

Houston Conference: Need for More Fundamental Knowledge in Neuropsychology

Alfredo Ardila^{1,2}

Two training models in neuropsychology have been recently proposed (Guidelines of the INS-Division 40 Task Force on Education, Accreditation, and Credentialing, *Clin. Neuropsychol.* **1**: 29–34, 1987; Hannay, H. J. et al., *Arch. Clin. Neuropsychol.* **13**: 157–250, 1998). When comparing both educational models, similarities but also differences are found. According to the Houston Conference model—but not to the former model—neuropsychology represents a specialty of psychology. In the Houston Conference training model, applied knowledge is overtly emphasized, whereas fundamental or basic knowledge in neuropsychology appears weak. The proposed program does not seem to provide sufficient emphasis and background knowledge in (1) History of neuropsychology, (2) Neuropsychological syndromes, and (3) Neuropsychology theory.

KEY WORDS: Neuropsychology; training models; neuropsychological theory.

INTRODUCTION

Neuropsychology represents a new profession everywhere. It is not surprising that around the world many discussions are going on about how to train neuropsychology students. Partially, but not totally coincidental points of view have been proposed.

In the United States two major proposals for training in neuropsychology have been presented (Guidelines of the INS-Division 40 Task Force on Education, Accreditation, and Credentialing, 1987; Hannay et al., 1998). Even though these proposals are quite similar, some significant differences are found. Despite controversies around the Houston Conference on Specialty Education and Training in Clinical Neuropsychology training model in neuropsychology (e.g., Rodriguez-Menendez, 2000) it can be anticipated that toward the future, neuropsychology training will be significantly impacted by it.

IS NEUROPSYCHOLOGY AN INTERDISCIPLINARY AREA OR A PSYCHOLOGY SPECIALTY?

The Guidelines of the INS-Division 40 Task Force begin stating that

Doctoral training in Clinical Neuropsychology should ordinarily result in the awarding of a Ph.D. degree from a regionally accredited university. It may be accomplished through a Ph.D. programme in Clinical Neuropsychology offered by a Psychology Department or Medical Faculty or through the completion of a Ph.D. programme in a related specialty area (e.g., Clinical Psychology) which offers sufficient specialization in Clinical Neuropsychology.

The Houston Conference on Specialty Education and Training in Clinical Neuropsychology document defines a clinical neuropsychologist (under **III. Who is a Clinical Neuropsychologist?**) in the following way:

A clinical neuropsychologist is a professional psychologist trained in the science of brain–behavior relationship. The clinical neuropsychologist specializes in the application of assessment and intervention principles based on the scientific study of human behavior across life span as it relates to normal and abnormal functioning of the central nervous system.

¹Florida International University, Miami, Florida.

²To whom correspondence should be addressed at 12230 NW 8 Street, Miami, Florida 33182. E-mail: alfredoardila@cs.com.

This definition significantly changes the idea of who is a neuropsychologist. According to the Guidelines of the INS-Division 40 Task Force, a neuropsychologist may or may not be a psychologist, implicitly assuming that neuropsychology represents an interdisciplinary area. The Houston Conference considers that neuropsychology is an area of psychology, and hence, it is closed to other professionals (e.g., neurologists, psychiatrists, speech pathologists). In many countries worldwide (as well as in the history of neuropsychology) neuropsychology corresponds at least partially to a neurology area. Or, it is both, and so we have psychology as a special branch of neurology. As a matter of fact, neuropsychology has been developed to a significant extent by neurologists. It could be argued that a distinction between behavioral neurology and neuropsychology has been established (Ardila et al., 1995; Mendez et al., 1995). Many people, however, may think that such a distinction is artificial, and any neuropsychologist should have some background in both neurology and psychology because, as a matter of fact, neuropsychology is an interdisciplinary area. Moreover, it could be argued that neuropsychology should be potentially open to other professions, in addition to psychology and neurology, such as speech pathology, psychiatry, and linguistics, as it was implicitly proposed in the Guidelines of the INS-Division 40 Task Force. This has been and continues to be a sensitive point in neuropsychology.

Furthermore, the Houston Conference definition of a neuropsychologist emphasizes on practical issues (“application” and “intervention”), overlooking the background theoretical knowledge in “brain–behavior relationships.” Finally, following the behaviorism psychology tradition, the term “cognition” (or “psychological processes”) has been omitted in the definition and only the term “behavior” has been included.

BASIC KNOWLEDGE IN NEUROPSYCHOLOGY

A major concern with the Houston Conference proposal, however, is the weak emphasis on basic knowledge in neuropsychology. The basic knowledge that a neuropsychologist should possess is presented in the Vth point (**Knowledge Base**) of the **Policy Statement** in the Houston Conference document, and at the beginning of the Guidelines of the INS-Division 40 Task Force on Education, Accreditation, and Credentialing. Comparing both documents, similarities but also differences are found. The Houston Conference model proposes a **Knowledge Base** that includes

1. Generic Psychology Core (corresponding to the Generic Psychology Core in the Guidelines of

the INS-Division 40 Task Force: Statistics and Methodology; Learning, Cognition, and Perception; Social Psychology and Personality; Biological Basis of Behavior; Life Span Development; History; and Cultural and Individual Differences and Diversity). Minor changes are noted with regard to the Guidelines of the INS-Division 40 Task Force: “Physiological Psychology” is replaced by “Biological Basis of Behavior,” but of course, it refers to the same type of information, and “Cultural and Individual Differences and Diversity” has been added.

2. Generic Clinical Core (Corresponding to the same Generic Clinical Core according to the Guidelines of the INS-Division 40 Task Force. No apparent change with regard to the Guidelines of the INS-Division 40 Task Force. Psychopathology, Psychometric Theory, Interviewing and Assessment Techniques, Intervention Techniques, and Professional Ethics).
3. Foundations for the study of the brain–behavior relationship (corresponding to Neurosciences and Basic Human and Animal Neuropsychology: Functional Neuroanatomy; Neurological and Related Disorders including etiology, pathology course, and treatment; nonneurological conditions affecting the CNS functioning; Neuroimaging and other Neurodiagnostic Techniques; Neurochemistry of Behavior [e.g., psychopharmacology]; and Neuropsychology of Behavior.) Some changes are noted: the Guidelines of the INS-Division 40 Task Force proposed Basic Neurosciences, Advanced Physiological Psychology and Psychopathology, Neuropsychology of Perceptual, Cognitive, and Executive Processes, and Research Design and Research practicum in Neuropsychology.
4. Foundation of practice in clinical neuropsychology (“Specific Clinical Neuropsychological Training” in the Guidelines of the INS-Division 40 Task Force: Specialized Neuropsychological Assessment Techniques; Specialized Neuropsychological Intervention Techniques; Research Design and Analysis in Neuropsychology; Professional Issues and Ethics in Neuropsychology; and Practical Implications of Neuropsychological Conditions). The Guidelines of the INS-Division 40 Task Force included Clinical Neurology and Neuropathology (moved to C), Specialized Neuropsychological Assessment Techniques, Specialized Neuropsychological Intervention Techniques, Assessment Practicum in

University-Supervised Assessment Facility, Intervention Practicum in University-Supervised Facility, and Clinical Neuropsychological Internship of 1,800 hr.

The Guidelines of the INS-Division 40 Task Force document also includes a doctoral dissertation. The Houston Conference refers to the skills (Assessment, Treatment and Intervention, Research, Teaching and Supervision). This subheading may correspond to the Didactic Training and Experiential Training included in the Guidelines of the INS-Division 40 Task Force. The Houston Conference document also includes (1) residency education and training in clinical neuropsychology (2 postdoctoral years); (2) subspecialties in clinical neuropsychology (toward the future); and (3) continuous education.

Supposedly, the “Foundations for the study of the brain–behavior relationship” area should provide the fundamental background knowledge in neuropsychology. Nonetheless, it does not seem to be exactly the case. The courses (“or other documentable didactic methods”) included in “Foundations for the study of the brain–behavior relationship” are

1. Functional Neuroanatomy: Obviously, this course is expected to be devoted to the study of the structure of the nervous system, without any major emphasis on the neuropsychological issues.
2. Neurological and Related Disorders (including etiology, pathology course, and treatment). Major neurological disorders are traumatic head injury, cerebrovascular disease, tumors, infections, metabolic disorders, and the like. The analysis of these disorders is assumed to be the major focus of this course or courses.
3. Nonneurological Conditions Affecting the CNS Functioning. Seemingly, it may refer to substance-abuse, psychiatric conditions, etc.
4. Neuroimaging and other Neurodiagnostic Techniques. Self-evident
5. Neurochemistry of Behavior (e.g., psychopharmacology). Self-evident.
6. Neuropsychology of Behavior. This may be the **only** course(s) that would be providing specific neuropsychological contents. The title, however, is too vague (in the Guidelines of the INS-Division 40 Task Force it was named as “Neuropsychology of Perceptual, Cognitive, and Executive Processes”). (It also would be very vague a psychology course with the name “Psychology of Behavior.”)

WHAT IS NEUROPSYCHOLOGY?

The major topics included in neuropsychology are aphasia, alexia, agraphia, acalculia, apraxia, amnesia, agnosia, executive functioning disorders, dementia, developmental disorders, and the like (Boller and Grafman, 1988/1997; Frederiks, 1985). These are the neuropsychology syndromes. These are exactly the topics that supposedly a neuropsychologist should be an expert in. Neuropsychology is the study of the brain organization of language (perception, memory, etc.) under normal and abnormal conditions. Thus, the unavoidable question is, where and when these core neuropsychology issues are studied and learned according to the Houston Conference proposal?

Neuropsychology, as any scientific area, has two major objectives: (1) A fundamental objective (i.e., acquiring knowledge and understanding the phenomena under study: in the case of neuropsychology, how cognition is organized in the brain and how it can be impaired in cases of brain pathology) and (2) an applied objective (i.e., the use of this basic knowledge to do something: assessment and rehabilitation in cases of brain pathology). Applied knowledge is overtly emphasized in the Houston Conference, whereas attaining a knowledge of neuropsychology fundamentals seems to be weak.

Noteworthy, the Houston Conference proposal suggests that a neuropsychologist should possess some background on “Cultural and Individual Differences and Diversity.” This is a positive advance with regard to the Guidelines of the INS-Division 40 Task Force. The understanding of cultural diversity, and the issues related to neuropsychological testing in different cultural contexts, has become a progressively most significant question in contemporary neuropsychology (e.g., Fletcher-Janzen, Strickland, and Reynolds, 2000; Uzzell, Pontón, and Ardila, in press).

SHORTCOMINGS IN TRAINING

Despite the complexity of the proposal and the tremendous amount of requirements to become a neuropsychologist (the most distinguished neuropsychologists in history—Luria, Hécaen, Geschwind, etc.—as well as many renowned contemporary neuropsychologists, would probably never be recognized as “neuropsychologists” based on the current proposal), three major and very significant shortcomings in the Houston Conference can be noted. The proposed program does not apparently provide sufficient emphasis and background

knowledge in

1. *History of neuropsychology (the development of neuropsychological ideas)*: Surprisingly, currently many neuropsychology students barely know who Hécaen was; or have any idea about the complex and long-lasting polemic regarding the visuo-constructive disturbances, just to mention a couple of examples. In the Generic psychology core, however, the Houston Conference model—following the Guidelines of the INS-Division 40 Task Force—proposes some background in the history of psychology, but no where history of neuropsychology is found.
2. *Neuropsychological syndromes (aphasia, alexia, agraphia, acalculia, apraxia, etc.)*: This is precisely the core of the neuropsychology knowledge. Only once at the end of “Foundations for the study of the brain–behavior relationship” the Houston Conference model refers to “Neuropsychology of Behavior,” quite insufficient and quite vague.
3. *Neuropsychology theory (how to interpret brain organization of cognitive processes)*: Luria’s interpretation of psychological processes as functional systems, Geschwind’s disconnection model, contemporary cognitive neuropsychology, theoretical implication of contemporary neuroimaging research, etc. No where is this type of information and analysis found in the Houston Conference proposal.

While a tremendous emphasis is placed on clinical abilities, no major concern with regard to fundamental issues in neuropsychology is found. This type of fundamental knowledge is what precisely makes neuropsychology a science. Otherwise, neuropsychology is at risk of becoming “a psychometry applied to brain-damaged populations, a psychometry theoretically empty from the

point of view of neuroscience” (Luria and Majovski, 1977, p. 966).

CONCLUSION

The Houston Conference neuropsychology educational model does not provide enough background in basic knowledge in neuropsychology. Many changes would be required before it can be considered an appropriate and acceptable training model, according to the current level of neuropsychology development.

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