Studies of Play: Implications for Growth, Development, and for Clinical Practice

occupational behavior, systems, hierarchy

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The clinical yields of studies of play conducted by graduate students in occupational therapy are identified, and the boundaries of the studies are described. The theme of change in play over time is acknowledged as prominent in all the studies. Open systems and hierarchy are helpful concepts for understanding the process of change in growth and development through play. Clinical tasks to facilitate the change process are cited.

Those interested in studying play or perusing the literature on play are likely to encounter the following statement by Slobin: "When we examine a set of behaviors as outstanding as that of play, we find ourselves face-to-face with hundreds of years of attempts to understand human behavior." (1, p 61) Slobin is signaling many things: that the study of play is an "I dare you" proposition, that play is a perplexing phenomenon, that the ground rules for inquiry require acknowledgment of this complexity, and that the inquiry may have important yields for understanding and attempting to influence human behavior. Graduate students in occupational therapy conjectured that the study of play would yield significant strategies for helping highly disabled children with whom occupational therapists worked, and accepted this challenge.

This paper summarizes some of the studies of play that were conducted by graduate students in occupational therapy at the University of Southern California. It describes the overall boundaries of the studies on play and identifies clinical yields of these studies. The theme of growth and development in play is acknowledged as a theme common to all studies. Open systems and hierarchy are used for understanding the process of growth and development. Clinical tasks for facilitating changes in play are identified.

The Ground Rules
The studies on play were guided by three basic rules that focused attention on research method, conceptual mapping of the play phenomenon, and the intent of study. The first rule was that the research design was to be exploratory in nature. The purpose of exploratory design is "...to gain familiarity with a phenomenon or to achieve new insights into it..." (2, p 90); it sets parameters and raises questions for further study. Exploratory study yields qualitative rather than quantitative data. The importance of exploratory research is often underestimated (2); as Selltiz, et al., state, "...if experimental work is to have either theoretical or social value, it must be relevant to broader issues..." (2, p 92)

The second rule was that the complexity and diversity in the literature on play required conceptual mapping of the play phenomenon. Explanations of play were found in theories of play, cognition, personality, and motivation and were derived from such fields as philosophy, psychology, sociology, and anthropology (3). Six principles of play common to most major theorists were identified and then used to set parameters for the study of play. The principles follow:

1. Play is a complex set of behaviors characterized by "fun" and spontaneity. This is a hallmark of play that had led people to propose theories—why do children do this? This principle addresses the motivational aspects of play.

2. Play is sensory, neuromuscular, mental, or a combination of all three. In daily transactions with people and objects, actions are not restricted to one particular form of play. At different stages one form may predominate but the whole perspective on play is lost if these forms are kept separated. This speaks to the multi-dimensional nature of play.

3. Play involves repetition of experience, exploration, experimentation, and imitation of one's surroundings. This principle addresses risk-taking and mastery, which occur through play.

4. Play proceeds within its own time and space boundaries. This refers more to the child's own interpretation of reality-fantasy as contrasted with reality. It speaks to the child's rehearsing within his/her own boundaries of time and space and on his/her own initiative.

5. Play functions as an agent for integrating the internal and the external worlds. How the child takes information from the environment and makes some sense of its speaks
### Table 1 Pilot Instruments/Guides

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Name</th>
<th>Clinical Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>History, Development</td>
<td>Play History (8, 9)</td>
<td>Interpretation of Past Play Experience with Materials, Actions, People, &amp; Settings. Age Range: Birth—16 years</td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>Guide to Observation of Play Development (10)</td>
<td>Interpretation of Current Play with Human Objects, &amp; Nonhuman Objects. Age Range: Birth—0—11 years</td>
</tr>
<tr>
<td>Symbol Formation, Creativity</td>
<td>Growth Gradient (12, 13)</td>
<td>Interpretation of Current Symbolic Creative Art Expressions in Dimensions of a Maturity Profile, Creative Profile, Human Schema/Symbols, Space Symbols, Color, &amp; Design Schema. Age Range: 2—18 years</td>
</tr>
<tr>
<td>Exploratory Play</td>
<td>Play Scale (15)</td>
<td>Interpretation of Current Play in Space Management, Material Management, Imitation, Participation. Age Range: Birth—6 years</td>
</tr>
<tr>
<td>Development</td>
<td>Play Skills Inventory (16, 17)</td>
<td>Interpretation of Current Play in Dimensions of Sensation, Motor Ability, Perception, Intellect. Age Range: 8—12 years</td>
</tr>
<tr>
<td>Play</td>
<td>Specification for a Play Milieu (19)</td>
<td>Examination of Balance of Human, Nonhuman, Qualitative, Quantitative Elements in Milieu. Age Range: Not Specified</td>
</tr>
</tbody>
</table>

The numbers following the name of the pilot instruments or guides indicate references to the published material.

to the integration of knowledge derived vis à vis play.

6. Play follows a sequential, developmental progression. This principle acknowledges that quantitative and qualitative changes occur over time (4).

The third rule was that the studies were to have specific yield for the practice of occupational therapy. As interesting as it might be to study play, the question was what yields it might have for clinical application to disabled children and their families. This rule was critical since most of the graduate students would return to positions in which directly or indirectly they would be responsible for formulating intervention strategies with children, or teaching others to do so.

Implicit in accepting the above ground rules was the hope of contributing to and better understanding the occupational behavior frame of reference. Reilly highlighted the major assumptions of this frame of reference when she wrote: “Play in a chronological or a longitudinal sense, we believe, is the antecedent preparation area for work. In a cross-sectional sense we have found it clinically useful to see our adult social-recreation pattern as a sublatent support to a work pattern.” (5, p 302) The assumptions were clear: careful and critical studies in the topical areas of play and work were needed. Matsutuyo reiterated this position: “Occupational behavior is studied through the play and work phenomena.” (6, p 292)
Table I. In addition, Table I identifies the major content areas explored.

The selection of studies included in Table I is limited to those that have been published. The published material is based upon the original studies.

The clinical yields are pilot instruments or guides to assessment and intervention. They are not statistically standardized as exploratory methodology, ground rule number one required only that theoretically content areas be mapped and parameters be set. The clinical yields differ with respect to age and specificity of dimensions examined in play. Some instruments serve a screening function, whereas others provide an extensive probe in selected areas. Suggested screening instruments include the Guide to Observation of Play Development, the Guide to Play Observation, and the Play History. The first two instruments provide a cross sectional or current view of the maturity, immaturity and quality of play actions. The Play History identifies a longitudinal view of areas of strength and weakness. Additional pilot instruments provide focus for more extensive probing of the identified areas of strength and weakness. Most of the guides to assessment also contain specifications for intervention. The most comprehensive guide to developing a milieu for intervention is the Play Agenda.

Growth and Development
Prominent in all of the studies is the theme that the content and form of play change over time and that the play milieu provided must be responsive to these changes. Changes over time are documented in many theories of growth and development (21-24). The clinical task becomes one of assessing the child's level of development and providing materials to facilitate development in and through play. Since, in many instances, the underlying assumptions of each theorist are very different, understanding and facilitation of the process of growth and development are made difficult for the clinician. Assumptions regarding the role and timing of environmental stimulation and its meaning for child care are cases in point. If one subscribes to maturation as the critical factor in change, there is little need to pay attention to environmental influence as inherent capacities simply unfold in a predetermined time line. This is referred to as the "leave well alone" policy of child care. If environmental stimulation assumes primacy, children are regarded as pieces of clay molded by the variety of forces they contact during the years. This, the "more the better policy," disregards the active and individual nature of children, and stimulation, however well intentioned, may not be assimilated. If early experiences in childhood are accepted as either primary or irreversible, two beliefs ensue: children harmed early might not be worth working with as they are deemed beyond help; in later years, children are not vulnerable and experience is of no consequence (25). The polarity in viewpoints seems to reflect the failure to sufficiently distinguish and separate the concept of growth from the concept of development and the failure to place maturation in development within its proper perspective. It is possible to generally predict the growth of children, but one cannot look at the development of random behavior and predict competencies (26). Developmental theories name the events occurring in one's life but do not explain them (27). The fallacy of accepting maturation as the only explanation for changes in development is the failure to acknowledge the role of environmental variables. According to Schaffer, "knowing that a child has, for instance, minimal brain damage, without knowing the nature of his environment will not tell us how he will develop." (25, p 22) Bruner and Connolly remind us that development is a much more complex concept than a milestone: "... the years before maturity are not simply a training ground: childhood has, we believe, an intrinsic value for the individual. . . . The kind of development we are talking about cannot be spelled out in terms of monumental milestones, whether they be moral, intellectual or temperamental milestones." (28, p 4) The present state of knowledge regards children in general as progressing through a physical science trajectory of time and space in which they jump from one developmental stage or milestone to another. With handicapped children who are not always nimble or quick, Jack jumping over the candlestick is the wrong model for viewing the process of change over time.

The Process of Change. Open systems and hierarchy are helpful concepts for understanding the process of growth and development for occupational therapy. Systems theory addresses the relationship of parts to wholes, structure to function, and the exchange and transformation of energy (29, 30). Within systems theory phenomena may be described with respect to the level of complexity of the organization of behavior: hierarchy specifies the rules by which such complexity is ordered. Open systems and hierarchy are interdependent. Both open systems and hierarchy are necessary to view the process of growth and development; open systems speak
more to growth whereas hierarchy speaks more to development.

Man is, at the very least, an open system. An open system is a self-maintaining structure. In the intake and output of matter or energies an open system is able to maintain itself in the process of exchange or throughput of matter or energies. Open systems reproduce themselves, and they generally increase in order over time due to an increase in complexity and differentiation of parts (30, 31). As open systems evolve, they undergo different forms of growth. One form in growth in size, or quantity, and is referred to as simple growth. A second form of growth involves the structure of interrelated parts and the change in the relations of the parts. This is referred to as structural growth (32).

This type of growth results in structural change or development and addresses the complexity or the systematic nature of the parts in relation to the whole. As Boulding states, "Thus in the growth of a living organism, or an organization, as the whole grows, the form and the parts change: new organs develop, old organs decline and there is frequently growth in complexity as well as in some overall magnitudes." (32, p 66)

Hierarchy implies a sense of order in immediate time and over large time frames. The overall function of a hierarchy is to process change over time (33). Behavior is organized, reorganized, recombined, and transformed to reflect this change. The fundamental changes are from simple to complex and from ambiguity to autonomy. There are at any given time at least three levels of order within an organism or organization, which may be referred to in descending order as a supersystem, a system, and a subsystem (34). Fiebleman has formulated laws of the levels that are useful in viewing the organization of order within an organism at any point in time and over time (35). Selected laws follow:

1. The complexity of the levels increases upward. The supersystem is the most complex of the levels and the latest to emerge. The subsystem is the least complex and the first to emerge.

2. The higher level depends upon the lower and the lower is directed by the higher. The higher level of the supersystem is complex, yet it is also more vulnerable. The lower level is simplistic but stronger. The supersystem directs the functions of the organism as a whole but must have stability at the subsystem level to direct at all.

3. A disturbance or change in the organism at one level affects all levels. Internal or external disturbances or changes affect all levels of the organism and multiple combinations and recombinations are required before a sense of stability is achieved.

4. The higher level cannot be reduced to the lower level. Each level has its own characteristic quality and to ignore the qualities of the higher level is to ignore the complexity of the organism. Fiebleman states, "To suppose that the higher level can be reduced to the lower is to commit the fallacy of reduction." (35, p 458)

The laws of the levels function to transform behavior. When older behaviors are present in sufficient quality and quantity, higher or newer forms of behavior will emerge and flourish. When the older behaviors are not adequate, higher or newer forms of behavior either do not emerge or become distorted and incompetency predominates (33). Weiss highlights the often subtle transformations in development: "... time demarcations setting off periods or stages, such as embryonic, fetal, postnatal, larval, adult, etc., should be viewed as grading into each other by transitions rather than as bounded by discontinuities. Some such transitions may impress us as dramatic for their abrupt appearance and rapidity, but, remember that 'appearance' means merely the unveiling to our eyes of some event or object which has passed through a continuous line of preparatory developments proceeding steadily but unnoticed." (34, p 101)

In using open systems and hierarchy, one need not give sole allegiance to either environment, maturation, cultural or social tasks to gain an understanding of growth and development, since these are variables that effect change. It might be sufficient to classify change along three major dimensions: size, complexity, and order. Skills become greater and more complex, and they are built directly upon skills acquired previously. Newer skills emerge and do not simply appear because the nervous system was ready that day or the environment was just right. The process of emerging requires time and involves constant re-ordering and transforming parts of skilled actions into a skilled act. Mapping change in distinct periods in time is merely an expedient artifact. The changes do not represent a static process in the sense of leap frogging from one period to another or passing one set of skills and acquiring another. Change is a dynamic process in which skills and behaviors become greater, more complex, re-ordered and transformed into yet a different product.

Ontogeny also concerns the development of an individual over
time. It connotes a cyclical spiraling and complex system of change that is more in keeping with the use of open systems and hierarchy. Developmental stages connote a linear, absolute, and simplistic system of change. The issue addressed here is not changing the name of a universal body of knowledge from growth and development to ontogeny nor discarding the rich content in theories of growth and development. The issue addressed is changing the conception of the process of change from a linear to a hierarchical progression. The clinical implication of this change is a move from examining a cross-sectional view to examining both a cross-sectional and a longitudinal view of a child's strengths and weaknesses along the developmental continuum.

The Clinical Task
A great variety and diversity of handicapped conditions may affect children. The manner in which these conditions manifest themselves in each child is equally diverse, yet handicapped children share common characteristics and a common requirement. A handicapping condition interferes with and alters the pattern of growth and development and impairs the child's ability to explore, interact with, and master the environment (36). Handicapped children require "...considerable effort and engineering from those providing for their care and development." (36, p 171) In providing for the play of handicapped children the clinical tasks for the occupational therapist are numerous, but three are fundamental observation of the child's play, a history of the child's play, and setting up a milieu for intervention in play.

Play Observation. Play observation provides an extensive list of the strengths and weaknesses of the child's current play. Play History. The history interview is administered to parents or caretakers. The history interview begins with the child's present play pattern regarding what, how, with whom, and where the child plays, then focuses on these areas in earlier years. Fruitful leading questions can be based on the play materials liked and disliked or avoided by the child at particular ages. The play elements listed in the sensorimotor, symbolic, dramatic and complex, constructive, game, and recreational epochs serve as additional guides to interview questions as well as to overall interpretation of the information. The history provides a longitudinal view of the child's accumulated areas of strengths and weaknesses in play. In using open systems and hierarchy to understand the process of growth and development, history taking is critical. Determining the integrity of each stage of organization as it influences and is influenced by succeeding stages is paramount. Without a good history intervention becomes guesswork. The results of the observation and history provide the starting point for treatment.

Play Milieu. The milieu is the arena for intervention. It contains materials and people. The Play Agenda provides an extensive listing of materials appropriate to encouraging actions at different levels of development. The hallmark of the milieu is action. Being a passive observer of other children or adults is not sufficient. Active engagement in the process is necessary for feedback, and feedback is essential to the change process. Handicapped children are often hesitant to engage in active play because the results of their independent efforts are frequently associated with failure and frustration. In reviewing studies of play of handicapped children Mogford identified the following recurring theme: "... this is the need for the adults who surround and care for handicapped children to encourage them to play and be willing to become active participants. . . ." (36, p 179) The occupational therapist actively engages in play, and as the child actively pursues the process, gradually becomes an active observer of play.

The action component in play is critical to competence. In 1974, Bruner and Connolly identified a key feature of competence as knowing how to do things as contrasted with simply knowing things: "For competency implies action, changing the environment as well as adapting to it." (28, p 5) The emphasis on play as an arena for learning through doing is a recurrent historical theme in many writings. In 1908, Adolph Meyer expressed it as follows: "... knoll,
edge must be knowledge of doing things, and next to a knowledge of 'ready for doing' things. Even in cultivating the instincts of play and pleasure we must aim to make as attractive as possible those games and diversions which require decision and action, and carry with them a prompt demand for correction of mistakes and reward for achievement.” (37, p 348)

Conclusion
In using the occupational behavior frame of reference in working with handicapped children, it is necessary that the occupational therapist be equally fluent in three knowledge systems—knowledge of pathology or disease, knowledge of the content and process of growth and development, and knowledge of play. Methods of assessment and techniques for treatment of pathological conditions are highly documented in occupational therapy literature. The technology provided by this knowledge base is rich and the task is to use and incorporate it in concert with concepts of development and play.

The knowledge base in the process of development needs to be understood from a perspective of open systems and hierarchy in order that the content be fully used. The knowledge base in play per se must be studied by clinicians. The content areas identified in the pilot assessments/guides require as much attention as do the assessments/guides themselves, or their application with children is void of meaning. Just as the use of scooter boards does not equate to a knowledge of sensory integration, the use of play materials and toys does not equate to a knowledge of play.

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REFERENCES
24. Havighurst R: Developmental Tasks and Education. New York: Longmans, Green, 1952