



8-29-2013

## Children with Developmental Disabilities and their Motivation to Play

Lindsey Askins  
Midwestern University, laskins42@midwestern.edu

Brittany Diasio  
Midwestern University, bdiasio59@midwestern.edu

*See next page for additional authors*

### Credentials Display

Lindsey Askins; Brittany Diasio; Dagmara Szewerniak; Susan M. Cahill, Ph.D., OTR/L

Follow this and additional works at: <https://scholarworks.wmich.edu/ojot>

 Part of the [Occupational Therapy Commons](#)

Copyright transfer agreements are not obtained by The Open Journal of Occupational Therapy (OJOT). Reprint permission for this article should be obtained from the corresponding author(s).

[Click here to view our open access statement regarding user rights and distribution of this article.](#)

DOI: 10.15453/2168-6408.1062

### Recommended Citation

Askins, Lindsey; Diasio, Brittany; Szewerniak, Dagmara; and Cahill, Susan M. (2013) "Children with Developmental Disabilities and their Motivation to Play," *The Open Journal of Occupational Therapy*: Vol. 1: Iss. 4, Article 4.

Available at: <https://doi.org/10.15453/2168-6408.1062>

This document has been accepted for inclusion in The Open Journal of Occupational Therapy by the editors. Free, open access is provided by ScholarWorks at WMU. For more information, please contact [wmu-scholarworks@wmich.edu](mailto:wmu-scholarworks@wmich.edu).



---

# Children with Developmental Disabilities and their Motivation to Play

## **Abstract**

The purpose of this qualitative study was to examine how and when children with developmental disabilities aged nine to 12 years spontaneously demonstrated play behaviors indicative of intrinsic motivation. Data was collected from six child participants and four parent participants through the use of the Pediatric Volitional Questionnaire (PVQ) and semi-structured photo-elicitation interviews. Overall, the children who participated in this study sought out play experiences with which they were familiar in their natural environments. Specifically, they sought out experiences that afforded them the opportunity to exercise control over their environment and create a sense of predictability. Each of the children assumed the role of “orchestrator” and conducted his or her engagement in play occupations. The children demonstrated some spontaneous play within their social environment; however, many developmentally age-appropriate behaviors were not observed.

## **Keywords**

Play, Volition, Developmental Disabilities, Occupational Therapy

## **Complete Author List**

Lindsey Askins, Brittany Diasio, Dagmara Szewerniak, and Susan M. Cahill

Engagement in play is a critical factor related to a child's development (Lane & Bundy, 2012; Vandenberg & Kielhofner, 1982; Piaget, 1962). Play affords children the opportunity to explore their environment and acquire skills that will benefit them through the course of their lifetimes (Piaget, 1962; Takata, 1971). Play provides children with opportunities to develop competence and experience mastery, which then motivates them to seek new challenges and develop more advanced skills (Andersen, Kielhofner, & Lai, 2005; Mistrett, Lane, & Goetz, 2000). Intrinsic motivation is thought to be associated with a child's overall well-being and is a key hallmark of play in typically developing children (Andersen et al., 2005).

The literature suggests that children with developmental disabilities often struggle with decreased motivation to interact with objects in the context of play (Andersen et al., 2005; Mastrangelo, 2009; Mistrett et al., 2000; Reynolds, Bendixen, Lawrence, & Lane, 2011). According to Missiuna and Pollock (1991), children with disabilities who have limited play repertoires develop an extreme disadvantage compared to their typically developing peers who have robust play repertoires. As a result, children with disabilities may experience increased dependence on others and a sense of incompetence when they attempt to produce effects in their environment (Missiuna & Pollock, 1991; Mistrett et al., 2000).

A supportive social environment may be more critical to a child's intrinsic motivation to engage in play than any other factor (Skard &

Bundy, 2008). While some literature suggests that parents of children with disabilities are particularly adept at anticipating their child's needs and adjusting their style of interaction to facilitate play (Hamm, 2006), much of the research points in the opposite direction. Parents of children with developmental disabilities experience high levels of stress (King et al., 2003) and, as a result, may play less with their children than parents of children without disabilities (Rogers, 1988; Kogan & Tyler, 1973). More research, however, is needed to determine if other factors related to the social environment can be enhanced to support the intrinsic motivation of children with developmental disabilities to play.

### **Theoretical Background**

Mary Reilly (1974), a prominent leader in the field of occupational therapy, identified play as a multidimensional phenomenon and the primary vehicle for the cultivation of skills in young children. According to Reilly (1974), play cultivates feelings of mastery as the child confronts conflict in a series of hierarchical stages that include: a) exploration, b) competency, and c) achievement. The exploration phase of play arises from an inherent interest in the environment (Riley, 1974). Intrinsic motivation guides a child through the phase of exploration and sensory experiences enhance this motivation (Reilly, 1974). The sensory aspects of the environment often provide the foundation for play and may include features of the physical and social environment. Some examples of these aspects include lighting, available objects, and the presence of others (i.e., people or

animals). As children move beyond exploring their environment, they are innately drawn to seek challenges, meet the demands of a situation, and produce effects in order to receive feedback (Riley, 1974). This second phase, termed competency, may be observed when a child develops a preference for a certain play object and seeks to produce effects with the play object purposefully as well as repeatedly. Children who are operating in the phase of competency seek control of their environment and are active in pursuing their own agendas (Reilly, 1974). When children begin to recognize the consequences of their behavior based on successes or failures, they move on to the phase of achievement. Achievement in play requires children to take risks and reflect on their skills (Reilly, 1974). A child in the achievement phase of play will challenge his or her own abilities and the amount of effort needed to bring about a desired outcome.

Contemporary occupational therapy scholars have expanded on the early work done by Reilly. The three phases of play development that she identified have become the cornerstone of one of the most widely used occupational therapy models to explain human engagement in daily activities, which is the Model of Human Occupation (MOHO) (Lee, Taylor, Kielhofner, & Fisher, 2008). Kielhofner's (2008) construct of volition, which is a prominent facet of MOHO, parallels Reilly's work. Occupational therapists view volitional development as being crucial to independence and self-determination. According to Cahill and Kielhofner (2008), "the thoughts and feelings that comprise volition in childhood are concerned with

personal competence and control, enjoyment and pleasure in doing, and the value assigned to doing" (p. 299). Kielhofner's construct of volition is comprised of an individual's values and interests, as well as his sense of personal causation. Personal causation is defined as a child's sense of effectiveness or competence in his or her abilities (Kielhofner, 2008).

Personal causation is thought to consist of a sense of efficacy and a sense of capacity (Kielhofner, 2008). Whereas a sense of efficacy refers to the child's perception of his or her ability to produce desired outcomes, a sense of capacity refers to what the child believes he or she can do and what abilities he or she has (Cahill & Kielhofner, 2008). Children's development of personal causation within their meaningful daily activities and pursuits supports their sense of independence. When children have a positive sense of self-efficacy, they are motivated to participate in occupations and seek new challenges. When children have a poor sense of self and low self-efficacy, they are hesitant to explore within their environment or to seek further challenges to develop their sense of independence. The environment and the opportunities available within a given context impact volitional development in children. According to MOHO (Kielhofner, 2008), the environment includes not only the physical spaces, but also the social elements of the environment, such as people or animals.

The purpose of this descriptive qualitative study was to examine how and when children with developmental disabilities spontaneously demonstrated play behaviors indicative of volition,

or intrinsic motivation. In addition, the investigators sought to uncover characteristics of the social environment that supported and inhibited such play.

## Methods

### Methodology

The investigators entered into this study using a narrative approach (Clandinin & Connelly, 2004). Investigators use a narrative approach when they want to understand how participants are supported or inhibited by social factors and how they interact within their social environment (Chase, 2005). This approach encourages participants to share their experiences or stories with regard to the phenomenon under investigation.

### Participants

The targeted population for this study was children with developmental disabilities aged two to 13 years and their parents. Once Institutional Review Board approval was obtained from the authors' university, the investigators recruited study participants via flyer distribution and through professional networks. Six children and four parents took part in the study. Five of the children were males, and all of the children were aged nine to 12 years. Four of the children had a diagnosis of autism spectrum disorder, and two children had physical disabilities, which included cerebral palsy and orthopedic impairments (Table 1).

**Table 1**

### *Participants*

Child Participants*	Age	Diagnosis	Parent Participants*
James	9	Orthopedic Impairment	Jennifer
Josh	9	Autism	Jennifer
Curt	9	Autism	Christy
Sarah	12	Autism	Shelly
Sam	12	Autism	Shelly
Tommy	12	Cerebral Palsy	Tammy

\* Pseudonyms

### Data Collection

Observations in the natural environment along with semi-structured interviews served as the primary means of data collection. This technique allowed the parents to share their subjective and personalized perspectives of their child's specific experiences, intentions, and actions across time (Hamilton, 2007; Patton, 2002). The Pediatric Volitional Questionnaire (PVQ) (Basu, Kafkes, Schatz, Kiraly, & Kielhofner, 2008) was utilized to assess the volitional behaviors demonstrated by each of the children as they played in their natural home environments. The PVQ has been found to be valid in measuring a child's volition and capturing the effect that the social environment has on the child's engagement in play (Andersen et al., 2005). The PVQ consists of 14 items that facilitate the understanding of how features of the environment support or hinder a child's volitional development. The items of the PVQ are strategically aligned with the child's sense of ability and control within his or her daily life activities and follow Reilly's stages of play (i.e., exploration, competency, and

achievement). Each child was observed two times for 30-60 min using the PVQ. The observations were conducted by two of the four investigators and inter-rater reliability was established at 90% for all of the observations. During the PVQ observations, the investigator did not interact with the child.

**Table 2**

*Pediatric Volitional Questionnaire Items*

Items	Meaning of items
Shows Curiosity	Explores environment and the people, objects, and events within it
Initiates Actions	Initiation of interactions within his/her environment
Shows Preferences	Expresses an inclination for items within the environment
Tries to Produce Effects	Seeks to produce effects as a result of his/her actions
Tries New Things	Attempts novel activities
Stays Engaged	Desire to remain engaged in an activity
Task Directed	Tries to use objects or his/her body to achieve a goal
Expresses Mastery Pleasure	Perceives his/her actions as successfully influencing the environment
Practices Skills	Seeks opportunities to improve skills
Tries to Solve Problems	Attempts to alter his/her actions when problems arise
Pursues Activity to Completion	Willingness to sustain effort in an activity until the goal is reached
Seeks Challenges	Attempts to achieve a higher standard of performance
Organizes/Modifies Environment	Altering an aspect of the environment to challenge his/her performance
Uses Imagination	Pretends in order to create a more exciting or stimulating environment

(Basu et al., 2008)

In addition, parents were asked to take photos of their child during play and were prompted to follow a picture-taking guide that outlined the volitional behaviors included in the PVQ (Table 2). The investigators then used the photos to frame semi-structured photo-elicitation interviews (Epstein, Stevens, McKeever, & Baruchel, 2006) with each parent participant. The interviews ranged

between 25 and 40 min. All of the interviews were audio-recorded and transcribed verbatim. Once the transcripts were completed, the investigators compared the transcripts to the audio-recording and revised them for accuracy. Researchers also took notes, kept a research diary, and met as a group throughout the data collection period (Patton, 2002). The group meetings served as an opportunity to evaluate the fidelity of the research protocol, make necessary adjustments to the protocol, and discuss emerging themes. Pseudonyms were assigned to each child and parent during the data collection process to protect their identity.

**Data Analysis**

In keeping with previous research using the PVQ, the item scores were analyzed using modes (Harris & Reid, 2005). The PVQ scores were compared against the themes that were identified based on the qualitative data and later used to substantiate our findings. In addition, a thematic analysis was conducted using constant comparative methods (Glaser & Strauss, 1999; Miles & Huberman, 1994). The constant comparative method consists of four activities that are completed simultaneously as new data is collected. These steps include comparing segments of data to coding categories, associating categories and their properties with other categories and properties, combining categories under higher level concepts, and generating theory (Glasser & Strauss, 1999). Informal data analysis began after the first interview was conducted. The data collection and data analysis involved in this study were not separate from each other, but rather iterative (Dillaway, Lysack, & Luborsky, 2006). The data was

organized using within-case (i.e., all of the children and their parents) displays and cross-sub-case displays (i.e., each child-parent dyad) based on different themes that emerged (Miles & Huberman, 1994). Member checking, which involved the parent reviewing a summary of his or her interview, was completed four to six weeks after each interview (Patton, 2002).

### Results

All of the children were observed in their home, and all were considered to have more than adequate access to play objects. Play objects ranged from squirt bottles and toy microwaves to sports equipment and technological devices (e.g., iPads, computers, Wii game consoles). In addition, all of the children had pets, specifically dogs. The dogs served both as a play partner (e.g., playing fetch) and as a play object (i.e., something that can be directed and manipulated). All of the children demonstrated a preference for certain play objects. The physical and social environment supported these preferences, as the objects were readily accessible to the children, and the children had the opportunity to initiate interactions with the objects. The objects that were the focus of the children's preferences were those that offered each participant control over establishing the parameters of play. Examples of the parameters established by the children include where the play experience would take place, the duration of the play, and how the objects would be used in the play experience.

Four out of six participants (67%) showed spontaneous behaviors on the following PVQ items: shows preferences, tries to produce effects, shows

curiosity, and expresses mastery pleasure.

Spontaneous behaviors are those that are demonstrated without the need for direct support or engagement by another individual. The items that were most frequently rated as passive, that is, the child does not engage in the behavior even when provided with support and encouragement, included pursues activities to completion, directs oneself to the task, seeks challenges, and tries new things. The PVQ items most frequently not observed were practicing skills and trying to solve problems.

### Spontaneous Behaviors

**Shows preferences.** All of the parent participants expressed that their child showed preferences, gravitated toward specific types of play, and engaged in play the longest when the play was predictable and the child could maintain control of both the process and the outcome of the play. For example, when Christy was asked about what aspects of the social environment motivate her child to engage in play the most, she mentioned Curt's play with the family's dogs:

I think when it comes to the dogs, or playing with the dogs, because he can control the situation more, he can control the toys, he can control the throwing, he can do more of that. That's when he likes to engage in a lot of play with them. Which obviously they're dogs, they're very fine with that, they're very [easy going and like] any kind of love that you show them. I think that's huge for Curt because I think that he can control the play, and he's able to feel like he has dominance over it. So when it comes to

some other children or even his brothers and sister, he doesn't have that same unconditional love. . . it doesn't matter if we are throwing a ball or what we are doing.

**Tries to produce effects.** The parents described their child as trying to produce effects in the environment. All of the parents spoke about their child's use of technology as a means to produce effects. Other parents spoke about more traditional play objects. Tammy spoke of blending a traditional play object, a trampoline, with a switch toy (i.e., "music cube") and how her son, who has limited mobility, tried to produce an effect in his environment. Tammy said: "I had [Tommy] off the trampoline. He loves the music cube. It's a cause and effect toy... it was on the trampoline and he actually physically turned around and [reached] up to the trampoline to get it."

Shelly described how her daughter, Sarah, tried to produce effects by cutting up vegetables to make soup. Although Sarah was not able to complete the task of making soup entirely by herself (i.e., needing help to turn on the stove), she knew that the vegetables needed to be cut into a certain size, and she proceeded to do that. Shelly said:

So [in this picture] they are getting ready [to make the soup]. They are chopping carrots. I think we had just gone to the produce store... I think it is like the next day. So, she had all of these ingredients in her head...and then she asks me usually to turn the oven on for her, whereas [my son] just does it himself.

**Shows curiosity.** The parents talked about different ways that their child demonstrated

curiosity during play. For some children, play meant interacting with a dog or a play object, and in other cases it meant using technology. Jennifer described James' curiosity when working on the computer:

[When James] is on the computer and he is looking something up...he might be playing a game on the computer or looking up something for school, sometimes they have to do that for homework for school. ...You know that he's very interested in sports and sports figures so he likes to learn about football players, baseball players, things like that... so, just learning, learning about those sorts of things. He's curious about who's on what team and things like that.

Jennifer also described how her son, Josh, who has more significant needs, demonstrates curiosity when exploring the sensory characteristics of his environment:

I can just see the expression on his face, hear it in his voice, and by the things he's saying, I can tell he's happy. Josh doesn't get involved in a lot of play. He is mostly a sensory seeker I would say. So he is squeezing his water bottle or he's wandering around a lot right now...trying to touch things...he's nonverbal, so maybe he'll make happy sounds, so that you can tell that he enjoys that.

**Mastery Pleasure.** The parents talked about different ways that their child demonstrated mastery pleasure, or the impact of their actions on the environment. The parents described how their child expressed mastery pleasure with activities such as cooking recipes of their own creation, playing video games, and getting play objects to



function in the way that they intended. Shelly described how Sarah demonstrated mastery pleasure when she was selected to raise the flag at her school:

She's just excited to do it because they never, she hasn't done it in two years. I don't know how they pick the kids [that get to raise the flag]...so she's excited to do it and (referring to picture) she's posing for me for the pictures. She's smiling...it's her proud flag raising.

### **Behaviors Frequently Not Observed**

Although some of the children were able to demonstrate practicing skills and solving problems, these two skills were the most frequently not observed items during the PVQ administrations. Three of the six child participants were not observed practicing skills in at least one of the PVQ observations, and none of the children were rated as spontaneous for this item during either PVQ observation. For example, Tammy described how her son, Tommy, would benefit from practicing the use of specific motor plans to make mobility and engaging in the environment more efficient: "It's not as easy as most kids. Like [other kids] get it one time and then [they think] I want to practice this so I'll do it over again. [Tommy] doesn't do that so then you have to set up the environment [for him]."

Five of the six children were not observed problem solving in at least one of the PVQ observations, and two of the six children were not observed engaging in problem solving during either PVQ observation. The parents reported that their child struggled with trying to seek challenges, remaining task-directed, trying to solve problems,

and pursuing activities to completion. In addition, they identified instances where they needed to facilitate play in order for their child to have a successful experience and experience more control. For example, Jennifer mentioned how interacting with siblings in the context of play was often frustrating for her son, James, due to losing a game. Jennifer explained how she was the problem solver in this situation. Jennifer stated:

[He] likes to play with any sort of video game, the Wii, iPod or iTouch, but he also likes sports. When he plays with his other brother, his other brother is usually winning by a lot more than he is, so he gets frustrated a lot with that. He gets upset. He'll usually stop and come downstairs and then we'll try to figure out something else, kind of talk about it and try and figure out something else, maybe call his other brother down to discuss how we can change the game a little bit.

More than half of the participants in this study spontaneously showed preferences, tried to produce effect, showed curiosity, and expressed mastery pleasure. Toys and other play objects were readily available to all of the children. In addition, the children sometimes used their pet dogs as play partners. Both the physical and social aspects of the environment were supportive of play and allowed the children to establish control over the parameters by which this occupation was carried out.

### **Discussion**

This study sought to examine how children with developmental disabilities aged nine to 12

years spontaneously demonstrated play behaviors indicative of intrinsic motivation within their social environment. Most of the children in this study were able to spontaneously show preferences, try to produce effects, show curiosity, and express mastery pleasure. Overall, the children demonstrated these behaviors in their natural environments, ones with which they were already familiar. Despite familiarity with the social environment, and even when many resources were made available to them (e.g., toys, pets, and siblings), the children in this study often required additional support to try new things, seek challenges, remain task directed, and pursue activities to completion. Further, the children tended to seek out play experiences that afforded them the opportunity to exercise control over their social environments and create a sense of predictability.

The children's hesitancy to try new things and seek challenges supports the notion that children with disabilities tend to have limited play repertoires and require more support from others during play (Missiuna & Pollock, 1991; Mistrett et al., 2000). However, the children's sense of curiosity, their desire to produce effects, and their desire to control their social environments seems to suggest that children with disabilities could have more robust play repertoires given the appropriate supports. Further, it is possible that the demonstration of spontaneous volitional behaviors may be the prerequisite that lead them from being dependent on others during play to becoming interdependent and independent. More research is

needed to explore why children with disabilities have such limited repertoires. Specifically, research should be done to distinguish between a child's need for physical assistance and modifications during a new play activity and a child's ability to independently orchestrate such play. While some literature suggests that parents of children with disabilities are particularly skilled at facilitating their children's play (Hamm, 2006), more research is needed to determine when and how the parents themselves approach new play tasks, and how they facilitate play with unfamiliar objects.

Despite the small sample size, the results of this study suggest that children with developmental disabilities spontaneously demonstrate some behaviors associated with the intrinsic motivation to play in social environments, particularly when they have the opportunity to control specific environmental parameters and orchestrate events. In order to increase participation and develop competency in play, occupational therapists should create opportunities that complement the child's natural desire for control, yet challenge the child to expand his or her play repertoire in order to further develop skills. Occupational therapists and other practitioners should collaborate with parents to determine the child's next just right challenge (Reilly, 1974) and grade the affordances provided in the social environment to maximize opportunities for development. Further research is needed to understand how children with disabilities develop play repertoires and how parents support the development of play skills.

## References

- Andersen, S., Kielhofner, G., & Lai, J-S. (2005). An examination of the measurement properties of the Pediatric Volitional Questionnaire. *Physical & Occupational Therapy in Pediatrics*, 25(1-2), 39-57.
- Basu, S., Kafkes, A., Schatz, R., Kiraly, A., & Kielhofner, G. (2008). *The Pediatric Volitional Questionnaire* (Version 2.1). Chicago: University of Illinois at Chicago.
- Cahill, S., & Kielhofner G. (2008). Volition: Child-oriented intervention for the upper extremity. In A. Eliasson and P. Burtner (Eds.), *The child with cerebral palsy: Management of the upper extremity* (pp. 298-307). London: Mac Keith Press.
- Chase, S. E. (2005). Narrative inquiry: Multiple lenses, approaches, voices. In N. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook for qualitative research* (pp. 651-680). Thousand Oaks, CA: SAGE.
- Clandinin, D. J., & Connelly, F. M. (2004). *Narrative inquiry: Experience and story in qualitative research*. San Francisco: Jossey-Bass.
- Dillaway, H., Lysack, C., & Luborsky, M. (2006). Qualitative approaches to interpreting and reporting data. In G. Kielhofner (Ed.), *Research in occupational therapy: Methods of inquiry for enhancing practice* (pp.372-388). Philadelphia, PA: F. A. Davis.
- Epstein, I., Stevens, B., McKeever, P., & Baruchel, S. (2006). Photo Elicitation Interview (PEI): Using photos to elicit children's perspectives. *International journal of qualitative methods*, 5(3), 1-11.
- Glaser, B., & Strauss, A. (1999). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine de Gruyter.
- Hamilton, T. B. (2007). Narrative reasoning. In B. A. B. Schell & J. W. Schell (Eds.), *Clinical and professional reasoning in occupational therapy* (pp. 125-168). Baltimore, MD: Lippincott, Williams, & Wilkins.
- Hamm, E. (2006). Playfulness and the environmental support of play in children with and without developmental disabilities. *OTJR: Occupation, Participation, and Health*, 26(3), 88-96.
- Harris, K., & Reid, D. (2005). The influence of virtual reality play on children's motivation. *Canadian Journal of Occupational Therapy*, 72(1), 21-29.
- Kielhofner, G. (2008). *Model of human occupation: Theory and application* (4<sup>th</sup> ed.). Baltimore,

- MD: Lippincott, Williams, & Wilkins.
- King, G., Law, M., King, S., Rosenbaum, P., Kertoy, M., & Young, N. L. (2003). A conceptual model of the factors affecting the recreation and leisure participation of children with disabilities. *Physical & Occupational Therapy in Pediatrics*, 23(1), 63-90.
- Kogan, K. L., & Tyler, N. (1973). Mother-child interaction in young physically handicapped children. *American Journal of Mental Deficiency*, 77(5), 492-497.
- Lane, S., & Bundy, A. (2012). *Kids can be kids: A childhood occupations approach*. F. A. Davis: Philadelphia.
- Lee, S. W., Taylor, R., Kielhofner, G., & Fisher, G. (2008). Theory use in practice: A national survey of therapists who use the Model of Human Occupation. *American Journal of Occupational Therapy*, 62(1), 106-117.
- Mastrangelo, S. (2009). Harnessing the power of play: Opportunities for children with autism spectrum disorders. *Teaching Exceptional Children*, 42(1), 34-44.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: SAGE.
- Missiuna, C., & Pollock, N. (1991). Play deprivation in children with physical disabilities: The role of the occupational therapist in preventing secondary disability. *The American Journal of Occupational Therapy*, 45(10), 882-888.
- Mistrett, S., Lane, S., & Goetz, A. (2000). A professional's guide to assisting families in creating play environments for children with disabilities. Retrieved from: <http://letsplay.buffalo.edu/products/PlayManual.pdf>
- Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: SAGE.
- Piaget, J. (1962). *Play, dreams, and imitation in childhood*. New York: W. W. Norton and Company.
- Reilly, M. (Ed.). (1974). *Play as exploratory learning*. Beverly Hills, CA: Sage Publications.
- Reynolds, S., Bendixen, R., Lawrence, T., & Lane, S. (2011). A pilot study examining activity participation, sensory responsiveness, and competence in children with high functioning autism spectrum disorder. *Journal of Autism & Developmental Disorders*, 41(11), 1496-1506.
- Rogers, S. J. (1988). Characteristics of social interactions between mothers and their disabled

- infants: A review. *Child: Care, Health and Development*, 14(5), 301-317.
- Skard, G., & Bundy, A. (2008). Test of playfulness. In L. D. Parham & L. Fazio (Eds.), *Play in occupational therapy for children* (2nd ed., pp. 71-93). St. Louis: Mosby/Elsevier.
- Takata, N. (1971). The play milieu: A preliminary appraisal. *American Journal of Occupational Therapy*, 15(6), 281-284.
- Vandenberg, B., & Kielhofner, G. (1982). Play in evolution, culture, and individual adaptation: Implications for therapy. *American Journal of Occupational Therapy*, 36, 20-28.