

1974 Eleanor Clarke Slagle Lecture

Occupational Therapy: *Realization to Activation*

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Today I find myself standing before you in this honorable position feeling humble, yet privileged. It is with the deepest appreciation that I acknowledge all those who gave me the support, the assistance, and the contribution to my knowledge, to enable me to be in this position this afternoon.

It was very difficult to select a topic which I felt could contribute to the ongoing growth of the profession as it relates to service in the habilitation and rehabilitation of children. In doing so I knew it was necessary to go back in time and return to the lower levels of my own professional development, and to proceed with the sequential maturation that eventually brought me to this “standing position.”

In narrowing down the broad spectrum of topics, a review of previous Eleanor Clarke Slagle Lectures revealed that both Lela Llorens and our President Jerry Johnson very aptly expressed two of my major concerns. Lela Llorens presented “a conceptual model for understanding the knowledge that presently supports the practice of occupational therapy with a discussion of how and where occupational therapy fits into the scheme of human development.”¹ Jerry Johnson presented, “The success and perhaps survival of occupational therapy may well depend upon our ability to clearly identify our product and services, to determine where we can best provide these services, to obtain adequate sources of support for occupational therapy services, and to insure that we have experienced, competent personnel to provide these services.”²

In the global overview of occupational therapy, these concerns continue to be of major importance. Does the occupational therapist fit into a developmental scheme, beginning as a neophyte in her profession and progressing to a therapist with special skills, competence, and a secure feeling about her basic knowledge? If so, what is the scheme? As a profession, are we able to identify and define this scheme from both an academic as well as a clinical viewpoint? Can we provide competent, professional therapists, therapists who are ready to provide services that will meet the demands of health care as we know it today?

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Are we ready to be challenged by the ongoing advances being made in medicine and research and changes in health care brought about by federal and state regulations? Finally, can we deal with the nebulous definition and role of occupational therapy as it is understood by third-party payees?

Therefore, from my vantage point, I made the decision to follow the theme: The growth and development of pediatric occupational therapy, and the pediatric developmental therapist, or occupational therapist, as they relate to the habilitation and rehabilitation of the physically handicapped child. I would like to explain how this growth and development can evolve, how it can be accomplished in a manner similar to the maturation of a child who is initially at the apedal level, who advances through the quadrupedal level, and finally reaches the highest level of control and skill, that is, the standing position, or bipedal level. I shall not delve into any fancy philosophy. I will attempt to deal with the facts as they have unfolded over the years during my own levels of development evolving from "realization to activation."

The parallel to be drawn between a child's development in all spheres and an adult's development into a highly professional, skilled, competent therapist has many striking similarities. Also, many of the axioms or principles we use from the neurosciences, or more specifically the maturation of the nervous system, have their corollary in the educational development of the occupational therapist.

Let us compare the development of the occupational therapist with the development of the young child. We know now that the infant with an intact nervous system is born with all of the primitive reflexes and reactions. These are basic and necessary in order to have higher skills occur as integration and maturation proceed. We also know that an infant begins at the lowest level of development, the apedal level. He is born with many mechanisms for survival. He has all of the basic senses, cells, and systems of a normal infant's central nervous system (CNS) plus a full potential for learning and maturing. The amount of sensory input received into this nervous system, that is, how the infant is stimulated and handled, will eventually determine his ultimate potential. It is at this early age that the infant's CNS is the most pliable and capable of learning the fastest. Researchers today believe that it takes up to 21 years before the CNS is completely myelinated and matured; however, learning does continue within this system for many years.³

Initially, the infant relies on his mother for care, for proper or adequate stimulation, and for integration of the feedback resulting from *his* handling of the stimuli. Although he is essentially unable to sustain his own life without assistance, he learns to manipulate his environment by his behavior. The quality and quantity of these stimuli, their reinforcement, and their meaning to him as an organism will have a profound effect on his future development. As stated by Kaluger and Kolson,⁴ "Each child develops a neural pattern for learning which includes organizing the cerebral functions and structures involved in the learning process to perform in sensory input, associative functions and motor output." They go on to explain further that integrating basic reactions and reflexes through use of a complex combination of cerebral processes for input, decoding, encoding, and output functions enables the child to progress to a purposeful responding, conceptualizing individual.

A child in the first several months of life has no mobility, cannot explore his environment, and must have experiences brought to him. He is fed, bathed, dressed, loved, spoken to, played with . . . all his senses are stimulated. There is constant change occurring and, if the stimuli are purposeful and meaningful, the child learns. The constant demands placed on the nervous system through all types of stimulation create the basic learning processes necessary to meet the requirement of future development and behavior.

Correlating this concept with a person entering a school of occupational therapy reveals that this individual has many of the same potentials and needs. A student must be provided with all experiences and exposures to ensure that he or she has a base upon which to develop a future as a therapist. The climate of a university allows for assimilation of material at a more rapid pace, but only if that material is presented in a manner that is meaningful, and allows for participation of the individual. It has been proved through animal and human studies that when there is deprivation of sensory stimuli there is no learning. Only when there is active participation does the individual learn more quickly and forget less.

Just as the basic mechanisms for learning and potential are altered if the newborn infant has CNS damage, so the basic education of an occupational therapist can be compromised if the material is not meaningful because it is outdated, or it is irrelevant to clinical advances. If the material is recognized by the student as not having observable application, the result is poorly understood information and inferior application of this knowledge to other situations in a generalized manner. The student or the infant then approaches his next level of development, the affiliation or quadrupedal level, ill-prepared to respond to a new set of stimuli, those that require a greater expertise from him.

At the quadrupedal level the child is ready for mobilization. The student should be ready to synthesize academic knowledge, explore new ideas, learn independently, develop interests, and make each experience as meaningful as possible to have the learning process continue. Therapeutic output will reflect the basic input received during the academic years. If basic courses have been appropriate, if basic preparation has been sufficient, then the student will take advantage of the meaningful experiences of the clinical centers. If the basic preparation has been meaningful, but the affiliation has not given the opportunity to explore, create, problem-solve, and learn, then sensory deprivation will predominate and learning will diminish. The student will continue to need the maturation and integration gained through experience to become a competent, self-sufficient individual performing at the highest level of development.

If there is lack of sensory input into a normal system, abnormal development will be manifest as a functional deficit during the life of the organism. Research tells us that each new learning experience, if properly reinforced, may cause a change in the nervous system to such an extent that behavior can be modified or even permanently changed. Therefore, the quadrupedal individual, infant or student, begins to mobilize and explore his environment, creating new experiences, changing his behavioral patterns while continuing to build up blocks of learning so that further integration can occur. Sequentially, he begins to prepare himself for the next higher level of development.

In the ongoing process of growth and development, the young child reaches standing and walking positions by the end of the first year. Much learning and maturation has occurred during this time; however, he has only basic motor movements and perceptions. The capacities of the adult evolve to meet the requirements of his natural environment. The extent to which these capacities are developed from birth and the rate at which they mature thereafter will depend upon the demands of the postnatal environment.

We know that in the learning process and in the maturation of the nervous system, the infant "perceives" through sensory stimuli into this system. This calls for a response that, in turn, creates new sensations which are immediately fed back into the CNS. Through repetition of an act, the response is "engrammed" into the system and a pattern of behavior is developed. Not until he utilizes this pattern over and over again will the response be an ingrained or semiautomatic, learned response, well integrated into this nervous system.

Thus, the CNS of the child by one year of age has integrated many primitive reactions and has developed higher reactions which enable him to reach the bipedal level. This has occurred through the learning process of perception, then repetition, then active participation. The child has undergone the learning process in all areas of behavior. He is beginning to reach out into his environment, extending his exploration for new fields of learning. He is becoming more independent in his decision-making, constantly changing and adding to the information which he has in order to develop higher cognitive skills necessary to cope with his adult environment.

In like manner, the "infant" therapist has basic knowledge at her command. She has perceived, repeated, and utilized this knowledge in preparation for achieving the higher level of development. At this point, he or she must now synthesize and act according to the dictates of this knowledge, problem-solve, make independent decisions, and continue the learning process. All of these actions require higher cognitive skills of behavior. If there has not been a "lesion" created somewhere along in the process of development, the new therapist will evolve into a competent, self-sustaining individual. He or she will be secure in their knowledge of the role of the occupational therapist and in their definition of occupational therapy as an essential discipline in the health fields. The idea of competent, skilled therapists solves the problem of establishing professionalism. Just as one cannot superimpose fine motor activities on a cerebral-palsied child who has no head or trunk control, one cannot superimpose professionalism on people ill-prepared to perform.

I would like now to discuss the role of occupational therapy in a pediatric setting as it relates to rehabilitation of the physically handicapped child. Let us go back down the road to when I started my professional career as a new therapist, full of enthusiasm and idealism about curing the ills of children. As would be expected, I felt that I had some competence and professionalism, but had no idea that, in reality, I was on the apedal level of development. Many events, problems, and frustrations have occurred over these many years to bring me to the bipedal level of development. It should not be necessary to say that, even at my age, I still have some dendritic, collateral growth left in my nervous system to continue to learn and to change according to the dictates of health care with these children. Similarly, our profession still can learn and change.

In the 1950s, when I started my career, the rehabilitative movement was predominant. As stated by Anne Mosey "During the period of 1942 to 1960, perhaps the most significant event influencing occupational therapy was the growth of the rehabilitation movement."⁵ She considered the major catalyst for this growth to be the number of returning disabled World War II veterans and the failures of established institutions, the family, school, and organized medicine, to meet their needs. Together with other professional groups, occupational therapy jumped on the bandwagon first and then decided what our role would be in this rehabilitation process. We borrowed, begged, and maybe stole to supplement our armamentarium. The main therapeutic measures in the area of adult physical disabilities were activities of daily living (ADL) training, prosthetic and orthotic expertise, maybe some vocational training along with muscle strengthening and range of motion exercises accomplished mainly through the use of crafts. The latter were also used for diversional and "busy work" activities. These same treatment goals and these same craft modalities were used for children. In many instances, occupational therapy sessions were, in reality, all diversional in nature.

As an unsuspecting therapist starting her career, I had to apply these goals, methods, and modalities to all types of physical disabilities. If you will recall, I said that the therapist at this level of development does not have the expertise to generalize from her academic and brief clinical experiences. Therefore, can she really know what she is doing? Can she know where she is going? Can she know who she is, especially when she realizes that no one knows what occupational therapy is? What she hears is the label of "busy work" or "play ladies." On occasion we received a direct referral for ADL training, or to improve hand-eye coordination, or some type of order to supplement physical therapy in strengthening the upper extremities. Less frequently but more appropriately, we received referrals for upper extremity prosthetic training.

Can you remember when you received a referral requesting ADL training for a severe quadriplegic cerebral-palsied child? How successful were we? We know now that the abnormal patterns laid down during maturation of the CNS are the only patterns that can be elicited, especially on voluntary movement. Sensory input is abnormal; integration is abnormal; motor output is abnormal; sensory feedback into the CNS is abnormal. The child is still dominated by primitive reflexes and/or abnormal tone and he can move only in these stereotyped patterns. In the realm of emotional and psychosocial areas of behavior, we were seeing adverse reactions because of the child's frustration at his inability to succeed. He knew cognitively what he wanted to do, but could not work out the concept, the process of the task. Under these circumstances, what tools did we have to determine how to cope with this problem? "None." Where did we go for assistance? "Nowhere." The only conclusion was frustration! Frustration, not only for the therapist, but also for the child and his parents who were expected to carry out the therapist's directives.

At this time, in the fifties, therapeutic media and goals of treatment could be equated to the apedal level of development. I said previously that the infant is born with tremendous potential for development and learning, and that how he is stimulated and handled will determine the realization of this potential.

What is the quality of this stimulus when crafts are the only treatment modality? What is the meaningful experience to the child? Will it have a profound effect on his future development? Crafts were and are nonmeaningful to a child's function. There was and is no scientific basis underlying their use.⁶ In addition, and perhaps even more damaging, the visual image created by these crafts as a treatment modality, and the inability of the therapist, many times, to give a convincing rationale for their underlying value, other than diversional, certainly was not and is not worth the cost to the professionalism of occupational therapy.

It was at this point that I "jumped" into my second stage of development, the quadrupedal level. My experience had not been a meaningful one. I had explored, tried to create, problem-solved; but sensory deprivation was setting in. It was necessary for me to mobilize if I was to provide quality treatment. Also, it was necessary for me to mobilize so that the role of occupational therapy could be accepted as a professional service to the rehabilitation of children.

Self-analysis was important at this point. I asked myself, "Who am I?" "What am I doing?" "Where am I going?"

Who am I? A qualified registered therapist with a certain body of knowledge and experience. What am I doing? Attempting to use this body of knowledge and experience to rehabilitate handicapped children in all areas of behavior to the best of my ability. Where am I going? I didn't know! Frustration and failure in accomplishing the goals of treatment pertinent to the needs of the children were obvious. Added to this frustration was an awareness of the lack of knowledge and acceptance of the profession as a necessary adjunct in the rehabilitation process.

As a consequence, it was imperative that I make a change or forego the pleasure of being an occupational therapist. The choice was clear. To make a change and mobilize into the next higher level of my development, it was necessary to deviate from the established protocol; change the working definition of occupational therapy; change the concept of occupational therapy; and, of utmost importance, alter the modalities.

One definition of the word "change" is to alter, implying the making of some partial change, as in appearance, but usually preserving the identity. Change was necessary to establish the professionalism of occupational therapy. Gross states, "As any occupation approaches professional status, there occur important internal structural changes and changes in the relation of the practitioners to society at large. A useful way of discussing these changes is by reference to the criteria of professionalization; the unstandardized product, degree of personality involvement of the professional, wide knowledge of a specialized technique, sense of obligation (to one's art), sense of group identity, and significance of the occupational service to society."⁷

Herein lies a basic professional concept for occupational therapy. If change is to occur within the organization to meet the standards of professionalism, the primary alteration must be made in the basic formation of a conceptual framework from which an individual can synthesize and then expand his knowledge. Explicit criteria that set standards of performance emanating from this basic conceptual model must be met. In this way a continuous spiral of behavior can be produced to meet and maintain these standards of ethics, group identity,

personal obligation, and quality of service. In my estimation, many of these criteria were not manifested in an acceptable manner for recognition. Therefore, change had to come about secure in the knowledge that the identity must remain, that the personal characteristics of the professional must not be lost.

The next decision was to determine how to bring about this change in therapeutic modalities and goals of treatment. Therefore, I asked myself the questions, "What is important in this child's life? What does he need in his process of development to make him a functioning individual capable of coping with the problems of his environment?" Having made this decision, I then attempted to reach the professional stature of an accepted, scientifically based profession.

In his developmental process, important facets in any child's life are gross and fine motor skills, perception, and specific developmental stimulation. These are the concerns of occupational therapy. The therapist attempts to bring the child up to, or close to, his age level, with a thorough understanding of his emotional and social development.

How is he to gain these skills? I felt that the only way was to treat the problem directly and not through a diversional activity such as leather lacing, or weaving. The body of knowledge and expertise the occupational therapist has at her command are far too important in preparing a child to cope with his environment to be relegated to the realm of relaxation with craft activities. This is a basic concept that I feel is essential if we are to be considered a professional discipline.

The first step in the process of my development from apedal to quadrupedal integration went from "realization to activation" of the problems revolving around the needs of the children. The second step was to determine methods to give a child these skills. Through the process of integration of learning, higher levels were attained and I was closer to the bipedal level of development.

In the process of establishing the bipedal level, or the cognitive level of the adult, it was necessary to synthesize all the learning of the two previous levels; therefore, extended exploration into the tools and methods of treatment to professionalize the role of occupational therapy was carried out. This meant standardized evaluations, as much as possible; media which were meaningful to the needs of the child; technical expertise with a knowledgeable background; and, last but not least, the courage of my convictions to carry through these changes in spite of criticism by my peers.

In the areas of gross and fine motor development, we cannot accept, as a goal of treatment, functional use of the hands without first attaining stability of everything to which the hand is attached. Development is cephalo-caudal, proximal-distal, medial-lateral, gross to fine. This is how treatment should progress if we are to give children their maximal functional potential. Also, we should place our emphasis on normal, developmental sequences of CNS development; for example, learning on a subcortical basis, followed by cortical, voluntary learning, finally reaching the stage of spontaneous, automatic movements.

To reach this process in a meaningful manner, it was necessary to change to techniques of treatment that revolved around the sequential maturation of the CNS and that also emphasized the normal growth and development of the child. To give meaning to the use of these

techniques and to provide the secure knowledge and competency to justify these techniques, it was necessary to learn the basic concepts of neurophysiology which were believed to underlie these methods of treatment. In this way I knew that I was not working in a vacuum; I knew that I could confront any physician and justify the "means to an end." This was not a simple task. I was told at one time that it would take 20 years to nurture and develop the "germ" of an idea, and it has taken that long.

Based upon this process of developmental learning, children, such as the cerebral palsied or others with a neuromuscular dysfunction, have benefitted from this treatment to a much greater extent than ever previously attained. Significant changes have been noted in their abilities, resulting in improved function. Many times when basic gross motor movements and then higher motor development have been attained, the child has sufficient fine motor control to begin voluntarily to function by feeding himself, removing his socks and shoes, or playing with toys. At this point, *he* is beginning to manipulate his environment, rather than allowing the environment to manipulate him.

In the process of attaining a goal of treatment, such as feeding, we cannot look at just the skilled act and feel that this is where the role of the occupational therapist begins. We know that the child cannot feed himself if he does not have at least some measure of head, trunk, and arm control. We know also that if the asymmetrical tonic neck or symmetrical tonic neck reflexes are dominating his nervous system with resulting interference of higher motor skills, he cannot perform this skilled act.

The inhibition and/or facilitation of these preparatory mechanisms are a part of the total functional skill. We, as occupational therapists, must have the knowledge, skill, confidence, and security *to treat the total child*. Why should we expect the physical therapist to "prepare" the child and then the occupational therapist merely to teach the child a given skill? First of all, we might find ourselves out of a job; with basic stability the child might function spontaneously. Second, the concept of upper extremities for the occupational therapist and lower extremities for the physical therapist is outdated. You cannot divide the child into parts, especially if you treat developmentally. It is more than the sum of all the parts which leads to the total normal organism; it is the integration of the parts. Therefore, let us break down our defenses and integrate our efforts, making the child our focus, and not permit personal prejudices and preconceived ideas to interfere with what we are all interested in: "The Child."

Two other major areas of treatment for the occupational therapist in pediatric rehabilitation should be: (1) Enhancing perceptual-motor and visual-motor integration; and (2) stimulating children who have lags in their growth and development. I will not proceed through the same process of paralleling development from apedal to bipedal, or from realization to activation, since both were similar to the development of the motor program. Suffice it to say that both of these programs are important in total functioning of any child. They must be included in any pediatric program.

Other rehabilitative goals specific to varying diagnoses are indicated in the area of pediatric-physical disabilities; however, the therapist must decide what is most important in meeting the goals set for her patients. The therapist must have the security and confidence

to substantiate these goals and the competence in the methods used to reach them. It is not possible to be all things to all people. For this reason it may be necessary to select fewer major goals of treatment rather than attempting to encompass the gamut of defined goals of occupational therapy. In the judgment of this writer, the occupational therapist in a pediatric setting should utilize her expertise for the development of the child in all areas of behavior. Hopefully, this should lead to an integrated functioning individual capable of reaching his maximum potential. Let us remember that a handicapped child is a child first, and then is a child with a handicap.

I should like to read a few statements from an article published in *Scientific American*. "It is obvious that the organism with fully developed and integrated sensory and motor capacities is better prepared to deal with its environment than is one who is lacking in development of these abilities. Beyond the coordination of input and output, however, additional skills are necessary for the higher organism to be successful in its world." The author continues, "The basic concepts of action and reaction, cause and effect, behavior and its consequences—which must be acquired through experience with the environment—are the building blocks upon which the organism's continuing understanding of his world will depend."⁸

Once we have gained the depth of knowledge necessary to substantiate with confidence our definition of occupational therapy and the role of the occupational therapist, and once we have decided and identified the means through which we can give our services as a professional service, then and only then will we be able to say that we have reached the highest level of development. Occupational therapy has undergone the same process of learning and development as the young child; but it has not reached its fullest potential. Cognitively we realize this; but we need to activate the realizations to meet the changing world of medicine, the controls of government, the demands of professionalism, and the obligations of competency *if we are to survive*.

In summary, the process of the growth and development of occupational therapy and the occupational therapist was compared to the growth and development of the infant from apedal to bipedal levels. A similar comparison was made of the methods of treatment and the modalities used to reach the highest level of development. Neurological maturation and integration must occur in the infant if he is to reach his highest level of development and to be able to function in his environment. Similar sequential maturation must occur from the student level to that of the skilled therapist if he or she is to become a competent professional. An overview of the course of occupational therapy revealed the necessity to mobilize from "realization to activation" so that the role of occupational therapy can be accepted as a professional adjunct in the rehabilitation of the child.

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