CYBERNET EDUCATION AS A SOLUTION TO REMOTE EDUCATION DURING THIS PANDEMIC/COVID-19

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**Problem statement**

Following the outbreak of COVID-19, a number of sectors including education systems worldwide have been significantly impacted. According to UNESCO at least 165 countries have closed schools globally and more than 516,000 million children and youths are affected.

 In a bid to ensure that the children are learning during this time of school closure, the ministry under the guidance of [National Centre for Disease Control (NCDC)](https://r.search.yahoo.com/_ylt=A0geJaJ5.9BeZKMAe2xXNyoA;_ylu=X3oDMTBydDI5cXVuBGNvbG8DYmYxBHBvcwM2BHZ0aWQDBHNlYwNzcg--/RV=2/RE=1590782969/RO=10/RU=https%3a%2f%2fncdc.gov.in%2findex4.php%3flang%3d1%26level%3d0%26linkid%3d28%26lid%3d33/RK=2/RS=wdlw1kIvXN.U7JpMWHNf98_oTRo-) is developing standardized self-study lesson packages in all the core subjects for primary and secondary education to be distributed to all learners, including special needs learners across the country.

However, university students and other tertiary institutes have been left out yet they are also being impacted by the pandemic and also the available measures don’t involve social interaction between the students and teachers since self-study packages are being delivered to students’ homes. Therefore, a mind about VR implementation in the education sector to include university and tertiary students in the remote Education programme should be considered. Thus, the solution Cybernet Education. This involves the use of a VR headsets for learning and VR application installed on a phone or laptop. Cybernet Education has the potential to address learning challenges by creating an experience, learning-centered, activity-based and fun-filled learning experience hence it should be highly considered in teaching and learning most especially during the lock down of universities and tertiary institutions. The utilization of virtual reality technologies might be considered cost-intensive by schools and educators but with cheaper alternatives such as google cardboard, the students will be able to experience a fun-filled and learner-centered instruction.

**The Concept of Cybernet education**

It often requires wearing a wraparound headset called a head-mounted display, clamping stereo headphones over your ears and touching or feeling your way around your imaginary world with sensor powered gloves. Virtual reality usually requires a headset wrapped around the user’s head and connected directly to a computer or smart phone. A 3D image is displayed via the headset and changes in response to head movement. There are built-in sensors on the headset such as an accelerometer and gyrometer that tracks head movement to produce a smooth, 3D realistic experience.

**Advantages**

* Assimilation of classroom structure without physical contact of students is possible with VR technology thus promoting social distancing as one of the measures to control the spread of pandemic.
* VR technology helps in improving collaboration and group learning i.e. students feel more connected and less isolated since there’s real time communication and interaction between students and their teachers just like in the physical classes
* VR technology also provides enhanced and clear demonstration of practical work i.e. demonstration in 2D and 3D is possible
* The teacher can easily track the progress of their students using the VR technology for example offering quizzes as part of class time exercises is possible

**Challenges**

* **Finance:** most virtual reality technologies such as the oculus rift are quite pricey. The technology is developing and the headsets are getting a ton of features and sensors already embedded in them. In 2012, Google launched a cheaper alternative called Google Cardboard, for a cheaper virtual experience that cost less than $15 US dollars. **Rigid Teaching Methods**: some teachers refuse to orient themselves with technology and prefer to teach using traditional methods of teaching. Teachers need to be introduced to the new technology thus awareness sessions should be held for both learners and teachers. **Power and poor electricity supply:** Some developing countries struggle to provide constant power supply and this constitutes a huge problem in the utilization of virtual reality in classroom teaching. But presently most VR headsets are powered by smartphones and do not require an electrical connection since the smartphones are battery powered and can last for hours.

**Goal// Expectation**

To allow a more socially interacted class to happen remotely to meet the learning needs of both university and tertiary institution students who are geographically located in different places during the COVID-19 pandemic

**Objectives**

* To allow flexibility in learning
* To improve collaboration and group learning in remote education
* To enable progress tracking of students by teachers remotely
* To bring learning to life through the use of VR technology to provide an enhanced and clear demonstration of practical work
* To reduce the cost of training students since VR training simulators allow educators to scale at a far lower cost and provide greater learning opportunities
* To reach out to the first 3 government universities and 3 tertiary government institutions to use the VR learning environment

**Expected timelines:**

The project is expected to take a period of six month that will include all the design aspects and testing.

**Strategic partners**

For the success of our project we are looking forward to work with Makerere University specifically the Computer Science department headed by Associate Prof. Engineer Bainomugisha for all the tests and guidance

We also look forward working with Huawei Technologies Co. Ltd. for IT equipment such as VR headsets.

In nutshell, we shall be working with Ministry of Education for further embedment of Cybernet education in all Universities and Tertiary Institutes.

**Expected outcome**

At the end of Cybernet Education project we expect to have bridged the gap in high level education during this pandemic and help teachers and learners to be involved in a very interactive and collaborative class as they undertake remote sessions.

We expect this project to be applied in Makerere university and conjunction with Ministry of education, we expect it to be applied in all universities and tertiary institutes in Uganda.

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