

# ADOPTING THE ALTERNATE REALITY GAME APPROACH IN THE DESIGN OF THE SINGA ENVIRONMENT

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## Abstract

Playing games, especially electronic games, is a popular free-time activity among children and adolescents and these games seem to have a prominent role in the culture of young people. It is with this in mind that the SINGA environment was designed and developed. This paper describes the concepts of an initiative called SINGA (short for SINGAZENZELA) and how far the SINGA environment adopts features of the Alternate Reality game (ARG) to enhance its effectiveness. SINGA is an environment, both digital and physical, that simulates the real-world environment to impart survival skills to vulnerable children by putting them through challenges and puzzles. ARGs, on the other hand, are multimedia narratives that use real-world platforms to tell a story that evolves around the user's response to challenges and puzzles.

## Keywords

Alternate reality games, vulnerable children, pedagogy

## 1. INTRODUCTION

Many youngsters in Africa live on the edge, in a world beyond the reach of routine adult support or supervision. Yet, somehow they eke out an existence – often outside the formal economy and outside public sector institutions. Day in and day out, their life chances are compromised by food insecurity, the impact of HIV/AIDS, malaria and tuberculosis, lack of education and the fear of crime, conflict and war. In situations where these children need more support than ever, the traditional institutional and family infrastructures are falling away. It is for these reasons that an initiative called SINGA (short for SINGAZENZELA) came up. The mission of SINGA is to enhance the livelihoods of vulnerable children and young people by imparting to them ways and means to participate better in their own lives and to get things done without necessarily relying on adults and officials. SINGA, which means “we can do it by ourselves” in Zulu, is a project that aims to take up the challenges faced by vulnerable children by intervening in the traditional public and voluntary sector service delivery. By using both activities that simulate the real world environment and those that take place in the real world, the activities and the

challenges undertaken in the SINGA empower the children with skills on how to do things in the real world through discovering services by themselves.

Playing games, especially electronic games, is a popular free-time activity among children and adolescents and these games seem to have a prominent role in the culture of young people. This mode of learning can be more enjoyable, more interesting and thus more effective than traditional learning modes. Games have advantages over other instructional media in that a) they support active, experiential, problem-based learning, b) they favour activation of prior knowledge given that players must use previously learned information in order to advance, c) they provide immediate feedback enabling learners to learn from their actions and d) they involve communities of players [8]. Computer games motivate and engage students and increases student content retention, ability to compare and contrast information presented and develop an insight into questioning skills [7]. In a study designed to assess the effectiveness of video-games, results show that students taking the game-based course demonstrated deeper learning compared to their counterparts taking traditional lecture/textbook based courses [9]. The SINGA ~~environment as a result, adopts a gaming approach, and more precisely it is comparable to the~~ which provides an-alternate reality gaming experience. This paper therefore looks at both the features of ARGs and SINGA and explains how the ARG features are adopted in the SINGA environment to enhance the effectiveness of SINGA

## DESCRIPTION OF SINGA

SINGA is an initiative to empower vulnerable children and young people. These vulnerable children include street children, child soldiers, orphans, children who head households, children of migrant workers, unaccompanied refugee children and children shared between their geographically spread extended families. At the heart of SINGA is its afro-centric design and content. SINGA tries to bring to the gaming world the design elements based on the understanding of the different African cultures, identity, new literacies and their impact on the development of the African child. Hope is a very powerful tool in the journey towards self-determination. The African representation of hope in folklore and fiction can be described in a literary context as Mystical Realism. SINGA's storytelling style encompasses an element of magical experience and wonder, a quality perceived as necessary for a child to create their own reality in a form better than that which exists at any given moment.

SINGA stands on the pillars of among others ~~Section 28 of the Bill of Rights provided by the~~ South African Constitution, Summary of the UN Universal Declaration of Human Rights and African Charter on Human and People's Rights which all give protection to children (anyone under the age of 18) by giving them certain rights. SINGA enables children to discover services for themselves when they need them and in ways that make sense to them. It gives them ways and means to participate better in their own affairs without having to rely on adults and officials. SINGA is about providing scenarios in which a child discovers how to “do things” that normally would have been difficult if they did not get introduced to this game, in a real world situation. These SINGA scenarios or challenges enable the child to learn and grow as an individual, to develop an inner resilience, to access peer-based support networks and to navigate successfully through other support systems that will enable him/her to cope with life's challenges.

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SINGA challenges are a tool for engagement with the target audience. The initiative targets the right children through intriguing physical and digital puzzles, clues, collectable, downloadables, etc. Access to the challenges is directed through clues which are carefully placed where the most vulnerable will “stumble” across in the real world. Each challenge is a self-contained learning experience and aims to build the player’s resilience. Over time, mastering these challenges gives way to a sense of curiosity to delve further into the SINGA experience, thereby learning more about life’s challenges. As the challenges are solved and individual collections grow, their understanding of issues increase – and in time- a sense of direction and purpose emerges. SINGA challenges reach available children through, among others, a food sack that is dropped, water that is handed out in bottles or a plastic sheet that is offered as shelter. To direct the target audience to these challenges SINGA uses distribution systems accessible to the poor and vulnerable children, such as spaza shops, bus and train stations, cell phones, TV, radio and street hawkers. The challenge approach motivates children of all ages accessing SINGA to use a blended media of paper, radio, telephone, television, cell phone, fax machine and PC to access each of these elements within SINGA.

By mastering the SINGA challenges children and young people become more resilient, more able to cope with their challenging conditions. As they talk together and work together, as puzzles are solved and individual collections grow, so too does their understanding – and in time – a sense of purpose and direction will emerge. The SINGA experience combines social constructivist pedagogy and a gaming approach to learning. Social constructivism emphasises the importance of culture and context in understanding what occurs in society and constructing knowledge based on this understanding.

### **3. INTRODUCTION TO ALTERNATE REALITY GAMES**

An ARG is an interactive narrative that uses the real world as a platform, often involving multiple media and game elements to tell a story that may be affected by participants’ ideas and actions [10]. To be part of the ARG a player needs to find themselves in the world of mystery and excitement, adventure and fantasy and the world where they are so immersive that they start confusing the lines where reality and fiction. The game is defined by intense player involvement with a story that takes place in real-time and evolves according to participants’ responses and characters. Players interact with characters in the game, solve plot-based challenges and puzzles and analyse the story and coordinate real-life and online activities. The ARG utilises several forms of media in order to pass clues to the players, who solve puzzles in order to win pieces of the story being played out. Clues can be passed through web

pages, e-mail, voice mail, snail mail, television, newspaper advertisements, movie posters, billboards, newspaper classifieds, bottle labels, radio spots, etc. ARGs are some form of game in that they are not an entirely passive experience, and that they use the world around us – telephone lines, websites, advertising boards, TV, flyers, billboards, movies, SMS, chat rooms, twitter and actors you can meet in real life to deliver the game. ARGs take the substance of everyday life and weave it into narratives that layer additional meaning, depth and interaction upon the real world [12].

The enabling condition to this is technology, with the Internet and modern cheap communications making such interactivity affordable. The basic recipe for an ARG is exposition + interaction + challenges [13]. An ARG consists of three elements: 1) an underlying narrative or story, 2) a series of challenges or puzzles, and 3) a collaborative community.

Many times the puzzles that must be solved cannot be solved alone. This genre of game almost requires participation in a group or community that works together to win, past the more difficult hurdles. ARGs are not only mediated by the web, but they also extend into the real world, with players travelling to physical places and interacting with game characters via e-mail, SMS, twitter and even old-fashioned telephones.

A “rabbit hole” marks the first website, contact or puzzle that starts off the ARG. ‘Rabbit holes are in the form of people, billboards, newspaper adverts, bottle/can labels, radio spots, etc. all ‘rabbit holes lead to information which leads to more challenges. Players enter the game through “rabbit holes” – sites or events that point the way into the game by suggesting that at a certain website or a certain physical location there is a curious matter to be investigated [14]. ARGs often have multiple entry points and participants researching an initial strange occurrence or peculiar posting may find an e-mail address or telephone number that draws players into interaction with the fictional world of the game and characters within it. ARGs leave clues for potential players to follow: a subtle image on a poster, a cryptic message on a website. Clues and puzzles can be anywhere – websites, libraries, stores, recorded telephone messages, TV programs, printed materials (e.g. novels, textbooks, etc).

Players put together story scraps and clues that lead them through a narrative. The essential components of an ARG are [11]:

- It should have a captivating story that extends beyond the product being marketed
- The game should reveal information slowly, using different outlets or mediums over an extended period. The narrative should be broken into smaller pieces so that not only do they need to be found but also deciphered into something intelligible. Different people or sources discover new information and forces them to work together as a collective to help the story progress.
- The ARG has to use multiple mediums and be accessible on different mediums (e.g. blogs, videos, print media, billboards, posters in shops, placards, phone calls, radio, e-mail, etc).
- The ARG should help blur the lines between reality and fiction
- The ARG should have interactivity

- A puzzle unlocks a new piece of information and helps progress a story. Therefore there should be a reward at the end
- The ARG shouldn't be difficult
- While ARGs generally use the Internet as a central binding medium, they are not played exclusively on a computer and usually do not require the use of special interface
- Instead of presenting a chronologically unified, coherent narrative, the designers scatter pieces of the story across the Internet and other media, allowing players to reassemble it, supply connective ware and determine what it meant
- The story is not bound to a single medium but exists independently and is uses whatever medium is available

#### 4. THE CURRENT SINGA ARCHITECTURE

The current SINGA platform is both digital and physical in the form of a SINGA website and a SINGA lab.

##### 4.1 The SINGA digital platform

The SINGA digital platform (Figure 1) consists of 4 main areas – My World, My Things, My People and My games. My World is the environment where a child can build a unique view of their life, and a map to other resources where they are in control and feel safe. My World is accessed either through a browser or using the cell phone's voice and text message capabilities. My People is an environment where a child can interact with people in the community, family, peers, make new friends and learn and support from other children. A key component of the My People element is the buddy list. The buddy list is the electronic address of all those people the child may wish to contact. Some addresses are provided by default, e.g., that of the nurse, teacher, doctor, etc. The friends are those people a child can choose to keep and interact with whenever possible. This is a resource formed during the individual's SINGA experience, intended to help build resilience. My Things is a safe place where a child can store digital objects such as their birth certificate, letters, photo album, cookbook, memory box, etc. My Things will be securely deposited in a trusted repository – a digital vault. Digitisation is possible through basic technology, such as faxing a document to "My Things", taking a digital photo with a cell phone and sending it to 'My Things' or keeping a blog or diary. My Games is an environment where a child can learn, play and explore and learn about life in a funny way through challenges. Members can access educational games to help them make decisions and teach them about issues of importance in a non-threatening way (such as health-related issues, financial matters and service information).

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**Figure 1: The SINGA digital platform**

SINGA is designed for delivery using access methods that include:

- MediaTiles based on SINGA IP broadcasts by cell-phone operators
- Digital Doorways, the 4-seater computer terminals, that supports wireless networks and is placed in community centres for free access
- Life stations, that include game consoles for situations beyond networks.

Examples of services that can be provided in further developing the SINGA environment include:

- Interactive real-time support via SMS-like chat clients
- SINGAPEDIA, which is local knowledge stored in a wikipedia-like environment
- Automated FAQs and checklists, e.g. cellphone downloads, SMS and chat clients

## **4.2 The SINGA lab**

The SINGA lab is arranged into four sets of activities – Mobile station, Paper station, Spaza Shop and the Digital Doorway.

**4.2.1 Paper station:** Through reading specially-designed stories, children learn that the power to solve problems lies in them, that they can confide in reliable individuals and that help is available from a number of sources and individuals. An example available in the SINGA lab is when the children sit on a “shongololo”, which depicts the character that they are about to read about. The ‘shongololo’ is a Zulu word for millipede. The story is about a disadvantaged Zulu girl, who has a wish to change things for her family through accessing the social service grants for herself, her grandmother and siblings, but does not know how to [3]. A character called “Lucky Bean” appears to tell the little girl about a place called SINGA where little children like her can have fun, make new friends, safely store their personal documents and get helping finding services. The little girl is introduced to the ‘shoe-shongololo’ (Figure 2) who provides her with shoes. At the suggestion of ‘shoe-shongololo’ these shoes can be fitted with wings so that with energy from her body she can fly away from danger. But to get the wings she has to complete a puzzle to earn that. This gives the little girl the confidence she can do things on her own. On her journey to obtain the social services she makes many friends.



**Figure 2: The "shoe shongololo"**

Children are given brochures to read through on various life skills. Board games are also available. By moving pieces on specially designed board they land on areas that are associated with particular questions. The sets of questions are associated with issues of health, HIV/AIDS, lack of emotional support, poverty, hunger, shame, fear, child labour, social and family problems, children's rights, etc.

SINGA challenges are:

- Free-standing and self-contained
- Address a short-term need
- Offer quick positive feedback and reward effort
- Ways to transfer skills
- Tools to build confidence and self-esteem

Examples of SINGA challenges include career guidance information, skills challenge, and food sack challenge and snap me challenge as explained below. Each of the challenges has got a reward at the end.

**a) Career guidance information:** Stickers are given away with purchases at the local spaza shop. Printed on the back of the stickers is a code that is associated with a particular career path. Children are encouraged to SMS the code and their home addresses to a given telephone number. They are in turn sent a sticker book containing information on a particular career depicted by the code

**b) Skills challenge:** The purpose of the challenge is to assist and encourage children in the acquisition of a skill that could bring them an income. Children can collect pamphlets from the shelves of supermarkets containing vouchers. These vouchers are redeemable at a local spaza shops for beads and colourful threads to produce traditional artefacts. The pamphlets also contain ideas of interesting styles and children are invited to submit photographs of artefacts they have created themselves. The artefacts are entered into a competition and children rewarded accordingly.

**c) Food sack challenge:** Food sacks that are distributed to the poor are a valuable source of communication. A mini publication on common diseases in Africa such as HIV, malaria, etc can be attached to the sack.

**d) Snap me challenge:** The challenge consists of an interesting story that can be broken down into several chapters. Each chapter is embedded into a 2D matrix code resembling a crossword puzzle. The 2D matrix codes can be printed onto posters or

any printable media for distribution. Children stumble upon these matrix codes take photos of the codes on mobile camera, send the code to a decoding server and receive feedback in the form of a text message. The feedback is a chapter of a story book.

**4.2.2 Digital Doorway station [6]:** The digital doorway (Figure 3) is a free-standing 4-seater computer terminal. It provides simultaneous access. The content is customised to a local community and includes educational programs, games, music. For the SINGA project it provides a web interface, through which children can receive messages from friends who are at the mobile station and send back messages to the mobile station.



**Figure 3: The digital doorway**

**4.2.3 Mobile station:** The children use mobile phones to send messages via the SINGA website to their friends on the Digital Doorway and also receive messages.

**4.2.4 Spaza station:** Two machines with a web interface are available at this station. These machines can receive messages from the mobile station or the Digital Doorway and can send messages to the same and exchange messages among themselves. The station also has a fax machine which receives mobile to fax or Digital Doorway to fax messages. The children can also download puzzles from this station.

## **5. SINGA AS AN ARG**

By looking at the features of SINGA currently, we can draw on its features that identify it as an ARG:

- The SINGA environment, just like any ARG centres on player involvement, and this is both in the lab and in interacting via the web site.
- The children solve challenges and puzzles jointly. Many times the puzzles must be solved by a group.
- The SINGA environment begins with a child discovering a 'rabbit hole'. All rabbit holes lead to information which leads to more challenges. For example, a child may discover a URL to the website on the health challenges available on the sweets packet they bought from the spaza shop.
- The SINGA environment identifies with the world around us. It is a simulation of the everyday world in an effort to impart the survival skills to the children. It blurs the vision between reality and fiction.
- The SINGA is a narrative with a captivating story of empowering the child through the various challenges.



- SINGA is a highly interactive game drawing children to perform challenges both in the digital and the physical. Each of the challenges has a reward at the end.
- Challenges and puzzles unlock a new piece of information that helps progress a story, in this case the empowerment of the children.
- The SINGA game is not played exclusively online but in the physical world as well.
- The three elements of an underlying narrative, challenges and a collaborative community exist in SINGA. The community aspect is very important to the child as that is what is missing in their lives usually. Collaborative participation in group activities gives them that sense of belonging.
- The SINGA clues and puzzles sit on the website and printed materials (e.g. brochures and books) in line with the fact that in ARGs they can be anywhere.
- The SINGA invites children into the world of subject matter, urging them to search and share information in the effort to solve a mystery. Such activity familiarises children with the tools of scholarly research as it promotes collaborative learning, problem-solving and experiential learning.
- SINGA is not bound to a single medium but uses a blended-media approach where any available medium including the web site, fax, digital doorway and computer are used.
- Games in SINGA evolve according to the participants' responses and characters. To proceed to the next level in a crossword puzzle for instance, the preceding clues should be resolved.
- The technologies in use are appropriate to the environment in which the children reside.
- There are multiple entry points to the SINGA environment.

However, the game is in its infancy, hence currently it doesn't incorporate the whole range of media available, such as e-mail, television, chat-rooms, etc. More often, the Internet is given as the backbone to an ARG for interactivity in order to coordinate the sheer amount of data, speculation and solutions. However, an ARG can exist without the Internet. ARGs are not computer or video games, although electronic devices including computers, cell phones, GPS-enabled devices are used to access clues, as in SINGA.

## 6. CONCLUSION

This research recognises the importance of using specilly designed games such as Singa as a tools to influence and inculcate a new attitude of "can do it by myself for myself" culture among young people and therefore adopts it in the design of SINGA.

The SINGA environment imparts survival skills while developing resilience to vulnerable youths through its design as an alternate reality game. Effectively, the SINGA environment is expected to motivate the children into being independent when seeking service delivery, understand their environment in depth, and actively participate in the game to solve problems and challenges which they are likely to meet in real-life situations, learn through their actions and work in conjunction with others

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## 7. ACKNOWLEDGEMENTS

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