Crossing boundaries and strengthening links

The research-teaching hybrid in psychology

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Challenging assumptions at disciplinary level

- Current trends within the area of psychological measurement, neuropsychology and intelligence assessment call for stronger collaboration with natural scientists.
- The science of psychology in this area can be better serviced as a methodology if the subsequent research is multidisciplinary in nature and international in scope.
- To this end, a small replicated project is taking place in the Department of Applied Psychology at UCC to gather data on neuropsychological test performance indicators and its associated neurocognitive links to character and temperament.
This study was successfully implemented in South Africa. The research is particularly meaningful in terms of NAIRTL’s mandate:

- This **research** has a number of stakeholders including the University of Pennsylvania, (USA), University of Pretoria (South Africa) and the University College Cork (Ireland).

- Highlights the inherent limitations of psychology as a behavioural endeavour as the tools of the trade need to be added to and refined.

- **Teaches** students and psychologists-in-the-making that psychology in the 21st century needs to make a number of methodological and ideological changes.

- Allows students to **learn** and become active participants and collaborators in future projects of this nature.
The model used proved that it

- Can fund postgraduate student projects
- Exposes students to aspects of the research cycle
- Leads on to publication and research dissemination
- Has the opportunity of leading onto separate modules in the syllabus, growing a research base within the department and even eventual development of postgraduate programmes
- Highlights the movement towards a more fulfilling natural and social science collaborative activity which does not view the two as dichotomous areas of investigation
South African study – Aim of the study

• To date variables such as acculturation, language and ethnicity within the neuropsychological test literature has been underreported.
• South Africa presents with a dynamically acculturative society and there is a need to bring into focus these issues within neuropsychological testing.
• This research investigates the association between acculturation, computerised neuropsychological test performance and personality variables (temperament and character dimensions).
• Study conducted with the aid of a National Research Foundation Grant (NRF-South Africa); principle investigator N. Cassimjee (PhD) at the University of Pretoria.
• Currently funds one Master’s student in South Africa.
South African study – Administration Background

• Data collected in 2007 (pilot and large data study)
• Pilot study n = 63 male and female students at the University of Pretoria; fourth year Honours students, ages 20-48, multicultural groups
• Large study n = 631 male and female students at the University of Pretoria, first year psychology students, ages 17-49, multicultural groups
• Pilot study data submitted
• Large study currently being analysed
South African study – Methodology

(1) The PennCNP Battery

- The University of Pennsylvania Computerised Neuropsychological Test Battery (PennCNP) was used for this study
- Working in collaboration with the Brain-Behavior Laboratory at the University of Pennsylvania, the researchers were able to set up a web-interface between the South African site and the USA site
- The full battery of the PennCNP comprises the Emotions battery, Executive Functioning and Abstract Reasoning battery and the Memory battery
South African study – Methodology (continued…)

(2) The Temperament and Character Inventory (TCI)

- The TCI is based on the biosocial model of Cloninger (1993) which divides personality into four temperament and three character dimensions
- The four biological based temperament dimensions include novelty seeking (NS), harm avoidance (HD), reward dependence (RD) and persistence (P). These are defined as genetically homogeneous and independently inherited
- The three socially based character dimensions comprise self-directedness (SD), cooperativeness (CO) and self-transcendence (ST) and these reflect individual differences in self-concept as related to experience
(3) South African Acculturation Scale (SAAS)

• The acculturation measures that have been developed internationally are not appropriate for use in South Africa and appropriate measures with adequate validity have not been developed for use on the South African population

• Kramers (2000) developed the South African Acculturation Scale (SAAS) for South African use

• The scale is a 20 item self-report attitudinal measure comprising of three subscales (Assimilation, Integration and Rejection).
South African study – Methodology (continued…)

(4) Socio-demographic questionnaire

• The socio-demographic questionnaire was designed to capture basic data about respondents’ gender, age, handedness, language of schooling, home language, choice of language use, as well as parental education levels
South African study – Results

• The present study has shown significant associations between personality (TCI) and neuropsychological tests assessing the recognition of different emotional valences and performance accuracy and response speed on executive functioning. This supports the studies which report correlations between personality and neuropsychological outcomes in various clinical and community samples across cultural groups.

• The SAAS also correlated significantly with various aspects of speed and accuracy on the emotions battery and the executive functioning and abstract reasoning battery. This supports the literature on the influence of acculturation on neuropsychological performance outcomes.
Irish study – Aim of the study

• To replicate the study in its entirety using an Irish student population sample
• One important methodological difference – replacing the acculturative scale with a depression scale
• Pilot data currently being gathered
• This research investigates the association between depression, computerised neuropsychological test performance and personality variables (temperament and character dimensions)
• Principle investigator R. Murphy (PhD) at UCC
Irish study – Future Goals

• To further explore opportunities in geriatric populations
• Interdepartmental research collaboration
• To encourage psychology honours students to become involved as test administrators, research assistants, participants
• To develop and sustain a syllabus-oriented discipline within a research-vibrant area of investigation
• To allow students the opportunity to be part of on-going real-world research
• To build a collaborative research network with undergraduate students who will eventually take up postgraduate studies in this area
• To be able to fund postgraduate studentships
• To disseminate not only the research results but the research process to students in class
Four targeted areas which are highlighted

1. Crossing disciplinary boundaries
2. Strengthening links
3. Research-teaching
4. Psychological enquiry
(1) Crossing disciplinary boundaries

- Crossing traditional ‘boundaries’ between social and natural sciences with an increasing move towards natural science collaboration
- Future research to include methodologies such as saliva testing, neural imaging and the increased use of computer-aided technologies
- To encourage and campaign for the inclusive nature of future cross-disciplinary research at undergraduate level in the psychology profession which is perhaps viewed in a manner not as broadly focused as it could perhaps be
  - To work towards a science of psychology
  - To foster the bourgeoning field of cognitive neuroscience in Ireland with an emphasis on developing this teaching area at Irish universities
(2) Strengthening links

There are four stakeholders in this project.

1. Researchers from the Department of Applied Psychology at the University College Cork, Ireland (one principle investigator and two consultants)
2. Researchers from the Department of Psychology at the University of Pretoria, South Africa (one principle and two consultants)
3. Researchers from The Brain Behavior Center of the University of Pennsylvania’s Department of Psychiatry, United States of America (two consultants)
4. Students at UCC studying psychology at honours level
(2) Strengthening links *(continued...)*

- In *exchange* for the use of their computerised battery, the Brain Behavior Center of the University of Pennsylvania’s Department of Psychiatry captures all the data gathered on the battery as part of its ongoing norming of the battery.
- This *repository* ensures ongoing validity calibration of the tool for cross-cultural use and aids in the norming of an online battery.
- *Collegial* involvement within the department will help to grow a new branch within of expertise in the department and will likewise have the same effect with an already established South African network.
- *Student participation* and *pedagogical* advantages will make the experience a more inclusive one.
(3) Research-teaching

- Currently students are being recruited to participate in the study as part of their course-work experience in first year. This includes all first year honours and general arts students.
- Lectures are then delivered to students on the topic of neuropsychological investigation and the material and experience is subsequently assessed during the exam.
- Students are thus able to actively participate in the research gathering process as well as learn from the process in their course work which is credit-based.
- Students are also encouraged to participate on a voluntary basis as assistants of the project.
Currently there is no neuropsychological component offered in the curriculum in the Department of Applied Psychology at the University College Cork.

Although this is being addressed by the Undergraduate Board of Studies, this type of research initiative may prove valuable in addressing this issue.

This project overlaps several key components in research in applied psychology: research design, research methodology, statistics, neuropsychology and cognitive psychology.

Moreover, this research is unique in its assessment of neuropsychological indicators by using a battery delivered over the internet.
(3) Research-teaching (continued…)

• Certain areas of neuropsychological research are still in their infancy and this research seeks to add to the theoretical knowledge base of this field.

• It will not offer any diagnostic value but is purely descriptive at this stage.

• The above-mentioned key areas’ associated findings can be ploughed back into the several modules in addition to the possible creation of a new module in the department.
(3) Research-teaching *(continued…)*

- It is envisaged that the students themselves will participate in the study and in so doing will have had first hand knowledge of the research. This knowledge will then be taken back to class in a teaching environment.
- One primary goal of course is to publish these results in peer reviewed journals. The pilot article from research conducted in South Africa during 2007 has been submitted to a peer reviewed journal in the area of culture and cognition.
(4) Psychological Enquiry

- Conclusions from the South African study supports other studies which report correlations between personality and neuropsychological outcomes in various clinical and community samples across cultural groups.
- This pilot investigation provides a useful platform for future research on the interactive effects of various variables on neuropsychological performance in a poorly investigated South African population and, it is hoped, comparative findings will yield fertile data from which to make comparisons with the Irish data.
Multi-disciplinary  
Multi-national  
Inter-disciplinary  
Scholarly and scientific  
Pedagogical  

Tying the knot