PARTY
PARTICIPATORY DEVELOPMENT WITH THE YOUTH

D2.2 NEW INNOVATIVE TECHNOLOGICAL SOLUTIONS AND CONCEPTS CREATED AND DISSEMINATED

WP2: Building service design concept with the youth /co-design workshops with the youth, researches, institutions and companies

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1.Introduction

This deliverable is focusing on creating new innovative technological solutions and concepts that can respond to the needs of the San youth with the San youth and their stakeholders. Proposed concepts and solutions are based on technologies that are available and accessible in the San communities. As an outcome of the deliverable PARTY community based service design model for appropriate technologies is designed.

In the most remote communities there are still challenges in the network coverage, accessibility to the smart devices and cost of using the network. This deliverable is trying to seek for solutions that could be implemented as well as developing tools and methods that encourage the youth to participate in the design and implementation process of the deliverables. Blake, Glaser and Freudenthal (2014) discuss learning from teaching design for development in computer sciences and what it takes for ICT to have a role in poverty alleviation. Community-based co-design (CBCD) is discussed as a strategy to increase the success and impact of They list learnings for this:

1. Designers and community members should have equal standing in the project;
2. There is need to bridge cultural differences through discussions;
3. Respecting fieldwork is valuable;
4. It is important to communicate and trying to overcome gaps in the communication; and
5. Designers need to be able to endure uncertainty.

PARTY project has been using service design process as a way to contribute to the innovation development. In the case of developing new concepts with the youth it has enabled tools and methods for both including the youth in the process as well as offering the toys to be used in the design process. When developing the quality of services the customer focus and meanings created during the service experience are identified as key development elements (Rintamäki et al. 2007). In PARTY case the key development elements resonate well with the needs that the youth have. Service design methods offer tools for both the analysis -based perspective to understand the users motivations and emotions and the participatory development and co-design process.Service design methods offer tools for both the analysis -based perspective to understand the users motivations and emotions and the participatory development and co-design process. Service design approach can create appropriate solutions that support positive emotional reactions and guide the positive feelings throughout the service situation (Miettinen 2011, Miettinen & Koivisto 2009, Miettinen & Valtonen 2012, Stickdorn & Schneider 2010, Tassi 2009). In the case of San youth the appropriateness is in the main role. technological solutions need to be accessible and easy to use for the San youth.

Service simulations, workshop and prototyping sessions help in decision-making process in variety of ways. They help stakeholders to discuss and collaborate in service delivery and implementation. It is possible to create a prototype with only few resources to guide the design process. Prototypes and simulations are used as personalised emotional samples, which reveal the customer's positive emotional reactions and enable decision maker's early engagement to the process through one's own experience. (Miettinen, Rontti & Jeminen 2014)

1.1. Ethical considerations towards developing technologies with communities

As in PARTY project the majority of actors are designers it is good to consider ethics also from designer's point of view. In the area of design research Findeli (2001) has studied ethical principles for design, concluding the following: 1) In order to be able to define professional responsibility (i.e., not only competence), a discussion on the purpose of design is necessary. 2) Priority should be given to the reform of design education. 3) There can be no responsible

design without a responsible designer, i.e. education should be directed to the development of an individualistic ethics.

Research agenda for ethics in engineering design process have been explored in design of products and services has reported four conflicting discourses: humanist, modernist, political economy and change management (Friedman and Kahn 2003). Therefore, this suggests a humanist perspective (i.e., emphasising ethical behaviour and empathy) would explicitly support vulnerable users. In the case of PARTY project we have identified the San youth as vulnerable user group. Mulvenna et. al (2017) discuss about ethical principles being often enshrined in law or organizational statutes, and compliance is required. While most will agree that technologies should ethically designed to positively support the people using them, it is often not clear how to go about ensuring this is accomplished. Design to support the people who will be using the product or service by engendering empathy for users. Further they present nn ethical by design manifesto that suggests selection of ethical principles considered when designing products or services:

- Provide enough information for people to make informed decisions at every stage about whether, when, and how to use the product or service.
- Respect people's right to choose how they engage with the product or service; offer alternatives or customisation.
- Balance appropriate privacy and security with equitable access by as many systems and people as possible, globally.
- Seek to integrate with and support the progression of policy.
- Actively look for and challenge biases and values that may be reflected in a product or service design.
- Complement differing needs, abilities, viewpoints and morals.
- Support shared decision making and feedback. Aim for economically, environmentally, and socially sustainable designs.
- Integrate planning for how to handle failure, including transparency and reporting.
- Be realistic about what is possible and needed.
- Support the product or service throughout its lifespan.

Akimenko et. al (2017) present a technology tool as a platform for exploring data from an art-based research project for geographically marginalised communities. The perspectives of the research participants on their identity processes and art making inspired the pursuit of a HCI-based (Human Computer Interaction-based) technological platform for the purpose of giving life to the collected data and art outcomes. In PARTY project many of the proposed themes use art-based research for collecting data as well as create art outcomes. It is important to have ethical considerations also when using art-based methods when doing the design work with San youth and their communities.

1.2. Developing technology based solution for renewable energy

One of the big challenges in technology development in rural and remote Africa is the access to technology. One solution to the lack of energy or access to energy sources is access to renewable energies. For example in Namibia the solar power systems can provide a plenty of energy to remote places where there is no solid power grid. These systems are nevertheless not widely implemented and it's a challenge to have the resources and knowhow to use the already existing solutions for renewable energy. There are however affordable light solutions for a household scale, or for a smaller use for example just to have power enough for smartphones and lights for reading and making school works.

There are also off grid electricity solutions that can offer energy for remote communities. For example, the Tsumkwe Solar Energy project is one example. The project is Namibia's largest off-grid settlement and home to the San community. The closest electricity grid access point

is 300 kilometers away. The settlement is not scheduled for grid electrification within the next 20 years. The objective of the project was to facilitate the supply of electricity through a solar-diesel hybrid energy source. Today this renewable project provides electricity for about 700 residents. Whereas capacity of the project could be improved, it has contributed to improve both energy and water security for the community.

Finally, there are for example wind energy solution that can offer more energy security for Namibian communities. In July 2017, Lüderitz wind power project was nearing its completion. This is the very first wind farm in Namibia, being built by Innosun Energy Holdings. The project will add 5MW of electricity to the national power grid. Building small-scale wind farms could also be a solution to provide electricity for remote communities and should further be investigated.

1.3. Use of smartphones in technological solutions

Today the quality of the video and image in the smartphones is such that one can create contents that meets the requirements for publishing and communicating in most of the media platforms with a good quality video and images. There are also apps with which one can edit the videos and photos with the phones to produce high quality presentations. Using the smartphones in producing video stories for community-based communication is a light and an easily available for the local youth when they have the tools and skills to use them.
Workshops and co-design process with the youth enable active and participatory discussions on how and where they can have their stories shown, and that they themselves have the full control on the contents and how the stories are presented. The youth are actively engaged with several social media platforms where the stories can be presented. Besides the social media channels such as Facebook, Twitter and Instagram, the Wikipedia is introduced as a place where more fact based information on the community, culture, local services and enterprises can be presented and how they have to control on the contents. In Wikipedia the youth can correct the information in case they are falsely and presented by outsiders to their community there.

The stories, made with smartphones and related tools can also be used to present the services, best practices, culture and nature in the local enterprises selling handicrafts or in the local Nature conservancy for the tourist groups. Khwattuarchive.org is a web resource where Sun people can store they stories and make them available. The stories produced with the tools and skills taught during the workshops can be uploaded into the archive to be publicly available.

The impact of mobile phones on indigenous groups, in Africa and globally, has not enjoyed extensive research and focus in the past (Groh 2016, p. 346). However, the impact of mobile technologies on the African continent cannot be ignored. From the early 2000's the mobile network has expanded greatly in sub-Saharan Africa. The speed and adoption rate within this region has been extraordinary, with an increase of African mobile phone users rising to 246 million in 2008, from just over 25 million in 2001 (Porter, 2012: 241). This rise has continued with an annual increase of mobile subscriptions across Africa rising by as much as 65% (Groh, 2016: 347). In South Africa the usage of phones during 2007-2008 proved to be substantial among young people, across urban and remote locations, Table 1. (Porter 2012, p. 244).

Table 1. 2007–2008 Young people's usage[15] of phones in week prior to survey in Ghana, Malawi and South Africa (*n* = 2905; from Porter et al. 2012).

Settlement type	Remote rural	Rural with services	Peri-urban	Urban
Malawi	0.4%	2.8%	13.1%	21.6%
Ghana	3.0%	1.6%	23.8%	35.9%
South Africa	43.0%	56.4%	66.8%	67.5%

Phone usage × country *P* (vhi-square) ≤ 0.005. Phone usage × settlement type *P* (chi-square) ≤ 0.005.

The lack of infrastructure (road, electricity and land-line phone networks) in rural areas in Southern Africa has contributed to the rise of mobile usage. The increasing mobile subscriptions, do not necessarily relate to individual ownership and in many cases a mobile phone may be shared by a number of individuals. This shared model increases the reach of current mobile subscriptions even more, as do the 'mobility, coverage, and real-time interaction' that mobile connections allow (Kanyam, Kostandini and Ferraira 2017, p. 273). The impact of this is a connected and more empowered community:

> (…) it enables effective community mobilization and a speedy means of reaching a larger audience. This feature empowers local communities to engage in the political and decision making processes and also provides effective voice mechanism to hold political leaders and public officials accountable (ibid).

There is a good practice related to smartphones organized by TUCSIN (The University Centre in Namibia). The smartphones were made available for the members of the community by the TUCSIN organization operating in Tsumkwe through local library, which also has open internet connection for the library users. In Tsumkwe large part of the population is San people. Thought, the smart phone are availabe for all the users of the region. Youth engaged in short training on how to use the phone can in they turn teach the interested ones on how to tell their stories with them.

For researchers, the smartphone offers an agile and flexible tool for creating content for publication on the fly. Without the overheads or a need to carry around large amounts of equipment for video production, the capabilities of smartphones create the context for a highly responsive mode of operation. When working with the community of stakeholders at the Tsoga Environmental Resource Centre, possession of a smartphone by the researcher allowed for the workshop to be discretely captured as still photographs and video which, alongside audio (captured separately), were used as the basis of two short digital films.

2. Research methodology

This deliverable as well as the development of PARTY model and methods for local dialogue are based on constructive design research, which is defined as: "Design research in which construction – be it product, system, space, or media – takes center place and becomes the key means in constructing knowledge". Koskinen, Zimmerman, Binder, Redström and Wensveen (2011) claim that design researchers need methodological and theoretical flexibility. They propose to understand the methodology of constructive design research as being shaped primarily by three different contexts: the lab, the field and the showroom. Each one of these contexts is characterized by their own research culture adapted from other research traditions: the natural sciences, social sciences and art. Constructive design research is many ways connected to research through design (e.g. Zimmerman et al., 2010, Frayling, 1993),

where research and design process are simultaneous/overlapping and research emerges from and with design practice.

This research process has also characteristics of an action research. That is a form of collective, self-reflective inquiry that participants in social situations undertake to improve: 1) the rationality and justice of their own social or educational practices; 2) the participants' understanding of these practices and the situations in which they carry out these practices. -- The approach is action research only when it is collaborative and achieved through critically examined action of individual group members." (Altrichter, Kemmis, McTaggart & Zuber-Skerrit, 2002) Co-design process are very similar to participatory action research cycles. Action research begins with the premise that practices can and should be changed, and this is an equally valid description of design and to service design. In service design process it is clear that it is same time transformative process. Action research and design share for example aim of making research process visible as well as goals of participation and collaboration. Action research offers design researchers tools to do a systematic and documented study (Swann, 2002).

In PARTY project the field is the experimenting and testing ground for different methods and solutions. The research process in placed in situ and especially the ethical considerations have to be planned carefully. In PARTY project the models and methods have been developed and discussed through design sessions, workshops and engagements with different stakeholders. In Table 1. these engagements and meetings are listed.

Table 1. Ideation and prototyping sessions with the youth, business and stakeholders to develop technology based solutions for the San youth

Name of the host/location	**Participants**	**Type of session: ideation/prototyping/testing**	**Needs identified**	**Opportunities identified**	**Ideas/solutions from the workshop participants and facilitators**
"Storing Stories" Workshop at Platfontein with San youth on 1 August 2017	3 young San, among which Sarie from SASI.	Creating recordings regarding traditional San stories, and co-designing and implementing "Storing Stories" radio podcasts.	Technical support (software and pc) when the recordings have to be edited into a podcast	The technical support by the local Radio which should be in charge of the editing phase.	To use this experience as a model and toolkit developed for further podcast production.
Tsumkwe Craft Centre, Workshop organised with Ana// Jeh San trust on 13 September 2017	24 youth from Tsumkwe	Workshop on identification of technological needs	Internet Connection Reliable electricity Better Transport	Improve the battery system of Tsumkwe solar panel system Improve the road and/or establish shuttle services	More funding and support from government
Tsumkwe Craft Centre, Workshop organised with Ana// Jeh San trust on 12 September 2017	20 youth	Working on stakeholder mapping	Improving support for school	Need to establish better relation between governing institutions and the communities	...

Anah Djeh San Trust/ NUST 18 October 2017	7participants	Technology mapping	Technology needs	Need to provide communities access to Internet	To establish Internet workstations in the public spaces in community
Platfontein, 31 October 2017	5 young people living in Platfontein, 2 PACO members, 1 SASI rep	1) Co-creating a research questionnaire in order for the youth to find out regarding collaboration interest in their community. 2) Collect ideas for the collaboration from community members	Facilitators to understand the interest of the youth/community about the radio and a possible collaboration between youth and Radio..	1) Let the community members lead the Radio activity by making them the researchers. 2) Base the Radio activity on ideas collected from the community.	Collect as many ideas and opinions from the community as possible through the miniature research in order to ensure the success of the activity.
Platfontein, 3 November 2017	2 young people living in Platfontein, 2 PACO members, 1 SASI rep	Analyse questionnaires and cluster research results to come up with ideas	30 people interviewed through questionnaires: please see total result numbers below	1) Facilitators started understanding regarding the interest in the community. 2) First information was gathered in order to think about further steps for the Radio activity.	The participants agreed upon gathering more opinions and ideas, thus more questionnaires were produced.
Platfontein, 7 November 2017	2 young people living in Platfontein, 3 PACO members, 1 SASI rep	Analyse questionnaires and cluster research results to come up with ideas	34 people interviewed through questionnaires. Total result numbers: 47 are interested in collaboration, 17 expressed no interest.	1) Facilitators to understand regarding the interest in the community. 2) More information was gathered in order to think about further steps for the Radio activity.	To ask the same questions to the radio independently and afterwards share results to decide on further steps in a participatory way.
X-K Fm Platfontein, 7 November 2017	5 Radio staff members, 3 PACO members, 1 SASI rep	1) To find out regarding the Radio's interest to involve youth 2) Collect ideas for the collaboration from Radio staff members	Analyse questionnaires previously sent via email and cluster research results to come up with ideas	1) Let the community members lead the Radio activity. 2) Base the Radio activity on ideas collected from staff.	Base the collaboration on reaslistic ideas from the radio, considering possibilities and limitations.
X-K Fm and Youth living in Platfontein, 10 November 2017	4 young people living in Platfontein, 6 Radio staff members, 3 PACO members, 1 SASI rep	1) To share ideas and research results from both parties. 2) To co-create a collaboration strategy in a joint effort between radio and youth	An interest from both parties to collaborate in shaping the radio programme was identified.	A number of ideas was collected on how young people living in Platfontein can be involved in shaping the content of the radio programme	Radio Youth Footprints was born
Tsoga Centre community storytelling, Samora Machel township, Cape Town, 18 April 2017	2 participants from the Tsoga Centre, 1 ULEEDS member	Data collection using bespoke visual / graphic storytelling tools	Local needs to help re-establish the Centre - specifically: library books, computer / digital technology, sewing machines	To take the stories identified within the data and communicate them to wider audiences - both within and outside of the community	Further refine the model of data collection and digital storytelling / to establish public events for debate around the films' stories

3. Design and technology for development

The deliverable is focusing on developing technological solutions that can respond the needs of the youth communities. Before the emergence of new information and communication technologies, access to traditional media in Africa was limited. Due to the long distances and inadequate media infrastructure especially those living in rural areas had difficulties to access printed press, radio, television or landline telephones. The most popular media was the so-called *radio trottoir*, the informal talk and rumours spreading from mouth to mouth. However, within the last twenty years, substantial changes have happened towards the adoption of new technologies, especially of mobile phones.

By 2001, the number of telephone registrations for mobile phones had already exceeded the figure for fixed phones in most African countries. In Europe, this predominance of mobile phones occurred only some years later, in 2004/05. In South Africa, the 1996 Telecommunication Act promoted access to telephone and ICTs, particularly in townships and rural areas. The Southern African Development Community (SADC) agreed in 2009 that the Southern African region should work towards switching analogue signals to digital signals by 2015. In 2014, it was estimated that smartphone penetration had reached 80 percent in South Africa in 2014. (Saleh 2014.) In Africa, a number of studies have documented the strong relationship between students and new technologies: the students have constituted the main consumers of new technologies and also of Internet (Obijiofor 2011). Even if students were the first and the most eager adopters of the new technologies, today, the use of mobile devices has exuded in all social layers. De Bruijn, Nyamnjoh and Brinkman (2009) have suggested that there has emerged a new African 'mobile phone culture' centered on a multiplicity of activities involving the mobile phone.

Despite the rapid increase of the mobile phones and ICT technologies, many young African people have never seen or used a computer or connected to the Internet. According to Saleh (2014), the active grooming of the young generation is blocked with the inequalities in ICT availability and accessibility. This is especially true for those living in rural, marginalized communities. Since 1994, when apartheid was officially abolished, in South Africa, the objective of government policy has been to address nationwide inequities. This has been apparent in a range of efforts, such as in improving school infrastructure in underserved areas or supporting broadbased black economic empowerment initiatives (van Zyl 2013).

In 2006, 67 per cent of South African schools had no computers for learning. Inequality of access was intertwined with low socioeconomic backgrounds, and with those who do not speak English as a home language. The digital divide was visible between the universities that historically predominantly served white or black communities in South Africa: in historically predominantly white universities students enjoyed unlimited access to ICT facilities while in the historically predominantly black universities the access to ICTs was very limited. (Osunkunle 2006.)

The political implications of media use have been central to scholarship on media in Africa. Before the Arab spring, this scholarship used to focus on formal, mainstream media but since the use of social media and mobile phones has increased, more research has focused on the participatory potential of new media. History suggests that every time there are new communication innovations, there is a widespread optimism about how these technologies will affect for participation and development of deliberative democracy. In Africa, new media and communication technologies are seen as important tools to contribute to the exercise of civil rights and responsibilities, the communication of political information, the (re)construction of cultural identity, the achievements of developmental goals and empowerment of youth. (E.g. Obijofor 2011, Wasserman 2011, Tufte et al. 2013.)

3.1. Design for appropriate technologies and solutions

When working with PARTY project it has been clear to work through local organisations and hosts that have good and sustainable relationship with the San youth of their stakeholders. These relationships and local expertise help in recognizing the issues and challenges that one has to tackle with when developing technological solutions that become feasible, accessible and usable for the local community members. In some cases the accessibility to internet in geographically marginal location may affect on possible technologies that can be utilized. Being located in the edge of the network influences the network speed and amount of bytes available. It is also important to identify the gatekeepers who can enable technological solutions and the resource person who have capabilities to both learn themselves and support others.

Akimenko et al (2017) discuss the case of digitizing remotely living South Australian women and Aboriginal women artists stories in a digital platform. New technology often requires a certain level of computer literacy yet one of the challenges for their project was the mentoring of community members who would like to upload to the platform the documentation of art making and storytelling. In PARTY project it is important to think about models that support facilitation and mentoring in developing new technological solutions.
When designing with the communities it is more important to start with the participation rather than with a concept (March, Jacobs & Salvador 2005). This means that the solutions and concepts should be designed with the youth and the community members. In PARTY project the design work has been taking place with the youth.

Cheng et. al (2015) discuss deciding on the degree of semantic formalization to select appropriate technologies based on different variables for the proposed solution. In their case the proposed systems are more advanced than the ones proposed in this deliverable. Yet the idea of evaluating appropriate solutions for the proposed context is sensible.

3.2. Identifying State-of-the-art level of technology and needs in San communities

PARTY project included a developing of a tool to identify the state of the art technology use among the San youth. A workshop was carried out with San youth to explore the context of use of technology in a daily scenario in the village and city.

Each participant was given daily activity clocks and asked to write down or draw their typical daily activities, places and routine interactions of the media and other (digital) technologies on the clock for a weekday in the city and the villages. A large sheet of paper was used by the participant to record the following in relation to times of the day (0:00 to 24:00) through the use of colour-coded annotations and/or drawings and circles in different sizes:

1. places highlighted in green in the inner circle;
2. key activities highlighted in blue in the middle circle; and
3. the use of the media and other (digital) technologies in red in the outer circle:
    a. devices /services/media used
    b. people involved
    c. cost associated with the use
    d. behaviours
    e. feelings
    f. purposes of using the technology and/or function.

An example of the tool is shown in Figure 1. As various activities were identified, the workshop facilitators prompted for more details – What are the actual needs and drawbacks for rural communities and when it comes to mobile data connectivity and Internet data connectivity?

What technology applications and development can arise if Internet access is supplied in their villages? Is there any education provided for the application of technology?

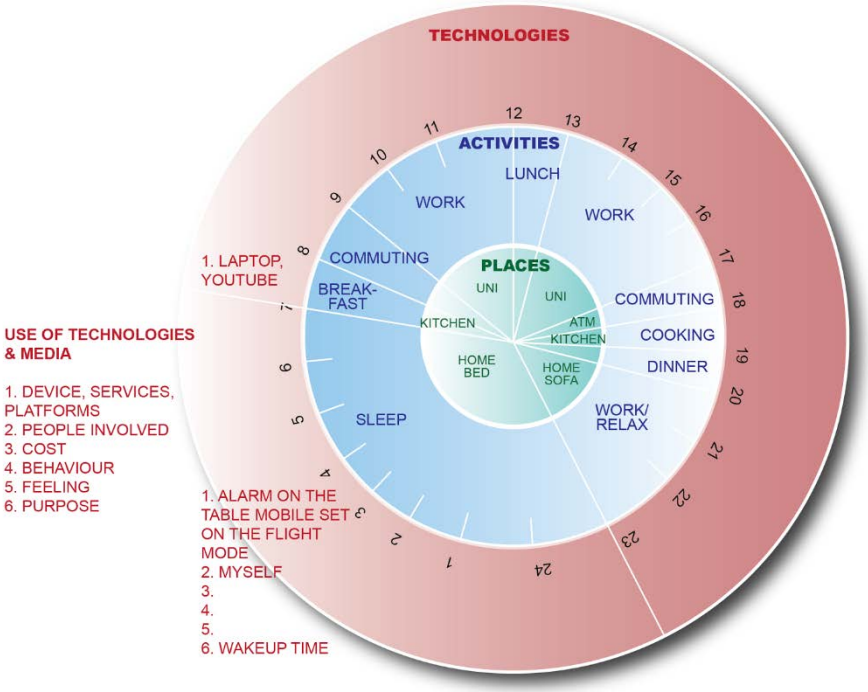

Figure 1. Daily activity clock tool

Seven San youth were recruited through the NUST and Ana Djeh San Trust. The participants are between the ages of 18 and 34 and staying in Windhoek mainly for educational reasons, attending vocational training, college or university.

Creating the daily activity clocks allowed the participants to recollect details about their experiences of using technologies and different kinds of activities carried out in one day. Creating the daily activity clocks allowed the participants to recollect details about their experiences of using technologies and different kinds of activities carried out in one day. It is particular useful for looking at relative activities of the same participant in considerable detail. The shared development of the timeline allowed the participants and facilitators to see the data being collected, to feel confident about the level of detail being recorded and to prompt where omissions had taken place. Comparisons between village clocks and city clocks show the actual needs for rural communities in relation to the technology service provision and trainings.

As an outcome the daily activity tool produced information about the use of technology in everyday life and for the technology need when developing solutions.

4. Solutions and concepts created

During PARTY project there was several innovative technological solutions and concepts developed and disseminated. There solutions and concepts include:

- X-K FM Radio in Platfontein: Radio Youth Footprint - The Youth as researchers
- Using video for the community communication
- A unique service solution to address language and ethical practices through video and digital platform

4.1. X-K FM Radio in Platfontein: Radio Youth Footprint - The Youth as researchers

X-K FM, operated by SABC (South African Broadcasting Corporation), is the local radio station in Platfontein, home of the !Xun and Khwe San close to Kimberley in South Africa. Together with San Youth from Platfontein, they entered into a collaboration with PARTY project. In a joint effort, a collaboration strategy to enhance the dialogue between radio staff and youths was developed. This chapter provides a detailed description of the strategy called “Radio Youth Footprints” and how it facilitates local dialogue in the community of Platfontein. Another focus is on the participatory design that was used to create this concept.

The radio station’s mandate is to uplift, develop and inform the community. After 17 years of existence, radio staff is now aware of the fact that their future lies in the hands of the next, younger generation of Platfontein. This was expressed to PARTY team members in the beginning of this PARTY sub-project.

In a number of workshops, using a particularly participatory approach as well as specific service design tools, the “Radio Youth Footprints”-strategy was born. The strategy focuses on an active involvement and participation of youth living in Platfontein. Their main task will be to act as researchers in their community – to collect new broadcasting ideas and stories, conducting interviews in the field as well as to inform the radio about their current interests and topics. A schedule created by the radio station staff, provides a timeline for the different activities needed, this way a smooth execution of the strategy is being facilitated. The basic schedule consists of four different steps. Starting off with a face-to-face meeting of radio staff and youth to determine a topic that fits into the theme of the month. Based on this, the youth go out into the community to do research about this topic, record stories, conduct interviews or collect information. In another meeting, the youth present their collection of information and together with the guidance and expertise of the radio staff, select the broadcasting material. Lastly, the content will be edited by radio staff, in close collaboration with the young researchers.

The steps are being repeated on a regular basis, with different youth participating in each cycle.

Radio Youth Footprints was in one of the workshops summarized by the participants as follows:

> “Youth as researchers in the community and content providers for the radio. Radio as training tool for Youth careers.” **[1]**

The Radio Youth Footprints strategy is currently at the concept stage. Implementation is planned for early 2018, provided that approval is given by SABC head office.

The collaboration provides for numerous benefits for each participating party: Radio Youth Footprints strengthens the dialogue in the community, it gives a voice to the youth but also holds the opportunity to learn new skills, to get exposure and gain experience – all of which are important to increase chances for future employment.

Furthermore the radio will benefit from this initiative in terms of getting more contents coming from the community, having support from young and fresh minds and having the possibility of training possible future presenters. All these activities are in line with their main goal and mission: uplifting, developing and informing the communities. Lastly, implementing Radio Youth Footprints also has the potential to increase the current number of listeners.

[1] Formulated in a joint effort by all participants in the workshop: Co-create the collaboration system between the X-K FM Radio and the Youths in Platfontein on 10 November 2017.

The innovative aspect within Radio Youth Footprint lies in the methodology and approach of integrating the youth into their everyday working processes. So far, the radio's approach to create content was entirely up to the programmers of the station. The decision on the topic as well as interviews and recordings in the community were done by staff. This way, the staff could not make sure that the content broadcasted meets the interests of their listeners.

Radio Youth Footprints was developed in a particularly participatory approach. Not only was the collaboration strategy co-designed with youth and radio staff at the same table, but also a miniature research was conducted beforehand in which the youth themselves acted as researchers to find out regarding the interest of the community and to gather ideas. PARTY team members conducted a workshop in which a questionnaire was co-designed together with the youth. A total of 65 people were interviewed.

In order to not impose any ideas on a possible strategy, another workshop was conducted with the radio station in which the staff was asked the same questions.

As a third step, the ideas were presented to both parties and the overlapping ideas were collected. Through a voting system all participants determined the final idea Radio Youth Footprints and worked out together the next steps to be taken.

In line with the main PARTY research field of Service Design the participating PARTY team members made use of Service Design tools to facilitate the project:

1. The Golden Circle tool by Simon Sinek was used in order to analyse the results from the miniature research that was done with both, youth in Platfontein as well as radio staff. The tool consists of three concentric circles, named Why, How and What. The inner circle WHY was used to map all the reasons given by both parties as to why they would like to collaborate with each other. In the middle circle HOW all the channels and actions they imagined to make the collaboration work, were collected. Lastly, based on those answers, concrete ideas of WHAT the collaboration could look like were brainstormed. These ideas were placed in the outer circle. The two Golden Circles were created independently. In order to start co-creating the collaboration system, the results were first presented to the different parties. Overlapping ideas were collected from the two Golden Circles, on which the final decision was based.

2. Resources Blueprint: This tool was used in the last workshop with the radio station and the youth to determine the next steps that need to be undertaken in order to implement Radio Youth Footprint. Generally, the idea behind this tool is to define the actions, stakeholders and resources that are needed for a specific service-system. For this workshop, a chronological element consisting of Before/During/After was added in order to understand in which order the steps will have to be executed. The Resources Blueprint tool can be found in the PARTY Handbook – 'Practical guide to service design in development context'.

The tools have proven to be particularly easy to apply in a participatory design workshop because of their visual and easy-to-understand approach. Moreover, the way the Golden Circle was applied first independently and then compared and shared in order to co-create, was particularly interesting.

4.2. Using video for community communication

Video is nowadays a very strong and powerful media to communicate the values of individuals and ethnic/local communities and in giving an authentic view of everyday life and reality within

the local and remote communities. Due to the remoteness, availability of technology and lack of proper internet connections, mobile phones are very suitable tools for producing videos telling about the life in the remote communities. The requirements for the technology are that they are reliable and easy to use and does not demand long education before one is able to fully use them and develop skills in telling stories with videos, photos and texts. The importance of ethical use of the photos and videos, especially when it comes to social media is one of the topics that should be discussed when engaged in video production. The subjects videographed must not be presented in a way that might insult or hurt them and it is important to talk with them and get permission before taking videos or photos and publishing them in the social media.

Before the workshop it is useful to evaluate several apps for producing stories where it's possible to combine the images and videos taken with the smartphones (Nokia, iphone etc) with texts. The requirements for the app were that it's possible to save the story in a format that can be used in multiple platforms, that it's easy to use and it does not require previous experience in video and photo editing, and that it runs in the smartphones used. MovieJax app fulfills some those requirements and the license can be purchased into the phones.

Both in Upington with the San youth of N||uu language school and with the San youth in Platfontein the youth were able to very quickly embrace the storytelling and creativity to share the challenges and propose solutions to these challenges. Both youth group shared their stories to the video and another group also to social media platform in Vimeo https://vimeo.com/203607942. In N||uu language school also one of the participants took the role of the photographer/videographer quickly.

Video can be used as a powerful tool to mobilise the stories of marginalised communities. Such stories form the basis of situated knowledge and are often used to construct narratives around which individuals and communities can develop a sense of self-identity. The use of digital technologies, and in particular video, extends the power of such narrative and can be a useful means through which individuals voices can co-create a significant instance of Fuad-Luke's concept of the 'counter-narrative' (Fuad-Luke 2009) - where such stories act to give form to images of community which might run opposite to those commonly held. Utilising a model of 'dialogic practice' (Kester 2013) and a mode of reflexive documentation, a workshop method has been developed to allow for such 'we-stories' to be developed. Workshops for story-making and identification of narrative threads allow participants to co-create their own stories, their own points of departure and highlight significant moments on arcs of their shared experiences. The use of visual tools - generated in response to sensitisation activities - allowed for researchers to create metaphorical or conceptual graphic devices which tailored specific questions or responded to previously identified areas of shared interest, giving structure and shape to the activities through a form of visualised and participatory life-writing.

The production of two short prototype films - each with a distinct and discrete conceptual focus - from the stories generated via the visual tools followed a design-led method for accumulation and narrative-identification: the creation of a story through the voice of participants sought to clearly articulate a position or sense of self-identity, to map opportunities for potential development and to place participants in relation to each other and with sources of power (and of their own agency). Making use of innovative visual methods for integrating text, image and sound these community stories sought to explore a reflexive position for the researcher - as being in possession of skills which might help to articulate or amplify aspects of the story.

On returning to the Centre, participants were shown each film - as a prototype and an attempt to map potential approaches from the stories generated in the first workshop. With the use of a feedback tool participants responses were captured which identified significant opportunities - both in the stories themselves and also for these stories to be utilised within the wider community. The power of video was acknowledged both in a formal sense (that there is impact in

a representation of lived experience) but also in its potential to become the source of debate and as a point of departure through which others could engage in the opportunities for change which have been identified.

4.3. A unique service solution to address language and ethical practices through video and digital platform

It is crucial to encourage ethical practice and informed participation among researchers, designers, policy makers and any other stakeholders engaging at community level. To support the concept of 'informed participation', video based communication is proposed in the home language of the participants and project collaborators. As part of the PARTY project a community need was identified for project information (relating to project details as well as the process as it unfolds) to be accessible beyond the initial interaction, and for information to be available in a suitable language. The key 'activator' is that anyone wanting to collaborate with a community must make their intentions clear, in the primary language and colloquial style of the community in question. In response to this need, the supporting role of technology was considered, and a design solution was conceptualised in the form of the InDigi Platform. The platform uses video clips in a community representative language to document the intention, process and community experiences of any given project.

Technology offers researchers and participants the opportunity to scaffold and deepen engagement during community-based activities. Various activities could benefit from the potential localisation of content, language and practice, mediated through technology. When considering the impact of language on community-based engagement, one needs to acknowledge the stratified influence of language within design activities. The various strata include language as it relates to preparatory activities and building relationships with stakeholders, as well as practical understanding and collaboration during the research/design activities. This view is supported by the cultural importance of language as defined by Groh (2016:346):

> *Language not only defines a culture, but it also defines an individual's cultural identity. Even without following the assumptions subsumed as Linguistic Relativity, there is general consent that languages determine specific ways of cognitively structuring the world.*

Language is a critical element in gaining a shared understanding of the goals and eventual outcomes. A shared understanding is crucial to extract findings from activities that reflect *real* views, perspectives and experiences. The importance of language to empower participants is also a consideration and allows them the ability to share their views with other individuals and introduce the project to the larger community. All the aspects mentioned above relate to the support and encouragement of ethical community-based interactions and informed participation. Beyond merely informed consent, the idea of informed participation encompasses a level power dynamic - in which community participants engage and contribute with full understanding of the process, outcomes and future uses of data and findings generated.

The challenge of bridging language inconsistencies pre, during and after engagements, could be supported through technology. Consent is only appropriate is the participant truly understands what is request of them. The impact of language is viewed as both verbal interactions, as well as challenges around written project communication. To encourage informed participation and ethical responsibility among designers and researchers, they must assess the ability of participants to access technological solutions, especially in an African context. In order to respond to contextually relevant issues surrounding technological solutions in a community context, restrictions and opportunities must be acknowledged and explored. Within this context the impact of mobile solutions, and the reach of mobile is an opportunity to create contextually relevant design solutions.

The InDigi platform

Video clips are made in collaboration with community representatives to explain the reasons for wanting to collaborate, as well as any other project specific details. Ideally a community member narrates the video. Video clips can be used as part of project introductions, and can be uploaded to the site. When uploaded, the video can be viewed by members of the community who want to know more about the project, or participants who want to reflect on the information during or after the collaboration. A searchable platform can be the basis for this activity, promoting local dialog and transparency. Any project included on such a platform would acknowledge the importance of indigenous language, culture and communication, giving rise to the concept of the InDigi platform. An InDigi project can benefit those who would like to collaborate with a community, by providing information on current and completed projects. True participation is grounded in a common understanding of the goals, and by using a method of communication that acknowledges the community's language. The web platform, aimed to be used primarily on mobile devices within the community context (although the upload, creation and management of an InDigi project can be facilitated from a laptop or desktop). The platform is proposed as a first step in contributing to:

1) Informed community participants.
2) A method to communicate aims and goals to the larger community.
3) Creating a repository of projects within a searchable framework. This will hopefully enable more collaboration with stakeholders from past projects and avoid research duplication and community research fatigue.
4) Creating opportunities to document experiences and best practice with regards to participants' design methods.

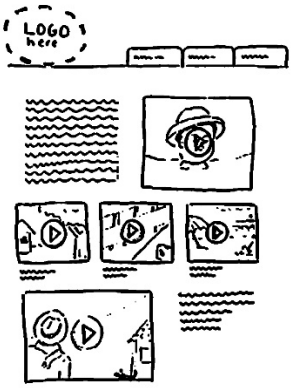

Figure 2: Conceptual Sketch Mapping Platform Interaction

Figure 3: Conceptual Render of Mobile Access

Figure 4: Conceptual Render of Desktop Access

Video content (in the form of short video clips) is the main medium of the proposed service concept, with searchable keywords linked to each. The platform will also accommodate written based project introductions and final project reviews. Information and concepts that could be communicated through such a platform in the forms of a video clip includes, but is not limited to: details of the project; principle contacts; community member(s) introducing the project and its aims in the their own voices (and style!); consent information in the communities prominent language(s); community feedback videos could be added during the process – further contributing to the concept of informed participation, and once completed, the final details regarding tools used, objectives achieved and best practice around informed participation can be shared.

The conceptual platform offers a range of stakeholders valuable access points to a given project in real time. If you are a researcher, designer or any person wanting to collaborate with a community you could view an overview of current and completed project within the community. From a community perspective such a platform acknowledges that communities should have access to information in their own language, and in a way that makes sense to them. This allows community members to access information no matter their level of text-based literacy. Community members and governing bodies would have access to the history of engagement with the community. The above mentioned concepts, can be linked to practical content inclusions, such as, but not limited to:

1. Information about your project including partners, funding, goals, methods and the community stakeholders involved. This is in text format and contains keywords that will be searchable.
2. A video co-created and narrated by a community member or stakeholder in the home language of the community and in colloquial style. If multiple home languages are found within the community this should be acknowledged. This video will contain keywords that are searchable. The video can be accessed by anyone, including community members, who may want to know more about the project.
3. As the project moves forward additional videos can be added. These could include task specific videos (like addressing issues of informed consent during research projects) or can be community members sharing their views on project activities. The uploaded videos are not a promotional opportunity, but rather a 'visual history' of the commitment and participation of community members in the project. These videos should offer community members the opportunity to express their views.
4. When the project is done you can outline key findings, methods used, best practices identified, as well as add a link to publications (academic or popular) or media. This is in text format and contains keywords that will be searchable. You can upload two videos to collate the findings of the project – one is from the project team's perspective, and one is from the community's perspective. This video should offer community members the opportunity to express their views.
5. By reviewing past projects academics, designers, NGO's, government and other stakeholders can review what has been done in a community, before initiating a potentially similar project, addressing issues of community research fatigue.

During the first half of the project, the PARTY team noticed an improvement in the consent process is needed in order to provide for a fair and equal research encounter with the different San communities. Whilst in the first half of the project, the PARTY consortium considered it not only crucial, but also appropriate to apply the FPIC (Free, Prior and Informed Consent) principle for all planned research activities, the team was also constantly critical and sensitive towards this procedure, trying to make sure that the process and the contents of the workshops are being understood by the participants.

Following the outcome of the analysis that was done for the PARTY Project Periodic Interim Report, consortium members focused on improving the FPIC process through

a. **Workshop specific consent forms, and**
b. **A consent artefact in video form**

The InDigit platform would offer a conceptual space for these developments to be documented. The platform would further encourage ethical transparency as the consent artefact as a video clip could be accessed prior, during or following a session. To explore the validity of video as the medium for the platform the consent artefact allowed for the participatory development of video content, and real world feedback on the suitability of the medium.

a. **Workshop specific consent forms**

As mentioned above, the first languages !Xun and Khwedam of the participating San are not written languages. As therefore a consent form cannot be provided in the mother tongue of the participants, the team had no choice but providing the forms in English and Afrikaans. To improve the consent process, it was even more so important that the consent artefact was supported by the revision of a traditional consent form. PARTY team members, in a participatory approach, consulted with a !Xun community member, and reviewed and rephrased the consent form, using a less academic language. Furthermore, a table was inserted, where the facilitator/researcher has to formulate the goals and activities of the session, as well as the benefits of the workshop for the participants. This way, the researcher/facilitator not only makes sure that important information is communicated in order for the participant to decide on his participation, but also a benefit analysis is done for every workshop. This way, the consent form facilitates a better communication, which leads to a more fair and equitable research relationship. The consent video is being used in conjunction with the new consent forms: Before the participants decide on their participation and sign the consent form, the explanatory video is shown.

The participatory nature of critically exploring the need for transparent research practice highlight the need to make documentation as accessible as possible. In many ways this was the core departure point for conceptualising the InDigi platform.

b. A consent artefact: Explaining PARTY and consent in !Xun and Khwedam indigenous languages

As Afrikaans and English are mostly second and third language for participating San Youth, PARTY team members decided to round up the consent process with an additional consent artefact. Since their first languages – the indigenous languages !Xun and Khwedam – are not written languages, PARTY team members decided on creating a video, explaining the purpose of PARTY project as well as the consent forms in !Xun and Khwedam. Again, a participatory approach was applied to develop the video: Together with a !Xun community member, the text being used in the video was drafted in English. Afterwards a !Xun and Khwe community member were recorded, translating the information to their first languages !Xun and Khwedam.

The consent artefact represents that type of video content, which could be added to an InDigi project. The video based content provides an accessible form of communication. By adding such content on a searchable platform community members can revisit the video at any time, and have access to project information such as driving organizations and contact details.

5. Completed dissemination and dissemination plan

In this part of the Party project there has been done things worthwhile of disseminating to the San youth and also spread to other communities internationally through internet for example.

This far there has been made research as the Table 1. in this document demonstrates, both in South Africa and Namibia. Participatory co-design methods were used to engage the designers and local stakeholeders in the projects. There was X-K FM Radio in Platfontein, Tsumkwe Craft Centre, Anah Djeh San Trust and Tsoga Centre community involved, stakeholders from Namibia and South-Africa. Participants together with the researchers were able to find needs and opportunities how to engage young San people in the community like for example taking them as investigators of new topics for the radio station. Since technology requires energy, and it is a challenging in many African nations, there were also investigated solar energy. Beside it ethical issues were taken into consideration.

Table 3. Actions provided to be disseminated

Action	Dissemination
X-K FM Radio in Platfontein - Radio Youth Footprints program – creating local dialogue in Platfontein - Young people brought new ideas of themes and topics.	X-K FM Radio programs, many have been done and others will be still run, as there will be more workshops.
Videos created by San youth • Video about ethics concerned filming • Video presenting what is Party	Youtube, Facebook, Twitter Instagram, Khwattuarchive.org (a web resource where San people can store they stories and make them available).
The creation of the inDigi platform, where there can be found all the videos produced this far and thus avoid any double work of making similar works. It would also be a way to communicate aims and goals to a larger community. Creating opportunities to document experiences and best practice with regards to participants' design methods. Also allow community members access knowledge no matter their level of text-based literacy.	To be disseminated online. Access from computers and cell phones.

The methods and tools used have been working well and these new ideas could and should be distributed also to wider network for example make contacts with NGO's that work with the purpose of resilient communities like the Meridian Institute that works worldwide. Also all the partners of the project will be disseminating the information acquired by their networks associates and companions. These methods, tools and new ideas are going to continue to get more shape in the process and will be disseminated further. The websites with the videos done will have national and international access to others, to know what can be done and applied regarding what was learned in their communities too, in order to create resilience. Also the radio programs can have a national and international distributions through podcasts.

Resilience is important today, as it is an ability of systems to adapt to change, to respond to external shocks and to restore functional ability after disturbances Hirvilammi 2015). Community & Regional Resilience Institute describes well what is community resilience ('What is Community Resilience' 2017):

> *Resilience is the ability to anticipate risk, limit impact, and bounce back rapidly through survival, adaptability, evolution, and growth in the face of turbulent change. Resilient communities minimize any disaster's disruption to everyday life and their local economies. Resilient communities are not only prepared to help prevent or minimize the loss or damage to life, property, and the environment, but they also have the ability to quickly return citizens to work, reopen businesses, and restore other essential services needed for a full and timely economic recovery.*

The United Nations World Summit in 2005 (Resolution of United Nations World Summit Outcome 2005) defined the sustainable development in three pillars ecological, social and economic. The two last are being taken into consideration here as the San youth have got powerful storytelling (videos, podcasts and radio programs) tools to develop democracy, it will reflect directly into their society and development of working opportunities, more working opportunities will have impact in the future economic development. The workshops were run with the perspective that the designers are in the same level with the community members, this probably is something new for many, as these communities are often hierarchical in African societies. The values of Party have been performed through workshops with democratic principles equally towards women and men despite of their age.

6. Findings

PARTY project has been able to produce several innovative technological solutions and concepts. These solutions take into consideration both appropriateness and feasibility. In some cases it is more empowering to use the existing technology in innovative way rather than try to implement something that is not viable. The aim has been to come up with Minimum Viable Product that would make sense and be usable for the stakeholder network. The use of existing structures has been found important for example in the case of X-K FM Radio in Platfontein is build on experience and good collaborative relationship with SASI. The technology is viable and existing. The collaboration have made it possible to San youth access this communication channel, make use and sense in it for themselves. This is sustainable and long term result for the PARTY project.

Second area where new and innovative solutions have been made is the use of video in community communication. This has included both the use of video as an empowering practice and use of video as stakeholder communication tool.

Another very good example is the case of InDigi a digital platform concept that includes the development of workshop specific consent forms, and a consent artefact in video format. This concept and developed artefacts address the ethical needs in research and development work and create a model and good practice for FPIC (Free, Prior and Informed Consent). So far, the two new items have been applied in a number of workshops, with the feedback being entirely positive. Participating youth have claimed to now much better understand the purpose of the workshop as well as the entire PARTY project. Plus using a visual tool (like the consent artefact) makes the whole consent process more vibrant.

The written consent form brought into focus the need for both video clips on the InDigi platform, as well as a option to upload examples of documents signed or discussed with community members. This realization represents a second iteration of design and review of the proposed platform. The need to evolve and respond to community needs is crucial to design a system that is community focused. In this way the project acknowledges the need to act in a responsible manner, and to commit to transparent and ethical practice.

All these three cases include elements that are needed to create a viable product in San youth development context:

- Existing and long term collaboration with local stakeholders and key resource person/s working as a focal points (SASI etc)
- Addressing local needs (communication, ethical and project development needs, career development etc)
- Accessible and existing or very low threshold technological solutions (radio/phone etc)
- Accessible and free apps or other freeshare solution to produce content (video editing, filming tools etc)
- Identifying and using existing skills or building on them (language skills, storytelling skills, technological skills)
- Access to communication channel and network to disseminate (internet, radio, vimeo etc)

6.1. Impact

Collaboration and addressing the local needs is the only way to make the results or outcome viable. Especially two of the solutions: X-K FM Radio in Platfontein and the development of a model and good practice for FPIC (Free, Prior and Informed Consent) through forms and video artefact are great examples of long term impact that PARTY project can create in local context through the use of technology and local collaboration.

7. References

Akimenko, D., Sarantou, M., Escudeiro, N. and Miettinen, S. 2017, iDoc: A Technology Tool as a Platform for Exploring Data. In Proceedings of the 29th Australian Conference on Human-Computer Interaction, Brisbane, QLD, Australia, November 2017 (OzCHI 2017) (Forthcoming)

Altrichter, H., Kemmis, S., McTaggart, R. & Zuber-Skerritt, O. (2002) The concept of action research. The Learning Organisation vol. 9 (3), pp. 125-131

Blake, E., Glaser, M., & Freudenthal, A. (2014). Teaching design for development in computer science. interactions, 21(2), 54-59.

Brownlow, C. and O'Dell, L. 2002. Ethical issues for qualitative research in on-line communities. Disability & Society 17, no. 6: 685-694.

Campbell, J. (2004). The hero with a thousand faces (Vol. 17). New World Library.

Chabossou, A., Stork, C., Stork, M. and Zahonogo, P. 2008. Mobile telephony access and usage in Africa. The Southern African Journal of Information and Communication, 9: 17-41

Cheng, C. H., Guelfirat, T., Messinger, C., Schmitt, J. O., Schnelte, M., & Weber, P. (2015, August). Semantic degrees for industrie 4.0 engineering: Deciding on the degree of semantic formalization to select appropriate technologies. In Proceedings of the 2015 10th Joint Meeting on Foundations of Software Engineering (pp. 1010-1013). ACM.

Community & Regional Resilience Institute 2017, What is Community Resilience, viewed 10 December 2017, http://www.resilientus.org/about-us/what-is-community-resilience/

De Bruijn, M., Nyamnjoh, F. and Brinkman, I. (2009) Introduction: mobile communication and social spaces in Africa. In De Bruijn, M., Nyamnjoh, F. and Brinkman, I. (Eds.) Mobile phones: the new talking drums of everyday Africa. Leiden: African Studies Centre (pp. 11-22). Cameroon: Langaa Publishers.

Findeli, A. (2001). Rethinking design education for the 21st century: Theoretical, methodological, and ethical discussion. Design issues, 17(1), 5-17.

Frayling, C. Research in Art and Design. Royal College of Art Research Papers 1, 1 (1993),1-5.

Friedman, B. and Kahn Jr. P. H. (2003). "Human values, ethics, and design." The human-computer interaction handbook (2003): 1177-1201

Fuad-Luke, A. (2009) Design Activism: beautiful strangeness for a sustainable world. Routledge, London and New York

Groh, A. 2016. The Impact of Mobile Phones on Indigenous Social Structures: A Cross-cultural Comparative Study. Journal of Communication, 7(2): 344-356 (2016)

Ingold, T. & Hallam, E. (2007). Creativity and cultural improvisation, Creativity and cultural improvisation, Hallam E. and Ingold T. (eds.), Oxford and New York, Berg, 1-24.

Hirvilammi, T 2015, Kestävän hyvinvoinnin jäljillä. Ekologisten kysymysten integroiminen hyvinvointitutkimukseen. Sosiaali- ja terveysturvan tutkimuksia 136. Kelan tutkimusosasto, Helsinki.

Kanyam, D.A., Kostandini, G. and Ferreira, S. 2017. The Mobile Phone Revolution: Have Mobile Phones and the Internet Reduced Corruption in Sub-Saharan Africa? World Development. 99: 271–284

Kester, G. (2013) Conversation Pieces: Community and Communication in Modern Art. University of California Press

Koskinen, I, Zimmerman, J, Binder, T, Redström, J, Wensveen, S (2011) Design Research Through Practice: From the Lab, Field, and Showroom, Waltham, MA: Morgan Kaufmann.

Manyozo, Linje. (2007) “Local rural radio as a development radio: Dzimwe community radio in Malawi”. Global Journal of Communication for Development and Social Change.

March, W., Jacobs, M., & Salvador, T. (2005, April). Designing technology for community appropriation. In CHI'05 extended abstracts on Human factors in computing systems (pp. 2126-2127). ACM.

Miettinen (toim.) 2011: Palvelumuotoilu – uusia menetelmiä käyttäjätiedon hankintaan ja hyödyntämiseen. Helsinki: Teknologiainfo Teknova.

Miettinen & Koivisto (toim.) 2009: Designing Services with Innovative Methods. Kuopio: Kuopion Muotoiluakatemia.

Miettinen & Valtonen (toim.) 2012: Service Design with Theory. Discussions on Change, Value and Methods. Rovaniemi: Lapland University Press.

Miettinen, S., Rontti, S., & Jeminen, J. (2014, September). Co-prototyping emotional value. In 19th DMI: academic design management conference design management in an era of disruption London (pp. 2-4).

Mulvenna, M.D., Boger, J., Bond, R.B. 2017. Ethical by Design: A Manifesto. In Proceedings of European Conference on Cognitive Ergonomics 2017 (ECCE 2017), Umeå, Sweden, September 19 -22, 2017

Obijofor, L. (2011) New technologies as tools of empowerment: African youth ans public sphere participation. In Wasserman H. (Ed.) Popular Media, Democracy and Development in Africa. London: Routledge

Osunkunle, O.O. (2006) Bridging the Digital Divide and the Use of Information and Communications Technology (ICT) in South African Universities: a Comparison Study among Selected

Historically Black Universities (HBUs) and Historically White Universities (HWUs). US-China Education Review, Mar. 2006, Volume 3, No.3 (Serial No.16), 70-76.

Porter, G., Hampshire, K., Abane, A., Robson, E., Munthali, A., Mashiri, M. and Tanle, A. 2012. Youth, mobility and mobile phones in Africa: findings from a three-country study. Journal of Information Technology for Development, 18 (2): 145–162.

Porter, G. 2012. Mobile Phones, Livelihoods and the Poor in Sub-Saharan Africa: Review and Prospect. Geography Compass, 6 (5): 241–259

Rintamäki, Kuusela & Mitronen 2007: Identifying competitive customer value propositions in retailing. Managing Service Quality, Vol. 17, No. 6, pp. 621-634.

Saleh, I. (2014) Whatever Happened to South African Youth? New media & New politics & New activism. In Culver, S. H. & Kerr, P. (Eds.) Global Citizenship in a Digital World. MILID Yearbook 2014. Goteborg: Nordicom.

Sarantou, M., Kontio, T. and Miettinen, S. (2017). The Hero's Journey: An art-based method in social design. Proceedings the Art of Research Conference. 29.-30.11.2017. Aalto university. (Forthcoming)

Sarantou, M.A., Miettinen, S.A. (2017). 'The connective role of improvisation in dealing with uncertainty during invention and design processes'. Conference proceedings Research Perspectives on Creative Intersections, Design Management Academy, Hong Kong.

Shostak, M. (1981). Nisa: the Life and Words of a !Kung Woman. Cambridge and Massachusetts: Harvard University Press.

Stickdorn & Schneider 2010: This is Service Design Thinking. Basics – Tools – Cases. Amsterdam: BIS.

Swann, C. (2002). Action research and the practice of design. Design issues, 18(1), 49-61.

Tassi 2009: Service Design Tools – Communication Methods Supporting Design Processes. www.servicedesigntools.org (accessed 25.6.2013)

Tufte, T., Wildermuth, N., Hansen-Skovmoes A.S. & Mitullah, W. (2013) Speaking up and talking back? Media, Empowerment and Civic Engagement among East and Southern African Youth. Göteborg: Nordicom.

United Nations General Assembly, Resolution adopted by the General Assembly [without reference to a Main Committee (A/60/L.1)] 60/1. 2005, World Summit Outcome, pp. 1-38, viewed 09 December 2017, http://www.un.org/womenwatch/ods/A-RES-60-1-E.pdf

van Zyl, Izak (2013) Technology encounters and the symbolic narrative. Localising the "technology for development" experience in South African education settings. Ph.D. in Communication Sciences. Faculty of Communication Sciences, Università della Svizzera italiana. October 2013.

Wasserman H. (2011) Introduction: taking it to the streets. Popular Media, Democracy and Development in Africa. London: Routledge

Zimmerman, J., Stolterman, E., & Forlizzi, J. (2010). An analysis and critique of research through design. Towards a formalization of a research approach. In Proceedings of designing interactive systems, DIS 2010. New York: ACM