Bridging the digital skills gap: using Virtual Reality Kit to make students fall in love with science

INTRODUCTION

Today, textbooks are the only available tools for students in Ghana to study the human anatomy, time travel to the 20th century for history lessons, visit the great China wall and explore space.

However textbooks are limited in terms of access and in addition, they limit students' imagination and make the learning process not engaging.

Through the advent of new technology tools such as videos, education apps, games and others, educational contents are being digitized to improve teaching and learning methods. However, these tools are available to only students from high and middle-income families in urban areas whose parents can afford them. This program is about using cost effective way to make teaching and learning of science more fun and practicable to rural students in junior high school in Ghana.

THE PROBLEM

Over the last decade, performance of students in basic certificate exams in Ghana has been declining especially in General Science and Mathematics. Students find science complex so have generally low interest in studying it. The way it is taught especially in rural schools that have no laboratories and inadequate practical materials make it more abstract. As a result, few students especially girls shy away from STEM-related courses in high school and eventual STEM career paths.

SOLUTION

A-day-In-Virtual-Reality program provides a new learning experience for students who lack science laboratories as well as practical teaching materials. We provide virtual reality curated lab topics in biology, physics, and chemistry and science history for rural high school students using virtual reality headsets. The goal is to make science more fun for young learners. Research has established that young students have better understanding and retention when they play while studying

OUR IMPACT SO FAR:

We started the program in last quarter of 2017. We have reached about 200 students in four junior high schools in villages around Ho in the Volta Region.

The excitement written over the faces of the students and the enthusiasm they showed during the learning process is an evidence of the positive outcomes the use of VR can bring to the teaching and learning methods of "boring" and perceived difficult subjects in schools.
The project is inspired by the World Economic Forum's initiative for shaping the future of education and gender and Ho Node's commitment to achieving the Sustainable Development Goal 4 on education.

BUDGET

A day in VR Budget				
Item	**Details**	**Quantity**	**Amount**	**Total**
VR tool kit (standalone)		10	$500.00	5000
Developoment of local VR content	6 months	1	$15,000.00	15000
Programs Management	10 outreaches	10	$350.00	3500
Allowance for instructors	5 instructors in 10 outreaches	60	$25.00	1500
				$25,000.00

MONITORING AND EVALUATION

To ensure the program delivers on its goal of improving performance in science in rural schools in Ghana, we developed a program logic, which is the basis for developing our monitoring and evaluation plan.

ABOUT VIRTUAL REALITY:

Virtual Reality is a three-dimensional, computer-generated environment, which can be explored and interacted with by a person. A VR headset fits around your head and over your eyes, and visually separates you from whatever space you're physically occupying.

ABOUT HO NODE

Ho Node is an inclusive innovation hub in Ho, in the capital city of Volta Region, Ghana. HoNode provides a co-working space for start ups; key resources & an enabling environment for ideas to be tested; business development support & digital skills acquisition (www.honode.org


GOAL: 10% increase in science enrolment in SHS from JHS
Science SHS Enrolment rate
OUTCOME 1
20% increase in understanding of science concepts
Pass rate in science in internal exams and quizzes
OUTCOME 2
10% Increase in academic performance in science in school in 1 academic year
Pass rate in science in BECE
OUTPUT
JHS students introduced to the fun world of virtual reality
Number of students reached during in the outreach
Virtual experiments done on selected topics
Number of students who undertook the virtual labs
a-day-vr" outreach in 2 Public Junior High Schools per Month
Number of outreaches done
Run Virtual Lab bootcamps in selected schools
Number of bootcamps done
INPUTS
Funds
Human resources: Project Manager, Volunteers, Media team
VR sets, VR apps