

Using *the Science Shop* as a research and community engagement approach in Sierra Leone

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Science is an approach to problem-solving grounded in careful analysis of evidence and testing of propositions. It combines systematic observation with rigorous skepticism to arrive at insights and generalisable conclusions based on aggregating many specific observations and through inductive reasoning. Given that assumptions can distort interpretation, scientific inquiry emphasises testing of hypotheses to generate further results and refine understanding.

The Science Shop (SS) provides independent participatory research support in response to concerns and lived experiences raised by civil society. It is a bottom-up approach that seeks to engage communities and bridge the gaps between scientific and traditional paradigms of knowledge. A Science Shop aims both to increase both public awareness and to improve the accessibility of science and technology to lay people.

Science Shop draws on diverse scientific disciplines, from the natural sciences to the social sciences. When a community submits a request—such as one related to local health concerns—it is reviewed by professional scientists and advanced students. This leads to concept development, engagement, interaction, participation, and involvement in implementing research to elicit an outcome with social impact. Although the process is driven by community-generated ideas, scientific institutions cannot simply enter a community and begin work. Care is needed to understand community perception of the topics raised and the context, and to respond ethically, reflectively and sensitively to community needs and expectations.

Thus, the Science Shop produces concrete research data and actionable knowledge that can benefit multiple stakeholders – both in the participating communities and beyond. The following example illustrates the initiation process for a Science Shop focused on malaria control conducted in Sierra Leone.

Example: Science Shop in Selenga and Gbo Chiefdoms, Bo District, Southern Sierra Leone, and in Gbangba, Gangama, Gbandi New Town, and Gbandi Old Town communities.

Any Science Shop begins with dialogue to ensure a community-centered orientation. Establishing a Science Shop on malaria in Sierra Leone required several steps to secure community attention, trust, and support.

1. Identify a department in a university to host the Science Shop activity.
2. Obtain ethical clearance.
3. Submit a letter to the District Health Officer asking for permission to involve health personnel in their area of operation;
4. Submit a letter to the Paramount Chief explaining the purpose of the research and requesting a meeting;
5. Visit the Paramount Chief and Chiefdom Council for further dialogue on the project and to gain consent for work in their chiefdoms as well as approval of the community request;
6. Write to local communities explaining the project and confirming the Paramount Chief's consent.
7. Conduct a field visit to introduce the research team and discuss the planned fieldwork and activities with the Paramount Chief and local communities, and present the proposed research strategy. Receive feedback and suggestions, and welcome offers of assistance. The more villagers who follow the research steps the better.
8. Conduct a field visit to present and discuss results with communities and the Paramount Chief, and to explore how they can be applied.

Code of conduct: suggestions

- Always greet chiefs and elders first.
- Always thank people for any help. Most local people are 'free givers' (they know the study is addressing a problem they face, and that you are trying to help). If something is offered (e.g. food), express thanks even though you do not take it.
- Since the request originates from the community, cultural sensitivity is essential. Sierra Leone is traditionally oriented, so researchers are expected to dress modestly. Speaking in haste or in unclear manner, and speaking more

than listening is considered rude among Mende people. So, the researcher's speech should be clear, slow and respectful. Interactions should convey warmth, curiosity and humility.

- To avoid intrusiveness or embarrassment, researchers must obtain community consent before taking photographs during the first field visit.
- Express solidarity by learning and using a few basic phrases in the local language.