Hip Hop Health:

Research, Rhyme, and Rhythm for Healthy Communities

Final Evaluation Report

August 2016

ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

INTRODUCTION

The Hip Hop Health Project was designed and implemented by Jive Media Africa, with funding from the Wellcome Trust. The project was implemented in 2015 and 2016. This document reports on an evaluation carried out at the end of the project. The project aimed to answer the question: How can we create engagement among youth, health researchers and popular music artists on research related to water-related diseases affecting their communities?

The goal and objectives of the Hip Hop Health Project were as follows:
Goal: To pilot and test a replicable and scalable model that effectively engages youth in dialogue, research activities and creative dissemination of research on health topics.
Objective 1: To create opportunities for youth (16 to 20 years old) to engage with biomedical research on water-related diseases affecting them and their communities through dialogue with health experts
Objective 2: To support learners in undertaking mini-research projects on water-related disease, in collaboration with health researchers
Objective 3: To use the popular culture medium of rap and hip hop music to create public engagement, highlighting research on water-related diseases, in collaboration with musicians and recording artists.

The **purpose of this final evaluation** was to assess whether the project met its objectives, to record the outcomes and the challenges of implementing the project, and to document what had been learned through the project.

PROJECT ACTIVITIES

Phase 1: Problem identification and research design: This phase consisted of a meeting with biomedical experts to identify common health problems associated with water in KwaZulu- Natal. Thereafter engagement with learners commenced, with a series of Saturday workshops. The project was carried out with 56 high school learners from 3 schools around Pietermaritzburg. Learners participated in a community mapping exercise of water sources in their areas, and then gave input to topics for further exploration (framing the research question).

Phase2: Research and data analysis: A set of 3 activity worksheets was designed by Jive Media Africa, based on the consultations with the biomedical experts, and with the learners, on the following topics: water-borne disease, water-washed disease, and water quality. The learners participated in a research initiation workshop, where 9 groups were formed (3 topics in each of 3 schools). They were briefed about doing research, and were given resources (activity worksheets) and equipment for carrying out the research. They had to devise a plan of action for how to collect the data, and were given two weeks to complete the task. The groups of learners independently collected data in their communities. They then attended a data analysis workshop, where the analysis of their data was discussed, and they used creative means of displaying and presenting their

results. They started to think about what messages they wanted the public to know arising out of their research. During this phase learners worked with young science experts.

Phase 3: Application of knowledge: Messages into music: In this phase, learners worked with musicians and young science experts to create hip hop and rap songs with advocacy and health messages from their research results. This was followed by a concert held at the University of KwaZulu-Natal theatre. An award-winning South African hip hop and rap artist with a BSc Honours in Computer Engineering and Computer Science, was invited to perform, and the learners performed their own hip hop and rap songs. The nine songs were recorded and copied onto CDs.

Phase 4: Dissemination and roll out: The songs were disseminated during National Water Week, to local radio stations. A highlight of the project was the interviewing of learners for a slot on national television in the youth show Hectic Nine-9. Thereafter the research activities were revised and a Facilitator's Manual was produced. Packs of learner activity booklets, facilitator's manuals and copies of the CD were distributed to other Science Spaza clubs throughout South Africa.

PROJECT OUTCOMES

The report presents evidence of outcomes for all phases of the project.

Research and science: Learners described what they had learned about research (that they could be researchers), research methods (research is about more than looking up information on the internet and in the library), gathering data, data analysis and presentation of results (data analysis is hard, new skills are needed for presentation of results) and research ethics (respect, confidentiality, etc.). They also learned from their research results about water and health.

Music: The learners found it an enjoyable and at times challenging experience to turn their research results into songs. Most enjoyed performing their hip hop songs, although some were anxious about this activity. They found that the audience members (who included their family and friends, and the biomedical experts) took the messages of their songs to heart. Learners felt that although hip hop might have a bad reputation, it was possible to use this genre of music to spread public health messages.

Dissemination and roll out: The media has been shared on television and radio. The producer of the national television show (Hectic Nine-9) considered the project "incredible". It was felt that the use of the songs as community radio material would have been aided by introductory narrative and interviews with the learners for the community radio shows, to contextualize the songs. The roll-out of the project through the Science Spaza clubs is continuing. To date, five schools have also requested activity kits which are required to do one of the three activities. One of the schools has produced hip hop songs about their experiences.

Changes in learners and other role players: There were some examples of behaviour change in the learners and their families with regard to water-related issues raised through the learners' research. Significant changes in the learners with regard to confidence, and understanding of themselves as researchers and advocates for health were noted. The project provided opportunities for learners to feel that they were making a contribution to their families, and beyond, and to experience working together with others. Parents' perceptions of the learners were notably more positive. Biomedical

and young experts learned that young people could be very capable at carrying out research, at creative song writing, and at promoting health.

Relevance, efficiency, effectiveness and sustainability: The project was judged to be highly relevant to the participants, efficient in execution of the activities and highly effective in achieving what it aimed to do. The sustainability of the project activities is not assured without further funding; however, the effects of the project on the learners who participated are likely to be sustained. Print resources developed during the course of the project are highly appealing for the learners and shared with organisations upon request. The resources are open-licensed and freely available for download.

In conclusion: Jive Media Africa is to be congratulated on the implementation of their innovative project. It is suggested that the work be taken forward, and further developed.

Recommendations: The report concludes with a number of recommendations:

1. Secure funding to develop the work further. This could involve repeating the project as described in this report with other schools and learners, and alternatively, developing a Science Spaza version of the model, where there is no, or only occasional, facilitation of the project.

2. With regard to the research component of the project in a non-facilitated, self-directed model of the project, the process the learners found most difficult was the data analysis step. Jive Media Africa could find creative solutions to assisting learners in this regard, possibly through the use of media such as YouTube.

3. With regard to the music component in a non-facilitated, self-directed model of the project, assistance with laying down of a beat is required. Jive Media Africa should consider possible ways in which this could be addressed, if there are no local artists willing to assist in the area where the school is situated.

4. Promote the materials and methodology developed through the project with those working in the science engagement space in South Africa, such as the Centre for Scientific and Industrial Research (CSIR), and Rhodes University, where the *E coli* testing kits were developed.

5. The use of hip hop for health message advocacy showed great promise. Opportunities for further research into this field should be explored.

BACKGROUND

INTRODUCTION

The Hip Hop Health project was designed and implemented by Jive Media Africa, with funding from the Wellcome Trust. The project was implemented in 2015 and 2016. This document reports on an evaluation carried out at the end of the project.

Wellcome Trust: The Wellcome Trust Engaging Science Grants seek to promote public engagement with research. Public engagement can be described simply as scientists engaging with non-scientists, which allows non-scientists to explore how research affects society, gives people a voice to influence the direction of research, and helps people make informed choices about things that affect their health and wellbeing. Connecting with research can inspire new ideas and enrich existing ones, so the Trust is involved with various creative communities[1].

The context in South Africa with regard to learning about science for learners: Learners at many disadvantaged schools in South Africa face challenges with regard to understanding scientific research, as they have little exposure to scientific research. There are few, if any, opportunities for them to participate in research, and information and resources for research are lacking. Activity-based learning is not common – less than 5% of South African schools have functional science labs[2]. For learners at disadvantaged schools, there are seldom role models of older learners or community members who have entered the world of science. There are also few opportunities for young people to creatively express their feelings on science (or other topics), although they are keenly interested in the arts.

Science Spaza and Jive Media Africa: In response to the situation described above, Jive Media Africa has started the Science Spaza initiative. There are 140 self-initiated Science Spaza clubs throughout South Africa (learners are able to join the clubs without a teacher being needed). The objective of Science Spaza is to improve science literacy in schools through these learner-driven clubs and to support educators to teach science in a fun and effective manner. Science Spaza supports the network of science clubs in disadvantaged schools across the country with activity-based learning resources.

The Hip Hop Health Project: Research, Rhyme and Rhythm for Healthy Communities: This project aimed to answer the question: How can we create engagement among youth, health researchers and popular music artists on research related to water-related diseases affecting their communities? The project design was to engage with biomedical researchers about water-related diseases, and then create a space where learners could engage 'hands-on' with research into this topic, mediated by experts. Once the learners had generated some research findings about water-related diseases, they would create a number of hip hop songs with musicians. These would then be shared with their family and friends in a concert, and would be disseminated more widely through media such as television and radio.

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[1]https://wellcome.ac.uk/funding
[2]Equal Education. 2015

A major aim of the project was to diminish the power differential between young people who have never been involved in science research – and often think that this terrain belongs to very knowledgeable and 'distant' expert researchers – and the researchers, who do research but seldom engage with the public about what they do, and even less frequently with young people still at school. Music is something most young people know a great deal about, and they are thus competent or experts in this field, whereas this is not always the case with the research experts.

Why was hip hop[3] chosen as the way for learners to share their research findings? The following points show why hip hop has the potential to engage young people powerfully, and to be a 'vehicle for positive community empowerment and social development'[4]:

- The basis of hip hop's power is its complex aesthetical sensibility that fuses affective registers, such as rage, passion, lust, critique, pleasure and desire, which in turn translates into political identities and sometimes agency for its participants (Pieterse, 2010[5])
- Music plays an important role in individual identity formation, peer relationships and a sense of belonging in adolescence (Miranda, 2013[6])
- Hip hop culture generally and rap in particular is known to be a voice for marginalised youth across many countries (Emdin, 2010[7], Pieterse, 2010[8]).

The experience of Jive Media Africa in previous projects has been that young people are excited and more willing to engage in dialogue about science concepts when they are introduced in an age- and culturally- relevant manner.

The goal and objectives of the Hip Hop Health project were as follows:
Goal: To pilot and test a replicable and scalable model that effectively engages youth in dialogue, research activities and creative dissemination of research on health topics.
Objective 1: To create opportunities for youth (15[9] to 20 years old) to engage with biomedical research on water-related diseases affecting them and their communities through dialogue with health experts
Objective 2: To support learners in undertaking mini-research projects on water-related disease, in collaboration with health researchers
Objective 3: To use the popular culture medium of rap and hip hop music to create public engagement, highlighting research on water-related diseases, in collaboration with musicians and recording artists.

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[3]Hip hop is a music genre formed in the United States in the 1970s that consists of a stylized rhythmic music that commonly accompanies rapping, a rhythmic and rhyming speech that is chanted. It developed as part of hip hop culture, a subculture defined by four key stylistic elements: MCing/rapping, DJing/scratching, break dancing, and graffiti writing. Other elements include sampling (or synthesis), and beatboxing. Hip hop music is also called rapping. https://en.wikipedia.org/wiki/Hip_hop_music

[4]Travis, R, & Deepak, A. 2011. Empowerment in context: Lessons from hip hop culture for social work practice. Journal of Ethnic and Cultural Diversity in Social Work 20: 203-222.

[5]Pieterse, E. 2010. Hip hop cultures and political agency in Brazil and South Africa. Social Dynamics 36(2): 428-447.

[6]Miranda, D. 2013. The role of music in adolescent development: much more than the same old song. International Journal of Adolescence and Youth 18 (1): 5-22.

[7]Emdin, C. 2011. Dimensions of communication in urban science education: Interaction and transactions. Science Education95: 1-20

[8]Pieterse, E. 2010. Hip hop cultures and political agency in Brazil and South Africa. Social Dynamics 36(2): 428-447.

[9]The initial proposal suggested working with learners aged 16-20. However, when the project started, there were a number of 15 year olds who wished to participate, so the age category for participation was changed to 15-20.

THE EVALUATION

PURPOSE OF THE EVALUATION

The purpose of this final evaluation was to assess whether the project met its objectives, to record the outcomes and the challenges of implementing the project, and to document what had been learned through the project. The evaluation provides recommendations for any similar projects in the future.

EVALUATION QUESTIONS

A list of evaluation questions was compiled by the project directors and the evaluator, to frame the evaluation.

1. What were the outcomes of the project? Was the project transformational in any way for the learners?

2. What did the learners learn, in terms of research, research ethics, science and hip hop?

3. What did the researchers and young experts learn about science engagement?

4. What did the Jive Media Africa team learn through the project?

5. What were the challenges in implementing the project?

6. Was the project relevant? Was it effective? Was it efficient? Is the work sustainable?

7. Did the project meet its objectives?

    - Has the project created opportunities for youth to engage with biomedical research on water-related diseases affecting them and their communities through dialogues with health experts?
    - Were the learners able to undertake mini-research projects on water-related disease in collaboration with health researchers?
    - Was there public engagement highlighting water-related disease, through the use of the popular culture of rap and hip hop in collaboration with musicians and recording artists?

8. What are the recommendations for any similar projects in the future?

EVALUATION APPROACH

The evaluation approach was participatory. A logic model was constructed to guide the data collection, (see Annexure 1), and data was collected from the learners throughout the course of the project. Learners, Jive Media Africa staff and experts all gave their opinions about various aspects of the project.

EVALUATION METHODS

A variety of methods was used during the evaluation. The main methods used were qualitative and participatory.

Document review: Documents reviewed include the project proposal, documents produced during the course of the project (e.g. worksheets, facilitator's manual), literature about science engagement and the use of hip hop for science engagement.

Observations and video recording of project activities: The evaluator attended all the workshops and made field notes about proceedings. Proceedings were also video recorded and used as a source of data.

Key informant interviews (KIIs): Key informants (project staff) were interviewed.

Focus group discussions (FGDs): Focus group discussions were held with all the learners participating in the project. Young experts also participated in a FGD.

Questionnaires: During the course of the project learners were periodically asked a number of questions to which they wrote answers. A short questionnaire was also developed to gather audience responses to the final concert.

E-mail questionnaire: The opinions of the experts about the project were sought through an e-mail questionnaire.

DATA COLLECTION

Instrument development

Instruments for KIIs, FGDs and questionnaires were co-designed by the evaluator and Jive Media Africa staff (see Annexure 2).

Data collection

The following table shows the fieldwork activity undertaken for the evaluation. The evaluation activities spanned the timeframe April 2015 to May 2017.

Table 1: Fieldwork activities

Data collection method	Date	Number of events/ participants
Observations		
Experts meeting	20/04/2015	13
Airing of inserts on TV	22/03/2016	-
Observations and video recordings:		
Agenda setting workshop	30/05/2015	48
Research initiation workshop	21/07/2015	48
Data analysis workshop	15/08/2015	40
Hip hop workshop	22/08/2015	47
Hip hop event	29/08/2015	50
Key informant interviews		
Directors of Jive Media Africa	30/08/2015	2

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Data collection method	Date	Number of events/ participants
Focus group discussions Learners: • Emzamweni • Mehlokazulu • Sobantu Young experts	 22/08/2015 23/08/2015 22/08/2015 06/11/2015	 3 FGDs 3 FGDs 3FGDs 1 FGD
Questions for learners Agenda setting workshop Data analysis workshop **Questionnaires for audience** Hip hop performance	 30/05/2015 15/08/2015 29/08/2015	 48 40 98
E-mail questionnaire for experts	18/11/2015	6 (Only 1 response received)

All workshops were video recorded with the permission of the participants (see ethics considerations section below). Selected video clips were used to make field notes.

FGD participants were asked whether they would prefer to have the discussion in English or isiZulu. All groups preferred to use a mixture of the languages. The discussion leaders were all fluent in both languages. Other FGDs and KIIs were held in English. All FDGs and KIIs were audio recorded with the permission of the participants. The FGDs were translated where necessary, and transcribed. Field notes were made during the KIIs, and the recordings were used to transcribe excerpts from the interviews.

DATA ANALYSIS

Thematic analysis was undertaken with all the qualitative data gathered.

ETHICAL CONSIDERATIONS

The project proposal was reviewed and approved by the Human Sciences Research Council (HSRC) Research Ethics Committee (REC). The number assigned to the protocol was REC 5/18/02/15.

As the project was working with learners under the age of 18, consent from their parents to participate in the evaluation was required. Before the project commenced, meetings were held at each of the three schools, where the parents/ guardians/ caregivers of the learners were invited, and information was shared about the project. Parental consent forms were handed out. Parents who consented for their learner to participate in the evaluation activities, sent the form back, and the learner independently gave assent to participate (see Annexure 2 for consent and assent forms).

If learners wished to participate in the intervention, but did not wish to be part of the evaluation, they were given a sticker on the days of the intervention, and were not video-recorded. However, most of the learners signed the assent form.

When the FGDs were undertaken, the learners gave their assent for that particular activity.

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LIMITATION OF THE STUDY

Language: Scientific and research terms and concepts in English often do not have an equivalent in isiZulu, the home language of the learners who participated in the project. As a result a mix of English and isiZulu was used during the project, so language approximations may have been used.

SUMMARY OF PROJECT AND EVALUATION ACTIVITIES

The initial project activities consisted of identifying schools and learners who would participate in the project, and getting permission from their parents for their participation, if the learners were aged under 18 years. Those learners gave assent to participating, and learners 18 years and over consented for themselves.

School characteristics

Three schools were identified to participate, with the following characteristics:

- 2 were peri-urban, 1 was semi-rural

- All of them were close to a river

- They had active Science Spaza clubs

Learner characteristics

For those participating in the evaluation, learners were mostly aged 15 to 17 years of age (49 learners) with 5 learners being 18 to 20 years old, making a total of 56 learners who participated in activities. The percentages of males and females were 52% and 48% respectively.

Implementation outline: This is given in Annexure 3.

PHASE 1: PROBLEM IDENTIFICATION AND RESEARCH DESIGN

An initial meeting was held with Jive Media Africa and public health/ biomedical/ water experts to identify common health problems associated with water in KwaZulu-Natal. Ideas were generated about potential topics for 3 mini-research projects which could feasibly be carried out by learners with limited resources, and with input from Jive and experts over a series of 4 workshops. The experts agreed to give their support to the meeting, but would not have time to attend all the workshops in person. However, they identified young experts who would be able to participate in the workshops.

In the first workshop with learners, learners were introduced to the project, and to the young experts. They spent time discussing and mapping the water sources and their condition in their areas, and presenting their work to the group.

The young health experts presented information on their areas of research and work.

The learners then thought about what they would like to know and do about their water sources.

In order to gather baseline information, learners were asked the following simple questions:

- Why did you join the Hip Hop Health project?

- What is research?

- What is the state of the water sources in your area?

There was also an engagement around research ethics. As the learners had been through the consent/ assent process for research, they had had practical experience about this, and the topic was discussed.

Using the discussions with the public health experts, and the input from the learners and young experts, a set of three resources was designed and published by Jive Media Africa, namely the Research Activity Workbooks.

The topics chosen were

1. Water-borne disease

2. Water-washed disease

3. Water quality
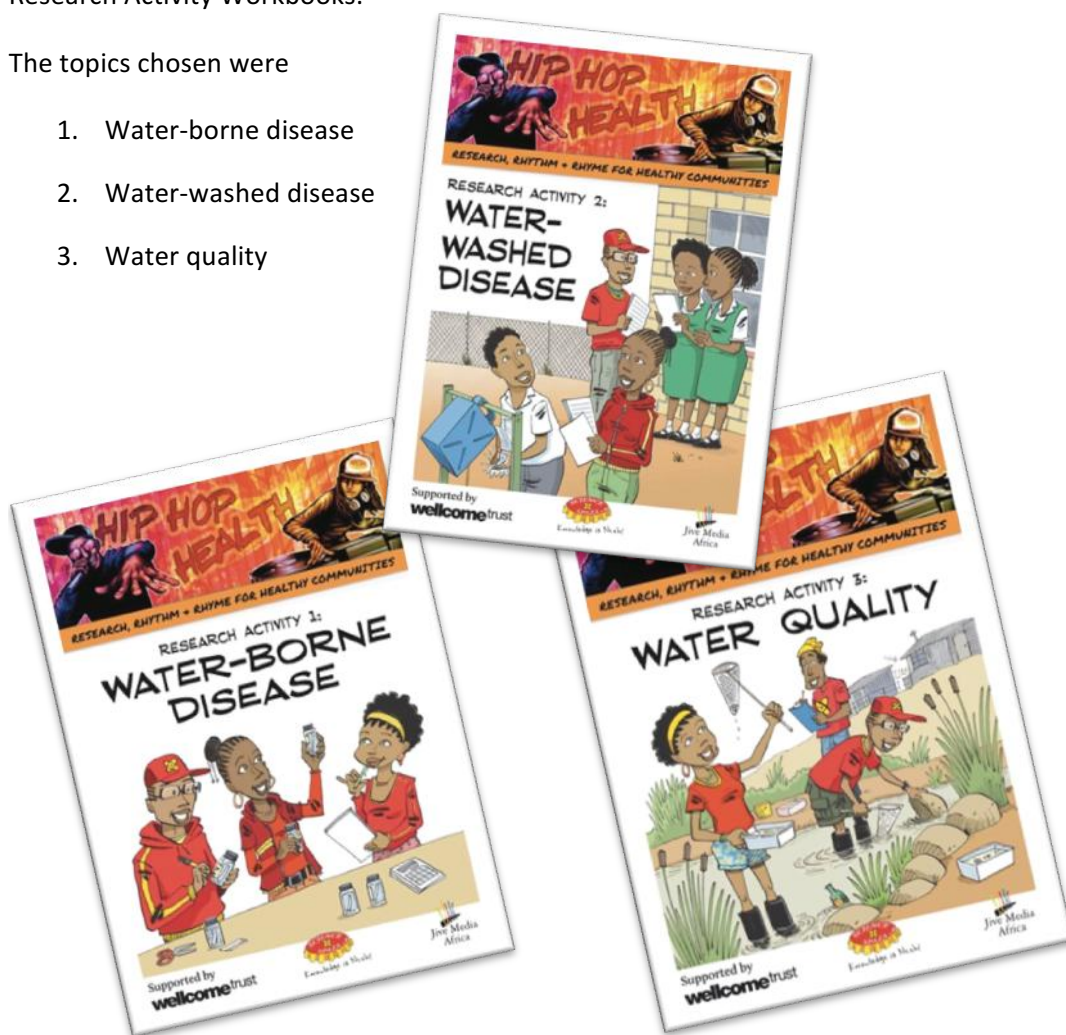
PHASE 2: RESEARCH AND DATA ANALYSIS

Learning Activity Worksheets

The Learning Activity Worksheets contained detailed information about the following:

Part 1: Agenda setting: Identifying the issues
     Including information about research ethics and safety during the research process.
Part 2: Research
- Why we do research
    · The research cycle

- Choosing a research project
- Planning the research activities
    - Roles and responsibilities
    - Equipment
    - Supervision
    - Research schedule
- Doing the research
- Data collection
- Analysing the results
- Drawing conclusions and making recommendations

Part 3: The power of music:

- Hip hop and science
- Choosing a key message
- Creating a rhythm/ beat
- Adding your learnings
- Testing your knowledge ('piloting' the messages)
- Planning a concert or event
- The importance of sharing research
- Sharing your music

Research initiation workshop: At this workshop, learners were divided into 9 groups, one for each topic at each school (3 topics and 3 schools). They were briefed about their topics by the young experts, and about the research process, including safety during data collection. After being given equipment and resources for their research, they made a plan of action for how they were going to carry out their fieldwork. They were given three weeks to complete the data collection, and analyse their data according to the instructions in the worksheet.

Data collection: This was completed by the learners in their home communities.

Data analysis workshop: Data analysis was started by the learners, and completed at the workshop. Young experts assisted them with making meaning of their results. Different methods of **data visualization** were used with each group: Using Lego blocks, using coloured ribbons for doing graphs, and using pictures of small animals found in the water sources to demonstrate what animals were present in different parts of the river. Each group gave feedback of their results in a plenary session with all the groups. The feedback was video recorded. Groups also spent time starting to think about what messages they wanted the public to know, arising out of their research findings, and then turned the messages into lyrics for hip hop songs.

PHASE 3: APPLICATION OF KNOWLEDGE: MESSAGES INTO MUSIC

Hip hop workshops: Learners spent an afternoon 'putting down a beat' and then a whole day preparing their hip hop songs. There was a rehearsal for the hip hop concert.

Hip hop concert: This was held at the University of KwaZulu-Natal Theatre. Family and friends of the learners, as well as the public health experts and young experts were invited. A highlight was a performance by iFani, who is a nationally well-known hip hop artist with a BSc Hons degree in computer engineering and an interest in science.

Recording of songs: The nine songs were recorded live, professionally mastered and copied onto CDs.

PHASE 4: DISSEMINATION AND ROLL-OUT

Dissemination of the songs: This was coordinated with National Water Week 2016. As there was a great deal of interest about issues to do with water, the three water projects were very topical. A number of local radio stations played the songs which had been produced. A highlight of the project was the interviewing of some of the learners for a series of feature articles on national television in the youth show Hectic Nine-9. This show airs in prime time from 16.00 to 17.00 daily.

Other dissemination activities included promoting the songs on the Science Spaza Soundcloud channel during National Water Week.

Production of a Facilitator's Manual: A Facilitator's Manual was produced, to aid people like teachers and scientists who may assist learners with engagement in the programme.

Roll-out of the research activities: Following learnings form the project, the activity worksheets were revised and updated. In order to roll out the research activities to the Science Spaza clubs, the Facilitator's Manual was packed with sets of updated Learner Activity Worksheets for the three different activities and the CD of recorded songs, then distributed to Science Spaza clubs nationally. The manual contained contact details for accessing equipment needed for the activities.

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EVALUATION FINDINGS

The evaluation findings are grouped as follows:

- Baseline data: What did the learners know before the project started?

- What did the learners want to do research about: What were their research questions?

- Project outcomes: Science and research

- Project outcomes: Music

- Project outcomes: Dissemination and roll-out

- Changes in learners and other role players

- Challenges with implementing the project

- Relevance, efficiency, effectiveness and sustainability of the project

- Did the project meet its objectives? Summary of findings

BASELINE DATA

Baseline data was gathered during the workshops, in order to have data against which to measure change at the end of the project, and to inform the design of future projects. The categories of information collected included:

- Motivation for joining the project

- What the learners already knew about research

- What the learners already knew about water resources in their communities

Motivation for joining the project

When answering the question '*Why did you join the Hip Hop Health project?*' most learners said that they wanted to learn about science (33 learners), some said to learn about science and do hip hop/ music (7) and one mentioned music only as a motivation. Secondary motivations included having fun, meeting other young people, finding out more for their careers, helping their communities, and more specifically, finding out about their environments. This bias towards science is possibly because they have Science Spaza clubs in their schools and associate Jive Media Africa with science from this.

> *I've joined the initiative to learn more, and for me to acquire more knowledge about the environment we live in. I see this as a platform for me to open new ways to understand the world of science and the things that associate with it.* Learner

> *Because I want to do science in an exciting way, and because I love entertainment.* Learner

> *To learn more about health issues, to learn about how we can help, to learn more about the health careers we can pursue.* Learner

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I joined the Hip Hop Health project because I wanna learn more about science. And I wanna show others that science is very interesting, it is not as boring as they think. I wanna prove that by doing some interesting stuff like singing hip hop about science. Learner

I joined Hip Hop Health Project because I really like hip hop and also I like to know more information about different types of beats. Also I like to get more information about what is happening around the world … . When I grow up I would like to become a musician. Learner

What the learners already knew about research before the project

For most of the learners (25 responses), research was about looking for information which already exists. One referred to looking on the computer or the internet, or asking others, another learner mentioned going to the library.

Other ideas the learners had about research were that it is 'when you collect information', and about data, statistics and theories. Of the learners, four mentioned problem solving and/ or finding solutions. One person mentioned experiments, and another mentioned getting proof of something.

Research is a study done, so you can get more knowledge of a certain subject, find solutions for that problem then solve them, and to make the fiction to be true. Learner

Social science type of research was referred to by some:

Research is going outside, evaluating or finding different ideas about a particular thing. It is about finding different opinions. Learner

thought you cannot conduct research in the community, but something that we can only get from the internet and/or Google, books and magazines, not to interview people. I never thought it could be conducted using interviews. Learner

Two learners had participated in a research project before this one. They also said they knew there were different kinds of research, different methods, and different sources of information.

Although the comments above show that some learners have grasped the concept of research, not all learners had this conceptual understanding, according to the opinion of a young expert.

A lot of our kids, they don't know the actual concept of research and what it entails and why we do research. So that's something that needs to be investigated in schools, especially kids that age. You know, I expected them to have known certain concepts of research. Young expert

Another young expert commented that he was impressed with what the learners did know, even though they were from poorly resourced schools; they were enthusiastic, and they knew some of the scientific terms.

Another important concept to be addressed through the project is that of who can be a researcher. At the start of the project there was the general idea that only certain learned people can do research, as evidenced in this quote from a young expert:

Who does the research was also something that one could observe as a disconnection between the kids and the projects that we were doing. You know it (research) is something that is abstract to them, something that can only be done by certain people at a certain level. Young expert

What learners already knew about water sources in their area before the project

In the initial workshop, when learners reported on the state of their water sources, they demonstrated that they had insight into the problems with their water sources, the causes of the problems, and in some cases, what solutions there were. The source of their knowledge is likely to be a mix of observations of what was happening in their communities, and what they had learned at school. Learners from one school had completed a project involving a water purification system. However, the connection between the state of the water sources and quality of life was not made. One young expert noted that:

There was no connection of the importance of rivers therefore (between) the importance of human life. Young expert

During the first workshop, the learners gave the following feedback about the water sources, and problems associated with these, in their home areas. The following quotes are from the feedback given by the learners in the first workshop after they had done the 'mapping of water sources' exercise.

School 1: Semi rural area:

We collect water from the Msunduzi, which has a lot of waste thrown into it …. The biggest causes of water pollution are human activities (washing), animals (dogs, cows and goats), and natural disasters (when there are floods, pollutants and soil are flushed into rivers and streams)…..Jojo tanks (where water washes) from roofs to gutters, and collects filth. People can get sick because this water does not get filtered. People use water for drinking and cooking …. They can get sick from diarrhoea, cholera. Learners in feedback about the mapping exercise

School 2: Peri-urban area:

At school we have water from taps …. We also have Jojo tanks. People dump their waste in the water. We don't have trucks to collect the waste (garbage), so people use the river instead. They dump dead animals. Farmers use chemical fertilizers, and the rain washes these into the river. Water is polluted by the mill, by burning fertilizers, burning of pesticides and herbicides. People use fire to cook, (which causes) smoke in the air. Acid rain then falls and pollutes the river. People use contaminated water from the river in their houses. We advise them to use chemicals like Jik for filtration, or to do boiling. They can get sick with cholera and diarrhoea. We have done a project (at school): A simple safe filtration system which purifies water and is cheap and easy to use. Learners in feedback about the mapping exercise

School 3: Peri-urban area:

There is a dump site where people dump their waste (garbage). In another place, there is no dump site, so people dump their waste in the river. There is a factory which pipes chemical waste

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into the river. The river had different species of fish, but since the river was polluted, there is a shortage of fish. People get water from the river to water their plants. Informal settlements get water from the river and from a leaking pipe. People get sick. The refinery is trying to refine the water, but the money is too high. Learners in exercise about the mapping exercise

These reflections by the learners demonstrate that they are keen observers of the world around them, and before the project started, had ideas about the links between water and health.

Figure 1: Learner presentations of maps of water sources

Figure 2: Maps of water sources produced by learners during the mapping exercise

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WHAT LEARNERS WANTED TO DO RESEARCH ABOUT

The learners said they wanted to do research about the following topics:

- Water pollution: Environmental factors contributing to water pollution and how water gets polluted, how to stop people polluting water, how to deal with factories.

- Water-borne diseases: How to stop bacteria, micro -organisms, how to kill pathogens and how to use solar to clean water, about hygiene

- Water quality: New ways to purify water, alien plants (in water), how polluted water kills animals, how it affects small animals, what can be done to prevent fish and other animals from dying.

The learners embraced the notion of making up their own research questions. One learner remarked during the focus groups at the end of the project:

I learned to make my own questions. Learner

Using the questions from the learners, and the input from biomedical researchers, the activity worksheets were designed.

PROJECT OUTCOMES: RESEARCH AND SCIENCE

The outcomes of the project were many and varied. All who participated in the project reported experiencing something new and exciting. This section examines what the learners learned in terms of research and research ethics.

What did the learners learn in terms of research?

The baseline data for the project showed that the learners did have some idea of what research is, but mostly as information out there that you 'look up'. It was a novel idea to them that they could be researchers, that they could collect and analyse data, and that their findings could be given credibility or validated by others.

A big change was that learners learnt they would do the research themselves, that different methods can be used, and how to conduct research. They learned that ideas need testing and 'proof'.

I learnt that my friend and I can disagree on a certain topic and we can do a research by interviewing people on that and see how many are on my side and how many are on another side. Learner

I thought that science was about chemicals and sound waves but I have found that you can even create music about science. Learner

Kind of learnt different methods of doing research. Besides just sitting down we went out and physically did the research ourselves and we learnt a lot on how to do it and we used our books to refer to. Learner

If you put your soul and mind into your research to succeed, then you have proof that your research is right. Learner

What I learned was that doing research was not only about internet, sometimes you have to do things physically by yourself. Learner

You have to dedicate yourself when doing research, knowing that one day it will make a difference in your community. Learner

Research methods

The most important learning for the young people in terms of research methods was that primary data collection is something they could do for themselves, rather than using secondary data from sources such as the internet. The well designed intervention broadened the understanding of research from being desk-based research, to the personal use of qualitative and quantitative methods for data gathering.

Other learning outcomes, according to the learners, were that planning is required and that research must be conducted in an orderly way, that there might be steps or instructions to be followed. Understanding of the background of the topic is required. Equipment might be needed, and there might be safety aspects to be considered when conducting research, for example, safety issues when going to take samples at the river, and when going to visit people's houses.

Some learners had probably not considered how the information they gather from the internet and through a library is collected, as there is not usually exposure to research methodologies at school level (i.e. How does the secondary data get there?). The project assisted learners with knowing how a body of knowledge is built up.

What learners learned about data analysis and presentation of results

The project raised awareness that one needs to gather evidence/ data, and that the raw data which is gathered, needs to be analysed. It was recognised that data analysis requires work, as data must be organised, and put into subtopics where relevant. There was realization that positive and negative results all contribute to knowledge about what is being researched.

I learnt that when you do research you meet with research experts and have people that guide you, when you do find or don't find something, that's okay. Learner

The data analysis step was one where the learners required some assistance.

All of our results were written down on the piece of paper, and the Science Spaza team helped us to make sense of them. Learner

It wasn't easy to analyse the data we got, we had mixed matches and a lot of stuff but we got to the correct method. So overall it was not that easy, it requires a lot of work that needs to be done. Learner

Learners noted that they had not known that there was a need for the **presentation of results**. In order to do this, the data had to be summarized and the results explained. Results can be represented or visualized in various ways, to help people understand what the results are demonstrating. There are different modes of presenting research, for example, verbal presentation with graphs, or written articles for magazines and community notice boards.

Figure 3: Various methods of data presentation/ visualization used by learners

The use of graphs and Lego that show your results in a way that people who were not part of the project can clearly see. Learner

We could also have used community notices just to raise awareness from our project results; we could also have a youth march where we would be sharing some of our findings with the community, e.g. we can chant: "Wash your hands, use a soap". Learner

A young expert's opinion of the data analysis process was as follows:

On the data analysis, I think most of them, they did struggle a bit about that part, because from the group that I was working with, the water wash one, I thought only one learner there did try to attempt to analyze the results. The rest didn't know what to do with the results and they seemed to have no idea what they meant until we were there. Then after that I know that most of them they did understand their results … but figuring that out by themselves, I'd say it was a bit of a challenge. Young expert

What the learners learned about research ethics:

Most of the learners seemed to have developed an idea of what is involved in research ethics, although one person did talk about ethics as being 'morals'. Learners learned that that there are 'rules' to be followed, that the research has to be explained to the participants and that you might need to translate what you are asking into the language of the participants. Participants have to be respected and invited to participate in research, they can choose whether they want to answer questions or not, and their responses have to be kept confidential. This is demonstrated in the following quotations.

I learnt research ethics are rules that you have to follow, for example, you are doing research and you have to ask people questions that they are comfortable to answer. Learner

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I learnt that to conduct a research, you first have to ask people, you don't just treat them anyhow. Learner

I learnt that when you are interviewing people you need to explain everything to them about what you want to do with them. Learner

Be patient with people and respect them. Greeting is very important. Make them understand who you are and explain the importance of what you are doing. Learner

What people are saying must be kept confidential, do not use their names and do not pass the information to other people. Learner

The learners had the experience of being participants in a research process for the evaluation, where before the start of the project, their parents had to give consent and they had to give assent before participating in the evaluation research for the project.

Before we started this project, you (Science Spaza) met with our parents and you explained clearly what it's all about, so they didn't have a problem to give us consent. Learner

What the learners learned about water and health

What did the learners learn about water and health through their projects? It has been shown in the section on baseline information, that some of the learners had some knowledge about problems with water and how this affects health. In the focus group discussions at the end of the project, learners reported learning more in terms of depth of knowledge. There was also a 'personalization' of this knowledge, in that they applied what they had learned to themselves, and their lives. As well as learning from their own projects, they gained insights from the presentations of other learners' results.

Before the research, I knew that when water is dirty, it is only dirty in colour. I didn't know about bacteria and viruses. Learner

I didn't know that invertebrates determine how healthy your river is. When I first started water quality, I thought we would talk about the quality of water to be used by people for drinking. This was about balancing the ecosystems. Learner

I learnt the importance of vaccination/immunisation; I used to think we only do that as a sign that we are South Africans, not to prevent some diseases, but now I know why it is important. Learner

I also didn't know why people have to vaccinate, I actually thought it is done just because they are babies not because they are trying to prevent some lethal diseases. I never thought it is this serious and very important in that we even can lose a life if we don't vaccinate babies. Learner

I found out from other groups' presentations ... the reason many people from rural areas are getting sick where they don't have municipal supplies of water and they use water from the river and Jojo tanks. Learner

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I used to wash hands sometimes before, but I was not using soap, I used to think there's no need to wash them since there's no dirt, they look clean. I was just doing it for the sake (of it). But after the project I learnt that it is important to use soap to get rid of germs. Learner

The experience of researching their topics seems to have made a strong impression on the learners, and helped them gain insights into water-related diseases.

PROJECT OUTCOMES: MUSIC

The second phase of the project was concerned with the transformation of the research findings into hip hop songs. Here again there was a range of outcomes. Opportunities were created during the evaluation for learners and others to comment on the use of hip hop as a vehicle for transmission of health messages.

Topics explored in this section are:

- What was the learners' experience of writing hip hop/ rap songs?

- What were their experiences of the performance of their songs (the concert)?

- Perception of the influence of hip hop on young people

- The use of hip hop to spread messages

- The content of the songs (what the songs were about)

What was the learners' experience of writing hip hop / rap songs?

Many of the learners expressed great satisfaction at participating in this phase of the project. They commented that they loved hip hop, and that they enjoyed writing the songs and then performing them.

It was good because I am a youngster and I love hip hop so when it came to writing a song it wasn't that hard. Learner

Some expressed reservations about hip hop, with a mix of reasons for not wholeheartedly enjoying the music component. Those who were shy found the performance aspect difficult, even if they enjoyed hip hop, whereas others didn't enjoy the hip hop, preferring other genres of music.

When discussing the creation of their songs, learners commented that creating sounds was hard. Some said that their song turned out the way they wanted, and others said that they weren't satisfied. An example of this was that they didn't like their 'beat' or that some of the other groups' 'beats' were better than theirs. They noted that they had learned a lot.

(Question: The most fun part of the project was …): *Writing our own lyrics and showing our creativity. Taking what you know and putting it together and sharing it with the audience in the form of music.* Learner

I love hip hop, so for me, it was exactly what I love. Learner

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Yes, the songs came the way we wish them to be, however I also did feel that I actually got limited in saying all the things I wanted to, since creating a song is not something easy. Learner

I liked it and I think it was better than I expected. Learner

Learners also said that it was important to have a message to share through the hip hop.

… otherwise we were going to sing something that doesn't make sense. Learner

One outcome was that the exposure to hip hop actually caused some of the learners to become fans of hip hop.

I didn't like Hip Hop but after being part of Science Spaza I listen to it, my phone is full of Hip Hop. Learner

Figure 4: Learners engaging with an expert musician, during the song creation phase of the project

What were their experiences of the performance of their songs (the concert)?

For some, the performance on the stage was one where there was apprehension prior to the event, but the performance itself was enjoyed tremendously. Some reported having 'stage fright', and one person didn't like to dance as is sometimes associated with hip hop.

(Question: The most fun part of the project was…):

- *Being on the stage and performing.* Learner

- *Singing hip hop to present our results.* Learner

- *Performing live in from of our parents and friends.* Learner

I really don't know what happened there. I had the microphone with me but I just forgot all the lyrics. Learner

The choice of venue was an important feature of the project: this was the theatre at the University of KwaZulu-Natal. The experience of performing at the University was thrilling for some of the learners. There was the unexpected benefit of giving the learners (and their parents, family and friends as the audience) a chance to enter the university and see what it was like, which is likely to break down one of the barriers about the university, of its being an 'unknowable' place.

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When we were told we were going to perform in a theatre I thought it would be a small venue but when I got there it was big and I could imagine the room full of people and my confidence levels dropped. When the day came I saw myself as a superstar…. Learner

Figure 5: Learners performing at the concert, iFani (national hip hop star) and the MC of the event

Perception of the influence of hip hop on young people

There was an awareness among the learners that hip hop is associated with strong language, and indeed with a whole culture of negative stereotypes. Some learners felt that hip hop messages are heard by young people who then sing these bad songs. The culture is associated with a particular way of talking, singing/ rapping, and clothing. Substance abuse such as alcohol and cigarette smoking and 'naked women' were mentioned as being associated with the culture. It was noted that the artists are often (negative) role models for the younger generation.

Learners did feel that hip hop can be a good way to express feelings. However, the outcomes of its influence is dependent on the way in which it is used, and on whether the person watching/ listening is actually influenced or remains unchanged by the music.

Yes, a lot of hip hop has a lot of strong language, which is very bad for young people. Learner

I think it depends on the message: If it's bad then I would agree because these artists are our role models, so if they send the wrong message we are likely to adopt that. Learner

Yes, when we look at the famous hip hop artists and the life they live, it's bad. From the clothing style, the use of drugs, alcohol and half-naked women in their music videos. For some of the youth they look up to them and sometimes end up wanting to be like them. Learner

Me, when I think of hip hop I just think of words that rhyme and communicate the message, I really don't think it could be influential in a bad way. Learner

No, that's not true. I think behaviour depends on the individual, when you listen to a song the artist doesn't tell you to do bad things. Artists interpret things the way they see it but if you take it the wrong way you are responsible for that, not that hip hop influences those things, I don't think so. Learner

Only a few learners mentioned using hip hop to express feelings.

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Me, I see hip hop as a true way of expressing your feelings, I would say it's not always influencing youth in a bad way, it depends on the way it is used. Learner

When I think of hip hop, I see something that people can use to express their feelings. Learner

One of the young experts commented that not all the songs were hip hop, and that some verged on being kwaito.

Using hip hop to spread messages

There was overwhelming support for the idea that hip hop can be used to spread messages: 14 learners agreed with this, with only three learners voicing reservations, mainly around the age of those who would listen to the songs. One mentioned that hip hop was an 'acquired taste'.

Yes, most of the people listen to hip hop, so it could be a great tool to be used to communicate health messages. Learner

Yes, hip hop is very influential, people use it to express themselves. Learner

It is played on radio stations that we listen to, so imagine if KO (a famous rap artist) was to sing "Clean up rivers", surely rivers would be clean. Instead of "Cara cara" it would be "Clean up, clean up". Learner

It's not always that hip hop is for thugs; some people do talk sense and something that people want to hear. Hip hop is more like poetry with rhyming words and it's the most popular music genre. So if people were to find important messages it would make it even more popular and they'd understand it and possibly even sing along. It's something that one becomes addicted to; you easily understand the lyrics since you're likely to listen to it every day. Learner

These famous artists need to be educated, for an example the guy who was a guest artist, 'iFani', he is well educated and the type of music he's doing is engaging to the youth and he lives a normal life. So if others could also get to be educated it could be better because when you listen carefully some artists sing about their feelings like 'Dear Mama'. There are rap songs that you can tell they're sending deep messages, it's just that maybe eighty per cent of rap songs are sending a bad message. Learner

Partly I disagree, because parents or grannies won't listen to hip hop. They normally listen to gospel and they're the ones who raise children so it's highly unlikely that they'll get the message. On the other hand, for the youth or us we can be of help to our siblings because we do listen to hip hop. Learner

No, because adults do not listen and they don't understand hip hop. I would prefer poetry because almost everyone does listen to poems. Learner

What were the songs composed by the learners about?

The learners were asked to write a hip hop song which presented their research findings, and any solutions they had thought of. Learners used hip hop as a medium for awareness raising about problems which they had found in their research with regard to water and health. All the songs were

accompanied by hip hop style beats and dancing, leading to catchy tunes linked to words about water and health. (The following extracts are some of the words of their songs which were performed in the concert. The name of the group is given, followed by the school and group information).

Firstly, learners pointed out that people were not informed about water and health issues, and they wanted to raise awareness of the problems.

People are not informed, are not yet informed about water sources …..

Pathogenic Scientific Killers, Mehlokazulu water-borne group

I'm gonna raise awareness on water-borne diseases,
I'm gonna tell them all they need to know …

Skhand' iScience, Sobantu water-borne group

Songs mentioned different water sources, such as the river (most commonly mentioned), taps, and Jojo tanks.

Issues raised in the songs around water and health include the fact that water is a right and that water is precious and scarce. The importance of water for life, that it is part of the metabolism of living creatures, and that there are food chains in water were all mentioned by various groups.

Water sources were described as contaminated and polluted. Reasons for this contamination were given as littering and industries. There is some sense of outrage about this, linked to the awareness that water gives life, and shouldn't be contaminated and polluted.

The results of water being contaminated or polluted were named: illness, disease and sometimes death. It was noted that contamination leads to a decrease in biodiversity of animals and plants

If you live from it, you gotta sweat for it
if it gives you life, you gotta protect it
that litter, oil and sewerage
did you think before you threw it?
yes water might be colourless, tasteless
but it gives you life

River Renegrades, Emzamweni water quality group

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living in rivers. The causes of illness and disease mentioned by various groups were bacteria and viruses, such as *E coli*, rotavirus, cholera, typhoid and polio.

Solutions to the problems were articulated: Don't waste water, don't litter in water, if they are contaminated/ polluted, then clean the rivers, and clean water sources before use by means such as boiling and using Jik.

One group who had completed a water-borne disease project conveyed their research results, that water from rivers and water tanks is dirty whereas water from taps is cleaner. This group also incorporated other knowledge from science, such as the chemical formula of water (H_2O).

Besides conveying facts about water and health, the hip hop songs were poetic, as shown in the following extract:

> *Free humanity*
> *master your thoughts as they master your immune system*
> *disinfect their roots as they infect your soul*
> *unleash the African beast within*
> *let your pigment reflect your existence*
> *how do you teach a group of soldiers*
> *how to defend themselves*
> *when they are told they are the targets?*
>
> Physical ATP, Sobantu water-washed group

This group followed up the rhetorical question – about how to defend oneself against bacteria and viruses found in water – with the advice to wash one's hands with soap.

Another example of a song using rhyming and resonance in a poetic way was the following, produced by a group in a water quality project.

> *Confusion is rising in the people*
> *in the people as pollution*
> *increasing therefore without a solution,*
> *we're doomed, so people look, we gotta make a move,*
> *to remove the confusion and make a revolution*
> *the evolution is done, the next thing is extinction.*
>
> #145, Mehlokazulu water quality group

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One group mentioned the research process, and then described how they take action against the problem:

We started, we planned, we learned,
I will save water, you must save water. *S*cience Photons, Emzamweni water-borne group
Skhand' iScience, Sobantu water-borne group

This quote and the following one demonstrate that some of the songs had the learners leading by example in solving the problems.

There were examples where the hip hop songs contained correct public health messages, as shown in the following two examples, the one about hand washing with soap, the other about vaccinating one's child against rotavirus.

If you wanna stay healthy, *better wash your hands,* *use a soap, no matter what the brand,* *after using the toilet, you better wash your hands,* *after changing the nappies, you better wash your hands,* *before preparing food, you better wash your hands,* *before eating the food, you better wash your hands, now if you like this song, you better clap your hands.* Physical ATP, Sobantu water washed group

> *Vaccinate babies and children,*
> *'cause rotavirus is here,*
> *taking our children's lives*
> *trying to help children's life.*
>
> House of Science, Mehlokazulu water-washed group

Another song had words about how a water system is not dependent on people for its existence, only its quality, whereas people are dependent on the water.

> *Ecosystem healthy*
> *water quality*
> *water purity*
> *let us not forget*
> *the system doesn't need us, we need it,*
> *believe me I know it,*
> *addressing the nation, telling them people*
> *to stop what they are doing*
> *conserve water for the greater better*
> *saving lives*
>
> Nans'ingozi, Sobantu water quality group

The words of the songs appear in the concert programme, and present a picture of youth aware of the problems with water and health and suggesting some solutions with commitments to lead the way. The actual performance of the songs is available on a CD.

Figure 6: Invitation for the concert, CD of songs

PROJECT OUTCOMES: DISSEMINATION AND ROLL-OUT

Once the CD with the recorded tracks was available, Jive Media Africa used various forms of media for dissemination. This was a major outcome for the project, made possible due to the organisation's wide network of media contacts.

National television: Hectic Nine-9: This program is available on TV screens for one hour on weekdays, and has an online platform which is available all the time. Hectic Nine-9 has been listed as the third largest media brand on Facebook for two consecutive years[10]. South Africa celebrates a National Water Week in March every year. Hectic Nine-9 recorded three inserts of interviews with Jive Media Africa staff and learners, and of learners doing their research, and played the inserts on the programme during National Water Week.

A letter from the producer of Hectic Nine-9 said of the Hip Hop Health Project: "We think this is an incredible event, and we value the opportunity to share it with our viewers." Video clips of the inserts can be seen on facebook:

Insert 1: https://www.youtube.com/watch?v=TUd7oXBfU9c

Insert 2: https://www.youtube.com/watch?v=7mQ6hXSKOjo
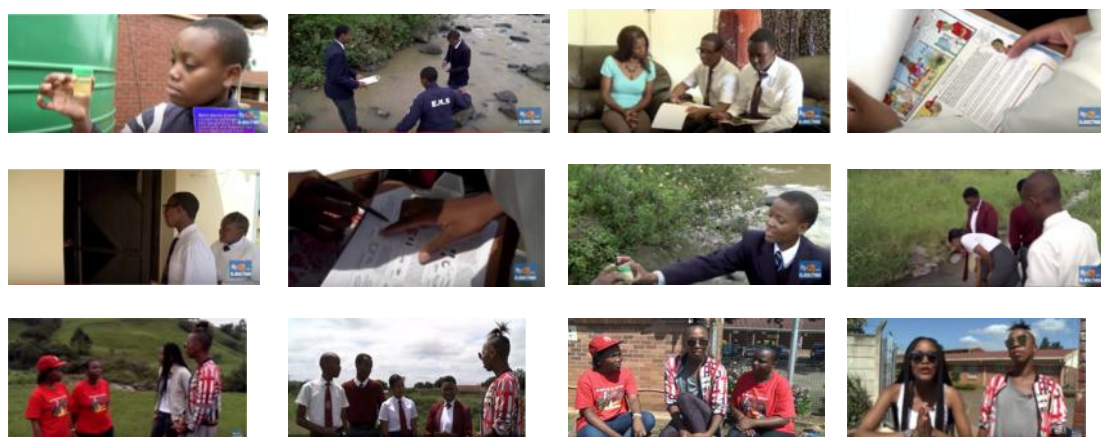
Insert 3: https://www.youtube.com/watch?v=2wzYZfAGzqg

The Hectic Nine-9 inserts were estimated to have gone out to over 1.5 million viewers with more on other social media channels.

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[10]http://www.okuhle.co.za/work/hectic-nine-9.html

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Figure 7: Stills from the television show

Community Radio Stations: Nine radio stations expressed interest in playing the tracks of the hip hop songs. Three played the tracks during National Water Week, and a further 2 played the tracks after National Water Week. Participating radio stations included:

- Wildcoast FM (7 000 listeners)

- Whalecoast (11 000 listeners)

- Phalaborwa (35 000 listeners)

- Mokgale FM (14 000 listeners)

- Emalahleni FM (99 000 listeners)

Presentation of results at the Public Communication of Science and Technology conference in Istanbul, Turkey (2016): The results of the project were shared in a presentation called 'Hip Hop Health: Research, Rhyme and Rhythm for Healthy Communities' by Robert Inglis and Hilary Kromberg.

Roll-out of the project:

This aspect has involved sending out packs containing the three sets of updated activity sheets, a facilitator's manual, and the CD of songs, to the network of Science Spaza clubs. To date, 112 packs have been distributed, although not all have been received. The clubs (working with or without their teachers) can request the kits for doing one of the research tasks from Jive Media Africa. At the time of the evaluation, 4 schools asked for E coli detection kits to do the water-borne disease experiments.

Follow-up on these requests was conducted telephonically. The schools chose the *E coli* kit because 'We were able to do the activity'. Comments about the worksheets from two schools were:

I found the whole worksheet interesting because everything actually happened exactly like in the pictures they showed. The kids were very excited and eager to do more. Teacher working with a Science Spaza club

The worksheets were very helpful and educational. There were no challenges. Teacher working with a Science Spaza club

One school carried out the research and then made up hip hop songs, although there was no support from musicians.

Collecting the samples was fun and exciting, and observing the colour change. Learners also enjoyed making the hip hop song. As we have sent some videos to you. It helped them understand better the activities they were doing. Teacher working with a Science Spaza club

These are promising outcomes for the roll-out and sustainability of the project.

Figure 8: Two schools using the Science Spaza worksheets: the Ozone Club (KwaZulu- Natal) and Jackie's Science Club (Eastern Cape)

CHANGES IN LEARNERS AND OTHER ROLE PLAYERS

Change in learners with regard to knowledge of issues with water and health

Through the research, learners realized that there is an urgent need to save water; they noted the importance of hand washing (with soap) and hygiene; they were passionate that people not litter in the river; and from a practical point of view, that people must purify water from the river before using it. What did learners do with the knowledge gained in the research process? The opinion of young experts working with the groups was that some of the learners did effect change in themselves and those directly in their sphere of influence, and others did not change.

The first step in sharing with others is learning how to share information. The project gave opportunities to young people to learn this skill:

I've learnt to share information, everything that I learnt there I share it with friends and family. Learner

In the focus group discussions at the end of the project, numerous examples were cited of change in behaviours due to the research findings. One learner mentioned how something she has found out herself through research was more effective at changing her behaviour than if her parents just told her to change.

Water borne-diseases

I gained a lot of knowledge. Now I know about illnesses that are found by drinking contaminated water, now at home I always boil water or use bleach to clean water, I did not do this before. I'm

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living a different life now, after this project. Although my mother used to tell me about boiling water, but I never listened, but now I do it, since I have learnt by myself. Learner

Water-washed/ hand washing

I wasn't washing hands after using the toilet but now I make sure I do. Learner

I used to wash hands after toilet but I wasn't using the soap but now I do. Learner

Water quality/ water pollution

When I'm passing by the river I don't just throw rubbish in it just like I did when I was a kid because now I know the river is s source of life and I respect it. Learner

The way I look at nature is from another perspective as I didn't know I should care about invertebrates living in the river. After participating, it made me care about our rivers and that makes me feel guilty when I see a dirty river. Learner

Saving water

It taught us about pollution and wasting of water, I think I have changed. Even here at school you find that a tap is dripping and I make sure I close that tap. I'm now using water sparingly. Learner

… I know now it (change) starts with me. Learner

General changes in the learners

Learners gave numerous examples of how they had changed as people through their exposure to the project. Types of change mentioned were increased hunger for knowledge, improved ways of thinking, a change to be more confident/ less shy (this was often mentioned) and learning how to deal with people. These are important positive changes taking place at a critical time in the young people's development.

It helped me because now I'm always hungry for knowledge; my level of thinking has improved a lot after being part of the research project. Learner

I've developed listening and speaking skills. Learner

I changed. I gained a lot of confidence during the process. Learner

Before, it was difficult for me to speak in front of people. I wish that project must come back again. Learner

I used to be shy but I have improved a bit in that aspect now after being given an opportunity to do interviews with people. Learner

It helped us develop confidence. We are now able to talk to different people. Sometimes we think we can do interviews but people are different out there so we now know how to be strategic in terms of calming them down and giving clear explanations, especially to elders. Learner

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When doing research you have to put your fears aside. When presenting you have to know that what you're telling people is important to them as much as it is important to you. I used to be scared but not anymore because what I know could be of help to another person. Learner

Working together

Learners identified learning to work together in research as an outcome of the project. Those referred to as being worked with include their fellow project members, and possibly teachers and other adults.

When you are doing research, you need to involve people who will help you with your research. You do not do your own thing, you will help. Learner

As a group we could not work together, everyone had their opinion, we weren't team members. But as time went on we became a good working group, which means that I have learnt how to work with other members in my team. Learner

Research needs teamwork, it is about teamwork and effort. Learner

Representing a larger group

Young people felt that they had been able to make a contribution, to their families, schools and communities, as a result of the project. This outcome of connecting, is important for youth who often feel isolated and alone.

Science Spaza Hip Hop is a good influence as you rap about things that build the nation. Learner

The learners also expressed enjoyment at meeting and getting to know young people from other schools during the project.

Learners taking action in response to some of the problems they identified

A number of the learners discussed the realization that change starts with them, and gave examples of how they had actively tried to respond to problems they identified, with one person actually calling a community meeting.

I have to stop seeing things at a distance like they have nothing to do with me; when I see something that is not good I have to do something to change the situation because it might affect me. Learner

I was amazed that in Baynesspruit there were no fish. There is no habitat for frogs and fish. I explained to an elderly lady who didn't boil water she fetched from the river that she should not drink water from the river without boiling because they carry diseases. Learner

Yes, we did change. Me, before, I did not care that much about saving water but now I do. One day I was walking with my sister and I saw a busted water pipe in the road, and I was very angry. I told my sister that we should do something, so we decided to call the municipality so they can come to fix the pipe. Learner

In my neighbourhood, there is a water pipe that is always running. After starting the project I spoke to my dad who called the municipality to check where the water source was and we found it was a spring, not from a municipal pipe. I managed to show/tell them how important water is. Learner

The community used to litter everywhere. I managed to call a meeting to tell them not to litter. Learner

Feelings of empowerment to be 'agents of change' were expressed by a number of youth.

I am motivated to be the one who raises awareness on the use of water as a young person. I feel like I can use findings from our projects to make people aware of the situation. Learner

Changes due to the music component

Many learners felt that they changed because of the creation and, in particular, the performance of their songs. Others felt a little discouraged, because they experienced stage fright on the day and didn't give a good performance.

Yes, I did, for me I actually do have a talent of poetry and writing stories, but I don't have any experience of rapping, so for me this was a great thing, and now I feel like it is something I can do for the rest of my life. Learner

Now, I feel that I can do whatever I want, because of that day. Learner

Yes, I did but it was very scary, to perform hip hop, but it was good. Learner

We had interviews in front of the cameras and I felt like a celeb. There are things that don't happen to anyone, we're mostly used to camera phones, but that day it was a real big camera in front of my face. Learner

A positive outcome of the music component was that learners expressed general enjoyment of the music they and their peers created.

I find myself singing Hip Hop now. Learner

Changes in other role players:

a) Change in attitude to learners: Parents

The project was seen as an opportunity for the learners by most of the parents, especially as the costs of participating were covered. The concert where the parents saw their children giving a performance of their research results on the stage, with a well-known rap artist, completely changed the perceptions of some parents about their children.

My mother wasn't happy that I'm always away on Saturdays. She thought I might not do well at school. Especially the day when we were not wearing school uniform, she didn't like that, until the day of the event when my father was present. So they were finally convinced that it is something good. Learner

b) Changes in the audience at the concert

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A post- concert evaluation of the event by audience was carried out (15 invited guests such as the biomedical experts and the young experts, with a total of 98 people attending). A general comment was that the audience found the event 'amazing' and 'fun'. People noted that:

(It was a) brilliant way to communicate important science messages. Audience member

The show was epic, knowledge is ncah! Audience member

Parents had changed perceptions about their children, seeing them as active participants in the world of science and research, and feeling proud of them:

We saw a talent in our kids that we didn't know. We as parents didn't notice lots of things about our kids, but now we know that there are things that a child has, without sticking on books. Audience member (parent)

We as parents, we really enjoyed what our children seemed to understand about life and science. Audience member (parent)

We are proud of our kids, keep it up …. We even see changes at home. Audience member (parent)

Some audience members gained knowledge, and even changed their own behaviour, or saw the potential for behaviour change in their communities.

It was good in the way that there were things that we were not aware of, now we know. Audience member

Because it makes changes in our minds about water. Audience member

We learned about dangers we don't normally pay attention to. Audience member

Mom and Dad were talking to me about the event saying they now know a lot about what they did not know. Now she doesn't litter because of the information she got from the Science Spaza event. Learner

To see our children learning about water diseases and they will spread that knowledge in our communities. Audience member (parent)

Were the results of the research projects communicated effectively?

Although some people had reservations about the use of hip hop as a medium to communicate research findings, the audience all enjoyed the concert, despite a large proportion of the audience being older people. (There were 25 responses about audience age, with the following age breakdown: Under 25 years: 7, 25-40 years: 6, and over 40 years: 12). Older audience members were there to see their family members perform, and this may have made them more accepting of messages communicated through the medium of hip hop. It is likely that rap songs which contain useful information rather than bad language and messages, could be used to communicate with an audience older that those normally associated with the genre.

Did the audience learn anything about water and health? Feedback received from the audience after the show, demonstrates that there were learnings from the songs in all the three topics which were explored in the project, namely, water-borne and water-washed diseases and water quality.

> *Water is life, water can be the end of life, water can only look after us if we look after water.* Audience member

> *Water is very important: How to save water, how to purify water in a cheap way before we use it.* Audience member

> *Washing hands, use soap instead of washing hands with water only. Drinking safe clean water, diseases that are caused by unsafe water.* Audience member

> *I learned to keep water clean for the animals living in it.* Audience member

> *Nice mix of messages – cleanliness, medical, environmental issues, and future preservation. Amazing skill from scholars.* Audience member (biomedical expert)

What the biomedical experts learned

Although the biomedical experts had limited engagement with the project through the initial planning meeting, they attended the data analysis workshop and the concert and had the following comments:

> *The enthusiasm of the learners was impressive. My greatest lesson was the value of a positive role model (i.e. iFani, the hip hop artist) – the imitation / mimicking by the learners highlighted the potential for influencing the learners.* Biomedical expert

Some of the achievements noted were:

> *Exposure to research, application of research to public health issues, use of research to develop health messages and exposure to public communication. (For learners): Interest in science, interest in research, way of spreading health messages to young people and a way of spreading health messages to the broader community.* Biomedical expert

What the young science experts learned

The young science experts reported learning about the application of research ethics to an actual research context. Although they had been involved in research in their training, they had not experienced the steps involved in getting research ethics approval, and in overseeing the process of getting consent and with consenting participants. They also had never experienced such creative presentation of results in the data analysis workshop, and the research findings being presented in the form of music.

These learnings directly increased the knowledge and skills of the young experts about how to engage young people in science and research, in creative and innovative ways which appealed to young people.

CHALLENGES WITH IMPLEMENTING THE PROJECT

Challenges with project implementation

These were identified as follows:

- **High level biomedical experts were 'inaccessible'** in the sense that they are very busy people who do not have time for repeated engagement with learners in a project of this nature. It was also difficult to find high level black experts who would participate and act as role models. This was addressed through working with young science experts who had some expertise and time, were willing to participate, and who could act as role models for the learners (as people who had succeeded in scientific academia).

- **Timing** of the workshops: The project was implemented at weekends, as this was when young people had free time. Young experts commented that they felt that the workshops were very content-rich and busy, and that learners may have struggled to assimilate all the input in each session, and that learning may have been somewhat restricted because of this.

- Some learners struggled with **data analysis**, and working out what the data was telling them. For example, one of the projects (water quality) required a conceptual link to be made between animal and plant diversity, and water quality, and it was felt that not all learners made this link. However, in each group there were some learners who grasped the concepts, as evidenced by their presentation of results to all.

- **Language** affected the project on many levels. Translation of research/ scientific concepts into isiZulu was difficult, and some of the issues in research ethics were not easily translated. Once the research projects were completed, creating hip hop songs using some of the scientific concepts was difficult, in addition to the fact that finding rhyming words was difficult. As one of the young science experts said, the songs were not 'deep science'. However, none of the learners mentioned language as a challenge, and they used a mix of isiZulu and English for all aspects of the project. Some of the songs were partly in isiZulu and partly in English.

- A challenge of having a relatively limited **budget**, was that of having to produce a CD (of songs) of sufficient quality, in order that it could be aired on national television and radio stations.

Challenges the learners faced in doing the fieldwork:

Learners reported that it was difficult to get **permission from parents** to do fieldwork, because of fears of safety and because they didn't believe it was a Jive Media Africa initiative.

> *Getting permission from our parents to collect water from the river was a challenge, some of our parents didn't allow us to go to the river alone, because they fear snakes, which might harm us.* Learner

Learners are also very busy, so having **time** to do the fieldwork posed a problem. They ended up doing the work during school break times, because after school they had chores which had to be done at their homes, and had to leave for home when the transport left.

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Access to different water sources was sometimes difficult. The river was far away from one school. Some water sources looked too bad to be sampled, and the rivers were described as 'scary', 'dirty' and 'smelly' and contained garbage (discarded nappies, blood and a dead chicken in the river).

Learners faced issues of **credibility as researchers**. One learner reported that people continued discarding garbage into the river while the sampling was happening (they thought what the learners were doing was 'child's play', i.e. that they were just playing). With the community survey, learners found that some people didn't want to share information, as they felt the questions were a bit personal. They were not happy to disclose information about whether their children had been vaccinated (the learners were asking about vaccinations to collect information about whether young children had been immunized against rotavirus, which can be a water-borne pathogen).

RELEVANCE, EFFICIENCY, EFFECTIVENESS AND SUSTAINABILITY OF THE PROJECT

Was the project relevant, efficient, effective and sustainable?

Relevance

The project was found to be highly relevant to the learners. There was overwhelming support for both aspects of the project, the science and the music. The science /research was highly relevant to these learners, who are doing science at school, as teaching is often not activity-based, and this presented an opportunity for 'hands-on' learning. The music aspect was highly relevant to most learners, as this genre of music is extremely popular amongst youth in the project area, and none of the youth had had an opportunity to create and perform their own music. Linking the research and music components added value to both components.

> *After all, Science Spaza blew my mind. I had never seen something like that, the integration of science and Hip Hop.* Learner

> *Hip Hop is a spice that made the research much more nice.* Learner

Effectiveness

The project was very effective in achieving two aims, that of giving the learners a chance of active participation in the research process, and of encouraging them to find their 'voice' and produce songs about their research findings. The effectiveness of using hip hop as a medium for transmitting public health messages was not formally researched, but promising results were obtained in that some learners noted that they had changed some water-related behaviours, had encouraged their friends to do the same, and a few had actually seen changes in their family's behaviour. Change at community level was difficult to achieve and assess, although a few learners had made attempts to pass the messages on at this level.

Efficiency

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The project was designed in an efficient way, taking the learners through a research experience and into a performance space within 5 workshops (interspersed with self-directed research activities in their communities). The project was also efficient at maintaining interest in the project, with little drop-off in attendance, resulting in most of the learners who started the project, participating throughout the project and then being part of the performance.

Sustainability:

a) **Sustainability of the knowledge:** The knowledge about research and the findings about water-borne disease gained by the learners are likely to be sustained, as the knowledge was built up over a number of weeks, periodically reinforced, and was self-generated. The exercise of making up songs about findings is also likely to have consolidated the knowledge. The changes in self-confidence and skills gained for presentations and performing will likely be long lasting. It is not known whether the learners will embark on similar exercises by themselves.

b) **Sustainability of the project:** The project in its current format requires funding for running workshops, and more importantly for facilitators, and thus the project will not be sustained and rolled out in this form, unless funding is secured. However, Jive Media Africa would like to experiment with other models for roll-out, which would see the project work sustained, albeit in a different form.

The Science Spaza Club at one school reported how they had used the experience of writing a hip hop song to enter and win a competition.

> *Hip Hop has changed (us), it depends what kind of hip hop you choose to listen to. Here at Science Spaza we addressed other issues especially in our track "Echo System". We used it as a base to create a new song and enter a competition and won our school R1500 at Imbali. The youth were impressed.* Learner

DID THE PROJECT MEET ITS OBJECTIVES? SUMMARY OF FINDINGS

- Has the project created opportunities for youth to engage with biomedical research on water-related diseases affecting them and their communities through dialogues with health experts?
- Were the learners able to undertake mini-research projects on water-related disease in collaboration with health researchers?
- Was there public engagement highlighting water-related disease, through the use of the popular culture of rap and hip hop in collaboration with musicians and recording artists?
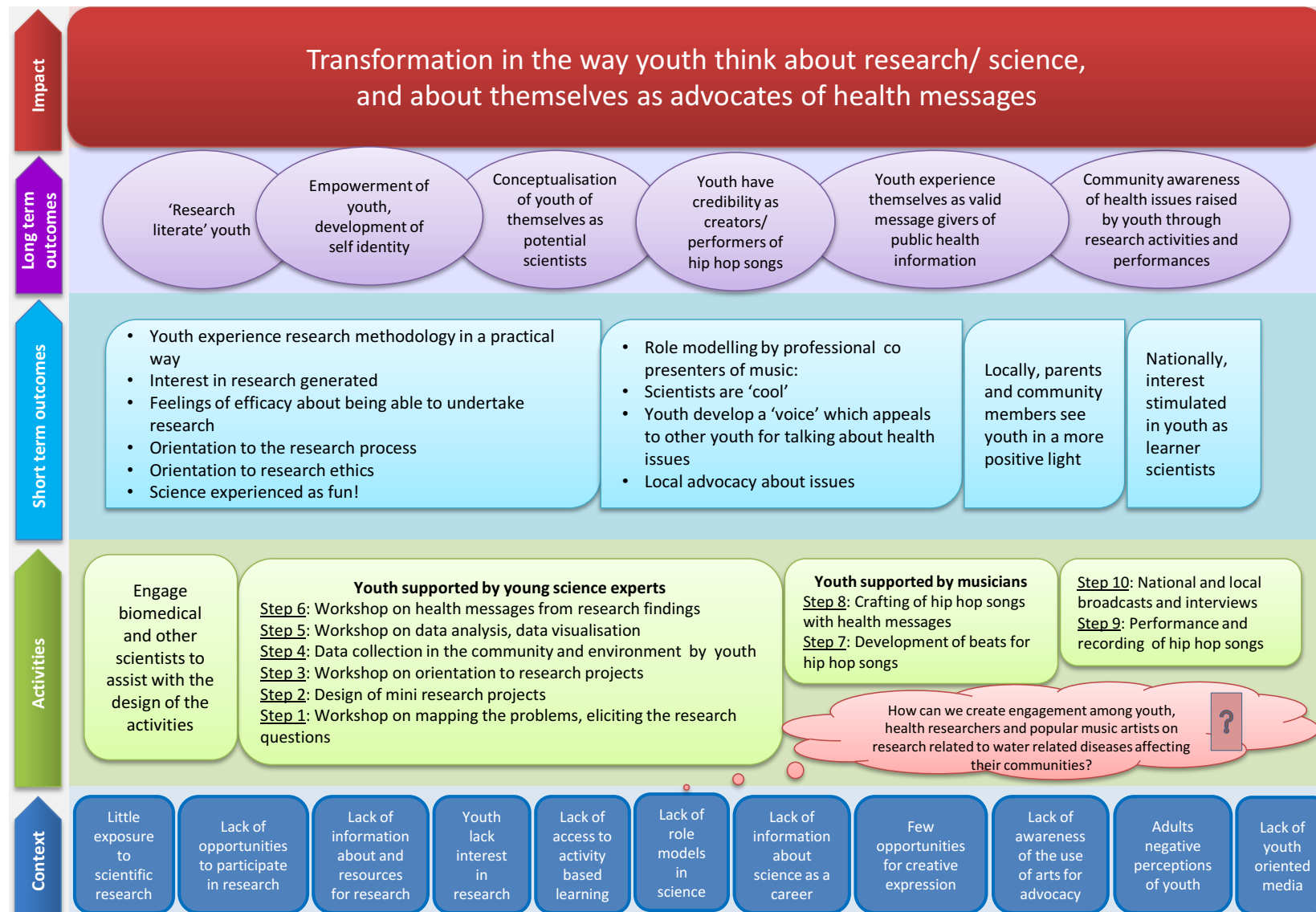
Rating scale: Substantially achieved, achieved, not achieved.

Objective	Evaluator comment on objective	Sub-objective	Evaluator comment on sub-objective
1. Create opportunities for youth to engage with biomedical research on water-related diseases affecting them and their communities through dialogue with health experts	Substantially achieved: The project created numerous opportunities in diverse forms for youth to engage with research on water-related diseases affecting them. Dialogue was between Jive Media Africa staff and high level biomedical experts, and then the results informed dialogues between young black science experts (not necessarily all health experts), and the learners. The ongoing engagement was extremely beneficial to the youth.	1.1 Raise understanding of the burden of water-related diseases	Substantially achieved with learners and their families. Some level of understanding generated in the schools and communities where the learners live. Some awareness raised at local and national level through television and radio shows.
		1.2 Raise awareness of the multiple determinants of water-related disease (individual, household, community, environment)	Partially achieved, as learners did express awareness of these determinants of disease in their feedback from the research activities, in their songs, and in the evaluation activities at the end of the project.
		1.3 Identify locally relevant approaches to preventing water-related disease.	Partially achieved, as some learners independently identified and undertook activities at a personal or family/ community level to prevent disease, and save water.
2. Support learners in undertaking mini-research projects on water related disease in collaboration with health researchers	Substantially achieved: Jive Media Africa provided excellent, well designed, and appropriate support to the learners for their research.	2.1 Support learners in identifying locally relevant issues and designing small studies on youth-selected topics pertaining to water-related disease.	Substantially achieved, with learners identifying local issues, doing research on topics relevant to their communities, with the support of Jive Media Africa staff and a group of young science experts. Input was given by expert health researchers at the beginning of the project.
		2.2 Support learners in selection of data collection instruments and in planning and	Partially achieved: For practical reasons, 3 sets of data collection instruments were provided to the learners, as it was not

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Objective	Evaluator comment on objective	Sub-objective	Evaluator comment on sub-objective
		execution of data collection including ethical considerations	feasible (in terms of time, money and human resources) to support them in designing their own projects and instruments. The learners followed a worksheet but planned and executed their research independently. The activity sheets laid out research ethics principles, which the learners had experienced first-hand when their parents consented and they assented to being part of the evaluation research.
		2.3 Support learners in analysis and interpretation of findings.	Achieved: The Jive Media Africa staff did a good job of supporting learners in the analysis and interpretation of their results, and were excellent in demonstrating novel ways of representing data.
3. Use the popular culture of rap and hip hop music to create public engagement highlighting research on water related diseases in collaboration with musicians and recording artists	Substantially achieved: The concert of hip hop songs written and performed by the learners created public engagement, as parents, friends and other community members were present. The TV show inserts were viewed by many young people. The radio shows, where just the songs were played on air, would have benefited from interviews with the youth, or explanations about the project.	No sub- objectives	No sub- objectives

PROJECT THEORY OF CHANGE

The following diagram encapsulates the project theory of change. The contextual factors which the project was addressing are shown along the bottom of the diagram, followed by the activities which were implemented. Two levels of possible change as a result of the project activities are shown next (short term and longer term outcomes). These outcomes contribute to the desired impact of the project.

Impact

Transformation in the way youth think about research/ science, and about themselves as advocates of health messages

Long term outcomes

- 'Research literate' youth
- Empowerment of youth, development of self identity
- Conceptualisation of youth of themselves as potential scientists
- Youth have credibility as creators/ performers of hip hop songs
- Youth experience themselves as valid message givers of public health information
- Community awareness of health issues raised by youth through research activities and performances

Short term outcomes

- Youth experience research methodology in a practical way
- Interest in research generated
- Feelings of efficacy about being able to undertake research
- Orientation to the research process
- Orientation to research ethics
- Science experienced as fun!

- Role modelling by professional co presenters of music:
- Scientists are 'cool'
- Youth develop a 'voice' which appeals to other youth for talking about health issues
- Local advocacy about issues

Locally, parents and community members see youth in a more positive light

Nationally, interest stimulated in youth as learner scientists

Activities

Engage biomedical and other scientists to assist with the design of the activities

Youth supported by young science experts
Step 6: Workshop on health messages from research findings
Step 5: Workshop on data analysis, data visualisation
Step 4: Data collection in the community and environment by youth
Step 3: Workshop on orientation to research projects
Step 2: Design of mini research projects
Step 1: Workshop on mapping the problems, eliciting the research questions

Youth supported by musicians
Step 8: Crafting of hip hop songs with health messages
Step 7: Development of beats for hip hop songs

Step 10: National and local broadcasts and interviews
Step 9: Performance and recording of hip hop songs

How can we create engagement among youth, health researchers and popular music artists on research related to water related diseases affecting their communities? **?**

Context

| Little exposure to scientific research | Lack of opportunities to participate in research | Lack of information about and resources for research | Youth lack interest in research | Lack of access to activity based learning | Lack of role models in science | Lack of information about science as a career | Few opportunities for creative expression | Lack of awareness of the use of arts for advocacy | Adults negative perceptions of youth | Lack of youth oriented media |

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DISCUSSION

Practical aspects of the project: The age of learners participating in the project was appropriate, as the learners were old enough to move beyond concrete thinking into the creative space needed for the activities, especially making meaning of data, and creation of songs. The learners were also able to be self-directed, could make plans for fieldwork and could carry out fieldwork with little supervision. Older learners may have struggled with time commitments, being busy preparing for external examinations. The group size was good (six learners or less per group), allowing full participation of all learners, and the mix of having learners from three schools working together brought benefits of social interactions with those beyond the learners' daily experience. It was helpful that teachers attended some of the workshops as observers, to be able to assist if needed when the learners were doing fieldwork, but with the learners driving the process rather than the teachers.

Overall conceptual diagram of engagement spaces between learners, scientists and musicians: This is given below, and shows how the engagement in the hip hop process created an engagement space between learners, young experts and local musicians/ artists. Additional stakeholders from all three categories were added during the Hip Hop Health final event or concert, where biomedical researchers and members of the affected communities participated in the space as the audience, and a national level musician (iFani) was present as a performer.
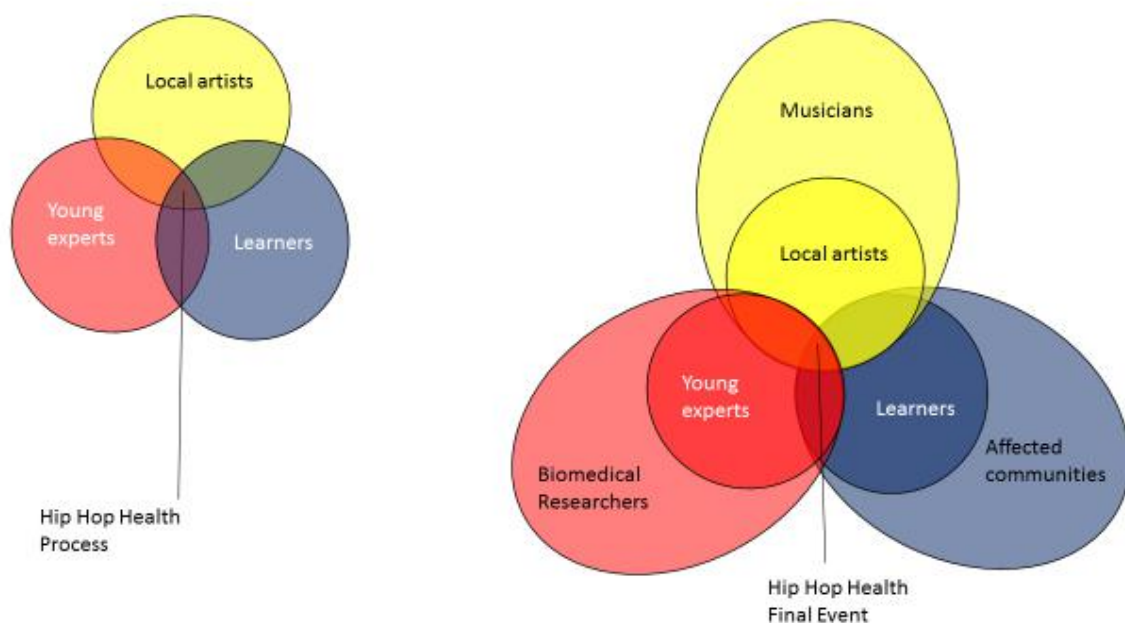
Science engagement: Practical application

The first aim of the project was to produce spaces for science engagement between biomedical researchers and learners. The project succeeded admirably in this regard, through creating a series of engagement spaces, as shown in the figure below. Project staff navigated through the difficulty that biomedical scientists were not able to have prolonged engagement with learners, through working with young experts who had time and commitment to work in depth with the learners, and

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walk them through the research process. The process was mutually satisfying, with both learners and young experts learning from the interaction. The project also 'closed the loop' with the biomedical scientists, through inviting some of them to the data analysis workshop, and then inviting them all to the concert where hip hop was used to convey health messages. This led to the biomedical experts engaging with the learners' research results.
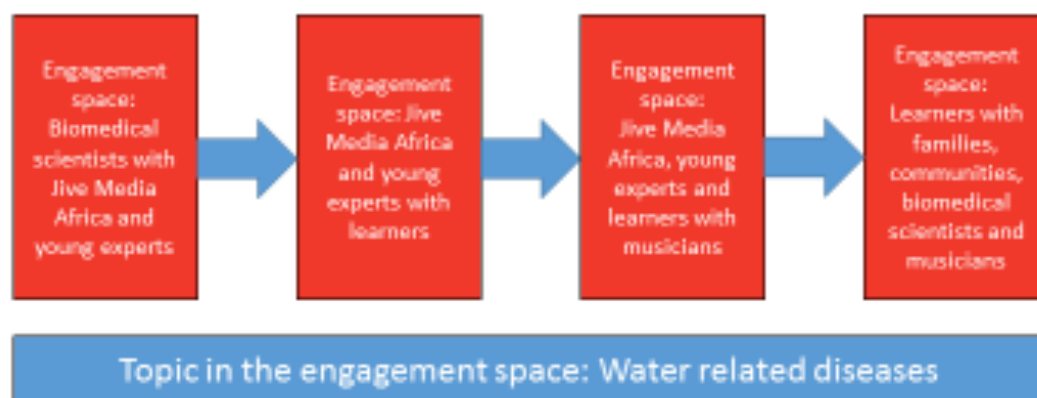
Youth as researchers, knowledge bearers, activists

The project's second aim was to facilitate a process whereby learners could be message bearers and activists through the medium of hip hop. Here again, the project succeeded admirably, with the learners having the affirming experience of having research results they had produced, being recognised, and some of the solutions needed to the problems being taken up by other people. They also had exposure of their work to the broader South African public through television and radio. This was likely a life changing project for at least some of the learners, who were able to see themselves in a new light, and have developed confidence to move forward with some aspects of their lives.

Reframing of negative perceptions of young people: The project was able to provide opportunities for young people to show how they engage with positive activities, some of which have the potential to help their families and communities.

The potential of using hip hop for health messaging: The project powerfully demonstrated that hip hop can be used for health messaging, with people of all ages in the concert responding to the messaging of the songs. The generalized negative perceptions of hip hop appear to have been overcome by the fun aspects of the concert, and the positive ideas being promoted. (However, if hip hop was used for something specific like messaging about adherence to drugs/ medication, the messages would have to be carefully screened for accuracy.)

Materials development: The materials developed during the course of the project are simple to use, attractive to youth and adults, and of high quality. The quality of sound on the CD of songs was not optimal, due to lack of funding for recording of the tracks which could be remedied in future work.

In conclusion: Jive Media Africa is to be congratulated on the implementation of their innovative project. It is suggested that the work be taken forward, and further developed.

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RECOMMENDATIONS

A number of recommendations are made with a view to taking this work forward.

1. Secure funding to develop the work further. This could involve repeating the project as described in this report with other schools and learners, and alternatively, developing a Science Spaza version of the model, where there is no, or only occasional, facilitation of the project.

2. With regard to the research component of the project in a non-facilitated, self-directed model of the project, the process the learners found most difficult was the data analysis step. Jive Media Africa could find creative solutions to assisting learners in this regard, possibly through the use of media such as YouTube.

3. With regard to the music component in a non-facilitated, self-directed model of the project, assistance with laying down of a beat is required. Jive Media Africa should consider possible ways of addressing this, if there are no local artists willing to assist in the area where the school is situated.

4. Promote the materials and methodology developed through the project with those working in the science engagement space in South Africa, such as the Centre for Scientific and Industrial Research (CSIR), and Rhodes University, where the *E coli* testing kits were developed.

5. The use of hip hop for health message advocacy showed great promise. Opportunities for further research into this field should be explored.

LIST OF ANNEXURES

Annexure 1: Logic model for the project

Annexure 2: Instruments used for data collection

Annexure 3: Implementation outline

Annexure 4: Materials developed in the course of the project:

      3 learner worksheets

      1 facilitator's manual

      1 CD of songs.

Annex 1: Logic Model: Hip Hop Welcome Trust Project

Goal: To pilot and test a replicable and scalable model that effectively engages youth in dialogue, research activities and creative dissemination of research on health topics.

Objectives	Activities	Outputs	Outcomes	Indicators	Measurement
Objective 1. To create opportunities for youth (16 to 20 years old) to engage with biomedical research on water-related diseases affecting them and their communities through dialogue with health experts; 1.1 To raise understanding of the burden of water-related diseases; 1.2 To raise awareness of the multiple determinants of water-related disease (i.e., individual, household, community, environmental) 1.3 To identify locally relevant approaches to preventing water-related disease;	**Work Package 1 (Project Months 1 to 6)** • Gather biomedical researchers and experts in water-related disease working in KwaZulu-Natal, including persons with expertise in infectious disease epidemiology, water-related disease, water sanitation, and water quality; • Recruit up to 60 youth, age 16 to 20 years old, from three Science Spaza clubs in the uMgungundlovu District, to participate in the project. Members of the clubs will first be informed about the project by their club facilitator (an adult, age 18 years+) and given an informational letter about the project for their parent/guardian to sign giving permission for their child's participation; • Facilitate two "science café'" type spaza workshops, including ~ 30 youth in each in which locally relevant issues around water-related diseases are explored including identification of drivers and modifiable factors at multiple levels (individual, household, community and environmental); • Introduce participants to a range of research methods and data collection techniques that may be applied to the study of water-related diseases, such as community asset and risk mapping,	• Workshops with science club members and experts in water-related disease • Three Science Spaza print resources developed in co-operation with biomedical researchers and water-related disease experts	• Learners have an increased knowledge and appreciation of the role of research in water related diseases and biomedical research in general • Biomedical researchers have increased knowledge of engagement techniques with communities and especially young people • Partnerships are developed among scientists, practitioners and communities around key areas in community health	# of parents giving consent for their children to participate # of learners assenting to participate # of learners attending the events (Workshops 1, 2, 3, 4, 5 and performance) Level of knowledge of learners about (biomedical) research (knowledge about research methods?) Level of knowledge of learners about water related diseases	Register of parents' consent, consent forms Attendance register **Baseline** answers to questions, mapping exercise and feedback. FGD of 2 or more learners where they talk about what they knew before the

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Objectives	Activities	Outputs	Outcomes	Indicators	Measurement
	participant observation, semi-structured and structured interviews, focus groups, and development of community health indicators. • Based on the workshop outputs, create three science curriculum-linked, interactive and activity-based resources, which will guide learners through the process of running a mini-research project on water related disease (e.g., defining the study question, determining appropriate indicators and method(s) for data collection, ethics reflection and presentation of results).			# of (biomedical) researchers who have engaged with learners # of biomedical researcher who report having a better understanding of engagement techniques # of partnerships between scientists, practitioners and communities/ learners?	project, and what they learned during the project, with regard to: • Research • Biomedical research • Research methods • Research ethics • Data analysis • Water related diseases Interview with biomedical researchers Project records

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Objectives	Activities	Outputs	Outcomes	Indicators	Measurement
Objective 2. To support learners in undertaking mini-research projects on water-related disease, in collaboration with health researchers; 2.1 To support learners in identifying locally relevant issues and designing small studies on youth selected topics pertaining to water-related disease; 2.2 To support learners in selection of data collection instruments and in planning and execution of data collection, including ethical considerations; 2.3 To support learners in analysis and interpretation of findings;	**Work Package 2 (Project Months 7 to 12)** • Hold research initiation workshops with learners from three Science Spaza clubs in which applicable research methodologies are discussed and research activities are planned by the learners in small groups (up to four people per group), in consultation with biomedical research experts. Learners will also be introduced to core concepts in research ethics. • Learners undertake research activities in their communities. Biomedical, social science research and ethics experts and the Science Spaza support team are available via phone, free text (Whatsapp), online (email, project wiki) and social media spaces (e.g., Facebook) to provide support as needed. • Conduct data analysis workshops (one for each of the three groups) in which the results/findings are shared, options for presenting data discussed, methodological issues raised and ethical reflections considered. Key learnings and messages are identified by each group for later inclusion in a hip hop or rap song. • Hold hip hop and rap workshop in collaboration with local musicians and rap artists facilitated by music communication specialist and with health researchers to ensure integrity of messaging • Hosting of public hip hop and rap event featuring prominent hip hop artist including community members, health researchers and local experts on water-related disease to disseminate learnings and	• Workshops with science club members and experts in water-related disease • Workshop reports and key dissemination messages • Workshops with science club members and rap and hip hop musicians • Hip hop and rap songs on topics around to water-related diseases • Film of this event for broadcast through existing media relationships	• Learners have increased insight into research and research methods impacting on their communities • Learners have increased knowledge about water-related diseases and measures to address them • Biomedical researchers have increased insight into issues relating to water-related diseases in communities	Packages developed See objective 1 Hip hop: Hip hop songs written Hip hop songs checked for integrity of messages Hip hop event # of learners attending # of public attending # of press reports/ radio shows etc.. # of film screenings	Packages See objective 1 Hip hop songs about 3 water related topics Reports from experts Event report Press reports etc

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Objectives	Activities	Outputs	Outcomes	Indicators	Measurement
	create public engagement. Include filming of this for broadcast and participation by local press.				

Objectives	Activities	Outputs	Outcomes	Indicators	Measurement
Objective 3. To use the popular culture medium of rap and hip hop music to create public engagement highlighting research on water-related diseases in collaboration with musicians and recording artists.	**Work Package 3 (Project months 13-24)** • Refine resources (water-related disease) based on experience in research tasks undertaken by learners; • Create manual for use by Science Spaza groups and health researchers for similar youth engagement projects on a health-related topics; • Select songs and prepare and recorded tracks for distribution to all Science Spaza clubs and national broadcast media as a source of information and inspiration for clubs and researchers to embark on similar processes.	• Revised resources based on learnings in WP1 • Manual for use by science clubs and biomedical researchers in facilitating community engagement around health topics with rap and hip hop musicians • Recorded tracks for distribution to all Science Spaza clubs	• Project partners have increased insight into the development of activity-based science interventions in interaction with popular media • Learners in Science Spaza science clubs have access to resources and examples of songs for further participation in Hip Hop Science Spaza and other initiatives • Youth nationally learn about water health research through national broadcast of winning songs generated by the project	Manual produced # of manuals distributed # of CDs disseminated National broadcast (# of clubs which report using the manual??)	Manual Project records Project records

Annex 2: Consents, assents and discussion guides

Information Sheet   57

Consent for parents

Assent for youth 15-17

Consent for youth 18-20

Discussion guide learners

Discussion guide young experts

E mail questionnaire for biomedical experts

INFORMATION SHEET

Hip Hop Health Evaluation

Science Spaza, a project of Jive Media Africa, is conducting a project called Hip Hop Health to bring together young people 16 to 20 years old, health researchers and popular music artists to learn and communicate about water-related diseases, their impact on communities and appropriate responses.

Hip Hop Health is being conducted by leaders and staff members from Science Spaza. The project is being done at Science Spaza clubs in Umgungundlovu District. An evaluation of youth's experiences with Hip Hop Health is being conducted by project leaders at Jive Media Africa and researchers from the University of KwaZulu-Natal and Boston Children's Hospital.

Youth who participate in Hip Hop Health are invited to take part in an evaluation of the project. Up to 60 youth participants in the Hip Hop Health project will be asked to take part in the evaluation.

Youth who take part in the evaluation will be asked to take part in an interview before and at the end of the project, feedback forms on the workshops and a focus group discussion at the end of the project. The interviews and focus group discussion will be led by a study assistant. The interviews and feedback form will include questions about youth's knowledge of water-related illnesses, their attitudes and beliefs about science, their plans for their future education, and their experience in the project. The focus group discussion will focus on youth's experiences in the project and to ask for feedback on Hip Hop Health activities.

Youth may take part in Hip Hop Health activities and not take part in the evaluation. Participation in activities and the evaluation is entirely voluntary.

Youth age 16 to 17 years old must have their parent/guardian's informed consent to participate in the evaluation. Youth age 18 to 20 years old may give their own informed consent to participate.

For parents/guardians of youth 16 to 17 years old:
If you are interested in learning more about the project and considering your child's participation, please provide your child's name, your name, and contact number below. A study assistant will contact you to arrange a time to meet to discuss the project.

Child's Name: _____
Parent/Guardian's Name: _____
Phone Number: _____

For youth age 18 to 20 years old:
If you are interested in learning more about the project and considering your participation, please provide your name and contact number below. A study assistant will contact you to arrange a time to meet to discuss the project.

Your Name: _____
Phone Number: _____

Appendix F – Youth Assent Form, 15 to 17 years

CONSENT FORM

Parent/Guardian Consent for Participation of Children 15 and 17 Years Old

Hip Hop Health: Research Rhyme and Rhythm for Healthy Communities

Hello, my name is Siya Mnguni. I am working with project leaders from Jive Media Africa, and researchers from the University of KwaZulu-Natal and Boston Children's Hospital in the United States.

Why is the evaluation being done?
Science Spaza, a project of Jive Media Africa, is conducting a project called Hip Hop Health to bring together young people 15 to 20 years old, health researchers and popular music artists to learn and communicate about water-related diseases, their impact on communities and appropriate responses. We will study whether young people's participation in Hip Hop Health leads to changes in knowledge about water-related illnesses, how they think about science, and their plans for future education.

Who is carrying out this evaluation, and where is it being done?
Hip Hop Health is being conducted by leaders and staff members from Science Spaza. The study of youth's experiences with Hip Hop Health is being conducted by project leaders at Jive Media Africa and researchers from the University of KwaZulu-Natal and Boston Children's Hospital. The project is being done at Science Spaza clubs in Umgungundlovu District.

How are individuals chosen for this evaluation? How many people will be in the evaluation?
Science Spaza members who participate in the Hip Hop Health project will be invited to participate in the evaluation of the project.

Up to 60 youth participants in the Hip Hop Health project will be asked to take part in the evaluation.

What will my child have to do if he/she takes part in the evaluation?
If your child takes part in the evaluation, your child may be asked to take part in an interview before and at the end of the project, and a focus group discussion at the end of the project. In the interview, your child will meet individually with a research assistant, and in the focus group your child will meet with a group of other participants to discuss their experience. The interviews and focus group discussion will be led by a study assistant. The interviews will include questions about youth's knowledge of water-related illnesses, their attitudes and beliefs about science, their plans for their future education, and their experience in the project. The focus group discussion will focus on youth's experiences in the project and to ask for feedback on Hip Hop Health activities. Additionally, your child will be asked if we can record the interviews and focus group discussions.

What are the risks of this evaluation? What could go wrong?
Participation in this evaluation will involve a loss of privacy, but audio records will be handled as confidentially as possible. Your child's name will not be used in any report or publications from this study. Audio files will be stored on password-protected computer accessible to study investigators only. All recordings will be kept for five years, as required by law. The participants in the focus groups will be asked to keep the conversation confidential, however, there is a limitation of confidentiality since other participants will be present and involved in the focus groups.

Will information about my child be kept private?
We will do our best to make sure that the personal information gathered for this study is kept private. However, we cannot guarantee total privacy. If information from this study is published or presented at scientific meetings, your child's name and other personal information will not be used.

What are the benefits of this evaluation?
There is no direct benefit to your child from participating in the evaluation The results of this evaluation will inform the further development of the Hip Hop Health programme.

Will it cost your child anything to be in this evaluation?
There will be no costs to your child as a result of taking part in this evaluation.
Will your child be paid if you decide to take part in this evaluation?
Your child will not be paid for taking part in the evaluation.

1

If I do not want my child to take part in this evaluation, what are the other choices?
Your child may still participate in the Hip Hop Health project if she/he does not take part in the evaluation.

What are my child's rights as a participant in the evaluation?
Taking part in this project is entirely voluntary. Participation in the study will not affect your child's participation in the Science Spaza programme or Hip Hop Health project. Your child will have the opportunity will have the opportunity to decide participation for themselves.

Who may see use or share information gathered in this evaluation?
The records from your child's participation in the evaluation may be reviewed by people responsible for making sure that research is done properly, including members of the ethics committee at the Human Sciences Research Council. All of these people are required to keep your identity confidential. Otherwise, records that identify your child will be available only to people working on the evaluation.

Whom should you contact if you have study questions or a study related problem?
This research has been approved by the HSRC Research Ethics Committee (REC). If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please call the HSRC's toll-free ethics hotline 0800 212 123 (when phoned from a landline from within South Africa) or contact the Human Sciences Research Council REC Administrator, on Tel 012 302 2012 or e-mail research.ethics@hsrc.ac.za .

If you have concerns or questions about the research you may call the project leader Hilary Kromberg Inglis on 033-342 9382 or 084 357 7333 or by email at hilary@jivemedia.co.za, the project manager Thubalakhe Luthuli on 033-342 9382 or by email at thuba@jivemedia.co.za, the research assistant Siya Mnguni on 073-673-3140 or by email at enhlemnguni@gmail.com.

Statement of Consent:
- The consent form was read to me and I was given enough time to think about my decision to allow my child to take part in this study.
- This research study has been satisfactorily explained to me, including possible risks and benefits.
- All my questions were satisfactorily answered.
- I understand that taking part in this research study is voluntary and that I can withdraw my consent at any time.
- I understand that my child will be approached, and will confirm participation themselves
- I am signing this consent form prior to taking part in any research activities.
- I give permission for my child to take part in this evaluation.

Do you give your permission for your child to take part in the evaluation?

_____ Yes – please sign below

_____ No

Consent for My Child to Take Part in the Evaluation

_____   _____   _____
            Name   Signature or thumbprint   Date (DD/MM/YEAR)

Consent for Recording

_____   _____   _____
            Name   Signature or thumbprint   Date (DD/MM/YEAR)

2

ASSENT FORM

For Youth 15 to 17 Years Old

Hip Hop Health: Research Rhyme and Rhythm for Healthy Communities

Hello, my name is Siya Mnguni. I am working with project leaders from Jive Media Africa, and researchers from the University of KwaZulu-Natal and Boston Children's Hospital in the United States.

Why is the evaluation being done?
Science Spaza, a project of Jive Media Africa, is conducting a project called Hip Hop Health to bring together young people 15 to 20 years old, health researchers and popular music artists to learn and communicate about water-related diseases, their impact on communities and appropriate responses. We will study whether young people's participation in Hip Hop Health leads to changes in knowledge about water-related illnesses, how they think about science, and their plans for future education.

Who is carrying out this evaluation, and where is it being done?
Hip Hop Health is being conducted by leaders and staff members from Science Spaza. The study of youth's experiences with Hip Hop Health is being conducted by project leaders at Jive Media Africa and researchers from the University of KwaZulu-Natal and Boston Children's Hospital. The project is being done at Science Spaza clubs in Umgungundlovu District.

How are individuals chosen for this evaluation? How many people will be in the evaluation?
Science Spaza members who participate in the Hip Hop Health project will be invited to participate in the evaluation of the project.

Up to 60 youth participants in the Hip Hop Health project will be asked to take part in the evaluation.

What will I have to do if I take part in the evaluation?
If you take part in the evaluation, you may be asked to take part in an interview before and at the end of the project, and a focus group discussion at the end of the project. In the interview, you will meet individually with a research assistant, and in the focus group you will meet with a group of other participants to discuss your experience. The interviews and focus group discussion will be led by a study assistant. The interviews will include questions about your knowledge of water-related illnesses, your attitudes and beliefs about science, your plans for your future education, and your experience in the project. The focus group discussion will focus on your experiences in the project and to ask for feedback on Hip Hop Health activities. Additionally, you will be asked if we can record the interviews and focus group discussions.

What are the risks of this evaluation? What could go wrong?
Participation in this evaluation will involve a loss of privacy, but audio records will be handled as confidentially as possible. Your name will not be used in any report or publications from this study. Audio files will be stored on password-protected computer accessible to study investigators only. All recordings will be kept for five years, as required by law. The participants in the focus groups will be asked to keep the conversation confidential, however, there is a limitation of confidentiality since other participants will be present and involved in the focus groups.

Will information about me be kept private?
We will do our best to make sure that the personal information gathered for this study is kept private. However, we cannot guarantee total privacy. If information from this study is published or presented at scientific meetings, your name and other personal information will not be used.

What are the benefits of this evaluation?
There is no direct benefit to you from participating in the evaluation The results of this evaluation will inform the further development of the Hip Hop Health programme.

Will it cost me anything to be in this evaluation?
There will be no costs to you as a result of taking part in this evaluation.

1

Will I be paid if I decide to take part in this evaluation?
You will not be paid for taking part in the evaluation.

If I do not want to take part in this evaluation, what are the other choices?
You may still participate in the Hip Hop Health project even if you do not take part in the evaluation.

What are my rights as a participant in the evaluation?
Taking part in this project is entirely voluntary. Participation in the study will not affect your participation in the Science Spaza programme or Hip Hop Health project.

Who may see use or share information gathered in this evaluation?
The records from your participation in the evaluation may be reviewed by people responsible for making sure that research is done properly, including members of the ethics committee at the Human Sciences Research Council. All of these people are required to keep your identity confidential. Otherwise, records that identify you will be available only to people working on the evaluation.

Whom should you contact if you have study questions or a study related problem?
This research has been approved by the HSRC Research Ethics Committee (REC). If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please call the HSRC's toll-free ethics hotline 0800 212 123 (when phoned from a landline from within South Africa) or contact the Human Sciences Research Council REC Administrator, on Tel 012 302 2012 or e-mail research.ethics@hsrc.ac.za .

If you have concerns or questions about the research you may call the project leader Hilary Kromberg Inglis on 033-342 9382 or 084 357 7333 or by email at hilary@jivemedia.co.za, the project manager Thubalakhe Luthuli on 033-342 9382 or by email at thuba@jivemedia.co.za, the research assistant Siya Mnguni on 073-673-3140 or by email at enhlemnguni@gmail.com.

Statement of Assent:
- The assent form was read to me and I was given enough time to think about my decision to decide whether to take part in this study.
- This research study has been satisfactorily explained to me, including possible risks and benefits.
- All my questions were satisfactorily answered.
- I understand that taking part in this research study is voluntary and that I can withdraw my assent at any time.
- I am signing this assent form prior to taking part in any research activities.
- I give permission to take part in this evaluation

Do you give your permission to take part in the evaluation?

_____ Yes – please sign below

_____ No

Assent to Take Part in the Evaluation

_____   _____   _____
                Name   Signature or thumbprint   Date (DD/MM/YEAR)

Assent for Recording

_____   _____   _____
                Name   Signature or thumbprint   Date (DD/MM/YEAR)

2

CONSENT FORM

For Youth 18 to 20 Years Old

Hip Hop Health: Research Rhyme and Rhythm for Healthy Communities

Hello, my name is Siya Mnguni. I am working with project leaders from Jive Media Africa, and researchers from the University of KwaZulu-Natal and Boston Children's Hospital in the United States.

Why is the evaluation being done?
Science Spaza, a project of Jive Media Africa, is conducting a project called Hip Hop Health to bring together young people 16 to 20 years old, health researchers and popular music artists to learn and communicate about water-related diseases, their impact on communities and appropriate responses. We will study whether young people's participation in Hip Hop Health leads to changes in knowledge about water-related illnesses, how they think about science, and their plans for future education.

Who is carrying out this evaluation, and where is it being done?
Hip Hop Health is being conducted by leaders and staff members from Science Spaza. The study of youth's experiences with Hip Hop Health is being conducted by project leaders at Jive Media Africa and researchers from the University of KwaZulu-Natal and Boston Children's Hospital. The project is being done at Science Spaza clubs in Umgungundlovu District.

How are individuals chosen for this evaluation? How many people will be in the evaluation?
Science Spaza members who participate in the Hip Hop Health project will be invited to participate in the evaluation of the project.

Up to 60 youth participants in the Hip Hop Health project will be asked to take part in the evaluation.

What will I have to do if I take part in the evaluation?
If you take part in the evaluation, you may be asked to take part in an interview before and at the end of the project, and a focus group discussion at the end of the project. In the interview, you will meet individually with a research assistant, and in the focus group you will meet with a group of other participants to discuss your experience. The interviews and focus group discussion will be led by a study assistant. The interviews will include questions about your knowledge of water-related illnesses, your attitudes and beliefs about science, your plans for your future education, and your experience in the project. The focus group discussion will focus on your experiences in the project and to ask for feedback on Hip Hop Health activities. Additionally, you will be asked if we can record the interviews and focus group discussions..

What are the risks of this evaluation? What could go wrong?
Participation in this evaluation will involve a loss of privacy, but audio records will be handled as confidentially as possible. Your name will not be used in any report or publications from this study. Audio files will be stored on password-protected computer accessible to study investigators only. All recordings will be kept for five years, as required by law. The participants in the focus groups will be asked to keep the conversation confidential, however, there is a limitation of confidentiality since other participants will be present and involved in the focus groups.

Will information about me be kept private?
We will do our best to make sure that the personal information gathered for this study is kept private. However, we cannot guarantee total privacy. If information from this study is published or presented at scientific meetings, your name and other personal information will not be used.

What are the benefits of this evaluation?
There is no direct benefit to you from participating in the evaluation The results of this evaluation will inform the further development of the Hip Hop Health programme.

Will it cost me anything to be in this evaluation?
There will be no costs to you as a result of taking part in this evaluation.

1

Will I be paid if I decide to take part in this evaluation?
You will not be paid for taking part in the evaluation.

If I do not want to take part in this evaluation, what are the other choices?
You may still participate in the Hip Hop Health project even if you do not take part in the evaluation.

What are my rights as a participant in the evaluation?
Taking part in this project is entirely voluntary. Participation in the study will not affect your participation in the Science Spaza programme or Hip Hop Health project.

Who may see use or share information gathered in this evaluation?
The records from your participation in the evaluation may be reviewed by people responsible for making sure that research is done properly, including members of the ethics committee at the Human Sciences Research Council. All of these people are required to keep your identity confidential. Otherwise, records that identify you will be available only to people working on the evaluation.

Whom should you contact if you have study questions or a study related problem?
This research has been approved by the HSRC Research Ethics Committee (REC). If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please call the HSRC's toll-free ethics hotline 0800 212 123 (when phoned from a landline from within South Africa) or contact the Human Sciences Research Council REC Administrator, on Tel 012 302 2012 or e-mail research.ethics@hsrc.ac.za .

If you have concerns or questions about the research you may call the project leader Hilary Kromberg Inglis on 033-342 9382 or 084 357 7333 or by email at hilary@jivemedia.co.za, the project manager Thubalakhe Luthuli on 033-342 9382 or by email at thuba@jivemedia.co.za, the research assistant Siya Mnguni on 073-673-3140 or by email at enhlemnguni@gmail.com.

Statement of Consent:

- The consent form was read to me and I was given enough time to think about my decision to decide whether to take part in this study.
- This research study has been satisfactorily explained to me, including possible risks and benefits.
- All my questions were satisfactorily answered.
- I understand that taking part in this research study is voluntary and that I can withdraw my consent at any time.
- I am signing this consent form prior to taking part in <u>any</u> research activities.
- I give permission to take part in this research study.

Consent to Take Part in the Evaluation

_____   _____   _____
            Name   Signature or thumbprint   Date (DD/MM/YEAR)

Consent for Recording

_____   _____   _____
            Name   Signature or thumbprint   Date (DD/MM/YEAR)

2

Wellcome Trust - Hip Hop Health

Focus Group Discussion Guide: Learners

Introduction

(Read aloud by discussion group facilitator)

I am working with Jive Media on the Hip Hop Health project to evaluate the project. The purpose of the evaluation is to learn about participants' experiences in the project, what the challenges were, and also to celebrate what went well.

We have asked you to take part in this group discussion because you have participated in the Hip Hop Health activities and so have valuable insights to share about the project. Learners from other schools will take part in similar discussions. Thereafter, an evaluation report will be written. The results of the evaluation will be shared openly with those who are interested.

You have already consented to take part in the research, when you joined the project. If you are willing to participate in this evaluation discussion now, the discussion will take about one hour. During the discussion we will talk about your experiences and thoughts about the project.

The discussion will be audio recorded, if you all agree to this. However, what you say will remain anonymous, as your name will not be linked to the information you give. You also don't have to talk about anything you feel uncomfortable about discussing. If you wish to stop answering questions at any stage in the discussion, you can do so.

At this stage, do you have any questions?

Do you consent to the discussion being recorded? (*Interviewer asks each learner this question. If any of the learners do not consent, then the discussion will not be recorded.*)

Would you prefer to have this discussion in English or isiZulu? (*Interviewer will use whichever language is preferred by the learners.*)

Interviewer instruction:
Put on the recorder if the learners all consented, and please record:
- *The date of the interview*
- *Your name*
- *That it is a group of learners from which school?*

Discussion:

This project was about research and about Hip Hop. We would like to hear your thoughts about both these aspects of the project.

Questions about the research:

1. What research activity did you do in the project?

2. What did you know about research before this project?

3. What did you learn about research during the project?

4. What were some of the challenges of doing the project?

5. What did you learn about research ethics through the project? Were there any challenges with getting consent from your parents or guardians to participate in the research?

6. What did you learn about research methods through this project?

7. What did you learn about data analysis and how to present your data, through this project?

8. What did you learn that was new, through doing the research? Was there anything that surprised you about the process of doing the project or what you learned while doing the project?

Questions about the music:

9. Are Hip Hop and Rap styles you were comfortable to use to write and perform with? If not, what style would you be comfortable to use? Why?

10. Were you comfortable with performing Rap?

11. Do you feel the song came out the way you wanted it to?

12. Did you change at all in the process of creating and performing music?

13. Do you see Hip Hop and Rap music as influencing the youth into bad behaviour? Why or why not?

14. Do you think Hip Hop can be used effectively for communicating about health messages? Why or why not?

Questions about the project in general:

15. As a person, did you change at all through participating in the whole project?
    (If yes) How did you change?

16. Would you have enjoyed this project as much if it were only a research project? Why or why not?

17. Would you have enjoyed this project as much if it were only a hip hop project? Why or why not?

18. What was the most fun part of the project?

19. If you could do anything differently about how we did this project, what would it be?

Thank you for participating in the discussion.

Wellcome Trust - Hip Hop Health

Focus Group Discussion Guide: Young Experts/ Facilitators

Introduction

(Read aloud by discussion group facilitator)

I am working with Jive Media on the Hip Hop Health project to evaluate the project. The purpose of the evaluation is to learn about participants' experiences in the project, what the challenges were, and also to celebrate what went well.

We have asked you to take part in this group discussion because you have been part of the Hip Hop Health activities and so have valuable insights to share about the project. Thereafter, an evaluation report will be written. The results of the evaluation will be shared openly with those who are interested.

The discussion will be audio recorded, if you all agree to this. However, what you say will remain anonymous, as your name will not be linked to the information you give. You also don't have to talk about anything you feel uncomfortable about discussing. If you wish to stop answering questions at any stage in the discussion, you can do so.

At this stage, do you have any questions?

Do you consent to the discussion being recorded? (_Interviewer asks each participant this question. If any of the participants does not consent, then the discussion will not be recorded_)

Discussion

This project was about research and about Hip Hop. We would like to hear your thoughts about both these aspects of the project.

1. How were each of you involved in the project?

2. What research task were you involved with during the project? What did you learn that was new, through being involved in the research?

3. What were some of the challenges of doing the project?

4. Was there anything that surprised you about the process of doing the project or what you learned when doing the project?

5. What did you learn about research ethics through the project? If you were involved in getting consent and assent from parents, guardians and learners, what challenges did you face?

6. Did you learn anything new about water related diseases through the project?

7. Did you learn anything about Hip Hop through the project?

8. Please could you comment on the use of Hip Hop in this way: What worked and what didn't work?

9. What, in your opinion, were the successes (if any) of this project?

10. What, in your opinion, could have been done better?

11. What did you learn about working with learners through the project?

12. What, in your opinion, is the potential of the project for spreading messages about the findings? Are there people who wouldn't like this format for the presentation of messages? Why or why not?

13. Do you think a famous "role-model" in this role (e.g. iFani) is important as part of this intervention? Why? Why not?

14. Did you observe any noteworthy changes in the learners during this process, such as changes in their attitudes or changes in their knowledge about water-related illnesses, how they think about science, and their plans for future education?

15. If you could do anything differently about how we did this project, what would it be?

Thank you for participating in the discussion.

Wellcome Trust - Hip Hop Health

Evaluation Questionnaire for Experts

You are being invited to complete this questionnaire as a health science professional who is familiar with the *Hip Hop Health* Project. This email questionnaire is part of our evaluation of the project. You are under no obligation to complete these questions. However, we would welcome your feedback with a view to deepening our understanding of the initiative and improving it. We will summarise responses received, but your name will not be linked to any of the responses.

Questionnaire

1. What parts of the project did you participate in or observe?

2. If you attended the hip hop performance, what were your impressions (positive and negative) of the performance?

3. If you attended the hip hop performance, what, if anything, do you think was achieved through the performance?

4. What, if anything, do you think was achieved through the project?

5. What do you think was not achieved?

6. In your opinion, has this approach of linking science and hip hop shown potential as a way of promoting:

   - Interest in science for participants?

   - Interest in research for participants?

   - A way of spreading health messages to young people?

   - A way of spreading health messages to the broader community?

7. Please give us your general comments on the project.

Thank you for your participation and involvement.

Annexure 3 – Materials Developed through the course of the project

The following items can be accessed at www.sciencespaza.org