
Some Implications of a Science of Adaptive Responses

(purposeful activity, professional role delineation, philosophical base)

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The concept of occupational therapy as a "science of adaptive responses," as proposed by King in her 1978 Eleanor Clarke Slagle Lecture, is explored and expanded on in this article. The authors postulate an adaptation continuum consisting of homeostatic reactions, adaptive responses, adaptive skills, and adaptive patterns—a continuum that places the adaptive response in a sequential and interdependent relationship to other human responses that serve an adaptive function. Assuming that authentic occupational therapy practice is "eliciting adaptive responses" (1), the authors use the continuum to delineate the domain of occupational therapy as compared to the primary concerns of other health disciplines and to indicate the nature of collaboration between them in areas that overlap. Finally, they draw attention to some of the issues and questions that emerge from the analysis.

In her 1978 Eleanor Clarke Slagle Lecture, King proposed a "science of adaptive responses" as a unifying theoretical model comprehensive enough to encompass the scope of occupational therapy yet specific enough to account for its uniqueness (1). She used the concept, *individual adaptation*, to refer to the adjustments made by an individual in the ongoing process of interacting with the environment. Personal survival and actualization of potential were identified as the goals of individual adaptation, as distinguished from the evolutionary concept of species adaptation. Inherent in individual adaptation are adaptive responses, characterized by King as *active, goal directed, integrated,*

and *self-reinforcing*. She showed that normal development is represented by a series of such responses, that ongoing adult function is maintained by them, and that stress can be countered by activation of responses so defined. King suggested that Ayres's phrase, "eliciting an adaptive response" (1, p 431), succinctly sums up what occupational therapists do.

The purpose of this paper is to introduce the use of a concept derived from King's work as a tool to delineate authentic occupational therapy practice. Suggested by Yerxa (2), the phrase, *authentic occupational therapy*, is used here to connote occupational therapy defined with respect for its uniqueness, and practiced with integrity. Distinctions between occupational therapy and other health disciplines will be identified, as will potentially fruitful areas for future emphasis and study. The ultimate purpose is to generate discussion and contribute to the profession's evaluation of the utility of the theory.

After a brief examination of King's characterization of the adap-

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tive response, this paper will describe an *adaptation continuum*, a formulation designed to account for responses outside the confines of King's four definitive criteria. The authors will then illustrate the use of the adaptation continuum as a tool for analysis, and, finally, will attempt to draw some conclusions from the results.

Adaptive Responses

The adaptive response is *active*. The response is the subject's action on or toward the external world; it is neither inadvertent nor is it a passive reaction to being acted upon. The definition rules out reflexes, autonomic nervous system responses, and the reaction of muscles to facilitation procedures. The definition also seems to connote time-limited action in the present, thus leaving out such encumbered actions as implementing a long-range plan or getting married.

The adaptive response is *goal directed* and purposeful. The person acting has chosen to respond; the goal has captured his or her attention and interest. The concepts of attention and interest imply consciousness of the goal and thus exclude the kind of automatic or random activity that expresses generalized internal tension, for example, pacing, fidgeting, or nailbiting. The implication is that the goal of purposeful activity is tangible or demonstrable. Thus, thinking is an adaptive response when it leads to a decision, a solution, or a plan.

The adaptive response is "most efficiently organized below the level of consciousness with conscious attention being directed to objects or tasks" (1, p 433). It is an *integrated* response of the whole person; any of a variety of combinations of biological, psychological, emotional, so-

Figure 1
Adaptation continuum

Capacity to Perform	Performance	Constellations of Performance Over Time	
Homeostatic Reactions ► Adaptive Responses ► Adaptive Skills ► Adaptive Patterns			
(e.g.) Reflexes Blushing Breathing	(e.g.) Catching a ball Wedging clay Solving a puzzle	(e.g.) ADL Driving a car Reading	(e.g.) Raising a child Holding a job Going to college
Physician	Occupational therapist	Occupational therapist	Vocational counselor
Nurse	Recreational therapist	Teacher	Social worker
Physical therapist	Music therapist	Parent surrogate	Clinical psychologist

cial, and cultural components may be involved. The subject is conscious of a goal but unconscious of the process by which the goal is achieved. Calisthenics and memory drills, because they demand attention to processes rather than goals, are two examples of activities that do not fit this criterion.

The adaptive response is *self-reinforcing*. The element of success is vital; not only goal direction but also goal achievement is required in order to ensure repetition.

The Adaptation Continuum

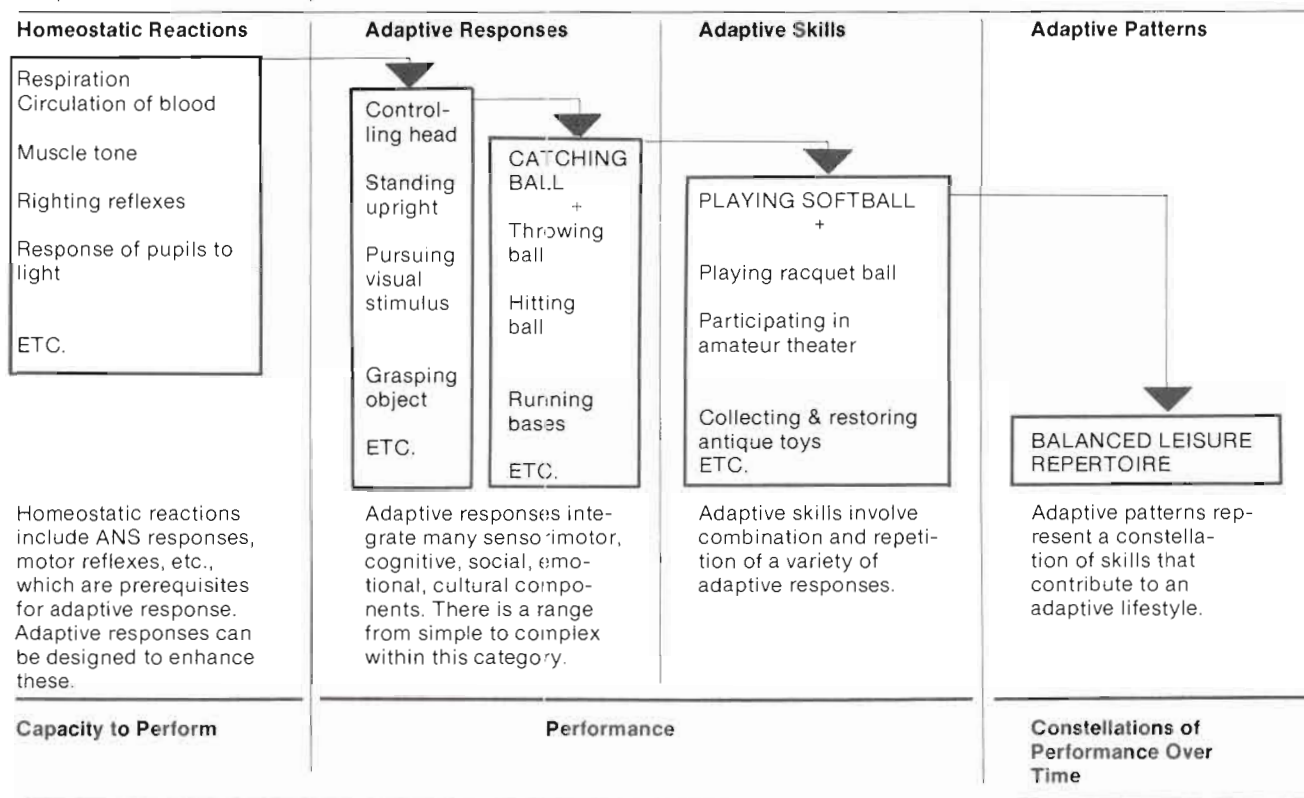
If one thinks of adaptation as a life-long process that includes both the reactions of the developing embryo and the cultural adaptations of the maturing adult, one can conceive of a range of responses distinguished mainly by their increasing consciousness, duration, and complexity. One assumes that, while the full range of responses is not immediately available to the growing infant, the simpler ones remain throughout life as components of the adult's adaptive repertoire. The foregoing examination of *adaptive responses* as the focus of occupational therapy suggests that the concept belongs in an intermediate

position within this range or adaptation continuum. In order to construct a tool for analysis the authors have specified additional categories to indicate other positions on the continuum. These are labeled *homeostatic reactions*, *adaptive skills*, and *adaptive patterns*.

The concept *homeostatic reactions* is borrowed from Dubos (3), who has defined these reactions as externally evoked and involuntary. They are exemplified by the mechanical and physiological responses of the body. *Adaptive skills* are defined as those abilities that, through combination and repetition of adaptive responses, become components of an individual's adaptive repertoire. *Adaptive patterns* will be distinguished from adaptive responses and adaptive skills by their greater complexity and their duration over time. Vocation, life style, marriage, and parenthood are examples of adaptive patterns that may be thought of as complex constellations of adaptive skills.

The *adaptation continuum* as a conceptual tool is illustrated in Figure 1. The continuum consists of three segments labeled from left to right: *Capacity to Perform*, *Per-*

Figure 2
Adaptation continuum: Example



formance, and Constellations of Performance Over Time. Homeostatic reactions occupy the first segment, both adaptive responses and adaptive skills are in the second under Performance, and adaptive patterns are in the last. The model assumes that performance depends on capacity to perform, that adaptive skills stem from adaptive responses, and that constellations of performance are made up of adaptive skills. The model also assumes that the major function of all health disciplines is to foster adaptation. Therefore, the continuum also shows a number of health professions at the points that seem to be their major emphasis. As further illustration, Figure 2 shows a single example tracked across the continuum: catching a ball is one of

the many adaptive responses that comprise playing softball, an adaptive skill that can be one component of the adaptive pattern here identified as a balanced leisure repertoire. It will be seen that a number of simpler adaptive responses are prerequisites for catching a ball and that these responses depend on a variety of homeostatic reactions.

With adaptive responses as the point of central concern for occupational therapy and the adaptation continuum as a lens through which to bring occupational therapy into focus, it is possible to generate a number of propositions. Propositional statements serve to foster discussion and experiment that test not only the truth or falsity of the propositions themselves, but also the efficacy of the model from which

they are derived. Some examples follow.

Authentic Occupational Therapy

Everything occupational therapists do in practice can be validated only by patient performance. An adaptive response is the spark that initiates this performance. Since the central function of occupational therapists is to elicit such responses, they will continually seek and consistently apply current knowledge about the conditions conducive to such responses. In particular, they will endeavor to apply the principle of subcortical processing by designing increments of performance that can be accomplished automatically.

Therapists will see techniques such as neuromuscular facilitation

and relaxation exercises as subordinate measures designed to *prepare patients/clients for performance*.

Therapists will view orthotics, assistive devices, elimination of architectural barriers, and work simplification as subordinate measures that *facilitate performance*.

In treatment, therapists will elicit adaptive responses as vehicles for achieving a variety of therapeutic goals. Responses that evoke homeostatic reactions such as increased range of motion, increased oxygenation of the blood, metabolism of stress hormones, improved appetite, and so on, will affect the capacity to perform. Responses that facilitate expression of feelings, reality testing, or identification of self-concept, motivation, and goals, will affect adaptive patterns.

Finally, adaptive responses will be elicited to serve the habilitation or rehabilitation goal of building adaptive skills in cases of abnormal lack of skills, developmental lag, or traumatic loss.

Occupational Therapy vis-a-vis Other Health Disciplines

Homeostatic reactions are the direct and primary concern of physicians, nurses, and physical therapists, practitioners whose work clearly fits a medical model. They are experts in the diagnosis of pathology and the use of surgical, physical, and chemical means to eliminate pathology and restore functional capacity. Occupational therapists will collaborate with these disciplines, and may be guided by the physician when using performance as a means for treating functional capacity. These disciplines, in turn, will look to occupational therapy to test and validate the functional capacity of their patients in actual performance.

A teaching model seems to fit best

the work of occupational therapists and several other groups, including recreational therapists, music therapists, teachers, special education teachers, and parent surrogates, whose primary interest is performance. Recreational therapists, music therapists, and similar professions are also specifically concerned with eliciting adaptive responses; neither King's criteria nor the *adaptation continuum* serves to draw distinctions between these disciplines and occupational therapy. Occupational therapists, however, can be differentiated from teachers and parent surrogates by the therapists' commitment to the needs of an abnormal population and to the principle of eliciting adaptive responses as a precursor to skill learning. It is their expertise in these two areas that occupational therapists can offer to others similarly concerned with promoting acquisition of adaptive skills.

Adaptive patterns are the domain of vocational rehabilitation, social work, and clinical psychology, professions which, for the most part, subscribe to a counseling model and are thus essentially verbal and future oriented. Occupational therapy, in contrast, consists of action in the present. Self-concept, motivation, and goal orientation are major concerns both of the counseling disciplines and of occupational therapy, and these concerns represent a focal point for consultation and collaboration. Occupational therapists will see self-concept, motivation, and goal orientation as keys to individual attention and interest; as aspects of the patient/client that can be discovered, expressed, clarified, and reinforced through activity performance; and as guides to coherent realistic treatment plans consistent with individual life plans.

Areas of Emphasis and Inquiry

The preceding analysis has sharpened the contrast between occupational therapy's primary functions and those functions that support these, and it has differentiated between occupational therapy and its colleague health disciplines indicating logical points of mutual concern and collaboration. The analysis can also suggest questions for further study, some examples of which follow.

The most compelling questions concern the adaptive response itself. For example, we are aware that purposeful activity can have an organizing effect on the nervous system (4). How can this effect be described and measured? In other words, what precisely is the beneficial effect of specific adaptive responses? What is the mechanism at work?

Are there consistent qualifiers of adaptive responses other than those identified by King? For example, do conscious attempts to affect involuntary processes as in biofeedback, auto suggestion, and meditation qualify as adaptive responses?

Are there states of the individual that consistently are conducive to adaptive responses, for example, relaxation, a sense of humor, confidence, hope?

What is the relationship between states conducive to adaptive response and the effect of the response on that state? Is this a key to the self-reinforcing mechanism that perpetuates the response? If this is so, is therapeutic intervention, then, eliciting an adaptive response in an individual in spite of fear, pain, fatigue, weakness, shyness, in order to set a cycle of adaptation in motion?

What is the relationship between attention and interest and the incidence of fatigue? Is the mechanism

one of focusing adaptive resources in the midst of sensory bombardment and confusion?

What is the nature of maladaptive responses? Dubos (3) noted negative forms of response such as overreactions and tolerances that can impair function. Are maladaptive responses to be identified by qualities other than their adverse effects; for example, by the forms they take? by the conditions under which they occur?

Parent's comprehensive review of studies of sensory deprivation (5) has already provided useful insights into the environmental conditions that foster adaptive, as well as maladaptive, responses. What are other dimensions of stress that represent a positive challenge? of stress when it overwhelms and frustrates?

Conclusion and Summary

The *adaptation continuum* is an admittedly imperfect measure consisting of somewhat arbitrarily defined concepts, with the exception of adaptive responses. Even here, King's definition has been subject to interpretation. The measure has been applied to occupational therapy and to other health care disciplines as these are understood by the present writers, based on many years of immersion in the practice, literature, and politics of health care. The results, therefore, are subject to argument; however, they indicate to the authors the tentative conclusion that King's "science of adaptive responses" is indeed comprehensive enough to account for the scope of occupational therapy and specific enough to account for its uniqueness. Despite minor shifts in emphasis and priorities in order to orient all of occupational therapy consistently to the practice of eliciting adaptive responses, no major

occupational therapy interest had to be left out of account. The delimitation of authentic occupational therapy seems to embrace the life span and all patient/client populations as well as all service models including prevention and consultation.

It was possible to differentiate occupational therapy from other disciplines in such a way that the mutual benefits of collaboration could be identified. That the concepts do not distinguish occupational therapy from other activity therapy disciplines may indicate that an earlier "science of adaptive responses" might have dictated a different course of events; such splintering might not have occurred. Diasio advocated reapproachment with these disciplines a decade ago (6); until we take this course or seek definition or distinctions, the issue remains.

The exercise has served to generate questions and to give some direction to future research in occupational therapy, particularly toward further study of the nature of adaptive and maladaptive responses and the conditions under which they are elicited.

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