determine emergent themes used as the foundation for playscape

design (see procedures and analysis below). A data recording sheet was used to record each data set. The instrumentation materials satisfied the criteria for Exempt Research with the Certificate of Exemption provided through the Washington State University Office of Research Assurances (WSU-IRB number 12601).

Procedure

The following steps occurred over the course of the project: 1) during a walk about the play site, the children were asked to draw, "What do you like to do outside?"; 2) university students presented a summary of the site visit to classmates prior to a play behavior and playscape lecture; 3) small (n=6) teams developed ideas for the playscape using children's drawings and four questions related to play opportunities, play behavior (Schappet, Malkusak, & Bruya, 2003), sensory play, and memory (Keeler, 2008); 4) a site visit helped university students understand topography and the environmental education intent; 5) students from multi disciplines participated in a workshop with environmental educators (interior design, architecture, landscape architecture, construction management, and kinesiology); 6) teams received feedback on designs from the environmental educators - designs incorporated the five design emergent themes; 7) teams refined ideas on a single play component; 8) teams built a full-scale prototype of the play component (see Figure 1); 9) student peer reviewers and environmental educators interacted with prototypes and provided feedback (Muller & Druin, 2010; Spinuzzi, 2005); 10) teams installed one component at the playscape site.

Figure 1. Teams built a full-scale prototype of the play component which included a ramp at the back of the boat for wheel chair accessibility. The full-scale model process was near the end of the playscape collaborative design process.

Data Set #1 and Data Set #2 representing the drawings of the children and the drawings of the university students were coded using content analysis according to three aspects of each drawing: 1) depiction (what was drawn), 2) activity (the action depicted in the drawing), and 3) word association (related to intention or action of the depiction or activity). A master data sheet for recording occurrences utilized these three aspects for drawings data. This information was identified in terms of five skills categories. These included 1) gross motor skills, 2) fine motor skills, 3) cognitive skills, 4)

sensory skills, or 5) skills from multiple occurrences (five categories derived from selected parts of Bloom, 1956; Harrow, 1972; Krathwoh, Bloom, & Masia, 1973). Set #3 – university student writing, was divided into the same five skill categories on data recording sheets.

Multiple occurrences designated by coders were a combination of any or all of the three preceding categories. Coding was completed by coders trained on an agreed upon identification strategy that involved interpretations of drawings and word associations (Krippendorf, 2004).

Reliability and Frequencies. Reliability between data recorders was established using a content analysis technique (Krippendorf, 2004; qualitative technique). Discrepancies were resolved using discussion between coders to focus on content until 100% agreement was reached (Franzosi, 2004). Frequencies of occurrence for each category were totaled (quantitative technique) across the three data sets.

Analysis

Each data set (children's drawings, student drawings, student writing) was coded separately, and then consolidated across the five skill categories to determine emergent themes (see Figure 2a and 2b). Frequency counts less than 2 were excluded. The most salient themes were determined through frequency and type across the three data sets.

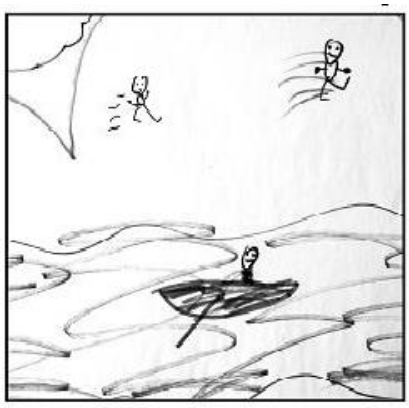

Figure 2a. Children's drawings led designer university students to include elements in the playscape drawings.

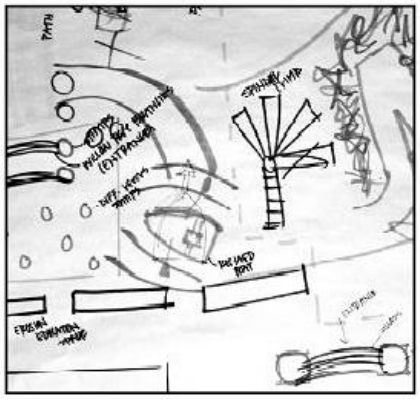

Figure 2b. University students produced drawings that included child initiated elements as part of a collaborative design process.

RESULTING EMERGENT THEMES

As analysis proceeded through identification of trends, patterns, and differences (Krippendorf, 2004), five themes emerged (Figure 3). Emergent themes were identified as Auditory, Physical activity skills, Visual, Semi-enclosed spaces, and Natural elements. These themes were considered emergent as a result of frequency across data sets.

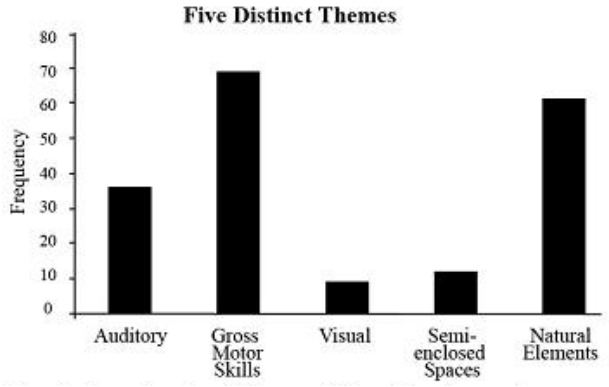

Figure 3. Data points from all data sets (children's drawings, student drawings and writing) were organized into five themes based on frequency count in five skill categories.

CONCLUSION/IMPLICATIONS

The collaborative process allowed university students to acknowledge and incorporate 'child identified' important aspects of play. The university students worked in cross-disciplinary teams (interior design, architecture, landscape architecture, construction management, kinesiology). They accommodated educational goals, age-appropriate play behaviors (Schappet, Malkusak, & Bruya, 2003), and the desired outdoor play experiences expressed by the children through drawings (Martin, 2011). The prototype experience gave a physical presence to the drawn and written ideas (Muller & Druin, 2010; Spinuzzi, 2005) as verified by student writing.

Students wrote that the identified themes guided the design of the natural play component within each team. The content analysis resulted in the identification of unified ideas or themes between subject populations (children and university students) and across data recording techniques. The unified ideas or emergent themes that followed collaboration processes provided theoretical direction to design of the playscape natural components as evidenced by the university student final drawings and prototypes.

The emergent themes, identified as 1) auditory, 2) physical activity skills, 3) visual, 4) semi-enclosed spaces, and 5) natural elements, added focus to the design process for the natural playscape. The focus for auditory considerations suggested the idea of inclusion of sound producing play events. But considerations for sound on the playscape also focused on the separation of natural sound areas (animal and bird sounds in the marsh land) from man-made loose part object production of sound (chimes, whistles, drums…). The focus for physical activity skill considerations suggested the inclusion of rigorous demands associated with climbing, running, throwing and other skills.

The focus of visual considerations for design included the use of color, and the use of panoramas needed for viewing in the distance. Also a part of the design for the visual emergent theme was the inclusion of visual breaks and spaces of intrigue, like tunnels or hiding spots. The focus for semi-enclosed spaces dictated the concern for including areas that are bounded on three sides with the ground plane being one side (Bruya, Schappet, Malkusak, Stine, Farais, & Iovvanna, 2006). These spaces provide privacy for children during play while allowing access and supervision when needed.

Natural elements were included as an emergent theme for two reasons. Natural elements were frequently mentioned in the data sets. The focus on the playscape was a reflection of the natural environment, with some additions. Natural elements included willow trees, pathways, and mounds or berms. Auditory additions included chimes, whistles, and drums.

These themes, although relevant to the purpose of the study, also were important to the development of children who were the target players. Both sensory and motor activities were accentuated. Based on a review of child behavior studies where children preferred small spaces, Heerwagen and Orians (2002) predicted that children would prefer semi-enclosed spaces in outside play. This predication was validated by the expressed preference of the children.

The 'burrow' (two adjacent rows of small overgrown fruit trees on the site) were identified by children and students as a significant feature of the site (see Figure 4). Nature components provided affordances (Gibson, 1986) for children's exploration and ability to modify the play site. Semi-enclosed spaces were relative to childhood needs for self determination and uninterrupted play in a private space. All of these affordances in the playscape design process expressed in the form of emergent themes ensured the potential of designed natural events appropriate to developmental needs in children.

Figure 4. "The Burrow" was considered a favorite by children. The burrow designated one example of the concept of semi-enclosed space in a playspace.

Can a model using the emergent themes resulting from the collaborative playscape design process help facilitate further study and work? Can emergent themes be used to establish a grounded theory of playscape collaborative design?

The foundation for a theory of collaborative design process is laid. Five themes emerged from three different data sets to initiate understanding of the Collaborative Playscape Design Process. These five themes served as the basis for the further study and expression of a grounded theory of playscape design using collaboration. The incorporation of views of children and experiences of students strengthened the playscape design result and yielded a process of inclusion that can be replicated. The evolvement of ways to involve children in planning processes mitigated the paternalistic view of typical design of play areas by adults (Knowles-Yánez, 2005; Iltus & Hart, 1995). This study identified successful methods of incorporation of the child's views through drawings and site visit.

Researchers, interested in the design process for playscapes suspected from the work of Piaget (1953; 1926) that sensory development and motor developmental requirements must be met when designing environments for children. Environmentalists knew/suspected (Fjùrtoft & Sageie, 2000; Aarts, Wendel-Vos, van Oers, van de Goor, Schuit, 2010; Cheng & Monroe, 2012; Herrington & Studtmann, 1998) that natural settings could be used to facilitate development in children.

What was not known at the outset of the study was the preference by children for semi-enclosed spaces to support the developmental needs of children (see Figure 5). Traditionally adult-designed play structures were open, fixed pieces of equipment. Natural playscapes described by children offer flexible and semi-enclosed spaces that meet the preference for protected places, while offering places that develop physical and cognitive skills (Fjørtoft, 2001; Kylin, 2003).

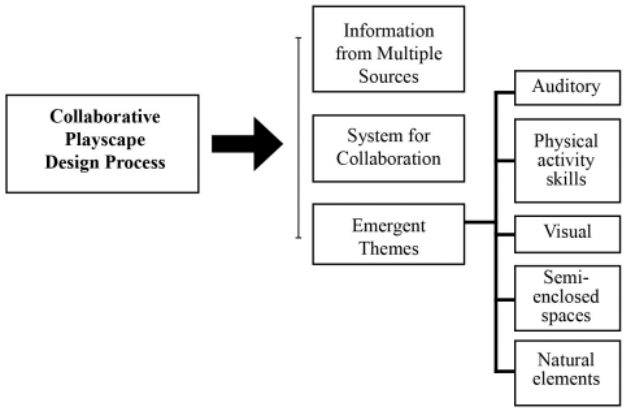

Figure 5. The Collaborate design Process provides a grounded theory based model for designers to use. The surprise element in the process was inclusion of the emergent theme of semi-enclosed spaces.

A model for a collaborative playscape design process can now be considered. Further studies may verify this process as a starting point for meeting developmental needs in children.

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