

The Naledi3d Factory

A decade of innovation with Virtual Reality in Africa



It is about **modernising — not westernising**

Quick Facts

- ⇒ **Founded in 2000**
- ⇒ **Based at the Innovation Hub, Pretoria**
- ⇒ **The home of Interactive3d Learning Objects (i3dlo's)**
- ⇒ Project examples include health (HIV, malaria); water & sanitation; sustainable energy; agriculture, industrial and mine safety; ICT literacy etc.
- ⇒ Projects in many countries including Ethiopia, Mozambique, Netherlands, Senegal, Sudan, Uganda, Zimbabwe, as well as South Africa

- ⇒ Supported by UNESCO, SAFIPA, Kellogg Foundation and others
- ⇒ Collaborated with organisations such as Rand Water, Johannesburg Metro, Eskom, CSIR, Anglo Gold Ashanti, SANERI, TUT and others

"Hindsight is the best form of prediction" and it is rewarding to look back over a decade and recap on some of our achievements.

A decade after we set out to change the world, we are wiser, humbler, but also infinitely grateful for the opportunity to contribute to changing how people learn and acquire new skills.

We would like to say thanks to all those who have supported us, worked with us, shared a vision with us and helped to make that difference.

On these pages, we poignantly describe the dream and show some examples of what the Naledi3d Factory is all about!

In Africa, where poor literacy skills and language barriers pose huge challenges to learning and skills development, VR comes into its own.

Its intensely visual nature transcends literacy and language barriers by *showing* as opposed to *telling*. VR has a distinct and powerful edge over other more traditional learning approaches that ignore the powerfully visual nature of the human brain.

Our major innovation has been the development of the idea of the interactive3d learning object (a self-contained, localisable visual learning object) that really does work and, considering our achievements, takes this to an even higher level.



"There's been a significant drop in dysentery" Uganda

It is hard to express the joy of hearing those words over the phone from a village 160 km north of Kampala. It was 2004 and we had just received feedback on the impact of our Basic Hygiene simulation that had been rolled out in the Nakaseke district.

This Basic Hygiene Project was our first intervention with UNESCO and simulates typical village scenarios where villagers are exposed to good hygiene practices. It has led to a drop in dysentery and other water-borne diseases in Nakaseke and is still used by the local multipurpose community centre to this very day.

"I built this A-Frame last night!" - Rusike, Zimbabwe

Eli Gudza, World Links Zimbabwe Director and our project partner, was amazed when a local farmer set down his new A-Frame in front of the workshop audience one morning in 2008.

Eli had been presenting our Rural Life Skills Development Project agricultural i3dlo's to local small-holding farmers the previous day. Funded by the **Kellogg Foundation**, they covered several important farming issues such as combating pests, setting up ploughs and combating soil erosion, by ploughing along contour lines, not down them.

It captured the imagination of one farmer who, now understanding how to make an A-Frame, worked that evening to put one together. For the first time in over 30 years, contours were set out in local fields, which is still going on to this day. Precious top soil is being preserved, yields are increasing and new wealth is being created locally.



A decade of innovation with VR in Africa



In the eyes of some beholders

Dr Fay Chung:
Former Minister of
Education, Zimbabwe

"By bridging the literacy barrier through the use of 3D interactive models, Naledi3d Factory overcomes the inherent limitations of text. At the same time, language differences become much less important as text is replaced by interactive, 3D images.

Finally, and perhaps most excitingly, the Naledi3d Factory works closely with local stakeholders to develop the content that goes into its interactive simulations. This ensures that the content is always relevant and much more appropriate to the communities and cultures where it will be used."

Peter Schioler: former
CII Advisor, UNESCO,
Paris

"The Naledi3d Factory is more than an excellent technical partner for UNESCO. I have personally been impressed by the company's commitment to, in the spirit of post apartheid South Africa, seek new solutions and share know-how for the public good across the continent."

Eli Gudza: Executive
Director World Links
Zimbabwe

"The concept of interactive 3d learning objects, while unique worldwide, truly has the potential to revolutionise rural development and the upliftment of our disadvantaged communities."

In the words of some learners

- ◆ "If we have programmes like these, where we use visualization, learning will be interesting and enjoyable" - Zenzele Mofokeng, Alexandra
- ◆ "It showed us some more pictures so it is different from normal lessons. In normal lessons sometimes you just hear but don't see how you can understand" - - Mathodi Masina, Mamelodi High School
- ◆ "VR is a powerful tool in the development of our communities" - Mutoko Farmer, Zimbabwe
- ◆ "It is very helpful and as an Agricultural Science teacher I would want to continually use VR in my lessons" - Farm Extension worker, Mutoko, Zimbabwe
- ◆ "It explains beautifully and the display of it is nice and gives me more knowledge" - P. Mbenambi, ERWAT



Repairs to a toilet cistern

- ◆ Bee-keeping (Zimbabwe): Bee keeping workshops by *World Links Zimbabwe* led to the establishment of by the community of **local honey producing co-operatives**.
- ◆ Water Conservation (SA): 95% of artisan students (ERWAT) said that they wanted **more** teaching in a 3D format.
- ◆ When the interactive3d content is locally **translated** into indigenous languages, it is amazing to see just how many eyes pop open and attention span increases immensely.

"I never did understand the importance of that vent pipe."

Working with **UNESCO** in 2005, this simulation emphasises the importance of not breaking into the water table, as well as for the need for the **Ventilated Improved Pit Latrine** venting pipe to face towards the sun.

It is so rewarding to see the impact of a visual message on the level of understanding of these important elements, in Zimbabwe as well as in Mozambique and which has since led to the reconstruction of many VIP Latrines.



Building a VIP latrine



"It's always been hard to teach that concept to students."

So said Professor Mphahlele of **Tshwane University of Technology** ICT Faculty in 2011 when he saw some of our older *interactive3d learning objects* addressing computer literacy. In this case, one showing analogue and digital signals.

Prof. **Mphahlele**, who had been looking for this for several years, is incorporating visually interactive 3D learning material into his teaching programme from 2012.



It has also captured the imagination of Robert Alfonsi, a lecturer in the Department of Computer Science of the **University of the Free State**, Qwaqwa Campus, who is also looking at ways to adopt the same approach into both his teaching as well as into his local outreach activities with local schools.

Seed funding from **UNESCO**, working with two major local academic institutions, makes us very excited about being able to transform how ICTs and computer literacy are understood in South Africa and ultimately, across Africa.

The Naledi3d Factory's Awards

World Summit Awards (2009)

"Honourable mention" for our work with farmers in Zimbabwe (top 50 out of 20 000 applications world-wide)

African ICT Achievers Awards

The most Innovative ICT Company in Africa (2005 Finalist)

The Naledi3d Factory

A Technology Top 100 Company -2005

Business Day, 2003

"One of South Africa's most innovative companies"