A Model of Human Occupation,
Part 4. Assessment and Intervention

(tool, theory)

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This paper, the last of four, completes the presentation of a model of human occupation. Its purpose is to illustrate how a model of occupation can be applied in clinical practice. Three major assumptions concerning occupational therapy that underlie this model are described, the three parts of the model presented earlier are reviewed, and the use of the model in assessment to generate plans for treatment is discussed. Four case histories are used to demonstrate assessment and intervention.

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Three preceding papers in this series proposed several facets of a single model of human occupation. This model, it was asserted, could guide practice in all areas of disability and in a variety of settings. The model itself is only a tool that organizes material from a broader science of human occupation. This paper addresses the process of using the model as a tool in practice.

Three assumptions underlie the application of this model in practice. Reilly points out that occupational therapy is directed toward enabling Man to fulfill his innate need for "occupation and . . . the rich and varied stimuli that solving life problems provides him" (1, p.5). According to this primary assumption, humans are occupational creatures who cannot be healthy in the absence of meaningful occupation. Reilly has also stated the second assumption: "Man, through the use of his hands as they are ener-
gized by mind and will, can influence the state of his own health” (1, p 2). According to this assertion, occupation can shape the health of a person, and can thus serve as a means to health.

The first two assumptions assert that occupation is both a basic human activity essential to health and a healing process. A third assumption is that for occupational therapy to be instrumental as a means to an end, it must embody the characteristics of the end itself. This means that occupational therapy must be true “occupation.” Therapy must embody the characteristics of purposefulness, challenge, accomplishment, and satisfaction that make up every occupation. Therefore, a theory of occupation is critical to practice.

The idea that, by engaging in occupation designed as therapy, Man can restore, increase, and maintain his ability as an occupational creature is the foundation of occupational therapy. A theory of human occupation serves to justify the field’s commitment to occupation as a worthy goal for therapy. It also demonstrates how therapy should be organized and carried out. This latter use of a theory of occupation is the major purpose of this paper.

In the three earlier papers in this series (2-4), several diverse concepts relevant to an understanding of occupation were interrelated in a proposed model of human occupation. This model can serve in several ways to guide practice. It presents a description of the normal or usual organization and ontogenesis of occupation in Western culture. As such, it can be used as a guide or measure from which to identify disorganization of behavior and deviations from patterns of ontogenesis. The model also demonstrates organized relationships between conceptual entities. Thus, the model can serve as a guide to assessment by pointing out which areas (concepts) are important to consider in assessment. It also provides a framework to guide interpretation of patient or client data that can be compared to organization of the system demonstrated by the model.

Application of the model requires that therapy be conceptualized as an organizing process. The model demonstrates how occupational behavior is organized and serves both as a framework for interpretation of disorganized behavior and for making decisions about the kind of occupations that should be employed in therapy to organize behavior. The concept of organization is central to the model and thus to assessment and intervention. The relationships of components and sequences of ontogenesis postulated by the model characterize organized behavior. The understanding of how parts of the model are interrelated and how they are sequenced is important for employment of the model in therapy. The cases that follow in this paper demonstrate the focus on the organization of behavior. Dysfunction is conceptualized as disorganization in the system. Similarly, therapy is seen as a process in which the system experiences organizing involvement in planned occupations.

The model should be viewed as a flexible tool, allowing variation in its application rather than as a rigid standard. Each therapist might find it useful to employ the model in ways that coincide with his or her own styles of thinking and problem solving. What is most essential to a valid application of the model is an understanding of the concepts and interrelationships it postulates. This paper will demonstrate ways in which the authors have been able to use the model as a guide to practice in settings with different patient populations.

The Model of Human Occupation

As a preface to discussing application of the model in practice, this section will briefly acquaint the reader with the model presented earlier. For a more detailed portrayal, the reader is referred to the three previous papers (2-4).

The structure and content of the model explain human occupation as an open system (2). An open system interacts with its environment and is constantly changing as a function of that interaction. Interaction of a system with its environment is a process of input, output, throughput, and feedback. Open systems are spontaneous and operate according to certain innate characteristics. Those innate features of the system that underlie and energize occupation are the basic human urge to explore and master the world, which is expressed in work and play. The system with its innate drive in interaction with the environment organizes its own behavior (2). The social organization of the human group that allows its young to play and requires its mature members to produce for themselves and the group is a critical dimension of the environment that shapes occupation.

The internal organization of an open system is conceptualized as a number of interrelated subsystems (2). This model proposed three subsystems each of which serves a different purpose. The subsystems are organized into a hierarchy with the higher governing the lower. Each subsystem has its own structure and function that determine its contribution to the overall system. Structure refers to internal makeup or
components. Function is the particular way a subsystem contributes to the output of the system.

In this model, the volition subsystem is the highest level subsystem (2). Its function is to enact behavior. It guides the system’s choices of action. Its structure involves three components—personal causation, valued goals, and interests. Personal causation refers to the individual’s beliefs about the efficacy of action; it guides action according to the belief that a given action, or set of actions, is likely to achieve desired results or allow mastery over the world. Valued goals refer to those ends toward which the individual is willing to commit sustained action. Interests refer to the disposition to engage in actions for their own sake and because of the pleasing results they can achieve. Personal causation, valued goals, and interests all contribute to the volition subsystem’s influence over the system’s propensity for action. In combination they determine what the system chooses to do. Since this subsystem determines what the individual finds pleasing and satisfying to do, it must be in harmony with other internal subsystems and with the environment’s requirements. If there is a gap between the volition subsystem and the structure of another subsystem or in the requirements of the environment, disorganization of the system can follow.

The second subsystem is the habituation subsystem (2). Its structure is made up of habits and internalized roles. It functions to maintain action. This subsystem guides the output of action that does not need to be enacted through choice, action that is routine and largely out of consciousness. For instance, when behaviors originally energized by interest become routine, their organization becomes the function of the habituation subsystem.

Internalized roles refer to expectations from the environment for productivity that have been incorporated into the internal makeup of the system within the habituation subsystem. Internalized roles are important to the system’s ability to meet demands from the environment for consistent performance. Habits are organized routines of behavior; they incorporate skills into patterns of action that can function automatically without the conscious attention of the actor. Since the system cannot be constantly attending to all of its action or constantly making choices about action, this subsystem governs automatic, routine, and habitual action.

The production subsystem is the third, and lowest level, subsystem (2). The function of this subsystem is to produce action. Its structure consists of skills—social, cognitive, and/or physical actions organized to an end. A skill involves the integration of such diverse components as anatomy, neurological circuitry, and cognition. Skills organize components of the organism into patterns of action that achieve a given end under whatever conditions exist in the environment. Either the volition or habituation subsystems can trigger the system toward the employment of a skill. Once the system is in action, this subsystem serves as a guide, controlling the quality of action and giving it that characteristic referred to as skill.

The open system of human occupation is conceptualized as being made up of the preceding three subsystems. The organization of these subsystems over time depends upon the interaction of the system with its environment (2). This interaction is conceptualized as a process involving throughput, output, feedback, and input. The major concern of this model is with how information is processed in interaction since occupation is conceived of as purposeful, informed action.

Input refers to information that enters the system from the environment. Expectations of the social group for individual performance is an example of such incoming information. Throughput refers to how information is organized within the system to effect output. Each subsystem and its components require and organize information for action. For instance, values, skills, and habits all contain information about the self and the environment and use it to organize action in their own way. Throughput processes incoming information and determines the output. The output of the system refers to both the information and action that the individual puts forth into the environment. The expectation that some action will be enjoyable is an example of informational output. Action can be physical or social and always involves some skill. It may be guiled by either higher level subsystem depending on whether the action is habitual or the product of conscious choice.

Feedback completes the cycle of the open system. It is the means by which the system is informed of the results of its action. Feedback information influences subsequent organization of the subsystems. For
Exploration, the urge to curiously manipulate the environment, yields skills. As the system uses these skills the urge to be competent takes over and through practice the skills are organized into habits.

instance, feedback on action guides the learning of a skill, determines whether or not a particular activity is interesting, and lets the system know what the environment's response to its role performance is. This kind of information influences the formation and modification of the structure of the subsystems and, consequently, their function. Thus the interaction of the system with its environment always affects the internal organization of the system and influences the direction of change.

Ontogenesis. The second part of the model described the change of the system over time (5). This part presented two properties of the system: 1. stages of change, and 2. transformations that take place in the organization of occupation during the life span. Change in the system is conceptualized as taking place in three hierarchical steps. Change is energized primarily through the volition subsystem as the system chooses alternatives for action and is, in turn, influenced by those choices as the action takes place. The volition subsystem is undifferentiated at birth and consists only of the global urge to explore and master the world. Subsequent action and experience differentiate this subsystem into valued goals, personal causation, and interests. These three components interact in such a way as to produce motives that guide the system in normal ontogenesis. These motives are first exploration, then competency, and finally achievement. This means that the propensity of the system in change will be first to explore, then to use the information gained through exploration to competently engage the environment, and finally, to seek achievement by employing the skills gained to perform roles. These three stages of the volition subsystem correspond to the development of skills, habits, and roles in the system. Exploration, the urge to curiously manipulate the environment, yields skills. As the system uses these skills the urge to be competent takes over and through practice the skills are organized into habits. In the final stage, the achievement urge propels the system to respond to external standards for performance and an internal sense of excellence. As the individual seeks achievement of personal valued goals, action becomes organized into internalized roles.

This three-stage process is repeated each time or period in life when an individual comes into contact with new situations or when new activities are attempted. It is a necessary process for organizing behavior to meet environmental demands. This process is also critical when patients or clients must learn to cope with a disability. It characterizes the system's organized response to the environment's demands for adaptation. Any adult who competently and to his or her own satisfaction performs some productive role has organized that behavior through these stages.

The second property of the ontogenesis of the system is the human career (3). The concept of career is used to describe the history and continuity of change over time on a macro scale. The stages of change describe major changes in occupation during the life span. Four familiar stages are described—childhood, adolescence, adulthood, and old age. Each of these is characterized by a different configuration or pattern of work and play. Movement from one stage to the next represents a reorganization of the daily occupational patterns. In childhood, play is the predominant form of occupation, and serves as a learning arena that is preparatory to the adult work world. In play the child learns and acquires values, interests, a sense of personal causation, habits, and skills. Play is the primary interaction between the child and its environment that organizes the system. Over time, increasing demands for productivity are made of the child who learns to perform chores and to be independent in self-care. By the end of the childhood period, the individual is productive for the self (self-care) and has begun to learn to be productive for the social group. During adolescence, demands for productivity increase substantially and the process of commitment to the work role is initiated. Play continues to be an important arena for learning, although now the demands for performance in play are greater and involve cooperation and competition.

By adulthood the individual has usually entered some major work role within the family or another social system. The individual has learned to be productive for the social system and at the same time to find satisfaction in the performance of that occupational role. For the adult, play is relaxation and recreation and serves to support the
worker role. Adult play also serves to maintain interests, consolidate valued goals, and provide an arena where new ideas and activities can be explored. When disability occurs in adulthood or when some kind of disruption takes place in the system's organization, play is still a critical arena in which behavior can be organized. This is why the arts and crafts and sports that characterize adult play are so important to occupational therapy.

In old age the individual leaves the worker role for retirement or is required to give up other productive but nonpaid occupational roles. The transition may be abrupt or slow, but it almost always involves a relinquishing of productivity. In this state the older adult must find satisfaction increasingly in leisure, which is a major sphere of occupation in old age.

In the transition from one stage to the next, the individual must reorganize daily temporal patterns. He or she must acquire a new organization of interests, valued goals, habits, and so on. Each transition requires a reorganized action of the system. Transitions are often particularly troublesome times that may result in failures of adaptation. These are points at which occupational therapy intervention can serve to restore a normal course of occupational ontogenesis.

**Benign and Vicious Cycles.** While the human career concept can guide treatment in a general way, it provides no detailed explanation for problems in the system. The third part of the model introduces the concept of benign and vicious cycles, which does provide such an explanation (4). Change in a system means a change of affairs in the makeup of that system and its relationship with the environment. The concept of benign and vicious cycles includes this kind of change plus a trajectory. The trajectory refers to the direction of change. Many trajectories are built into social systems and affect the course of change over time in the system. One example is the human career outlined earlier. Another trajectory is the progression of grades through school. These are examples of benign trajectories. A vicious trajectory is one that involves disorganization of the system and failure of adaptation such as the deterioration of a dying patient with a carcinoma, or chronic depression leading to suicide.

Since any trajectory depends on the interaction of a system with the environment, the process is called a benign or vicious cycle. A benign cycle is present when the individual is competently performing the occupational requirements of his or her environment and is satisfied with that performance. A vicious cycle occurs when either internal satisfaction or external demands, or both, are not met.

A benign or vicious cycle is identified by examining changes that are taking place in the subsystems (their structure and functions) and in the interaction between the system and its environment (4). By examining these factors, an explanation for any vicious cycle can be proposed. The explanation of the vicious cycle is important information for treatment of patients or clients. When a vicious cycle is identified and explained in assessment, the model allows determination of what parts of the system or the system's environment are contributing to the vicious cycle. This information guides the decisions about where to begin therapy to reverse the vicious cycle and instate a benign cycle.

In summary, the model serves to guide treatment by: 1. identifying critical concepts that should be attended to in evaluation; 2. proposing how behavior is organized and thus providing a framework for identifying disorganization of behavior; 3. positing a sequence of change that characterizes adaptation and can be used to organize therapy; 4. proposing the concept of career with stages of change in human occupation, which serves as a standard in assessment; and 5. providing an explanation of function and dysfunction in the concept of benign and vicious cycles, which allows explanation of a system's failure at adaptation and serves to guide a plan for reorganizing the system in therapy toward a benign cycle. Each of these characteristics of the model provides an alternative for use in therapy. The particular way that the model is used can depend on the setting, patient population, and therapist. The several facets of the model are simply possibilities for conceptualizing treatment.

**Using the Model for Assessment and Treatment Planning**

The model is a source of concrete guidelines for what information should be collected and of conceptual guidelines for interpreting and integrating the information into treatment plans. It can indicate what data are important, and once gathered, what they are likely to mean. Because the model is complex and multifaceted, there is no single way of using it. However, some general guidelines are presented here.

Assessment should yield data on several conceptual categories suggested by the model. These categories are usually the subsystems, the process of input, throughput, and output; the environment, and the
stages of the life cycle. The model-postulated relationships of these conceptual categories help determine how the information is organized and interpreted.

The meaning of assessment data is incomplete until several or all of the parts (conceptual categories) of the model are represented in the information about the individual. The composite description is used to generate plans for the intervention process. Composite description of the problem includes the patient’s or client’s history of experience, environmental circumstances, and internal makeup. This description can yield an explanation of the person’s vicious cycle or of the potential of the person to enter a vicious cycle. It also provides guides for what experiences and environmental conditions might contribute toward reversing or preventing that vicious cycle. Occupational therapy is then designed to provide or recommend those ameliorating experiences and environmental conditions.

Although the model may be used in several ways, the following steps are usually involved: 1. a review of basic identifying data and/or a screening evaluation to achieve a preliminary orientation to the occupational behavior problem; 2. data collection according to relevant categories suggested by the model and compilation of the results into a thorough description of the problem; 3. interpretation of the results (composite description) using the model as a conceptual backdrop; and 4. generating a treatment plan and recommendations. These steps may be part of an ongoing process and, thus, some of them will be repeated in the course of assessment.

To demonstrate how assessment and treatment planning can be undertaken, four cases will be described in some detail here. Each is from a different stage in the life cycle and will be related to the model in the fashion that is best suited to the case. This demonstrates how the model can flexibly accommodate different kinds of patient/client problems.

**Case 1: Childhood**

*Basic Identifying Data.* Eddie is a 6.9-year-old boy with cerebral palsy and with moderate to severe athetoid quadriplegia. His intellectual abilities are reported to be within normal limits. Specific problems in the areas of movement, posture, hearing, and speech are noted. He was referred to an outpatient clinic for occupational therapy assessment of his motor and behavioral status. This child walked independently with an awkward, slow gait. He was able to make his needs known through verbalizations that were characterized by dysarthria. When they were not understood, he used gestures and ultimately resorted to guessing games to communicate his wants. He was to be attending a new school in three months and the family was requesting information concerning Eddie’s assets and liabilities for this new class enrollment. Thus, the assessment was directed toward making recommendations for school and home.

He is the oldest of two boys by 18 months and lives with both parents in an apartment. He attended a first grade class in a school that integrates orthopedically handicapped children with a nonhandicapped population. He was in a classroom described by the mother as “loosely structured” with “option time” periods. During option time, Eddie could choose an activity that may include one of the following: play-ground games, craft projects, listening to records, or reading. Eddie reportedly selected solitary reading with each opportunity given.

He received speech therapy and physical therapy during classroom time for up to seven times per week. The teacher felt that this time away from the class contributed to Eddie’s feelings of being different.

*Data and Description of the Problem.* Assessment was directed toward the child’s motor dysfunctions and their influence on his role as a player, his role as a productive family member, and his transition toward the additional role of student. He was assessed by the following: a reflex assessment, a motor assessment, a visual perception test, an inventory of activities of daily living developed for this clinic, the Play History (5), the Decision-Making Inventory (6), a series of observations in the occupational therapy clinic, and semistructured interviews with Eddie and his family.

Assessment began with Eddie’s performance subsystem, which comprises movement and perception abilities, as well as symbolic functions such as decision making and problem solving (2). Although there was considerable disruption in the two functions of movement and perception, observations in the occupational therapy clinic revealed that his decision-making and problem-solving abilities were good. Strength in these symbolic skills make difficulties in movement and perception easier to overcome. He was able to identify problems and choose from alternative solutions according to the criteria of the Decision-Making Inventory. His decision-making ability is further evidenced by his identification of likes and dislikes in his choice of toys and chores to perform at home.

The performance subsystem is
more fully described by examining his output (i.e., his acting on objects, people, and events in the environment). In self-care activities, he was able to feed himself with a fork once his plate was prepared; he could write his name given adequate time and space. He was unable to use a scissors or knife and could not turn a faucet on or off. He was unable to catch or throw a ball and could not open or close fastenings on his clothes or perform other refined actions. His opportunities to interact in events with people were limited and hindered by involuntary movements, impaired hearing, and dystarthric speech. As a result of the above evidence, it was concluded that the performance subsystem is severely constrained by motor difficulties; symbolic activities were in better order, indicating that he is adapting to some of his limitations.

The habitation and volition subsystems were examined together to identify the organization of Eddie's habits and roles. At this age, his primary role is as a player. The roles of student and worker (i.e., productive family member) are emerging. Of importance is the development of habits to support these roles. Eddie should be acquiring the ability to engage in cooperative play with purposeful use of materials for constructions, dramatizations of reality, and building habits of using tools. He should be experiencing a wider range of environments to develop flexibility in his habits. In play, he should also be exploring adult work roles. For example, in playing "dress up," a favorite game, he acts like a cowboy and is trying on the role to see how it fits. Finally, he should be routinely exercising productivity through independent self-care and chores in the home.

Results of the play history indicate that Eddie habitually played with a younger brother and younger girl, a neighbor. Play settings were limited to an indoor apartment area and infrequent opportunities for supervised outdoor play in a small concrete area. Mother reported his favorite toys to be construction blocks and dress ups. He enjoyed playing cowboys and watching westerns on TV. He reportedly liked clay, crayons, and gross motor activities such as swinging or tricycle riding. All of these tasks required close supervision and various degrees of assistance. He also enjoyed jokes, surprises, and daredevil rough housing with his father. He least enjoyed group activities because he is "self-conscious," according to his mother and, reportedly, was easily frustrated by his failures. He helped his mother set the table and performed other simple household tasks. He could generally take care of himself independently, except where motor difficulties limit him and when time constraints did not allow him an opportunity to complete all tasks.

In summary, Eddie had stable patterns of play that were age appropriate. His play environments were limited to places and persons with which he was familiar and felt safe. His role as a player, while not deficient, was limited and would need to be expanded as he moves toward a student role. He also engaged in dramatic play, chores, and self-care, indicating movement toward the worker role. Importantly, he was able to derive satisfaction from his actions. Although the volitional subsystem is least developed at this age, he was expected to express and act upon interests and valued goals. This was evidenced by his play and his use of free time.

Although his subsystems were in generally good order, several areas of potential problems could be identified. Eddie was unable to perform accurate, skilled movements and he had decreased abilities to process perceptual information. This dysfunction limited not only skills, but also habit and role performance. To move into the student role, Eddie needed to be acquiring habits of organizing time and energy toward productive behavior that take into account his physical limitations. In school, a normal child would, for instance, learn to assemble construction paper for a pasting project quickly and efficiently in order to complete the task and have the opportunity of enjoying the success of such a project. Such opportunities were impossible for Eddie because of his decreased physical abilities, so that he either had to choose other activities or develop a timeframe in which he can accomplish more difficult tasks.

Finally, disruption at the volitional level was possible. His physical problems limited the range of behaviors he could enact. Thus, he was at risk to realize his interests and valued goals, and to develop a sense of personal causation. For instance, he was interested in drawing but often failed at it. Also, he valued his ability to be independent in self-care but often had limited opportunities because of time constraints to develop such skills needed to fulfill that role requirement. Eddie was experiencing an increasing sense of failure from the incomplete and incompetent actions he often performed.

Interpretation. The description of the boy's subsystems demonstrates that, while he was not presently in a vicious cycle, he was at risk to enter it. Importantly, despite disability, he was still in a benign cycle; this was his highest strength. The constraints on the overall system begin with limitations in the

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performance subsystem. It should be attended to instantly by activities that increase skilled action and by adaptive devices that enhance the efficacy of limited skills. Where limitations cannot be changed, the other subsystems will have to compensate. Although he had a number of appropriate skills, he was experiencing difficulty organizing those skills into habits. For the system to adapt to immutable limitations in the performance subsystem, the higher habitation subsystem must organize limited skills into routines that maximize them. This often entails a longer time frame for the accomplishment of most tasks. Given the habit's accommodation to limited physical skills, roles must also be realistically enacted that are within Eddie's capacity. Since school demands largely symbolic skills, he should fare well in the student role. The greatest risk is in the area of interpersonal relations. At this point, the development of peer relations (friendships) should be encouraged and supported. Here the teacher may be of great assistance. Often, peers may need counseling and instruction to overcome barriers of fear, problematic communication, and so forth.

Finally, the volition subsystem needed attention. It is a positive sign that Eddie had interests and valued goals. He needed opportunities to perform tasks that provided him with moderate degrees of challenge. Such tasks can be both in play and within his productive family role. These contribute to a sense of self as a cause. Importantly, the things that he had an opportunity to do and could do overshadowed his limitations. An attitude of exploration and problem solving around his limitations allowed him to compensate for many physical limitations. By learning to value such adaptive strategies, he will be enabled to develop a strong sense of self as a cause despite his severe disability.

Treatment Recommendations. Play is the central focus of treatment recommendations. It is in this arena that Eddie would engage in activities that result in skills and habits for effective transactions with the environment. Further, in play, Eddie would have opportunities to solve problems and make decisions as he experienced his physical limitations. In increasingly diverse and challenging play environments, he could begin to make the adaptations in the habitation and volition subsystems that would be necessary. The family appeared to value his adaptations to his limitations. This serves as a strong point to address deficient areas in the volition subsystem. Peer interaction needed to be encouraged and nurtured in and out of the classroom. Therefore, the following recommendations were made to Eddie, his family, and appropriate personnel at the new school:

1. It was recommended that Eddie join a scouting troop. This would provide an opportunity to be with peers. In addition, by virtue of the productivity model inherent in scouting, he will have a chance to develop beginning level skills in a variety of age-appropriate activities. Scouting would also provide him an opportunity to develop new interests. Occupational therapy consultation should be offered for the scout leaders to facilitate Eddie's adaptation to the group.

2. It was recommended that Eddie receive ongoing treatment in occupational therapy, physical therapy, and speech therapy. These three therapies would focus on deficits at the performance subsystem level. Specifically, occupational therapy would concentrate on refinement of skilled actions and on building supports for the development of habits needed in Eddie's daily life (i.e., providing activities that support the roles of player, student, and family member). As part of this process, occupational therapy would provide assistive and adaptive devices necessary to overcome limitations in Eddie's motor abilities for those activities he chooses. Counseling for occupational choice should begin with a focus on identifying Eddie's skills and exploration of ways he can best use them as a productive member of society.

3. It was recommended that Eddie's participation in the family be carefully observed. His parents have already demonstrated a natural style of requiring age-appropriate behaviors in child-related activities. A continuation of this mode with increasing expectations and challenge will contribute to a sense of productive participation on Eddie's part. This will not only give him a sense of competence and satisfaction in his role-filling process, but allow him to develop skills necessary for household activities on his own. Accordingly, he should be encouraged and permitted to begin activities such as cooking. Periodic consultation with an occupational therapist for problem solving to discover those activities that Eddie can and wants to do and to plan how those activities can be
He was referred to an outpatient clinic for occupational therapy assessment of his physical and behavioral status.

adapted to enhance his performance should be part of this plan.

4. It was recommended that an occupational therapist consult with the staff at the new school regarding adaptations and expectations for Eddie’s psychosocial areas of performance.

Case 2: Adolescence

Basic Identifying Data. Richard was a 16-year-old male referred to occupational therapy for prevocational and vocational training. Placement in a residential facility was anticipated because of Richard’s delinquent behavior, drug abuse, and parental request for assistance. Psychiatrically, Richard was diagnosed as having depressive neurosis in a passive-aggressive personality, with associated drug and alcohol abuse. Academically, Richard was assigned to an educationally handicapped classroom and his performance scores were in the fourth grade level. Medically, deafness was present in the left ear.

Data and Description of the Problem. As an older adolescent, occupational decision making and transition from the student to worker role were central concerns in assessment. Instruments were administered to assess motor and spatial perception, decision making, and problem solving in the performance subsystem. In the habituation subsystem, activities of daily living, pre-work, and work role behavior were examined. In the motivation subsystem, interests and goals were assessed. In adolescence, balance among the subsystems is important (e.g., valued goals must be in line with skills).

Fine motor and perceptual assessments, specifically the Bennett Hand Test (7) and the MacQuarrie Test for Mechanical Ability (8), yielded scores ranging from the 2nd to the 20th percentile, indicating severe deficits in fine motor skills. An activities of daily living interview devised for this setting revealed satisfactory habits of self-care, but deficits were noted in skills and habits for community activities such as banking procedures, money management, and apartment living, all of which would need to be in order to support a worker role.

The occupational history, modified for this setting (9), revealed a work orientation toward manual labor with a concrete product as the end result. Work role models had been available and consistent throughout his childhood. Further, he demonstrated an ability to discriminate between work and play behaviors and their associated environments. His work history consisted of chores in the home with no volunteer or paid experiences in the community. Richard was able to differentiate his fantasy occupation from his reality-tested interests, skills, and opportunities. Richard’s assessment of his own skills was consistent with his observed skills; therefore, he demonstrated the ability to process external feedback.

The Larrington Time Management Inventory (10) revealed adequate skills with strength present in short-range planning and implementation, and projection of self through time. Richard’s stated occupational choice is to be a machinist, which correlates with his strong manual interest area and work concept. In summary, Richard’s occupational choice level and associated skills and habits appear in the tentative stage with emphasis on skill acquisition and available opportunities (15-16 years).

Conclusions about Richard can be drawn from the data by reference to the life span scheme of the model (3). As it indicates, adolescent work characteristics are developed in play, chores, and school, with critical elements being work role readiness, commitment, and choice. Richard participates in football, boxing, and identified his social activity as “car riding.” Richard was well liked by his peers, handled his competitive feelings appropriately, and exhibited a strong interest in self-improvement. He had performed chores in the home and the facility, but had been unable to succeed in school. However, when placed in an educationally handicapped classroom, Richard performed consistently with minimal supervision. Correspondingly, while in treatment, his drug behavior was controlled by severe consequences—loss of passes for social activities and home visits.

Interpretation. The composite profile drawn from these assessments indicated deficits in fine motor and perceptual tasks (performance subsystem). He had deficits in community living habits and marginal habits of self-care and time management (habitation subsystem). His strengths in work role development were largely in the volition subsystem, where he had interests and a life plan that contribute to age-appropriate occupational choice. In summary, Richard exhibited deficits in fine motor skills in the performance subsystem and marginal organization of habits for daily living. These subsystems needed to be brought in line with his more fully organized voli-
tion subsystem, which was also his greatest strength.

**Treatment Plan.** The focus in treatment was on developing those skills Richard would need for work and to assist him in establishing habits of self-care, work, and play to support the emerging worker role. Because of Richard’s strong manual interest, his low academic scores, and his occupational choice, treatment was directed to improve fine motor and spatial perceptual skills and tool use. The goal was that he could read and interpret diagrams independently. The occupational therapist provided information and arranged on-site visits to work settings to help solidify the occupational choice. He received training and practice to improve self-care and acquire habits for independent maintenance in the community. Also, he was given opportunities for appropriate adolescent play such as games, arts and crafts, and social events. Within these, stress was on developing critical elements such as appropriate competence, cooperation, and competition. After two months of occupational therapy, Richard was placed in a machine tool class at a nearby trade school. His attendance was regular and work performance excellent. After six months, Richard was given sessions in occupational therapy on job hunting and interviewing. He obtained a full-time job as a machinist engineer. One year later, he was employed at the same job and maintained an apartment.

**Case 3: Adulthood**

*Basic Identifying Data.* June is a woman aged 31, with a diagnosis of chronic schizophrenia, undergoing her fifth hospitalization for a psychotic break. Her occupational role, before admission, was that of a homemaker.

**Data and Description of the Problem.** Assessment instruments were administered to determine her occupational history, ability to manage her daily life (performance and habituation subsystems), and interests (volitional subsystem). The occupational history (9) indicated poor preparation for her homemaker role, with no chores required of her in childhood and no available role model. June presently structures her free time and leisure interests around her children. She identified her college years when she worked,

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attended school, and married as the most successful and satisfying period of her life. She worked as a choreographer for several years until the birth of her first child. During her career years, her family was very supportive. Once a mother, she stayed home, as she puts it, “to raise her children properly.” She was unable to manage her time, found housework boring, withdrew from community involvements, and her marriage soon involved physical abuse. At the time she indicated strong interest in teaching children to dance. The Larrington Time Management Inventory (10) indicated time disorientation in respect to time, day, month, and an inability to structure time or set deadlines. The Interest Checklist (11) revealed activities of daily living and cultural/educational activities as her two strongest areas of interest.

**Interpretation.** The profile yielded through the assessments indicated deficits in the performance and habituation subsystems. These include poor time management and activities of daily living skills, and incomplete work role development. Her strengths were in the volitional subsystems; she had well-developed interests and goals. By examining the data in light of the model’s life span continuum (3), her problems can be better understood. Adults should use leisure time to provide satisfaction and relaxation. The work role should be successfully assimilated as the primary occupational role. June’s work role and its subsequent satisfactions were interrupted to assume an occupational role, homemaker, for which she did not have appropriate skills or habits. June is now aware of this and is seeking classes in home economics and simple home repairs. Her leisure time is severely deficient and does not provide her with satisfaction.

Existence of June’s major strengths were in the volitional subsystem and marginal to deficit areas in the habituation and performance subsystems. The volitional subsystem contains the individual’s image and desires that affect, organize, and enact the habituation and performance subsystems (2). Since the deficits occur at the lower two levels, treatment was directed toward building skills and the institution of daily habit patterns to allow consistent performance of a role. The treatment focused on allowing June to enact her already identified and stated goals and interests.

**Treatment Plans.** The following plans were developed and implemented in June’s treatment. Cultural/educational activities were used as a first step in leisure development. For instance, she began to attend concerts and movies while
still hospitalized. It was concluded that support and interaction with her peers would provide feedback and improve basic problem solving. Enacting her stated interest as a volunteer at school was one way of providing such social interaction; it also helped to structure her daily life, and allowed her to test out her new occupational choice, a dance teacher. As a result of these activities, she started to take control of her life, stabilized a daily schedule, and improved her basic activities of daily living skills. Four months after her hospital discharge, June was still performing volunteer work, attending a “short cut for the homemaker class,” and going to dinner with friends weekly.

**Case 4: Old Age and Retirement**

**Basic Identifying Data.** Rose, a 64-year-old woman recently retired from a major metropolitan school district in which she taught for more than 30 years, was referred to occupational therapy in a rehabilitation center. She was continuing to recover from a severe car accident in which she received multiple injuries including fractures of her right wrist and forearm, right knee, and left hip, which resulted in hip replacement surgery.

She was able to sit upright for as long as six hours. She tended to deteriorate into a slumped posture and, when reminded of it, reported that it is too painful to right herself. Medical treatment plans were broadly defined as developing maximum physical abilities needed for independence. No contraindications are present.

**Data and Description of the Problem.** This patient has a successful occupational history that was threatened by traumatic injury and its residual effects. Further, she was in the midst of a transition from the worker to retiree role, which further enhanced her risk to enter a vicious cycle. Given her successful past, evaluation focused on strengths among the subsystems, since they were central to her adaptation to role change and probable physical limitations. Data were collected through observation, semi-structured interviews, the occupational history (9), Interest Checklist (11), and the Decision-Making Inventory (6).

Within the volitional subsystem, Rose reported her interests to be evenly dispersed among activities of daily living, social, recreational, and cultural/educational areas. She enjoyed making small craft projects, reportedly engaged in regularly scheduled social and recreational activities (cards, theatre group), and enjoyed lectures and classes. Rose described herself as a self-reliant and self-initiating person. Until her recent accident, she reported that she could and did do anything she set her mind to do.

She valued active involvement in social activities (traveling, recreation) and had always seen herself as helping others. This was true in her professional as well as personal life. Rose had been married for ten years to a man who had Parkinson’s disease. She speaks fondly of her relationship with him and the physical care and assistance that she gave him until his death six years ago.

Within the habitation system, Rose was seen as a woman with well-established patterns of behavior. She walked about her neighborhood to complete her chores. She eagerly planned and participated in trips to the theatre and other places of interest. She boasted a well-rounded world traveling history. Her past occupational role history included valued positions as a teacher, wife, and aunt. Rose reported no other history of family roles, since she was an only child of parents who “died at a young age.”

At the performance subsystem level, Rose was re-learning basic skills needed to provide independence in daily living tasks. She required moderate to maximum assistance to transfer from her wheelchair to a bed, chair, or toilet. She was able to dress herself with the use of adaptive equipment for lower extremity garments. No limitations were noted in upper extremity movements. She had already demonstrated gains in self-care skills and verbally expressed determination to “beat this thing.” Decision-making and problem-solving skills were intact and combined to form a strong base from which to discover how to solve problems of movement as well as task completion.

Overall, Rose was an optimistic, intelligent woman who was hard at work in the rehabilitation process. During vulnerable, disappointing moments when she failed at an attempted task, she would cry. When asked what upset her, she spoke of her fear of “losing my independence.” Clearly, she was receiving feedback on her failing performance, which gave her little sense of competence or satisfaction.

**Interpretation.** The recent accident was requiring reorganization within all subsystems of behavior. Rose had to learn new skills that would be reorganized at the habitation level into habits and roles. Like habits, role change is natural over the lifespan; however, this woman was experiencing an abrupt and possibly permanent change in her abilities caused by her disability. She needed to learn new habits and skills and transform them into new daily life patterns. Careful attention had to be given to defining realistic expected outcomes and
aligning them with her attitude about performance. She could not perform the amount of activity she used to in the same period of time, which necessitated a reorganization of her use of time. Attention was also paid to Rose’s processing of feedback on actual outcomes. She needed to internalize society’s expectations for the retired role to ensure that she would continue to see herself as the origin of her own behavior within the new retired role.

Treatment Plans. Rose was self-directed in her rehabilitation process. The occupational therapist carefully selected activities and tasks that Rose valued, could perform, and successfully completed. Focus was placed on skill development at the performance subsystem; however, the therapist was careful to monitor alignment of behaviors within all subsystems. Rose was currently experiencing imbalance among volition, habituation and performance systems. She could not do what she valued because of physical limitations; she interpreted this as a loss of independence, which was a highly valued behavior. Her failures at independence needed to be tempered and controlled by the occupational therapist, who carefully matched needs to abilities. Controlling the complexity of tasks was critical if this patient was to have rehabilitation experiences at her desired level of competency and satisfaction. Intervention was designed to assist in reorganizing and restructuring her habits and routines in alignment with her valued goals and interests. For example, it was important to her that she maintain her independence. One way in which she defined that independence was in her ability to prepare her meals. Within the occupational therapy setting, Rose was trained to get around her kitchen in a wheelchair. This required redesigning the use of space as well as teaching work simplification techniques.

Shopping and chore activities were reorganized in such a way as to maximize her remaining strengths and abilities, while minimizing interference of her limitations with her daily life. Those activities that were most difficult and demanded disproportionate amounts of time and energy were dropped from her routine. For instance, she arranged to have her laundry taken out. During this stage of her treatment, emphasis was placed on preserving outcomes of activities while processes for attainment were modified and adapted. The result of reorganizing these self-care aspects of her performance was to retain time and energy for the leisure pursuits that she valued. Rose was able to continue her well-established interests in creative handwork with no disruption. She made the necessary but minor revisions in these activities, which included more frequent rest periods and hand and wrist exercises. Discussions of leisure time activities resulted in her recognition of the need for change in the way she pursued her strong interest in museum visits and other traveling activities. Whereas she had formerly done these alone, she joined an organized tour group where she got the assistance she needed to get around.

The treatment resulted in Rose’s being able to make the transition to the retiree role successfully and in a manner satisfactory to her. She was able to maintain an active and fulfilling routine by reorganizing her activities and not overloading her system. Thus, she preserved the balance between her valued goals and interests and her habits, new role, and more limited skills.

Summary
This paper completes a four-part series presenting a model of human occupation for clinical application. Assessment and treatment planning were the focus of the present article. Four cases, each from a different point in the life continuum, were presented to demonstrate how the model can be applied. These cases are only indications of a few of the multiple ways in which the model can guide the therapist in clinical practice. The model is only a tool for use. The therapist, like a skilled artisan, must become proficient in its application if the tool is to be effective.

REFERENCES
10. Larrington G: An exploratory study of the temporal aspects of adaptive functioning. Master’s Thesis, Department of Occupational Therapy, University of Southern California, Los Angeles, California, 1970