

Designing a Story-Based Platform for HIV and AIDS Counseling with Tanzanian Children

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ABSTRACT

Our research was conducted within a larger HIV and AIDS counseling project in the southern part of Tanzania. We spent six months creating a pilot version of an interactive digital platform that would allow learners to share their experiences with the disease. The platform, called Sura ya UKIMWI (The Face of AIDS), was designed by a team consisting of secondary school children, university counseling students, HIV counseling experts and experts in ICT. We took the case study approach and report on observations and experiences with the participatory design (PD) process and its outcomes, in this specific context. The results of the project indicate that the technology created under the PD paradigm helps students to easily compose their own stories thereby supporting their understanding and reflection on how these stories relate to their own life experiences. Interacting with the stories was entertaining to the students and they could identify the lessons to be learned. The approach can be an alternative to past attempts that mostly imported technology for HIV and AIDS education. Our experience can be used as a guide in establishing similar digital projects in other parts of the HIV and AIDS affected world.

Categories and Subject Descriptors

H.5.2 [Information Interfaces & Presentation]: User Interfaces -

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User-centered design; K.4.2 [Computing Milieux]: Social Issues

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Design; Human Factors.

Keywords

HIV and AIDS education, interactive stories, ICT for development, participatory design

1. INTRODUCTION

User-centered design, a standardized development process [8], is a set of practices and methods that are claimed to bring about several desired features and characteristics to the target platform. The predominant concern is that the interactive products are usable [12]. It is also accepted that in order to create a usable platform its users need to be at least considered, or at best be directly involved in the design process. It is, however, difficult to design platforms that address the actual needs of the users [1]. This is especially true in a cross-cultural ICT development in which the understanding of the users and their real needs and motivations are only some of the main challenges of the design process. In ICT development projects, active involvement of the users in the design of a platform as advocated by the Participatory Design framework is often a task on its own rather than a presupposition.

Consequently, we conducted a project in Tanzanian context to create an interactive digital story-sharing platform. The purpose of the intervention was achieving a behavioral change and eliminating risk behavior amongst youth. We embraced a version of the participatory design approach, and involved Tanzanian students as the co-designers of the applications.

Most of the existing efforts to fight HIV and AIDS with ICT are based on imported design or using ready-made digital materials. Contrary to the conventional approach, in this project the children from the target group were actively involved from initiation up to

the end of the design process. Their stories, ideas and contributions were considered essential for the success of the whole project. The inclusion of the target group in the design process helped in developing contextually, culturally and socially relevant material. While the project is still active, we report on the progress of the design, its cornerstones, eventual issues appearing during the course of the development, and our actions in addressing these issues as we move forward.

The main contribution of this paper is the analysis of the participatory design process of the platform and identification of the potential of ICT tools and the related design process in HIV and AIDS education. The analysis makes use of the documentation of the design process: interviews, diaries, artifacts.

2.BACKGROUND AND MOTIVATION

“Empowering Education Processing Diaconia” (EPPD) is one of Tumaini University Iringa University College’s outreach projects. It is connected to the Department of Counseling within the Faculty of Theology and its overall aims are to improve and support the counseling program and its curriculum. The Bachelor of Counseling is a degree program which educates professionals to serve Tanzanian society in a variety of sectors such as: schools, hospitals, prisons, HIV clinics, counseling centers. The program is the only one of its kind in Tanzania, and the first students graduated from this program in 2008. (www.tumaini.ac.tz).

The demand for counseling professionals is rising all the time. Urbanization, growing numbers of aids-orphans and street children, growing drug abuse, alcoholism, domestic violence and rapes are problems that have a major impact on people’s lives, both on a personal level and on the general development of the society.

Pandemic spread of HIV and AIDS is also an issue that cannot be overlooked. The Tanzanian government together with various non-governmental and faith-based organizations have recognized the problem, and countless HIV and AIDS prevention programs, campaigns and projects have taken place. Billions of dollars have been poured into the continent to tackle this modern plague [4]. However, the general outcome has been rather modest, and Sub-Saharan Africa remains the most seriously affected region, with AIDS being the leading cause of death in the region[7].

One of the reasons for the failure is that most of the campaigns have been solely based on a Western approach to the problem. It becomes clear that a thorough, genuine understanding of local cultures, thinking, practices, taboos, beliefs, values and social structures was missing in most of the cases. Also, HIV and AIDS has too often been approached as a medical condition only, when its spread is linked to a very complicated social setting and cannot be fully understood without paying close attention to that [4]. When training the counseling students in HIV and AIDS issues, as well as in other areas of their future profession, contextualization and cultural sensitivity are a self-evident basis for education. This is a challenge especially when counseling models, theories and such mostly originate from the West, and are based on Western worldviews and philosophies. They must at times undergo a rather profound adaptation, even transformation, to fit into the reality people live in, in Tanzania.

In order to create and maintain connections between theory and practice – in other words, university and society – EPPD consists

of three areas of operation: education, research and social work. These three areas cover the following activities: marriage counseling and seminars, specialized training of hospital counselors, supporting AIDS orphans education, granting micro credits for people living with HIV and AIDS, supporting a hospital HIV clinic, home based care for the critically ill, and developing school counseling methods. When something is done in field-work, the lessons learned are brought into training, and vice versa; newly acquired knowledge is put into practice.

This has also been the case with the school counseling project, which among other activities included developing a digital platform as a teaching and learning tool for secondary schools’ use. When HIV and AIDS is a topic, sexuality issues must be discussed. However, this is the area that is regulated by cultural issues, taboos, shame, secrets and power relations. One of the taboos is that parents must not discuss sex with their children. In the Tanzanian context, doing so is a shameful thing, and can be seen as an indirect encouragement for the youth to start experimenting with it. Traditionally, issues related to reproductive health were taught by elder relatives at a certain age. When extended family relations have broken down and traditional, informal education has stepped aside as a result of urbanization and modernization, teenagers are often left in a vacuum when parents do not see sex education as appropriate. On the other hand, young people gather pieces of information – often exaggerated, false and even harmful – from sources such as the Internet, other media and gossip which they cannot assess critically [10]. HIV and AIDS has created a situation where health and lives of millions of young people are in danger, but social barriers are hindering education which the youth should have access to.

The key reason for developing a digital platform is that it may offer an anonymous way to deal with questions such as rape, violence, unfaithfulness, abuse etc – all issues that too many school children are already familiar with. Besides offering information, “Sura ya UKIMWI” aims at providing a platform where school children can find stories that they can identify with and as a result can relate to. Since Tanzanian culture is predominantly a story-telling and role-playing culture, “Sura ya UKIMWI” purposefully utilizes these strengths in its educational model. Through seeing and hearing a story, the students are able to imagine themselves in it, thereby enabling them to reflect on the situation and solutions provided through a “third party”. The educators can therefore use “Sura ya UKIMWI” to stimulate further discussion and to encourage sharing of experiences thereby finding solutions to difficult, deeply personal situations.

Two existing platforms became important sources of inspiration:

1. UHAMBO LUKA TEMBA, developed at Meraka institute, SA, for the digital doorway [11]. It is a game about a young man moving from a rural area in South Africa and moving to the big city where he encounters many challenges and have to make difficult choices along the way. The platform is developed in Flash in the form of a cartoon.
2. A Swahili game called UNGEFANYAJE (meaning “What would you do?”) that deals with relationships of four teenagers where the user can make decisions around love and friendship that will determine what will

happen to the characters in the game. The platform does not take the context into account and appears to be localized only for use in Swahili. This online game platform was also developed using Flash. [13]

The inspiration of these platforms lie in the fact that they were both developed for youth from an African perspective and focused on the importance of choices in various scenario's in a young person's life.

To summarize, earlier interventions for combating HIV and AIDS have not paid sufficient attention to engaging young people in a culturally relevant way. Therefore, allocating a more active role to schoolchildren has been a focal point of the current project illustrating an obvious need for a truly participatory design in terms of the technology and the necessity of including the children in the project from the beginning of the design process.

3.CONTEXT

In Tanzania, the HIV and AIDS prevalence is estimated at 6.2% in the country and more than 13% in the region of Iringa where the research project is being conducted. Young people are especially vulnerable and 65% of the population is below the age of 25 years. Women aged 15-19 contribute 12% of the total fertility in the region. It has long been documented that young people become sexually active at an early age. It has been shown that the medium age of the first sexual encounter for women is less than 17 years and 18 years among men. Although the HIV and AIDS awareness is high, there is no corresponding behavioral change towards safer sex practices. For example, only 16% of women and 37% of men have indicated that they have used a condom and this was mostly for pregnancy prevention purposes rather than for HIV prevention [5]. This shows the need for intervention at secondary school level during a phase where students are the most vulnerable and susceptible.

The majority of the secondary schools, especially in rural areas, do not have computer labs available to the students [6]. However, the situation is slowly changing and in and around the town of Iringa many of the schools have at least a few computers available for student use. A few organizations have installed computer labs at secondary schools in the region. The government has also invested in IT training for teachers as well as equipping higher education institutions with computer facilities. The plan is to equip more secondary schools within the coming years and to also make provision for internet connection. However currently, most of the schools that have computer facilities do not have Internet connection.

Given the circumstances, there were several goals and objectives before the development of the platform started. The main general-societal objectives of the "Sura ya UKIMWI" project were:

1. To make youth consider their behavior;
2. Suggest a lifestyle that eliminates risk behaviors.
3. Prevent new infections to take place;
4. Reduce the stigma attached to the disease; and
5. Bring hope to those infected;

The platform and its design scheme were specifically targeted at secondary school students in Tanzania and especially in the Iringa

region. The design of the platform itself was to attract and interest young people in a way that they would be able to reflect upon their own life and the choices they make. The intent of the platform was to be a useful tool for HIV and AIDS counselors working in secondary schools as well as being a support system for counseling students at Tumaini University during their counseling training in secondary schools. Many of the secondary schools in the country and in the region are boarding schools having students from all over the country, material should therefore not only be relevant within the context of Iringa but in the whole country.

Another design regard was the language of the intended platform. Tanzania has more than 120 ethnic groups and each ethnic group has its own language which is usually regarded as the first language. At primary school the educational language is Swahili which is also the most spoken language in Tanzania and therefore also the most suitable language for the platform. Although English is the educational language at secondary school level, it is not commonly spoken outside the classroom and generally secondary school students are much more confident in Swahili than in English. Our experience has shown that designing the material in Swahili ensures that it is easily understood by the target group. However, since the main designer is not fluent in Swahili, the platform required further language support during the development.

4.THE DESIGN PROCESS

The team involved in the design process of the Sura ya UKIMWI platform was formed by participants coming from different backgrounds, skills and experience:

1. IT designer, with experience in computer science and educational technology, the first author of this paper.
2. Project manager, with experience in HIV and AIDS counseling and theology, a co-author of this paper
3. HIV and AIDS counseling expert – University lecturer in counseling

Additionally, several other participants have got involved to assist with:

- Design of graphics;
- Swahili and English translation and control;
- Flash drawings and Flash design;
- Cultural and language; and
- Voices and Sounds

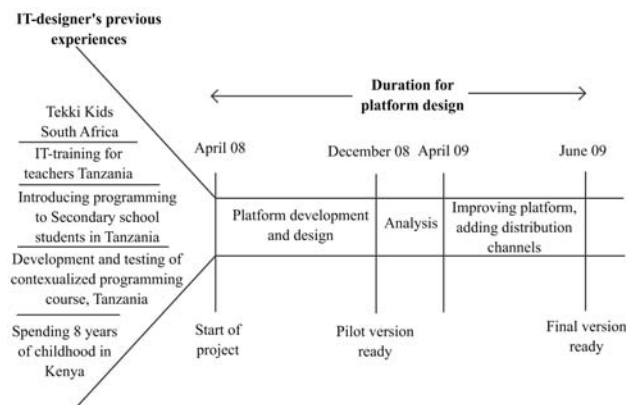


Figure 1. Duration of the platform design project

A total of eight months was allocated for the IT designer to develop and design the platform, six months during 2008 for the development of a pilot version and two additional months during 2009 for the completion of the final version (Figure 1). Ideas from the designer's previous experience were incorporated into the project. This included the work with technology clubs “Tekki Kids” in South Africa [9] and teaching computer programming to secondary school students in Tanzania which resulted in the development of a web page for HIV and AIDS information [3].

Through gathered contextual information, prior experience and inspired by related platforms we decided to use Flash as the development platform.

At the beginning a project plan was put in place for the design and development of the platform. The initial steps included identifying schools, followed by interviewing students, creating material, starting multimedia clubs at schools for developing material, develop the software and then finally: design the platform, test the platform, distribute the pilot version of the platform, evaluate and gather feedback, re-design and finally distribute the final version. The project is ongoing and we are now in the evaluation phase (Figure 2).

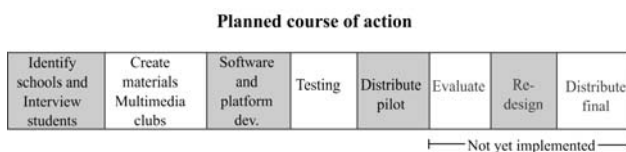


Figure 2. Planned course of action

In the following, we describe each of the implemented phases of the project:

4.1 Student interviews

Before the implementation, we conducted a set of interviews with secondary school students. The main designer was responsible for the interviews and here is a quote from his experiences: *“Once we started working for this project the first thing to do was to talk to students realizing that their ideas and contributions would be crucial for the success of the project. A local and very experienced person in dealing with HIV and AIDS information*

among youth joined the IT designer to four different secondary schools in Iringa. The main objective of the interviews was to find out how students in Tanzania are affected by HIV and AIDS in one way or another. After explaining to students the objectives and having some general discussions around HIV and AIDS students were encouraged to share their own stories if they had any. To our big surprise every student had a story to tell as everyone knew someone living with HIV or who had died from AIDS. Due to the local expert's ability to gain the students' trust they were happy to share their stories understanding that other people might come to learn something from the stories told. These discussions were held in groups of 6-16 students with the blessing of school principals. Teachers and other staff were asked not to attend in order for students to feel comfortable sharing personal experiences. Recording equipment was not used for the same reason. The students didn't even have to give their real names. After a student had shared his/her story there was a discussion around what could be learnt from the story told. Afterwards the students were asked to write down their stories for collection a couple of days later.”

The majority of the students, approximately 80%, submitted a written version of their story. In total 37 stories were collected. Through the discussions and by reading through the stories it was decided to make use of the students' stories as they reflect how students in Tanzania are affected by HIV and AIDS and contain important lessons to be learnt. Also the fact that it was being built upon true real life stories would give the material credibility.

There were some challenges experienced during the initial phase of the project. It was important to gain the trust of the students in order for them to open up, share their challenges, questions and expose their personal experiences. The recruitment of the participants was made by staff at the respective schools. The ability of the students to speak and express themselves in English formed the main selection criteria and therefore mostly the top performing students were selected. Interviews were conducted at both governmental and non-governmental schools. Permission needed to be granted from the regional commissioner first before any interviews could be conducted with students at governmental schools. It took several visits to some of the schools before an appointment with the principal could be secured in order to arrange for a group of students to be organized.

4.2 Multimedia clubs in schools

So called “Multimedia clubs” were started at two additional schools, both having computer labs available to the students. The idea was to have students actively participating in developing graphics and other multimedia to present the stories collected and in some cases even include their own stories. The two schools were asked to select a group of 10 artistically talented students. The first task the students were given was to tell their own HIV story in the form of making drawings on paper (Figure 3) and then explain their picture to the rest of the group. It was evident from the uncertainty the students expressed at one of the schools that they had only limited prior experience in making drawings and so required more assistance in this regard.



Figure 3. Paper drawing made by one of the students

After having started making drawings on paper, the students were introduced to Paint, a simple drawing program that comes with most of MS Windows installations.

We had to face several challenges in this phase. For example, many of the students had never used a computer before and needed instruction on how to switch a computer on and off and how to use the mouse. Making digital drawings without prior experience in using the mouse posed a big hurdle to most of the students (Figure 4) who were not really able to overcome this challenge such that their pictures were not suited for use in the platform.

We tested another approach: to first draw pictures on paper and then scan them. In this way students could make their digital drawings on top of the scanned images which resulted in more attractive pictures better suited to the platform. Flash was installed on two laptops used in the project, allowing students to create vector graphics that could more easily be used for the platform. This resulted in smaller sized data files which made it easier to modify and use the graphics for animations.

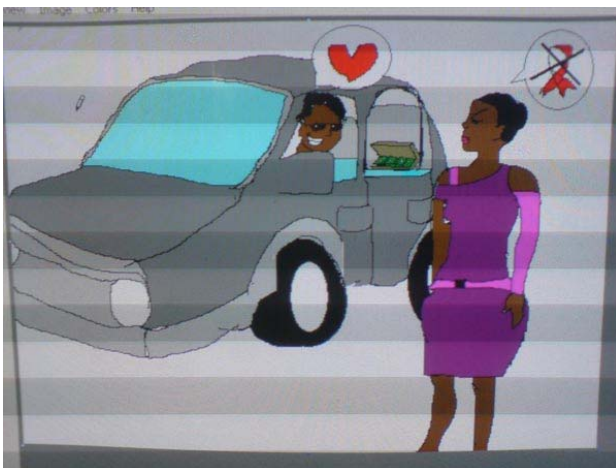


Figure 4. Digital drawing made by one of the students

There were several issues impacting this phase of the development. After six multimedia club sessions, schools closed, because the semester ended. However, at this point there was still limited useful digital material available for the HIV and AIDS

counseling platform. One of the boarding schools agreed to make their students available for the project during the holidays, but the school ran out of funds and all the students were sent home.

4.3 Locating talents for creation of more materials

In order to keep the project going while schools were closed, young talent was sourced by the development team to create the drawings. There were two especially talented secondary school students who got involved in telling the stories through drawings on paper.

One of them was taught how to transfer the scanned drawings to vector graphics in Flash by drawing on top of a scanned image. The job of transferring drawings into a digital format was found to be time consuming and therefore an additional resource was required. Another student was asked to be involved for a few weeks, and after the necessary training, managed to make the remaining digital drawings.

Once a number of stories were created, a drama group working with HIV and AIDS information in schools and villages were consulted and volunteered to record voices (Figure 5) for the characters in the stories. It was decided to use the language of the youth with slang and expressions that can amuse and attract the youth.



Figure 5. Drama group recording voices

4.4 Platform development

The next phase of the development could start after the first materials were collected and digitized.

The development of the platform commenced by adding animations to the images transferred into vector graphics created in Flash. Buttons were added to navigate forward and backwards in the story by clicking on the appropriate arrows.

The first story developed was a combination of several stories collected from different students in various secondary schools, and it was the story about Mina. The story line branches at two occasions depending on the user's choice – meaning that Mina's life could take different directions in the story depending on the selection. This was to emphasize the importance of choices one makes in life. The intention was for all the stories to follow a similar pattern of choice selection, but due to time constraints this

was not feasible and therefore the other four stories in the platform follow a single path storyline

Example story: *Mwanalisa is a young primary school student, doing well in school. She starts to hang out with older guys and that takes up most of her time. Her performance in school starts to drop. The teachers are giving her a hard time and she decides to leave school and try to get a job. Finding a job without an education becomes a difficult task but eventually she finds a job in the city as a house maid. After some time the father in the house takes advantage of her by promising her gifts and a higher salary. One day the wife comes home only to find them in bed. She chases Mwanalisa away, upset by the act and the risk that her husband, who she knew was infected with HIV, might have spread the virus to Mwanalisa. Back on the streets Mwanalisa struggles to survive and even starts to sell her body. Eventually she moves back to her parents' home where she soon starts to experience health problems. It is found that Mwanalisa is suffering from HIV that she contracted from the father of the house where she worked as a maid. Tragically Mwanalisa dies a few years later and the village questions how this could happen to, the young and sweet Mwanalisa.*

The design of the user interface was initiated once the stories started taking shape. A 'START' page was designed with images of the main characters. The user can therefore choose the story they wish to view by clicking on the appropriate character. Eventually a side menu was added for the additional information as well as a banner at the bottom showing the name of the project and that it is built upon true stories. The appearance of the 'START' page was made to put the main focus on the characters in the stories. Clickable images of the characters were chosen to spark the curiosity and give a hint of what the story is about. Each image in the story has Swahili voices for the characters as well as Swahili text at the bottom of the image that switches to English if roll over with the mouse. Speech bubbles were also introduced to a few of the stories in order to make it easier to follow the stories if the user did not have speakers or to assist the hearing-impaired audiences. The information flow still needs to be improved as simultaneous text, speech bubbles and voice-over may be confusing to the user.

The side menu was made visible at all times so that whenever a question arises for the user, he/she could explore the additional material and thereafter resume the story.

The images developed to visualize the stories are saved in separate files to make provision for online viewing where the whole platform is not loaded at once, rather one image at a time. This is especially important when a user has a low bandwidth as is the case usually in Tanzania.

The counseling students, as part of their training program at Tumaini University, were given the task of developing additional material for the content pages on the topics of transmission, prevention, treatment, sexual abuse, counseling, statistics, stigma and relationships. Finally, links to further informational sources were also added.

4.5 Testing of the platform

Counseling students were assigned to test the platform (Figure 6) after their additional material had been added. The platform was tested in four secondary schools and at one orphanage for

teenagers. During these tests the material was projected on a wall as illustrated in the figure (Figure 6) below, with the whole class present. The size of the groups in the test sessions varied from 16 up to 70 students.

The aim of the testing was to analyze:

1. How the material would be received by the students; and
2. How the material could be useful for HIV and AIDS counselors/educators.

To address the first question, during the testing of these stories it was observed through various bouts of laughter and a few teary-eyed members of the audience that the stories are both entertaining and engaging. What generated most of the laughters from the audience was funny animations or audio comments. Sad reactions was noticed when one of character choose to take her life. The students were at all time paying attention to the stories presented and seemed curious on how the story would evolve.



Figure 6. Testing the platform in a school

When the material was tested at the orphanage with children aged 8-19, they were exposed to two of the stories by the Tumaini counseling students followed by discussions around general HIV and AIDS information. One child aged 8 was asked if he could tell what the first story was about approximately 30 min after the story had been shown. The child could explain what the story was about and correctly answered questions related to the story. One of the older participants in the session was also asked if he could tell what the story was about, which he could, and managed to described in detail the whole story as well as reflected on lessons that could be learnt from the story.

This experience showed that the stories are easy to follow, understandable and that the students are able to relate to it and reflect on it. It also gave indications that the material might be useful to a younger audience possibly still in primary school. Finally, the stories managed to capture the attention of the children and they could follow the story line without any problems.

To answer the second question, an evaluation showed that the platform could be a beneficial tool for HIV and AIDS educators or counselors as it generated many questions and led to

meaningful discussions around HIV and AIDS related topics. The material leaves some questions unanswered, and without HIV and AIDS educators or counselors additional support material is needed to address these. Usability of the platform was observed during the presentations but further usability studies with students is needed and will be conducted in the next phase of the project.

“Sura ya UKIMWI” -meaning “The face of AIDS”- is the name of the platform, at this stage, after collecting suggestions from the secondary school learners, counseling students and other volunteer testers.

4.6 Distribute pilot

After testing the material and gathering feedback, minor changes and improvements were made before distributing the pilot version to schools, counseling students and HIV and AIDS organizations. The material was distributed on a CD and recipients were asked to spread the material and contribute by giving feedback on how to improve the material. The platform was made available also on the Internet [2] and can be seen as an online appendix to this paper.

4.7 Revising the design process

Along the design process we observed that in some cases we needed to react to unexpected actions or interventions to stimulate the process. This changed the assumed design process and added several branches, and resulted in a flow shown in Figure 7. For instance, the importance of gaining the students’ trust was observed during the process. This means that in order to create a successful application, we needed to gain children’s trust.

were talking about. During the meetings with the students at least 30 minutes was used to just explain the objectives and to gain their trust.

Students were asked to share their own stories of people in their surroundings that are or were infected by HIV and AIDS. It was observed that every student had a story to tell as they all knew someone infected or who had died from AIDS. The stories were very touching. There seemed to be an individual need for telling the stories, with a motivation that other people could learn from the stories. After telling their story inquiries were made on what they had learned from the story. It was evident that each story contained a lesson that could be learned.

The original idea of making use of fragments of student stories and to build up a storyline was changed to make use of the stories as whole. Many of the stories had contained a high educational value and it would personalize and give credibility to build the material upon the true real life stories.

Design decisions were taken by the main designer and the project manager after consulting with various stakeholders including students. Ideally students and teachers would have been more involved in the decision making but due to logistical and technical reasons they were only partly involved.

The idea of multimedia clubs that would develop pictures and digital media for the platform did not work out as expected. It was difficult to arrange a suitable schedule with the schools without interfering with their other scheduled activities. The contact hours with the students in the multimedia clubs were reduced for a number of reasons. For example, finding the person with the key

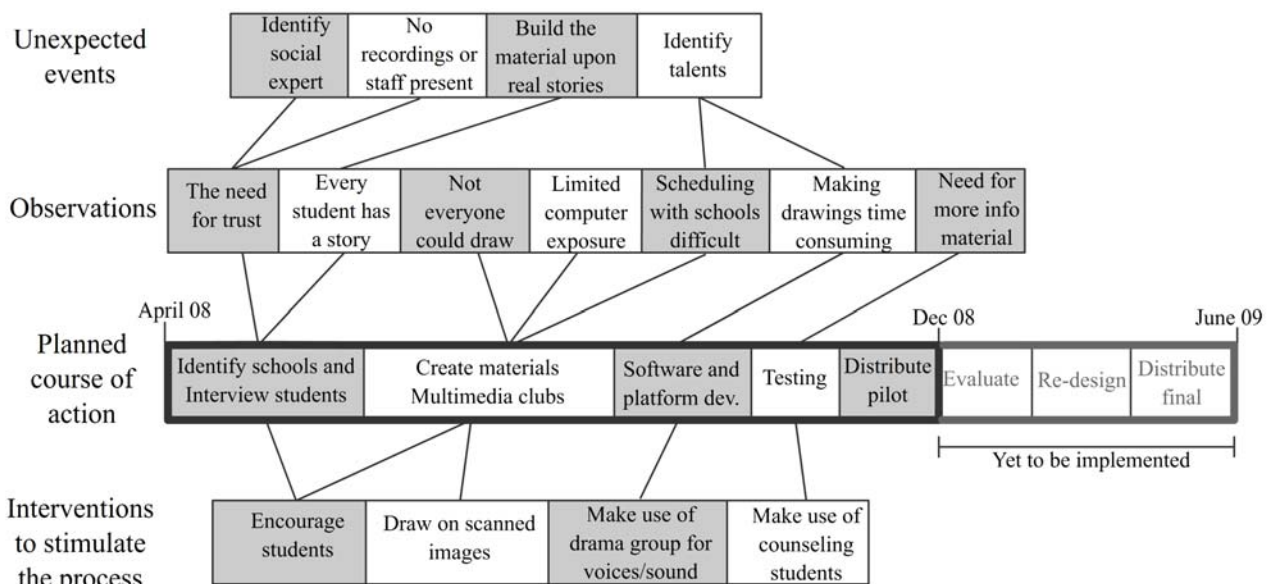


Figure 7. Actual design flow with branches

Students had to be open towards sharing their experiences around HIV and AIDS, which is a topic that carries a lot of stigma and taboo. To gain the necessary trust a local social expert was included in the interviews/discussions. To avoid students from feeling uncomfortable in sharing their experiences, no recording equipment was used, no teachers were allowed to be present and students could use nicknames for themselves and people they

to the lab took time, students were unexpectedly sent home when the school ran out of funds, or sessions collided with other events as important as a football game or a minister visiting the school.

Making attractive digital or paper drawings with limited previous experience was a challenge. We developed a way of drawing on

top of scanned images and it resulted in better quality drawings, however, it was a time consuming task.

When the work with the multimedia clubs did not work out as expected, the need for identifying local talents who could as well assist in developing graphics for the platform raised.

To make the material come alive a drama group was asked to participate in the recording of voices for the various characters of the stories. Once the stories were uploaded to the platform, it was realized that it would need further supporting information which could be developed by the counseling students at Tumaini University.

The counseling students were consulted and agreed that as a part of their training they will develop additional material as well as test the platform in secondary schools. During their tests the following observations were made:

- Stories were easily understood by the students;
- Students could relate to the material;
- Stories were captivating;
- Stories stimulated students to ask questions; and
- Stories were both entertaining and engaging.

4.8 The “Sura ya UKIMWI” platform

The current version of Sura ya UKIMWI [2] includes five different stories for the user to view. One of the stories branches into different directions depending on the users' choices in various situations. The user can select from a set of options how the main character of the story acts. Other four stories follow a single path storyline and the user can only move forward and backward throughout the story. The stories with a single path storyline are entirely based on one of the stories collected from a secondary school student in Iringa while the branching is a combination of a number of stories. To choose which story to view the user can click on the images showing a drawing of the main character in the story (Figure 8).

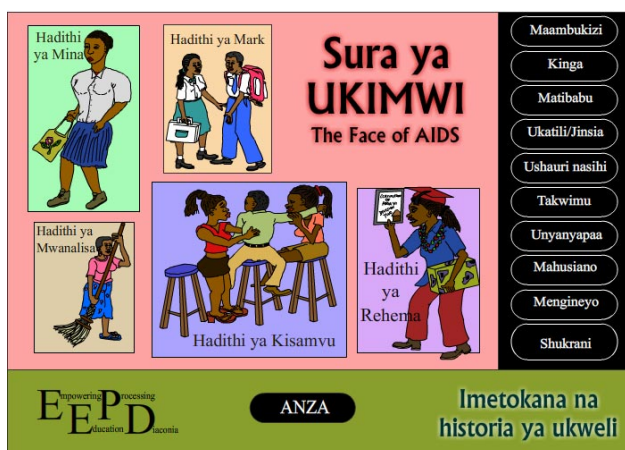


Figure 8: A snapshot of Sura ya UKIMWI environment

5. DISCUSSION AND CONCLUSIONS

The key finding of the project shows that the participatory design process is more important than the production of the material itself. We faced several unexpected events and situations that changed the planned course of actions. While these are not entirely novel findings, we believe that our experiences with adopting user-centered design approaches with children in a developing context are valuable and perhaps rather rudimentary when compared to designing interactive systems in developed Western world.

This study shows how the PD approach is suitable for the development of educational material, this however indicates that sensitivity to the context and change is of particular importance. Our experience shows that the design team needs to be observant of unexpected events throughout the process and in turn needs to utilize them in a constructive and innovative way. We achieved this by carefully listening to various stakeholders involved in the process. As an example, the importance of interactive story branching was adopted and resulted in not just an entertaining feature of the stories, but turned out to be an inherent element emphasizing the essential decision making stages of an individual required for – ultimately – one's survival.

A software design process in a Tanzanian context compels one to be innovative and make use of available resources when predefined objectives and ideas do not work out according to plan. Unexpected events can occur in any context, but they are especially challenging in a developing country. Numerous unpredictable factors may interfere dramatically with the initial layout of the plan in general, and when entering as an outsider from a very different context in particular. Factors such as cultural aspects, poor infrastructure, corruption and power relations, might delay the project indefinitely and force the designers to out-of-the-box thinking to come up with solutions to maintain the process. The transfer of HIV and AIDS educational material from the Western world is often met with suspicion, because of the concern of hidden agendas or generally that the content is not considered relevant in the local context¹. All of this perpetuates scepticism in the Western world developed material, thereby lowering its credibility even further.

To achieve the behavioral change amongst the youth, the project requires the students to be able to identify with the material in order to be able to reflect on how they and the society around them are affected by HIV and AIDS. Therefore the use of true real life stories by Tanzanian secondary school students for this platform gives the material credibility and provides the target group with a sense of ownership. The material was not generated in a foreign context and so the students can identify with and recognize their own environment in the stories, the graphics and the voices. The participatory process of creating the platform then further increases the ownership, strengthens the user experience and, hopefully, the desired behavioral change.

Since Internet and even computers are not yet freely available in most Tanzanian schools, alternative means of delivery are also considered. This includes developing material that can be

¹ There are many conspiracy theories as to the origin of the virus, the campaigning against it and the use of condoms in preventing in the prevention of it.

accessed offline or even viewed without a computer. The pilot version of the platform developed specifically for the Tanzanian context has been made available on both CD and on the Internet. In the next phase, it is envisaged that the stories and material will also be made available in a book format - even without the dimension of interactivity and the use of animations. We are also looking into the option of making a mobile phone and video version of the material to reach as many students as possible.

In the next phase of the project we plan to conduct usability tests in order to improve the user-friendliness and verify the hypotheses presented above. Emphasis will be placed on adding more animations and interactivity to the stories. The additional material will be evaluated with students and improvements made as required.

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