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Project aims to equip blind students to visualise data

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Speed read

- It is one of 46 research projects of the PEER program that got funded this year
- Kenyan schools for the blind will get computers with tools for visualising data
- An expert says the project could help the blind take up science careers

The two-year Mwangaza project on STEM and computing education, which started last month, is among the 46 finalists of the 2014 Global Research Collaborative Awards funded through the Partnerships for Enhanced Engagement in Research (<http://www.scidev.net/sub-saharan-africa/enterprise/rd/>) (PEER) program. Mwangaza is a Kiswahili word for light.

Jane Mwai, the projects principal investigator and a professor at Kenyas Kenyatta University, says people with sight can rely on the eyes to read and make sense of numbers or values presented through charts and graphs, which form the core of science and technology studies.

But for those with vision loss, these graphical presentations of data (<http://www.scidev.net/sub-saharan-africa/enterprise/data/>) may be difficult or impossible to access, Mwai explains. They are not in a position

to effectively comprehend data, make sense of specific values, consider trends and compare different datasets so as to draw conclusions.

Mwai adds that these hurdles make education and employment opportunities in STEM fields a distant reality for the visually impaired.

The teaching tools the US\$ 120,000 project seeks to roll out were developed at US-based Georgia Tech Sonification Laboratory and are currently in use in the United States, says Mwai. According to a statement by the US National Academy of Sciences, which manages the PEER program, the laboratory has been partnering institutions such as Safaricom, Microsoft and inABLE a non-profit based in Kenya and the United States to equip computer laboratories at Kenyas schools for the blind with the technology.

PEER is a joint endeavour funded (<http://www.scidev.net/sub-saharan-africa/enterprise/funding/>) by three US-based institutions: the United States Agency for International Development, the National Science Foundation and the National Cancer Institute.

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Bruce Walker, the head of the laboratory and a professor at Georgia Tech, who is a partner of the project, says STEM teaching tools use a combination of speech and non-speech audio recordings.

Mostly, the user interfaces such as menus and options are accessed via a screen reader like JAWS [*Job Access With Speech*] or NVDA [NonVisual Desktop Access]. But sometimes software [programmes] are built to be self-voicing, so no screen reader is required, Walker explains, noting that for a graph of average daily temperatures in a year, the data could be mapped onto the pitch of a musical note.

Solomon Bukhala, the education (<http://www.scidev.net/sub-saharan-africa/communication/education/>) services manager at the Kenya Society for the Blind, says the visually impaired in Kenya have for a long time been forced to adapt to an education curriculum that favours those with sight.

Since the visually impaired students rely on the sense of touch to study, [without the necessary tools] they are denied the opportunity to analyse visual representations of data. And this is unfair, Bukhala states.

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03/10/14

Sarah Ooko

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