Introduction to Mentoring Plan: The African post-doctoral research fellow selected to work with me will have a unique opportunity to participate in the 1st year of implementing a 5-year research program sponsored by an NIH/NICHD research grant awarded to me and my collaborative study teams at MSU (Professor Alla Sikorski, Dr. Itziar Familiar-Lopez, Mr. Brian Winn), the University of Michigan (Professor Bruno Giordani), Johns Hopkins University (Professors Mary Glenn Fowler, Taha Taha, Dr. Sufia Dubadhai), Makerere University – Johns Hopkins University (MU-JHU) (Dr. Lilian Wambuzi), and Malawi College of Medicine Johns Hopkins Research Collaboration (Dr. Maclean Mallewa). With a special emphasis on nutrition, growth, and health through early childhood for our participating study cohorts in Kampala Uganda and Blantyre and Lilongwe Malawi, the African postdoctoral fellow selected for this program will participate in weekly study meetings and calls with the study sites as well as periodic site visits to Kampala and to Lilongwe and Blantyre with Professor Boivin and Dr. Familiar-Lopez for implementation of the approved study protocols for this R01 research program. The Study Aims are outlined below, and represent all phases of the research plan, which the postdoctoral scholar will receive experience in and to which she will contribute.

1.4 SPECIFIC AIMS

Opening a window into an HIV-affected child’s developing brain with African Brain Powered Games (BPG) training in at-risk children (http://gamedev.msu.edu/brain-powered-games-africa/). How can BPG be both an intervention and an assessment? We will use BPG as a neurocognitive “stress test” or medical “challenge” test, in order to evaluate brain/behavior functional integrity in HIV-affected children. This dual use of BPG is a key innovative feature.

Aided by NIH funding, we have developed an open access African BPG, a non-proprietary CCRT digital games package for HIV+ and affected school-age children living in the sub-Sahara. Mobile coverage for internet access is extremely high in this region (100% in Uganda and similarly widespread in Malawi, our test countries). In the first year of this proposal we will finish developing the cognitive assessment capacity for scaling up our BPG mobile cognitive training apps for touch screen tablets. Each of the 5 core BPG games lasts 10 minutes and trains fine motor, monitoring/attention, visual/auditory working memory, spatial navigational learning. In Year 3 we’ll add an Executive Functioning (EF) test to BPG. As an African child plays with Aim 1. Evaluate concurrent and predictive validity of BPG static (baseline) and dynamic (during 12 training sessions) cognitive assessments. We will evaluate whether BPG static (baseline) assessment will correspond well to our gold standard static measures previously adapted to our HEU, HUU, and HIV+ study cohorts at our Uganda and Malawi country sites (KABC-II, TOVA, CogState). Furthermore, we hypothesize that compared to these tests, dynamic BPG-based testing will provide for a more sensitive evaluation of brain/behavior function, as affected by both more proximal factors of HIV exposure (disease and treatment status and clinical response). We also hypothesize that dynamic assessments will be more sensitive to distal developmental risk factors (e.g., SES, nutrition/growth, maternal caregiving quality).

Aim 2. Compare the validity of BPG static and dynamic assessments. Cohorts will be clinically and neurodevelopmentally very well characterized, due to participating in our previous NIH-sponsored HIV clinical trials. We hypothesize that BGP-based static and dynamic assessments will be sensitive to cohorts’ prior early childhood longitudinal trajectories, as affected by proximal & distal risk factors causing developmental delay and cognitive problems; as measured in repeated testing in our cohorts previously.

Aim 3. Test the sensitivity of dynamic assessment to learning loss over time by evaluating how much BPG performance gains diminish during a 6-month absence of training. advantage of foundation for a trajectory of professional research opportunity and collaborative partnerships at MSU.
Michael J. Boivin, PhD, MPH

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Michael J. Boivin, PhD, MPH – Professional Web Sites
https://www.researchgate.net/profile/Michael_Boivin
http://psychiatry.msu.edu/about/faculty-directory/boivin.html
https://neurology.msu.edu/directory/michael-boivin
https://www.thriveearly.msu.edu/

Education
Jan 1992 - Apr 1994 University of Michigan
MPH, Public Health Policy and Administration
Ann Arbor, Michigan, United States

Sep 1976 - Dec 1980 Western Michigan University
MA, PhD, Experimental Analysis of Behavior
Kalamazoo, Michigan, United States

Sep 1973 - May 1976 Spring Arbor University
BA, Psychology
Spring Arbor, Michigan, United States

Doctoral Thesis
Michael J. Boivin: A discrete trial choice procedure for assessing the periodic equivalent of aperiodic ratio schedules of reinforcement. Western Michigan University, PhD thesis; approved 01/1981

Faculty Appointments
May 2006 – present Associate Professor, Full Professor
Department of Psychiatry and Department of Neurology & Ophthalmology, Michigan State University; East Lansing, Michigan, USA

May 2006 – present Core Faculty Member
African Studies Center, Michigan State University; East Lansing, Michigan, USA
For the past 30 years I have pioneered neuropsychological assessments African children

Sept 1996- April 2006 Professor (Full)
Department of Psychology, Indiana Wesleyan University; Marion, Indiana, USA

Sept 1978-August 1996 Lecturer, Assistant, Associate, Full Professor
Department of Psychology, Spring Arbor University; Spring Arbor, Michigan, USA

Sept 1983- Present Visiting Associate, Research Associate, Adjunct Associate, Adjunct Full Professor
Department of Psychiatry, University of Michigan; Ann Arbor, Michigan, USA

Dec 1976-Dec 1978 Research Assistant, Teaching Assistant
Department of Psychology, Western Michigan University; Kalamazoo, Michigan, USA

Fellowships
Aug 2003 Award ($48000): Fulbright African Regional Research Award - Uganda
May 1996 Award ($8000): West African Research Association Fellow - Senegal
Aug 1990 Award ($36000): Fulbright Senior Scholar Research Award - DR Congo
Pending Grants
R21 HD098588: Caregiver early child development training for preventing konzo from toxic cassava in the DR Congo. (Principal Investigator: Michael J. Boivin). Program Officer: Danuta Krotoski (email krotoskd@mail.nih.gov)
Designated for funding at NICHD Advisory Council 24-January-2019; Just in Time request pending.

Current Grants
R01 HD098027: Culture-specific neurodevelopmental assessment of HIV-affected children.
(Principal Investigator: Michael J. Boivin). Program Officer: Sonia Lee (e-mail leesonia@mail.nih.gov)
03/15/2019 – 02/29/2024. $3,227,407

R01 HD094009: Understanding maternal-fetal zika virus transmission and its complications in Nicaragua.
(Principal Investigator: Elizabeth Stringer). Role: Co-I
09/01/2018-07/31/2023. $2,730,462

Grand Challenges Canada Saving Brains Seed Grant 1809-18726. Training caregivers to enhance early child neurodevelopment in the prevention of konzo disease from toxic cassava in the Democratic Republic of Congo.
(Principal Investigators: Esperance Kashala-Abotnes, Michael J. Boivin) 04/2018-03/30/2020. CAS$250,000

R21 HD088169: Perinatal HIV infection/exposure, stress and long-term functional survival in Ugandan adolescents.
(Principal Investigator: Amara Ezeamama). Role: Co-I
07/2017-06/2019. $290,000 ($157,233)

2R01ES019841-06A1: Toxicodietary and genetic determinants of susceptibility to neurodegeneration
(Principal Investigator: Daniel Desire Tshala-Katumbay). Role: Co-I
09/2016-08/2021. $2,740,647 ($571,328)

R01 HD095277-01: Novel pediatric neurocognitive screening using central auditory tests.
(Principal Investigator: Jay C. Buckey). Role: Consultant
08/16/2018 – 04/30/2023.

R01 HD080467: Latent reservoir characterization and correlations with neurocognitive functioning.
(Principal Investigator: Mark Cotton). Role: Consultant
04/2014-03/2019. $3,747,020

2D43TW009608: Multidisciplinary NeuroAIDS Research Training to Improve HIV Outcomes in Nigeria: University of Ibadan, Nigeria.
(Principal Investigator: Babafemi O. Taiwo). Role: Mentor
02/2018-01/2023. $1,373,130

NIH SBIR/STTR MTG-18-09-6674: Adaptable pediatric neurocognitive assessment (APNA). Creare LLC
(Principal Investigator: Odile Clavier). Role: Consultant

Past Grants
R01 HD073296: Developmental and Growth Outcomes for ARV Exposed HIV Uninfected African Children.
(Principal Investigators: Mary Glenn Fowler, Michael J. Boivin)
08/2012-07/2018. $2,396,524

Michigan State University African Studies Center African Alliance Partnership Grant (MSU-AAP): A Partnership for Training Caregivers to Prevent Konzo Disease from Toxic Cassava in Congolese Children. (Principal Investigators: Michael J. Boivin, Desire Tshala-Katumbay, Esperance Kashala-Abotnes) 04/2017-10/2018. $200,000

R01 HD064416: Computerized Cognitive Rehabilitation in Children after Severe Malaria.
(Principal Investigator: Michael J. Boivin and Noeline Nakasujja)
04/01/2011-03/31/2018. $2,062,034 ($416,555)

R01 HD070723: Enhancing Ugandan HIV-affected child development with caregiver training.
(Principal Investigators: Michael J. Boivin, Judith K. Bass).
03/2013-07/2018. $823,339

09/2015-08/2018. $839,561 ($296,736)

2R01 NS055349: Neurodevelopmental outcomes in children with severe malaria. (Principal Investigator: Chandy C. John). Role: Co-I 01/2014-12/2018. $2,710,531

R21TW010004: Onchocerciasis-associated neurodevelopmental deficits: the hit squad Fogarty Other (Principal Investigator: Desire Tshala-Katumbay). Role: Co-I
04/2014-03/2016. $200,000

D43TW009609-01: Training in HIV-related Non-communicable Disease Complications in Malawi (Principal Investigator: Taha Taha). Role: Mentor
08/2013-01/2018. $1,268,700

International AIDS Society CIPHER award: Chronic HIV, Executive Function, Psychosocial Adjustment and Quality of Life in Ugandan School-aged Children - A Study of Long-term Functional Survival with Perinatal HIV Infection and Exposure. (Principal Investigator: Amara Ezeamama) Role: Mentor. 05/2013-04/2015. $128,000


University of Michigan Medical School Global Reach Program. Cognitive Rehabilitation with HIV positive Children in Uganda. (Principal Investigators: Bruno Giordani and Michael J. Boivin).
06/2013-08/2017. $60,000 ($20,000)

International AIDS Society CIPHER award: Does HIV subtype moderate ART effect on neurocognitive functioning in children? (Principal Investigator: Paul Bangirana) Role: Mentor
05/2013-04/2015. $128,000

R21MH097115: Implementing a School Based Child Mental Health Prevention Program in Uganda. (Principal Investigator: Yen Huang). Role: Co-I
05/2013-04/2015. $2,165,000

09/2012-08/2014. $60,000

Neuropsychological Assessment Battery for 5 to 7 year old Rural African Children in Uganda and Burkina Faso. Grand Challenges Canada Saving Brains Program. (Principal Investigator: James Tumwine). Role: Consultant 09/2012-08/2014. $1,000,000

R01HD074261: Comparative Effectiveness of Pediatric HIV Disclosure Interventions in Uganda. (Principal Investigator: Lisa Butler). Role: Co-I
08/2012-06/2016. $1,284,816

12-DFI-COM: Neuropsychological benefits of cognitive training in school-age Ugandan HIV children Michigan State University Office of the Vice President of Research and Graduate Studies (OVPRGS). (Principal Investigator: Michael J. Boivin)
07/2012-06/2014. $60,000

UM1 A/068632: A Longitudinal Developmental and Neuropsychological Assessment of the P1060 Clinical Trial Cohorts and HIV-uninfected Controls NIH/DAIDS
(Protocol Chair: Michael J. Boivin)
06/2012-05/2018. $480,300

**R01HD071664: Longitudinal Neuroimaging and Cognitive Study of HIV-Infected Children.**  
(Principal Investigators: van der Kouwe, Willem, Meintje, Laughton). Role: Consultant.  
09/2011-06/2016. $2,416,927

**D43TW009082: Research training in infection and neurodevelopment in Uganda.**  
(Principal Investigator: Chandy C. John). Role: Mentor  
06/2011-05/2016. $1,039,280

**R01ES019841: Toxicodietary and Genetic Determinants of Susceptibility to Neurodegeneration.**  
(Principal Investigator: Tshala-Katumbay). Role: Co-I  
04/2011-03/2016. $201,841 ($58,798)

**R01HD064416: Computerized cognitive rehabilitation in children after severe malaria.**  
(Principal Investigators: Michael J. Boivin, Noeline Nakasujja).  
04/2011-03/2016. $2,554,870

**Cognitive and family intervention trials (Uganda) UM Medical School Global Reach Program**  
(Principal Investigators: Bruno Giordani, Michael J. Boivin)  
06/2010-08/2013. $20,000

**R34MH084782: Neuropsychological Benefits of Cognitive Training in Ugandan HIV Children.** NIH/NIMH  
(Principal Investigator: Michael J. Boivin)  
03/2010-02/2014. $571,163

**R21HD060524: Anemia in pregnancy in Benin and impact on cognitive function in childhood**  
(Principal Investigator: Bodeau-Livinec). Role: Co-I  
03/2010-02/2012. $349,792

**U01HD064698: Acute vs. Delayed Iron Therapy: Effect on Iron Status, Anemia and Cognition.**  
(Principal Investigator: John). Role: Key Investigator  
10/2009-01/2014. $1,218,000

**R01NS055349: Pathogenesis of Cognitive and neurologic deficits in central nervous system malaria (Uganda).**  
(Principal Investigator: John). Role: Co-PI  
05/2008-03/2014. $2,660,830

**R21MHOB3166: Variation in neurocognitive impairment of HIV Ugandan children by HIV subtype.**  
(Principal Investigator: Wong). Role: Co-I  
05/2008-04/2010. $407,106

**Cognitive and psychosocial effects of true cerebral malaria in Malawian children.** Michigan State University Office of the Vice President of Research and Graduate Study (OVPRGS).  
(Principal Investigator: Michael J. Boivin).  
05/2008-04/2009. $39,000

**R34MH082663: Cognitive and psychosocial benefits of caregiver training in Ugandan HIV children.**  
(Principal Investigator: Michael J. Boivin).  
04/2008-02/2012. $599,648

**University of Michigan Medical School Global Research Mentoring Program. Neuropsychological, cognitive, and academic benefits of a computerized cognitive rehabilitation training intervention for HIV-infected Ugandan school children.**  
(Principal Investigators: Bruno Giordani, Michael J. Boivin)  
06/2007-08/2008. $15,000

**University of Michigan Global Health Institute Faculty Grant. The neuropsychological impact of a computerized cognitive rehabilitation training intervention with Ugandan cerebral malaria survivors.**  
(Principal Investigators: Bruno Giordani, Michael J. Boivin)
01/2007-05/2008. $15,000

*Metanexus Institute and the John Templeton Foundation: Templeton Applied Research Program (TARP).* Breast cancer disease and treatment: modeling the relationships among spiritual and emotional well-being, quality of life, neuropsychological function, and immunological resilience. (Principal Investigator: Michael J. Boivin)
06/2006-11/2010. $999,921

*K01TW007403: Morbidity/Mortality and disability in children (MADIC) study.* (Principal Investigator: Heena Brahmbhatt). Role: Mentor
09/2005-08/2009. $345,934

*MIMCOM Internet Access Award WHO Multilateral Initiative on Malaria (MIM)* (Principal Investigator: Justin Byarugaba). Role: Co-I
02/2005-02/2006. $20,000

*SIDA Faculty Development Award* Swedish International Development Agency (SIDA) program to develop medical research at the Makerere University Medical School, Uganda. (Principal Investigator: Robert O. Opoka). Role: Co-I
04/2004-03/2005. $4,000

*R21TW006794: Cognitive and neurologic sequelae of cerebral malaria* (Principal Investigator: Chandy John). Role: Co-I
09/2003-02/2007. $287,000

*Theological Exploration of Vocation Grant* Lilly Endowment for Higher Education (Principal Investigator: Bill Millard). Role: Co-I 11/2001-10/2006. $2,000,000

*Dreams of Distinction Grant* Lilly Endowment for Higher Education (Principal Investigator: David Wright). Role: Co-I
08/2000-07/2007. $10,600

*Initiative Grants to Network Christian Scholars* Council of Christian Colleges and Universities (CCCU) (Principal Investigator: Michael J. Boivin)
05/2000-04/2003. $15,000

*Student Success and Retention Program* Lilly Endowment for Higher Education. (Principal Investigator). Role: Co-I
08/1997-07/2000. $500,000

**National Review Panels – Global Health Research**

**Fellowship Research Awards**
April, 1988: Growth in Research Effectiveness and Teaching (G.R.E.A.T.) Grant for research ($5000 award), used for eight-week pediatric neuropsychology research project at St. Andrews University, Scotland.

November, 1993: Growth in Research Effectiveness and Teaching (G.R.E.A.T.) Grant for research ($5000 award), used for six-week neuropsychology teaching and research assignment in Laos.

March, 1997: WARA Research Fellowship ($7500), Summer Research Program. Awarded by West African Research Association (WARA) (Office at Howard University, Washington, DC) and funded by the U.S. Department of Education, Office for International Studies. Affiliation for research project with West African Research Center (WARC) in Dakar, Senegal, and Cheikh Anta Diop University, Dakar (June, 2007 to August 2007).

Regional Awards

Institutional Awards
May, 1986: Baldwin Award for Teaching Excellence ($1000), Social Science Division, Spring Arbor College.

Co-recipient of Annual Faculty Merit Award for outstanding faculty professional achievement, Spring Arbor University (1993, 1988, 1983).

May, 1995: Young Leader of the Year Award (one of four recipients), Alumni Association of Spring Arbor College.

December, 1998: Selected for the John Templeton Oxford Seminar on Science and Christianity (all travel, lodging expenses, and $2000 stipend for one-month seminar for each of three successive summers at Oxford University, England). Co-sponsored by the Coalition of Christian Colleges and Universities (CCCU) and the John Templeton Foundation. One of 30 scholars selected from 116 applicants for this three-year program.

Fulbright Award nomination (but not selected) to Israel (2001), Ireland (1999), and Ghana (1994).

August, 2002: Templeton Foundation and Metanexus Institute (Univ. of Pennsylvania) finalist in Spiritual Transformation program grant competition (one of 60 finalists selected from over 470 initial letter-of-intent applicants).

April, 2003: Fulbright African Regional Research Award recipient for the study of the neuropsychological effects of early cerebral malaria in children; Makerere University/Mulago Hospital, Kampala, Uganda.


July, 2005: Health Prize winner in 1st annual Science and Religion Contest, sponsored by Science & Theology News, for essay on research project entitled "Responding as whole persons in the face of life-threatening disease: Emotional and spiritual well-being, quality of life, neuropsychological function, and immunological resilience." (Award shared with study collaborator Dr. Burton Webb, Indiana Wesleyan University).

October, 2007: Alumnus of the year award, Spring Arbor University, Spring Arbor, MI. September 26, 2013: Co-recipient of the Michigan State University - College of

September 27, 2013: College of Osteopathic Medicine Faculty Humanism Award: Michigan State University, East Lansing, Michigan, USA.
April 27, 2014: Selected as an MSU Global Innovations Fellow, 2014-15 Academic Year. Michigan State University Global Outreach Program, Office of the Provost. This award used to develop “Thrive Early” research program.

May 21, 2014: Winner of best faculty research poster and co-presenter on runner-up research poster at the 1st annual research poster session of the Michigan State University College of Osteopathic Medicine Statewide Campus System (SGS) meeting, East Lansing, MI: May 21, 2014.

October 18, 2018: College of Osteopathic Medicine Faculty Research Excellence Award: Michigan State University, East Lansing, Michigan, USA.

February 5, 2019: Michigan State University Community Engaged Scholar Award (CESA); in partnership with Professor Desire Tshala-Katumbay on behalf of the Institut National des Recherches Biomedicales – Democratic Republic of Congo. East Lansing, Michigan, USA.


Books


Book Chapters


Florence Bodeau-Livinec, Michel Cot, Ghislain K. Koura, Michael J. Boivin: *Assessing the Effects of Maternal Anemia on Child Development in Benin*. In Michael J. Boivin and Bruno Giordani (Eds.) Neuropsychology of
Select Curriculum Vitae – University Distinguished Professor Designation

CV: May 6, 2019

Michael J. Boivin, PhD MPH

Select Journal Publications in Chronological Order of Most Recent Since Coming to MSU in 2006 (of 238 publications: *all cited below were published in peer-reviewed journals)


17. Victoria Seffren, Itziar Familiar, Sarah M. Murray, Jura Augustinavicius, Michael J. Boivin, Noeline Nakasujja, Robert Opoka, Judith Bass: Association between coping strategies, social support, and depression and anxiety symptoms among rural Ugandan women living with HIV/AIDS. AIDS Care 02/2018; DOI:10.1080/09540121.2018.1441969


