John Waithaka

assignment 3 (HCI)

ICT In africa

**1. CITATION/REFERENCE:**

G. H. Chidziwisano and S. Wyche, ‘M-Kulinda: Using a Sensor-Based Technology Probe to Explore Domestic Security in Rural Kenya’, in *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, in CHI ’18. New York, NY, USA: Association for Computing Machinery, Apr. 2018, pp. 1–13. doi: [10.1145/3173574.3173584](https://doi.org/10.1145/3173574.3173584).

**2. AUTHORS:**

The authors of the paper are George Chidziwisano and Susan Wyche.

At the time of this research, George Chidziwisano was a Ph.D. in Human-Computer Interaction student at Michigan State University. He completed his doctorate and has served as a postdoctoral fellow at Carnegie Mellon University and as an assistant professor at the University of Tennessee. He has multiple peer-reviewed publications, and his work focuses on the design of sensor-based technologies for resource-constrained households.

Dr. Susan Wyche has been an associate and assistant professor of Human-Computer Interaction at Michigan State University for 11 years. She has several peer-reviewed publications, with a research focus on technology design for and use in rural African communities. Her academic qualifications include a Bachelor of Fine Arts in Industrial Design from Carnegie Mellon University and a Ph.D. in Human-Centered Computing from Georgia Institute of Technology.

**3. FUNDING AND CONFLICTS OF INTEREST:**

The research is funded by the National Science Foundation, a United States government agency that funds a wide range of scientific research.

The authors do not mention any conflict of interest and we could not identify any ourselves.

**4. PUBLISHER:**

The publisher of this research is the Association for Computing Machinery. The publisher has rigorous peer review requirements and is therefore selective.

The paper is a peer-reviewed conference paper.

**5. PURPOSE:**

The objective of the research was to explore how ICTs, specifically sensor-based technologies, can be used to improve domestic security in rural Kenya. The authors sought to answer the question, “How can sensor technology be used to tackle property theft in rural Kenya?”

The paper is an original research article.

**6. RESEARCH METHODS:**

The research method used in this study was a combination of interviews, observation, diary entries, and data logging; at the centre of this was the deployment and use of a technology probe dubbed M-Kulinda. Interviews were conducted with participants to gather information about security practices and their knowledge of sensor-based technologies. Home tours were conducted to assess present security measures, and the technology probe was deployed in the households for a month. Follow-up interviews were conducted to gather feedback and insights about the experience with M-Kulinda and perceptions of sensor-based technology. Participants were also provided with diaries to record their thoughts and reactions. The data collected from interviews, diary entries, field notes, photographs, and messages from participants were analyzed using techniques such as open coding, affinity diagramming, and triangulation.

The study was conducted in rural western Kenya. There were 20 participants, selected through snowball sampling.

Assumptions made were honesty and representativeness of the participants.

**7. MOST IMPORTANT FINDINGS:**

The main finding of the research was that technology probes are effective for gathering insight for use in the design of technologies that effectively solve the specific problems of people in rural Africa and that fit into their daily lives and contexts.

Technology probes achieve this by helping these people understand a certain technology and its uses. And then, most importantly, to identify ways in which the technology can be used to solve their specific problems. This insight enables the design of technology tailored to their specific needs and contexts.

**8. WEAKNESSES:**

The limitations of the research given by the authors are the following.

* The short duration of the study (4 weeks) was insufficient to gather enough data to provide a comprehensive view of the implications of the technology probe.
* The non-probabilistic sampling method used (snowflake sampling) and the small number of participants involved (20) means the findings of the research are probably not generalizable to a larger population.
* Infrastructural challenges – electricity and communication networks – hindered the research. Most participants were not connected to the national electricity grid, therefore, the technology probe relied on solar power for charging. However solar charging was reportedly very slow, which stopped participants from using the probe as it charged. Also, the poor communication networks caused the alert SMS message to be delivered late, which lowered the effectiveness of the probe.

**9. BROADER IMPLICATIONS:**

(These implications are based on two assumptions. First, the findings of the paper are generalizable to all rural Africa and therefore technology probes are effective for the design of useful and usable technology for the rural African population. Second, a major barrier to the adoption of technology in rural Africa is the incompatibility of technology designs with the rural African context.)

The findings of this research imply that the use of technology probes in rural Africa for technology design research has the potential to enable people in rural Africa to exploit ICTs to improve their lives and standards of living. According to this paper, most technology design research is conducted in developed countries. This leads to the development of technologies that, though successful in developed countries, fail in rural Africa due to the incompatibility of their designs with the rural African context. However, if design research using technology probes was done in rural Africa, then technologies could be designed and built to be useful and useable for the rural African population. This may result in greater adoption of ICTs which may further lead to improved access to information, education and healthcare, collaboration, bigger markets for SMEs, automation, etc. This may further lead to high employment rates, improved economies, lower poverty and famine and better standards of living.