Internship with The Walking School Bus (TWSB)

Position: The Walking School Bus Researcher

Description of the host organization:
The Walking School Bus (TWSB) works to empower access to education through mutually beneficial partnerships that promote the holistic, research-based approach of ***Access***, ***Nutrition*** *and* ***Curriculum***. As TWSB expands operations into India, it is crucial that the model that has worked that has succeeded within the Ugandan context is researched so that it can be reworked to fit the Indian context. Learn more about the TWSB research team here: Think Tank

Location: The research will be conducted in northern **India** and two expeditions are planned in 2018. The research team will work with local communities and collect data in India.
However, the expeditions are not mandatory for all researchers. Interns may work on the project **remotely** without travelling and collaborate with other researchers.

Dates of Expeditions:
March 29 – April 6, 2018
July 20 – July 29, 2018

How to apply:
Send CV & Preference for projects
to danielle.donnelly@mcgill.ca and aaron@thewalkingschoolbus.com

Please note these positions are **UNPAID**, and students are encouraged to find external funding. The interns are responsible for all travel and living costs associated with the internship, including visa and transportation to India. TWSB will assist with logistics for travel and field activities.

Research Projects:

1. **Assess the impact of distance on attendance rates in India & how school buses can improve access to education**

Objectives:
● Understand distance as a barrier across India.
● Analyze the average distance that students are walking to school, barriers preventing educational attainment, and how many school age children are not in school and why.
● Develop robust literature review that considers key statistics surrounding distance as a barrier to education in India.

● Investigate efficacy of TWSB School Bus Model in Indian context.
● Work with Indian team to understand how this model could be implemented in India.
● Collaborate with Canadian company - Routific to help optimize eventual school bus model

Experience with the following is an asset:
● Tableau (Data Visualization)
● Developing Impact reports / Projections

2. Develop a CSA Model with Linear Programming

Linear programming is a method of maximizing or minimizing a linear relationship to achieve the best outcome or use of resources available. In India, there is a need for linear programming to allow for planning and proper allocation of resources to help battle public health problems and nutritional deficits within the communities. One issue of importance to The Walking School Bus is the wide-spread prevalence of anemia in India (national prevalence of 55%). This issue could be corrected with proper nutrition and iron intake. Foods with adequate amounts of iron such as kale, spinach, and green peas are inexpensive ways to supplement Indian diets. The Walking School Bus is interested in developing a linear programming model that enables efficient use of land to cultivate these crops for the Community
Supported Agriculture (CSA) farmers and schools. Linear programming could also find the best solution for other limitations such as labor, water, and costs associated with growing crops.

Objectives:
• Develop a Linear Programming Model that enables efficient Community Supported Agriculture within two communities and two schools in Northern India
• Find solutions for constraints: Land, labour, water, costs (and unidentified issues).
• Create an educational packet for farmers and school teachers about improved agricultural techniques and planning.
• Create an educational poster explaining the impact of improved nutritional diversity.
• Work with TWSB nutrition team in Vancouver and India to implement practices that can be sustained, monitored, and evaluated.

3. Sustainable CSA Garden Development and Evaluation

TWSB's CSA Garden initiative uses a linear programming method to best identify which crops to grow and takes location and social norms into account. This project aims to utilize the abovementioned data and work with: community leaders and schools to develop 1600 – 4800 square ft. gardens that serve two primary purposes: 1) To grow vegetables that improve

nutritional diversity and help to lower the high rates of anemia; 2) To teach improved agricultural practices that increase crop productivity and farmer resilience.

Objectives:
• Working with community leaders in Himalayan Public School (HPS) and Himalayan Public School Chopra (HPSC), identify location for the CSA garden.
• Working with students from the HPS and HPSC, implement the garden and ensure it is protected from pests and excessive sun exposure.
• Develop composting model for garden sustainability as this is a technique that is currently not employed in HPS and HPSC, and the community leader would like to initiate the process.
• Work collaboratively with nearby TWSB chicken coop to ensure fertilization of CSA garden.
• Develop system for data collection and ways to monitor and evaluate garden performance and impact on community.

4. **Investigate the Chicken Coop Model and Data Collection**

This project aims to provide consistent nutrition and protein for school students by providing them with eggs for lunch. This venture also provides manure that can be utilized by the school for the garden and passive income for the school through sales of surplus eggs. In the research project, we hope to collect additional data through a survey at HPS and HPSC, and investigate the possibility of expanding this project to other schools and communities.

Objectives:
• Research on the compatibility of TWSB chicken coop model in the Indian context
• Improve existing research which looks at egg consumption within the schools, passive income generated, cost of chicken feed, and educational impact.
• Work with the research team to implement existing surveys and questionnaires on a weekly basis, and setup systems to help collect data that will allow economists to develop impact assessment reports.

5. **Assess the impact of Reading While Listening (RWL) to audiobooks on reading fluency**

Improving fluency is an important instructional goal of primary schools, and Reading While Listening (RWL) to audiobooks is believed to have some favourable contributions to improve reading fluency. The goal of the study was to assess the impact of RWL to audiobooks on reading fluency. To achieve this goal, The Walking School Bus has conducted a randomized controlled experiment using forty-six students enrolled in grade 3 at Hadassa Primary School in rural Mbale, Uganda. The significance of the study underscores the current inefficiencies within

classrooms globally and the ease with which simple interventions can be implemented to improve fluency. Given that the above-mentioned study was conducted in Uganda, The Walking School Bus is looking to run a second randomized control trial (RCT) within the affiliated communities in India to see if the outcomes are similar.

Objectives:
• Design the randomized control trial (RCT) to suit Indian context.
• Implement RCT in India in April and put systems in place to monitor and evaluate student performance over a 3-month trial.
• Deliver the results in a written report.

6. Solar Powered Classroom

The Walking School Bus constructed a Solar Powered Classroom from a 40’ shipping container in Uganda and hope to design similar classrooms in India. The classroom will generate enough electricity to be completely off grid and have a water catchment system which enables students to drink right from a faucet outside the container. It will be equipped with computers and the SiMBi reading App developed by TWSB.

Objectives:
• Work with TWSB architects to see how design could be adapted to Indian context.
• Develop impact projections/report of unit once implemented.
• Develop impact report for intranet (microcomputer) systems.