

INTERNATIONAL NEUROPSYCHOLOGICAL SOCIETY LIAISON COMMITTEE NEWSLETTER

Presidential Message

By Leslie J Gonzalez Rothi, Ph.D.

Brain Rehabilitation Research Center
VAMC (151A)
1601 SW Archer Road
Gainesville, Florida 32608
Tel: +(352)-376-1611 ext. 6603
Fax: +(352)-379-2332
Email: gonzalj@neurology.ufl.edu

It was almost three decades ago that, as a doctoral student in speech-language pathology, I entered a classroom on the first day of a course entitled "Higher Cortical Function" taught by Professors Paul Satz (neuropsychologist) and Ken Heilman (behavioral neurologist). They began with the point that humans, by nature, are a product of their personal experiences and thus parochial by default. They noted that while we are not naturally inclined to expand our perspectives, we have much to be gained by doing so. Thus, Satz and Heilman created a neuropsychology course that by its design gave us the breadth of their two profession-specific viewpoints focused simultaneously on the same topics; with the synergy producing something more valuable than the sum of their individual perspectives.

This course serves as a model of our discipline of neuropsychology, which has benefited exponentially by contributions offered by our many professional perspectives. While we have further to go with the broadening of our cross-professional interactions, we can also find expanding breadth and resulting gain from the influence of a synergy of geographical and culturally

diverse perspectives. For example, as a neuropsychologist focused on language research, the perspectives that span professions have certainly been important, but as influential have been contributions of cross-language comparisons. Obviously comparative language studies most commonly involve researchers who study single phenomena in a variety of world locations or multinational research teams. This is but one example where cross cultural research spanning the globe can, in itself, inform us about the brain.

Thus, INS offers an opportunity not only to focus on providing offerings to individuals interested in neuropsychology around the world, but it is also an opportunity for the variety of perspectives represented by differences in language, location, culture, etc. to refine our understanding of the neural substrates of information processing. I encourage the readers of INS-NET to share this newsletter and information about INS with those in cultures/regions under-represented by our membership, but also wish to encourage you to use this forum to report findings across cultures/regions that refine our knowledge.

As is true of many of you, I have been a member of INS for decades and thus have had the opportunity to watch our society evolve in the concert with the ebb and flow of emerging. While INS was first formed more than 30 years ago, the International Liaison Committee was only formed recently, temporally contiguous with the society's active discussion regarding the need to reach out in ways designed to create and serve non-North American constituencies more effectively. INS has matured in this mission and this

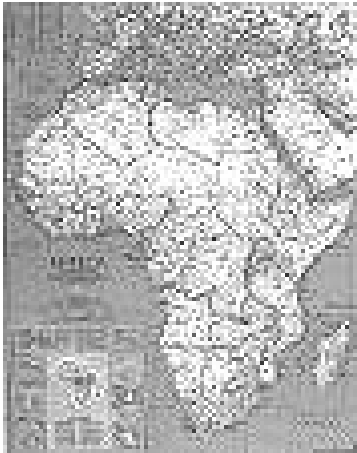
INS-NET newsletter is but one example of the efforts of the ILC to reach out to the broadest geographic expanses of our neuropsychology community. And while we need to continue to focus on identifying new opportunities to reach out to all, I hope there is also a parallel emphasis on study of the impact of language, culture, environment, etc. on human information processing and the brain.

Message from the Chair

In this issue, Drs. Jukes, Alcock, Holding, and Boivin very generously agreed to write about their experiences, research findings, and ideas for future development in a series of articles focusing on Neuropsychology in Africa. Their commitment to bring neuropsychological expertise to the public challenges in Africa is impressive and inspirational. Hopefully, more neuropsychologists will join them.

Please welcome our new Book and Journal Coordinator, Dr. Genevieve Riley. Dr. Pat Wyckoff stepped down after nearly 4 years of collecting materials for the depository, Thank you Pat, and welcome Genevieve!

Please check out our website which we are constantly updating with new information (www.ilc-ins.org). We also have a bulletin board for posting messages. If you have any information you would like to see added to the website, please contact me at bmarcopulos@ilc-ins.org.



Special Feature: Neuropsychology in Africa

As we could not do justice to the activity of a whole continent in anything less than a book, the commentaries here included aim to give only a flavour of the experience of psychologists who have had the privilege of working in different locations in Africa. Whilst our profession currently makes us a rare, but valued commodity, we share a strong belief that if we were more numerous our profession could have an even greater role to play in the development of human resources across the continent. We hope that in reading our contributions we can encourage others to join us in this undertaking

Impact of health and nutrition on behaviour in Africa

By Matthew Jukes Ph.D.

Partnership for Child Development
Department of Infectious Disease
Epidemiology
Imperial College School of Medicine
Norfolk Place, London W2 1PG
Tel: + 44 (0)20 7594 3291/2
Short Faxes: + 44 (0)20 7262 7912
Long Faxes: + 44 (0)20 74022150
Email: m.jukes@ic.ac.uk
<http://www.child-development.org/>

Growing up with parasitic diseases, nutritional deficiencies and hunger is the norm in rural sub-Saharan Africa. In addition to their physical effects, these conditions can also impair development of children's cognitive abilities and their

educational achievement. The severity of cognitive impairments varies according to the nature of the infection or nutritional deficiency and the age of the child, but even mild deficits are likely to have significant consequences for countries already straining to educate a growing school-age population with limited resources (Watkins, 2002).

It is crucial that we understand more clearly the pathways by which such infections affect cognitive development to maximize the efficacy of any intervention. Present research indicates that a number of nutritional deficiencies and parasitic diseases - iron deficiency, iodine deficiency, under-nutrition, short term hunger, parasitic worm infections - are associated with poor cognitive function in infants, preschoolers and school-age children (Drake, Jukes, Sternberg, & Bundy, 2000; Grantham-McGregor, Walker, & Chang, 2000; Jukes et al., 2002). In some cases - most notably with iron deficiency and under-nutrition - nutritional supplementation can be effective in reversing cognitive deficits. In the case of worm infections, deworming treatment has been shown to increase children's ability to learn new skills but does not improve existing cognitive abilities in the short term.

However, the specific profile of neuropsychological deficits caused by nutritional deficiencies and parasitic infections has proved elusive. The cognitive domains found to be affected by a particular condition often vary from one study to the next and it is difficult to make progress in an area where controlled experimental studies are impractical and unethical. However, part of the problem may lie in the outcome measures used by psychologists in such studies. Typically, batteries of neuropsychological tests imported from Europe or America are used to assess children's performance. These have some validity in measuring the abilities of affected children but are not broad enough in scope to capture the full extent of the problem and are not sufficiently fine-grained to specify neuropsychological mechanisms.

Some work has begun to address both of these shortcomings. Recent research projects have attempted to develop measures of children's abilities that are more appropriate to the culture in which they live, by measuring abilities that are

valued by that culture, and by devising methods of assessing them that are based on routines and stimuli familiar to children in that culture (Sternberg et al., 2002).



Importing Western scientists and Western ideas may suffice for the study of tropical medicine, but the same cannot be said for psychology. More so than with other science, psychological research is often inspired by introspective insights (Jukes, 2002). There are, however, so few African psychologists studying the effect of disease on cognitive development and education of children in Africa, largely because the education system is under resourced and thus produces few graduates. In addition, few universities are able to offer training in neuroscience or even psychology in general. Investing now in the training of psychology graduates may be the best long-term strategy for developing the knowledge base needed to implement effective strategies. This should be the primary focus of international psychological links.

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Grantham-McGregor, S., Walker, S., & Chang, S. (2000). Nutritional deficiencies and later behavioural development. *Proceedings of the Nutrition Society*, 59, 1-8.
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Neuropsychology of language development in Africa

By Katie Alcock Ph.D.

Department of Psychology
City University
Northampton Square
London EC1V 0HB
Tel: + 44 (0)20 7040 0167
Fax: +44 (0)20 7040 8581
<http://www.staff.city.ac.uk/k.j.alcock>
Email k.j.alcock@city.ac.uk

In most of sub-Saharan Africa, psychology in general is in an early stage of development, and neuropsychology more so. Although the neuropsychology of language is often one of the first areas to develop when the discipline is opening up in a new area, it has far to go in Africa. A search on PsychInfo reveals one published study linking the terms “neuropsychology”, “language” and “Africa”. No papers specifically on the neuropsychology of language appeared at the International Society for the Study of Behavioural Development Africa Section Workshop in 2000, and at the most recent conference of the Society of Neuroscientists in Africa in Nairobi, 2001, only one paper was presented on this topic. In South Africa, one of the best resourced countries in the continent, there are four universities that train speech and language therapists, and training focuses on linguistic and cultural diversity; but the lack of tests and materials, and therapists fluent in community languages, means that often assessment and therapy takes place through an untrained interpreter (Friedland & Penn, 2002).

However research and training at ground level exists and interest is increasing. Several unique situations exist whereby brain-language interactions can be studied in ways not possible elsewhere. For example there are implications for the study of dyslexia provided by the fact that many children do not attend school, enabling a detailed investigation of the relationship between schooling and reading instruction on language skills (Alcock, 2000). Children in Africa are also exposed to a range of severe diseases, such as malaria, in which the relationship between neurological insult and language development may be an important feature (Carter, Murira, Ross,

Mung’ala-Odera, & Newton, 2002).

Before these studies can be developed much basic research on normal functioning, and how to assess it, is essential. Developing measures will not be a simple task. Amongst, the hurdles to be overcome are the huge variety of language communities (over 100 in Tanzania, which is not the most linguistically diverse country by any means). An additional handicap is the lack of trained assessors or indeed in many countries psychology graduates, and it is difficult and time consuming to train non-specialists in observation and testing of children. This lack of training and experience in test administration goes beyond the assessment of more subtle neuropsychological measures. Even the development of achievement tests can be hampered by the lack of experienced teachers and poorly resourced schools, as my recent experience in studies developing tests for assessing reading function in rural schools has shown.



Commonly used in the study of language development in younger children are parental checklists, which can be administered by an interviewer rather than a qualified psychologist. However, even here techniques can not be imported wholesale. It should be remembered that many parents are illiterate and would not be able to complete the checklist themselves; nor are they familiar with the concept of rating scales. Careful adaptations not only in content, but also procedure need to be made.

Before these checklists can be developed, however, a description of grammatical and semantic development for the relevant languages must be completed. One fortunate circumstance is that the majority of languages in Eastern and Southern Africa are closely related grammatically; hence adaptation between languages should be fairly straight-

forward. In this area some extremely interesting work has begun by myself and colleagues in East Africa. This can be related to existing work carried out in Southern Africa (Demuth, 1992; Suzman, 1980).



The study of brain-behaviour-language development relationships in the African context will not be, as I hope I have shown, purely of theoretical or esoteric interest. How brain and language develop together in this context will surely inform the field as it is studied in other contexts.

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Suzman, S. M. (1980). Acquisition of the Noun Class System in Zulu. *Stanford Child Language Research Forum (SCLRF)*.

Risk or Resilience?

By Penny Holding, Ph.D.

Until September 2002, visiting fellow:
Division of Behavioral Pediatrics
School of Medicine
Case Western Reserve University
11400 Euclid Avenue
Cleveland Ohio, 44106, USA
Email: julianfay@yahoo.co.uk

From October 2002:

Kenya Medical Research Institute
Centre for Geographic Medicine
Research (Coast)

P.O. Box 230

Kilifi, Kenya

Email: pholding@kilifi.mimcom.net

Resilience to adversity characterises the development of children brought up in poverty in Africa. Whatever risk factors have been studied, there are always those, often the majority, whose development is not detrimentally affected. In North America the value of neuropsychological research is well accepted, and it makes a significant impact on peoples lives. The majority of countries on this vast continent do not have a tradition of psychology or psychological research, and much of the research is carried out by visitors, whose perception of Africa has perhaps been influenced by years of media coverage of famines, natural disasters and war. They therefore come in the main to investigate the impact of adversity. However, the conclusion which can be drawn from much of this research is that disease and disaster in combination with limited economic resources does not inevitably lead to impaired development. Yet we have barely begun to understand what factors contribute to a "healthy" outcome in those who face multiple risks but have few external resources to draw upon to overcome them.



The "what supports resilience" question is complex, requiring longitudinal research to track changes over time, and a detailed knowledge of the cultural context in which the observations are being made, in order to understand the meaning of what is found. But who will be able to carry out such research? Continuing to depending upon visiting researchers has severe limitations. Not

only do they generally not have an intimate knowledge of the culture, but can seldom make a long term commitment to supervising a detailed project on site.

At present, however, there is a very limited pool of local expertise to develop research programmes. The first stumbling block to changing this situation is that the majority of African countries do not have psychology departments at their universities. In Kenya, where I work, those with psychology degrees graduated abroad, and tend to drift, through lack of opportunity, into other professions, or if they wish to remain in the field, go back to work in countries where they trained.

Those countries who have opened psychology departments at their universities have struggled with the question of what kind of psychology they should teach. Strong criticism has been made of the cultural relativity of psychological theories developed in Europe and North America, and there are certainly very severe limitations to the applicability of the tools of assessment developed elsewhere to the African context. The process of translation, adaptation and development of both tools and theories will inevitably benefit the entire discipline of psychology. The more diverse the contexts in which theories are tested, the more we will understand the extent of psychological universals, and about the relative contribution to variability in development of biological and environmental factors.

There would be an enormous international benefit to encouraging and supporting the development of psychological expertise in Africa. And if a pool of expertise did exist, African psychology would be in a unique position to find the solution to the conundrum of human resilience.

Need for Neuropsychological Theory and Practice Within Public Health and Community Development Intervention

By Michael J. Boivin, Ph.D., MPH

Department of Psychology
Indiana Wesleyan University

4201 S. Washington St.

Marion, IN 4695

USA

Email: mboivin@indwes.edu

Integrating a cross-cultural approach within neuropsychology to broader issues of public health and community development is desperately needed in Africa. The field of neuropsychology is best equipped to validate a cognitive and neuropsychological assessment battery for potential use in documenting the impact of community, educational, and health intervention programs expected to enhance children's development globally.

To illustrate, several years ago my colleagues and I completed an evaluation of the effects of early cerebral malaria on Senegalese children in West Africa. Cerebral malaria (CM) includes as its principal symptoms high fever, recurring chills, lethargy, severe headache, delirium, seizures, coma, and finally, death. It is caused by the parasite *P. falciparum*, one of four types of malaria causing blood-borne parasites transmitted primarily by the bites of female anopheline found in the tropics worldwide. Three quarters of all deaths in cerebral malaria patients happens within 24 hours of hospital admission and one of the major indicators of fatal outcome is profound coma, along with hypoglycemia, seizures, absent corneal reflexes, motor abnormality, leucocytosis, raised plasma and/or cerebrospinal fluid lactate concentration to toxic levels.

To document the extent and severity of this public health threat, CM is associated with at least 2.3 million deaths annually, from an estimated 400 million cases of malaria each year worldwide. It is the leading cause of hospitalization, mortality, and morbidity of children under five years of age in sub-Saharan Africa. In fact, in Africa alone an estimated 0.5 million children die each year from cerebral malaria, and it is one of the leading causes of death in this age group. Furthermore, over 90% of malarial deaths in West Africa are in children under the age of 18 years. Roughly eight percent of all *P. falciparum* cases

progress to the point of being classified as cerebral malaria. At this stage, the disease has a poor prognosis, resulting in a 30 to 50% mortality rate even with active treatment and support. Yet, despite its significance as a public health threat in the tropics worldwide, only a few neuropsychological studies have been published on the effects of cerebral malaria in children.



In our study, twenty-nine Senegalese children with a history of cerebral malaria (CM) performed more poorly on the Kaufman Assessment Battery for Children (K-ABC) Simultaneous Processing domain and on Test of Variables of Attention (TOVA) attentional capacity indicators in comparison with a matched control group. We concluded that CM is a major public health and human resource threat in Senegal and throughout sub-Saharan Africa by disrupting neuropsychological integration during critical developmental periods. CM exerts its public health impact on the children of Africa and in the tropics throughout the developing world not simply in terms of mortality and morbidity, but on global neurological integrity, attentional vigilance, perceptual acuity, and subsequent development of visual-spatial processing and memory foundational to global cognitive ability for survivors.

In our research, a subsequent structural equation model confirmed that rural children were at greater risk for CM, subsequent attentional deficits, and for other developmental risk factors in addition to CM impacting on cognitive performance. We documented CM as one of a host of developmental risk factors within the complex web of poverty in sub Sahara Africa limiting

children's ability to achieve their full brain/behavior development potential. Our neuropsychological research documents that the human cost of this and other diseases epidemic in the tropics goes beyond general measures of mortality and morbidity -- to the human resources necessary for the educational, economic, and social realization of development potential for these regions.

Neuropsychological assessments are needed for monitoring the effects of nutritional, health, and educational interventions on brain/behavior development in response to community development efforts. In regions such as sub-Saharan Africa, there is a desperate need for training and equipping researchers and practitioners to do neuropsychology in the international and public health context. Such work will further our scientific understanding as to whether universal features of brain/behavior development and cognitive ability can be assessed in a similar manner in a variety of cultural contexts. Only through cross-cultural neuropsychological research can we establish whether the cultural context of daily social interactions and adaptations are paramount in interpreting cognitive ability or development at any level. Or, whether it is possible to tap a common neuropsychological foundation (an omnibus, to use a dated computer term), that mediates such contextual adaptations. We feel that our study of the neuropsychological effects of early cerebral malaria, considered together with reports from the use of these standardized assessments in other cultural settings (e.g., African village milieu) supports the latter. We believe that it is possible to tap basic and enduring neuropsychological and cognitive ability traits that mediate children's thinking in contextual adaptations. The present analysis indicates that tests carefully developed and extensively used in the industrialized cultural setting can be successfully learned and applied by clinicians in a non-industrialized setting to document the impact of health interventions. The integration of neuropsychological theory and practice

with the public health domain as part of community and international development is long overdue, and desperately needed for achieving a better understanding of the factors critical in more fully realizing human potential globally.

***Featured Local
Neuropsychological
Society***

The Australian Society for the Study of Brain Impairment (ASSBI) will soon be hosting joint conferences in Australia with the INS and IBIA. ASSBI publish our own journal, *Brain Impairment*. Membership in ASSBI is about US\$37 per annum, quite cost-effective given that this includes a subscription to the journal. Members of INS who are interested in brain trauma are encouraged to become members of ASSBI and receive our journal twice or three times a year, and enjoy our newsletters and annual conferences in sunny Australia. We welcome international contributions for consideration by the journal, especially on cross cultural issues, and our editorial board has a very fast turnaround time for review.

Our current President is Skye MacDonald, Ph.D., of the University of NSW in Sydney. The address for correspondence with ASSBI is as follows:

ASSBI, Executive Officer
School of Psychology
University of NSW
Sydney, NSW 2052
Australia



BOOK DEPOSITORY

Hello. I will be taking over the Book and Journal Depository from Dr. Patricia Wyckoff, who steps down on June 1st. I have been in the private practice of clinical psychology and neuropsychology for twenty-plus years, and look forward to working with the B&J Depository. Dr.

Wyckoff has done a wonderful job over the past years. We now have quite an inventory of titles, available for review at the ILC website. The major goal now is to distribute these to university and college neuropsychology programs; donations are meant for institutions from countries with little financial support. If you are affiliated with such a program, please visit the website, fill out an application and email it in. We look forward to hearing from you.

Genevieve Riley, Ph.D.
Email: genre1302@webtv.net

Bulletin Board

V CONGRESO ARGENTINO DE
NEUROPSICOLOGIA
II ENCUESTRO REGIONAL DE LA
SOCIEDAD LATINOAMERICANA
DE NEUROPSICOLOGIA

*"EVALUACION Y TRATAMIENTO EN
NEUROPSICOLOGIA"*

8 y 9 de NOV DE 2002, BUENOS AIRES

Fecha límite para presentación de propuestas
de trabajos libres: 31 / 7 / 02

5th. ARGENTINE CONGRESS OF
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*"EVALUATION AND TREATMENT
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8 - 9 NOV. 2002, BUENOS AIRES

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Information/ Informes:
SONEPSA
Montevideo 760 PB Buenos Aires
(5411) 4813-3470
sonepsa@hotmail.com
<http://in.cucba.udg.mx/SLAN/montevideo.html>

Future INS Meetings

**INS 24th Mid-Year Meeting July
24-27, 2002**, Stockholm, Sweden

**INS 31th Annual Meeting
February 5-8, 2003**, Honolulu,
Hawaii, USA

**INS 25th Mid-Year Meeting July
16-19, 2003**, Berlin, Germany

**INS 32nd Annual Meeting
February 4-7, 2004**, Baltimore,
Maryland, USA

**INS 26th Mid-Year Meeting July,
July 7-10, 2004**, Brisbane, Australia

For more information, contact the INS
Office (INS Executive Secretary's
Office Tel (614) 263-4200, Fax (614)
263-4366 Email: [osu-
ins@postbox.acs.ohio-state.edu](mailto:osu-ins@postbox.acs.ohio-state.edu)) or visit
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International Liaison Committee Members

Bernice A. Marcopulos, Chairperson
Neuropsychology Lab
Western State Hospital, Box 2500
Staunton, VA 24402-2500
USA
email: bmarcopulos@wsh.state.va.ua

INSNET is the free newsletter
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**Nancy A. Pachana, Editor of
INS-Net**
School of Psychology
University of Queensland
Brisbane, QLD 4072
AUSTRALIA
email: npachana@psy.uq.edu.au

Genevieve Riley, Book Depository
email: genre1302@webtv.net

Deborah L. Scheffel, **Support
Consultant Program**
University of Northern Colorado
McKee Hall, Room 30
Greeley, CO 80634
USA
email: debora.scheffel@unco.edu

Interesting Web Sites

For links to many neuropsychology
resources check out the following:

Neuropsychology Central
<http://www.neuropsychologycentral.com/>

Brain-Behavior: Neuro Realms
[http://www.geocities.com/SoHo/Coffeeho
use/6389/divinestra02.html](http://www.geocities.com/SoHo/Coffeehouse/6389/divinestra02.html)

Geropsychology Central
[http://www.premier.net/~gero/journal
s.html](http://www.premier.net/~gero/journals.html)

**Neuropsychology, Brain and Brain-
Injury Resources**
<http://www.brainsource.com/>

Editor

Nancy A. Pachana, Ph.D.
School of Psychology
University of Queensland
Brisbane, QLD 4072
AUSTRALIA

**Tel (+617) 3365-6832
Fax (+617) 3365-4466**

**Email:
npachana @ psy.uq.edu.au**