

# The Naledi3d Factory - VR in Africa for Africa

## A Ugandan Success Story



**The Naledi3d Factory has met with great success in Uganda in its initiative to promote the use and development of 3D interactive (VR) content for education in developing communities. It now plans to extend this initiative to other African countries.**

As part of this initiative, with the support of UNESCO, the Naledi3d Factory has recently trained and equipped two Ugandans in the development of educational VR models. This has now led to the establishment of an active VR Development Facility in Kampala, Uganda.

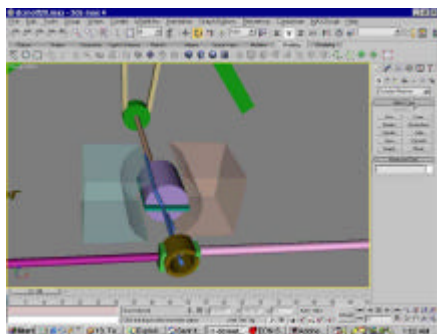
### Background

More than 70% of Africa's population lives in poverty in remote and rural areas, characterized by stagnant or declining economic activity and a deteriorating quality of life. Sadly, migration to cities provides only false hope. The main key to promoting economic growth in rural areas is sustainable development, but this demands *quality education – for all*.

It has been proved beyond doubt that educational materials based on visual media enhance the transfer of knowledge and learning (see side-box). Virtual Reality (VR) provides the ability to learn through "Looking, seeing and doing", in this way overcoming the learning barriers brought about by the so-called "tyranny of text" (traditional text-based learning). Visualization is a more natural form of information processing for the human brain.

We remember:  
 ✓ 10% of what we read  
 ✓ 20% of what we hear  
 ✓ 30% of what we see  
 ✓ 50% of what we both see and hear  
 ✓ 70% of what we say  
 ✓ 90% of what we see and say, whilst doing it.

Visual communication is achieved through advanced multimedia, animation, and especially VR, which also allows the learner to **interact** with the material, identify elements of interest and learn in a more natural and fun way.



### VR in Uganda – Measurable and Measured Success!

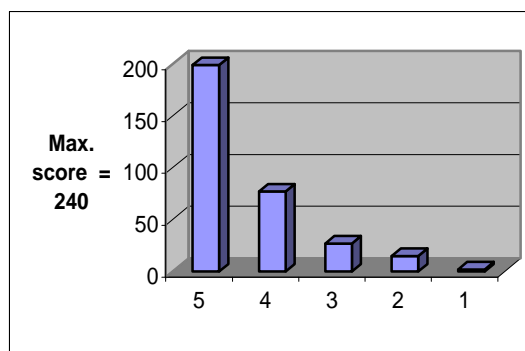
On his return to Uganda in April 2002 after training, Lawrence Ssenkubuge, on his own initiative, developed a physics VR model and tested it on a class of 40 at his school – King's College Budo, Kampala. The results of this early survey again show the potential for using new visually interactive media in education.

**Focus:** *The DC Motor – the transfer of energy from a cell (chemical energy) to a rotating fan (mechanical energy)*

### Survey Results

	5	4	3	2	1
1 How much did this model make you feel like learning more about the subject?	32	4	2		2
2 Did it show you the process that is taking place in the desired amount of detail?	16	20	4		
3 Were you able to manipulate the process?	12	20	4	4	
4 Protect you from risks involved in using the actual device instead of the model	28	8	4		
5 Helping users to save costs	25	8	4	3	
6 Helping you witness the process as many times as possible	28	4	4		
7 Potential to improve learning of science	30	9	1		
8 Potential to help you learn at your own pace	28	4	4	4	
<b>TOTALS</b>	<b>199</b>	<b>77</b>	<b>27</b>	<b>15</b>	<b>2</b>

5=Very high ; 4=High ; 3=medium ; 2=Low ; 1=Very low



### Quotable quotes and other highlights – Class Senior 4C (King’s College Budo, Kampala)

*“I would highly recommend that this method is used in teaching us physics.” (36 responses!)*  
*“When can we learn to make these ourselves?” (all students)*  
*“I want to be the first to be trained” (one of the more passive members of class)*  
*“One understands the process without the need for explanation.”*  
*“With VR, there will be hardly any barriers to my learning physics.”*  
*“It could enhance the potential for certain students who may lack something that would engage their thinking.”*  
*“Various versions of the model can be made, evolving from the original one, since one has the freedom to improve the original idea.”*  
*“I would describe the teacher as one who knows what he is doing and that the students taught by this method are able to gain more information or tips that the teacher may not have mentioned in the lesson because they have a resource to interact with.”*

### Potential advantages – the most common responses

*“Very safe.”*  
*“The parts can be dissected or seen through, separated and assembled.”*  
*“Very clear.”*  
*“Makes me understand the stuff.”*  
*“Very easy to use.”*

### ... And on the teacher (Lawrence Ssenkubuge)

*“He is a fine genius and loves our future.”*  
*“Creative and resourceful.”*  
*“A modern, foresighted and empowered teacher.”*



### About the Naledi3D Factory

The Naledi3D Factory (Pty) Ltd was founded in 2000 and focuses on the development of virtual reality (VR) models – also known as interactive, visual CONTENT. VR allows people not only to **look** and **see** but also to **do**. Over and above the more traditional application areas for VR, we believe that VR has a powerful role to play in the future development of Africa, especially in training and education. We are committed to making this happen!

We work with several global technology suppliers – in particular, EON Reality of California, USA - and also focus on the following areas:

- Training and education - secondary, tertiary and ABET
- Specialized industrial, environmental, land-use planning, architectural and marketing simulations
- Large-scale entertainment and edutainment
- Data visualization
- Local supplier of EON Reality products.



VR can be used to visualize an industrial process, or a scientific or engineering principle, for testing or showing ideas before investment or for recreations of long-lost historic or cultural worlds. With this interactive medium, we can show how things work, but also allow the user to "look and see", as well as to "do".

The ability to transfer knowledge and skills to people with lower literary abilities makes VR exciting in the African context. By taking advantage of the visual nature of the medium, appropriate and effective training and education can be provided without the need for students to have a high reading and writing ability.

