

Fitting in: Interior Design Sets the Stage for Accessible Play Spaces for Children with Disabilities

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Though the prevalence of childhood obesity has leveled off in the recent two years, it remains unacceptably high and places children at risk for several health and psychosocial-related outcomes. To decrease the incidence of obesity, children are encouraged to spend at least 60 minutes per day, 6 days a week, participating in vigorous physical activity. While most children have access to inviting play spaces, children with disabilities oftentimes do not. The purpose of the project, "Fitting In," was to encourage students to research a specific disability, and then to develop, design, and present a play space that promotes physical activity participation among children with disabilities. The project was developed to meet several content and competency standards set forth by the National Association of State Administrators of Family and Consumer Sciences (NASAFACS). Because of the overall success of the project, it may be considered a "Promising Practice" among educators within Family and Consumer Sciences.

Overweight status and obesity continue to be a significant health threat among children in the United States. For children of the same sex and age, The Centers for Disease Control and Prevention (CDC) defines overweight status as having a body mass index (BMI) at or above the 85th percentile and lower than the 95th percentile, and obesity as having a BMI at or above the 95th percentile (CDC, 2014a; CDC 2014b). For typically developing children ages 2-17, an estimated 30% are overweight, and 16% of those children are obese. For children with disabilities, the rate of overweight status and obesity is significantly higher. Each year the Special Olympics committee measures the BMI of their participants. In 2012 they measured over 5400 athletes (under age 22) and found that 16% of them were overweight and 33% were obese (Corbin, 2012).

There are significant consequences related to overweight status and obesity with regards to physical health and psychosocial well being. The CDC cites several negative health-related outcomes including type 2 diabetes, cardiovascular disease, fatty liver, high blood pressure, joint strain, asthma, and sleep apnea (CDC, 2014). Psychosocial outcomes include: depression and anxiety, decreased self-esteem, poor body image, and an increased risk for suicide attempts (Eisenberg & Neumark-Sztainer, 2003; Griffiths & Page, 2008; Neumark-Sztainer, Falkner, & Story, 2008; Libbey, Story, & Neumark-Sztainer, 2008; Strauss & Pollack, 2003; Swahn et al., 2009).

Researchers, clinicians, and community educators have developed an array of programs for children that emphasize healthy eating and regular physical activity. For example, the "Let's Move" initiative was spear-headed by Michelle Obama and addressed many aspects of obesity including nutrition, food insecurity, and physical activity (Let's Move, 2010). The American Association of Family and Consumer Sciences (AAFCS) also launched a campaign titled "Taking it to the Streets" in which members are encouraged to share their knowledge on a variety of issues, including childhood obesity, with their local communities. At the high school

and university levels, educators are encouraged to participate in translational research projects that benefit not only student learning, but the community as a whole.

As a result and with the acknowledgment that obesity remains problematic among children, in particular children with disabilities, a service-learning project was developed with collaboration between the fashion merchandising faculty and child and family studies faculty at the university. The purpose of the project was to create a learning experience in which students researched the various needs of children with disabilities and then created a play space that was inviting, accessible, and fun in order to encourage children's participation in vigorous physical activity. The project was developed to meet content and competency standards set by the National Association of State Administrators of Family and Consumer Sciences (NASAFACS) which aims to ensure high-quality projects (NASAFACS, 2008).

Project Background

Content Standard 11.6 states that successful students should be able to "evaluate client's needs, goals and resources in creating design plans for housing, interiors and furnishings." For this project, students were charged with creating user friendly play spaces to accommodate children with disabilities and promote their participation in physical activity. Students were introduced to the challenge early in the semester and provided with an assignment timeline which detailed the expectations for each phase of the project. Work time was divided between in class workdays, independent research, practice, and presentation.

Students were expected to present the results of their efforts to one of two audiences: 1) children aged 5-10 in an interactive elementary school setting, or 2) poster session for educators, counselors and parents at a community life conference. Feedback from both settings was recorded and incorporated into an evaluative discussion at the end of the semester. The flyers and picture examples of visual displays represented an assortment of disabilities selected by students for the project. The significance of personal interviews and printed resources, the application of the design process for play space planning, and the approach to problem solving relative to human needs in interiors was reflected in the students' work. One flyer for each project was printed on cardstock and displayed in a sign holder at the time of presentation. Printed take-away handouts were provided for observer reference.

Project Details

Because of the magnitude of the project, it was broken down into six phases. The students completed each phase within the course of a semester. Time was allotted during class for research and consultation; however, the majority of the project was completed outside of class. Breaking the project down into phases allowed for in-depth conversations of each component, and helped to ensure that students met each standard as they progressed toward their finished project.

Phase one. The purpose of phase one was to introduce the project to the students. An effective way to introduce the project was to use both a lecture and outline format. It was necessary to provide time for in class discussion regarding expectations for research, selection of audience, quality of presentation, grading, due dates, benchmark timeline, mechanics (size, length, time, artwork, references), working in groups, and methods of evaluating the project.

Phase two. The purpose of phase two addressed two competencies: Competency 11.6.1, which states that students should be able to "assess human needs, safety and technology as they

relate to housing and interior design goods,” and Competency 11.6.3, which states that students should be able to “assess a variety of available resources for housing and interior design, including ergonomic and anthropometric data.” To meet both of the competencies, students researched their topic and gathered information on the overall topic of special needs. They selected a specific type of disability and chose a target audience. Suggested research venues included: personal interviews, journal articles, textbooks, websites and design software programs. Students then submitted a brief proposal which identified and described the disability of choice, listed the considerations for design with regard to the disability, and provided a reference list. See Table 1 for specifications.

Table 1

Specifications for Phase Two

<p>Research the Topic: Competencies 11.6.1 and 11.6.3</p> <ul style="list-style-type: none"> • Select a disability (physical, emotional, other). • Develop a plan for the play space in which a disabled child would be able to participate, feel comfortable, and fit into the activities of the larger group. • Create a resource list representative of the path traveled to arrive at project decisions. • Compose a research summary and explanation for class discussion.

Phase three. The purpose of phase three was to design the play space. Referring back to competency 11.6.3., students focused on play space planning details and selected and arranged components in accordance with the identified disability. Components included: elements and principles of design, play space planning guidelines, and safety code specifications for selected systems (Jones, 2009). With this information, students composed a written explanation of the process. See Table 2 for specifications.

Table 2

Specifications for Phase Three

<p>Select Play Space Components: Competency 11.6.3</p> <ul style="list-style-type: none"> • Size (dimensions) and 3D characteristics • Color scheme (monochromatic, complimentary, analogous) • Style (ornamental, structural) • Type of designs (natural, stylized, abstract) • Rhythm (repetition, transition, progression) • Balance (symmetrical, asymmetrical, radial)

Phase four. The purpose of phase four was to develop a schematic design of the play space. Students created a diagram, model, game, PowerPoint, or other prop to illustrate the play space and the way in which accommodations for the selected disability might be incorporated. See Table 3 for specifications.

Table 3

Specifications for Phase Four

<p>Develop a Display of the Play Space</p> <ul style="list-style-type: none">• Bubble diagrams, template , blocking diagrams, or computer generated plans• 3-D model(s)• Video/PowerPoint or other interactive setup(s)• Other age and disability appropriate representations <p>Reminders:</p> <ul style="list-style-type: none">• Physical measurements of interior height, width, length, depth, and weight are important, but accurate attention to scale is not required.• Consider the target audience. For the interactive audience the display must be large enough to be seen, handled, and understood by children ages 5-10. For the professional audience the display should provide in-depth information and current resources.• This is an independent exercise. Group work requires instructor approval.• In-class workdays for this project are listed on the course calendar.

Phase five. The purpose of phase five was for students to present their projects to one of two audiences: 1) children aged 5-10 in an interactive elementary school setting, or 2) poster session for educators, counselors, and parents at a community life conference. Students practiced the presentation in class and submitted a one page, printed flyer to be displayed with the project and distributed as a handout. Students then attended the selected event and interacted with the audience. See Table 4 for specifications.

Table 4

Specifications for Phase Five

<p>Presentation</p> <ul style="list-style-type: none">• Select an event to attend and plan to explain or demonstrate the project.• Create a one page, event flyer/handout with these parts:<ul style="list-style-type: none">Title (Identify the disability and the play space.)Statement of the problemSolutionDiscussionResources• Bring a printed copy of the flyer/handout to class for discussion <p>Reminder: Aesthetics are important; consider color, graphics, legible font, interesting arrangement of components, and target audience.</p>

Phase six. The purpose of phase six was for students and their instructor to evaluate the projects. Students wrote evaluations and discussed their experiences at a wrap-up class meeting. To facilitate a rich dialog, the instructors included discussions on the challenges children with disabilities encounter, some viable solutions to those challenges, and observer comments, successes, and suggestions for future projects of this nature. The instructor also evaluated the

project by developing an evaluation tool that assessed the student's quality of research, conciseness of their objectives, accountability and ethics, selection of materials, construction, presentation details, and observer comments with suggestions for improvement.

Auxiliary Planning and Execution Details

1. Storage. Designate a secure and adequate play space for storage of projects during construction. Some work will be completed outside of class, but most students prefer to leave their 'work-in-progress' at school.
2. Transportation. Projects should be clearly labeled, packaged to withstand movement incurred during transit to the event facility, and require minimal setup time.
3. Instructor checklist. Management of the details from the instructor perspective may be facilitated with the creation of a checklist for required documentation regarding student participation and travel to the event(s), student attendance and participation on work days, project notes, supply lists, and comments.
4. Project requirements. The project constitutes a major portion of the semester grade. Due dates, class workdays, attendance requirements, and point value of exercises should be clearly stated.
5. Time requirements. Five in class work sessions of 1 hr and 15 min each were distributed over the length of the semester to introduce the project, share topic research, discuss component selection relevant to the selected disability, build props, construct displays, and share observations and evaluations. The time out of class was variable to cover topic research, material collection, prop development, written assignments, and attendance at the event(s).
6. Cost. A lab fee was required by the department for this project. This fee was used to purchase paper, props, writing and drawing materials, poster boards, and ink cartridges.
7. Materials. The following suggested tools and materials were on hand, purchased, or required of students to supply:
 - paint, markers, colored pencils
 - adhesives: glue gun, glue, double sided tape, stapler, staples
 - samples of wallpaper, paint chips, fabric, flooring
 - sketch paper, poster board, cardboard boxes, trifold boards, lettering
 - cardstock, printing of flyers
 - prefab scrapbooking/doll house items such as windows, furniture, figures, accessories
 - small display easels for flyers
 - paper cutter, scissors, box cutter, hole punch, awl, cutting mats, hammer, finishing nails
 - protective work area for glue gun and iron

Evaluation

Based on the university's evaluation tool, the "Student Opinion of Teaching," the project was well-received by the students and their chosen audiences. The students appreciated the opportunity to blend their knowledge from two areas of family and consumer sciences (i.e., design, child and family studies) to create a meaningful project. The students were particularly

excited, and somewhat overwhelmed, by the positive feedback they received from their audiences. The children enjoyed learning about how their playground could be transformed into an area where their friends with disabilities could play with them too.

Students who presented their work to adult audiences shared similar feedback. The adults were impressed by the students' creativity and thoughtfulness in developing their projects. They were also impressed because the students researched various disabilities and provided information on how the modified play spaces could accommodate different needs. Course instructors plan on gathering quantitative data to measure more specific outcomes related to the project when the class is next taught. For example, it would be interesting to assess student knowledge regarding disabilities and inclusion, knowledge of project planning and implementation, and knowledge of community resources that promote inclusion.

Conclusion

The "Fitting In" project was a meaningful learning experience not only for the students, but for their instructors and audience members. The project showcased the student's research abilities, and their ability to apply what they learned to design and present their work. The collaborative effort between the areas of FCS highlighted the ways in which a holistic approach to learning may be forged. As a result, students were able to see how their knowledge base in FCS allowed them to address several cross cutting themes in order to better educate their community on childhood disabilities and the importance of inclusion and play space accessibility. In the continuous battle against childhood obesity, it is imperative that all children have access to areas which promote physical activity. Projects such as this aim to build awareness of the challenges that children with disabilities encounter while trying to be active in play spaces, and aim to generate innovative ideas to help communities build, or modify, play spaces that benefit every child.

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