TReND Nigeria Neuroscience Outreach Report

Title: Neuroscience as a Career Option for Young Nigeria Science Students and Scientists

Held at: Yobe Children's Academy, Damaturu, Yobe State, Nigeria

Gombe Children and High School, Gombe State, Nigeria

Gombe State University, Gombe, Nigeria

Outreach Team Members:

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Introduction

The first TReND Neuroscience Outreach in Nigeria took place at Yobe and Gombe States, Nigeria. The Outreach was purposely designed to motivate young Nigerian students and scientists into the science field Neuroscience and allow them to appreciate the "Neuroscience" around us in our everyday life. In addition, to let them know that Neuroscientists are approachable and can explain Neuroscience to enable everyone understand it. Towards this end, three schools were randomly chosen; Yobe Children's Academy, Yobe State; Gombe Children and High School, Gombe State; and Gombe State University, Nigeria. Total attendance reached over three hundred (300) participants, which included science and non-science undergraduate students, lecturers, secondary (high) school students and their teachers. The participants received introductory lectures on Neuroscience, its significance, the nature of Neuroscience research, the tools and models used in this research, with emphasis on tools and models affordable for Neuroscience research in Africa. Furthermore, they were also toured through career options in Neuroscience.

A. Outreach in Secondary (High) Schools

Over 100 students and teachers of Yobe Children's Academy and over 150 students and teachers of Gombe Children and High School received the outreach lectures on the 18th and 21st, June 2013, respectively. A brief description of TReND, her mission and vision were described in the first part of the talk, afterwards; participants received lectures on the followings;

i. Introduction to Neuroscience, its significance, recent developments in the field and the relevance of Neuroscience to other science courses, like Mathematics, Physics and Engineering; and non-science courses, like Economics, Marketing and public policy programmes (e.g. Law). Here, participants got to understand that Neuroscience is not restricted to Biologists, rather it can accommodate people of many disciplines. Through demonstrations, video and pictorial representations, participants got to learn about brain diseases, such as Huntington's disease, Alzheimer's disease, drug addiction and effect of listening to loud music.

ii. Methods of Neuroscience research (from animal to computational modeling) and why these models are used. The discussion was centered on *Drosophila*, Snail (*Lymnaea stagnalis*) for learning and memory and rat for studying cognition, anxiety, motor strength and coordination, pain and inflammation and environmental enrichment.

iii. Career in Neuroscience. Here, participants were lectured on how to become a Neuroscientist, the study opportunities in Neuroscience (e.g. Scholarships for summer schools and postgraduate programs), and where Neuroscientists work (e.g. Laboratories and Policy making offices).

iv. A day in the life of a Neuroscientist. Participants were briefly toured through the daily activities of a Neuroscientist, such as writing-up manuscripts and grant applications, managing Laboratory tools and account, travelling to conferences and teaching and counseling students and the general public on brain sciences.

An interactive session was held at the end of the lecture during which participants got to view and asked questions on hand-drawn images of brain diseases; Addiction, Epilepsy, Alzheimer's disease, Parkinson disease, Stress and Depression and spinal cord injury.

B. Outreach in the University

1. Over 80 students and lecturers of Gombe State University, Nigeria, received lectures on the outreach topic on 20th June 2013. The participants similarly received lectures on the different subjects discussed in the secondary schools (see section A). Although, the following points were emphasized and/or added;

i. Methods of studying the Nervous system. Apart from detailing this section for the university students, cell culture as a way of studying the nervous system was also discussed.

ii. Career in Neuroscience. Examples of Neuroscience study opportunities were detailed and nature of grant awarding bodies (e.g. IBRO, NIH) and nature of the grant applications were added to the discussion.

C. Outcomes

i. Increased Neuroscience awareness.

- Many participants responded positively when asked whether they would like to consider Neuroscience as a career option. This was particularly great among the secondary school students.

- Students showed great excitement in Neuroscience upon hearing about recent findings in the field, such as findings on brain-to-machine connectivity (Brain-Computer Interface), and also upon watching videos of brain activity and behavioral experiments using *Drosophila*, *Lymnaea stagnalis* and rats.

- In some cases, participants became particularly motivated from sympathy of watching demonstrations and video and pictorial representations of brain diseases.

ii. Increased awareness of the brain and brain diseases.

- Many participants showed great interest and asked questions on the posters depicting different brain diseases.

- Many participants said "they were happy to know that environmental enrichment and exercise, for example, can improve brain health and slow some brain diseases"

D. Conclusion

The outreach motivated many participants to consider Neuroscience as a career option, though it appears that secondary school students were more motivated to go into Neuroscience than their university counterparts. Furthermore, the outreach increased brain awareness to both students and scientists.