# Demonstration of a Cultural Indigenous Knowledge Transfer Prototype

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## ABSTRACT

We present our prototype 3D visualization that enables people to place video recordings of their traditional knowledge. We demonstrate the process of developing and evaluating the prototype. We show how our prototype might combat a cultural gap between youths and elders and also hope to ignite ideas about how such a system can be used rurally and how further testing can be optimized to avoid a cultural gap in the test methods.

## 1. AIM

It can be a difficult task to develop a successful system without involving end users, and when the target group resides in Sub-Saharan rural areas, it is almost impossible to design and implement without mixing semantics with subjective ideas on the end users' situation. The research presented in [1], reveal deep rural interest in the understanding, transferring and storing of Indigenous Knowledge (IK) from the Herero tribe in Namibia. The Herero community elders possess a great amount of cultural knowledge on husbandry, herb knowledge and religious rituals and the modus operandi of transferring this knowledge to the community's youths has for many years been situated locally and through intrapersonal interactions. This method of conduct is now being attacked by 'modern schooling', where the youths are dislocated from their original communities into the capitol to prepare them for a demanding world, increase their digital and textual literacy and to support the development and stability of the country they live in. By using a modern toolbox of animations and game dynamics, we have developed a prototype to allow sharing of IK and to avoid a Western approach the first steps have been evaluated in situ to allow fusing of thoughts and critique into the development process.

## 2. METHOD

To attempt to combat a cultural gap between youths and elders, we have tentatively evaluated a 3D visualization prototype in the local community, for investigating if a leap over textual communication can be done by methods of visualization. As we present in [2], our 3D visualization is a medium for placing and assimilating video material gathered and recorded locally by the village elders. The visualization is a graphical representation of the local village and was conducted locally in Namibia in collaboration with a researcher from the village and reference images depicting specific landmarks and homesteads. The actual village consists mostly of vegetation and occasionally man-made items; we therefore found it important to e.g. model man-made artifacts like the water pump, since the whole community goes there to collect water, hence being well-known to everybody in the community. The objects considered important at this stage of the prototype were houses, homesteads including corrals (kraals), animals, water pumps with solar cells etc. All these major 3D reference assets were modeled in Cinema4D and subsequently imported into the 3D game engine Unity 3.0 and placed according to Google Maps satellite pictures and from specifications provided by the local Herero researcher. The prototype includes five scenarios of important IK, where 3D modeled animals and persons are located as trigger events of recorded videos. The purpose of these scenarios is to visually show, through high fidelity graphics, for instance the position of people during a cow branding. When the user of the system; prototype is tested running from a laptop, mouse-clicks on a scenario enables the spawning of a 3D plane showing the actual recorded video hovering above the scenario. The developed prototype was shared with both rural youths and elders in a local village, and video observations were conducted along the open discussion with the facilitator investigating how the two target groups perceived our prototype.

We wish to present the prototype as a video production showing insights into development methods, recordings from the in situ test and the actual use of the system. We also hope to ignite some ideas on how a system as the one presented can be used rurally in sense of technology and how further testing can be optimized to avoid a cultural gap in the test methods.

Equipment: Screen to show it on, and a HDMI connection.
Duration: 20 Min, including video, discussion and demonstration of prototype.

## 3. REFERENCES

[1] Bidwell, N.J., Winschiers-Theophilus, Koch Kapuire, G, Rehm, M (2011). `Pushing personhood into place: Situating media in rural knowledge in Africa'. *International Journal of Human-Computer Studies* 69 (2011) 618–631

[2] Rodil, K. Winschiers-Theophilus, H. Bidwell, N.J. Eskildsen, S. Rehm, M. Kapuire, G.K. 2011. A New Visualization Approach to Re-Contextualize Indigenous Knowledge in Rural Africa. In *Proceedings of the INTERACT 2011.13th IFIP TC13 Conference on Human-Computer Interaction* (Lisbon, Portugal, September 5-9,2011). In Press.