

# Using Co-Design to Discover and Overcome Barriers to Employment in Cape Town

Grace Jegede  
University of Cape Town  
Department of Computer Science  
Cape Town, South Africa  
+27 21 650 2663  
[jgdgra001@myuct.ac.za](mailto:jgdgra001@myuct.ac.za)

Melissa Densmore  
University of Cape Town  
Department of Computer Science  
Cape Town, South Africa  
+27 21 650 2663  
[mdensmore@cs.uct.ac.za](mailto:mdensmore@cs.uct.ac.za)

## ABSTRACT

In this paper we describe the co-design process to uncover the unemployment problem, in Cape Town, South Africa. We engage with unemployed or underemployed individuals at two different NGO sites in Cape Town. We engage, primarily with current and former students of two job readiness programmes and supplement our work with input from intermediary trainers. We outline our use of co-design under the umbrella of Participatory Design (PD) and discuss our findings, in line with the different documentations of benefits of intermediaries. Our findings highlight the benefits of working with intermediaries from the NGOs and the benefit of working with NGOs as embedded community partners. Additionally, we show that co-design can be used to successfully uncover issues around a problem such as unemployment.

## CCS Concepts

• Research→Participation • Research→Co-design

## Keywords

ICT4D; Unemployment; co-design, participation

## 1. INTRODUCTION

The United Nations Sustainable Development Goals names “Decent Work and Economic Growth” as goal number eight, noting that widening inequalities has led to slow job creation, with over 204 million persons unemployed in 2015.<sup>1</sup> Unemployment is an especially prominent development problem in South Africa, where the 2016 rate of unemployment is reported as 26.6%.<sup>2</sup> Unemployment, results in a number of ills such as ill health, prevailing crime, slow job creation, educational inequalities and social instability. Many NGOs address this through *job readiness programmes*, which provide soft-skills training to help their participants learn how to obtain and keep jobs, supplemented by additional training in specific trades. Many of these programmes

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<sup>1</sup> <http://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-8-decent-work-and-economic-growth.html>

<sup>2</sup> <http://www.statssa.gov.za/>

include some computer skills training, often necessary for curriculum vitae preparation and for finding available posts online. In this research we use a participatory and co-design approach to understand the ways in which information and communications technologies are used by staff, current students and graduates of job readiness (JR) programmes in Cape Town. With our research participants, we seek potential avenues in which a novel computer- or mobile-device-based intervention might be able to address some of the barriers faced by the students. In this poster, we describe the context for our research, our approach, and some preliminary observations from our first cycle.

## 2. BACKGROUND

In South Africa, NGOs such as Afrika Tikkun (AT), The Zankhanyo Network (TZN) and other organizations run job readiness programmes and skills training programmes in order to support the unemployed or under-employed individuals in the country. The organizations offer their job readiness services to both citizens as well as non-citizens.

### 2.1 Job Readiness Programmes

#### 2.1.1 NGO 1: The Zankhanyo Network

The Zankhanyo Network is a non-profit organization that merged from the previous Network and Zankhanyo organizations in 2016. The organization runs nine-day job readiness programmes from two sites; Wynberg and Epping, to provide employee-sought skills and self-confidence boost amongst other benefits to participants. This research will focus primarily on the Wynberg site, which serves people of various ages from all over Cape Town, including many French-speaking refugees.

#### 2.1.2 NGO 2: Afrika Tikkun

Afrika Tikkun is an international organization that runs several different programmes suited to different age groups, from an early childhood development program to a two-month JR program, which targets 19-35-year old individuals in Mfuleni, a township nearly 40km from Cape Town. The organization offers work skills, entrepreneurship skills, money skills and people skills training to its students.

### 2.2 Participatory Design

Participatory Design is a design approach that attempts to obtain bi-directional knowledge transfer between users and designers (Information Technology experts), in order for users to have a say and allow the designer to make the possible approaches to solving problems known to the users. Although PD was targeted at office work [12], it has shifted to use in research. PD allows users to be more engaged, “having a say” [12] as opposed to being “spoken for” by the researcher [4] in a user-centered design approach. In PD the user is recognized as an expert [1].

Ethnographic techniques have become an important part of participatory design as it enables access to tacit knowledge through observing and participating in users' practices [12]. For this research, we make use of participant observation as a means to gain supplementary information from that obtained from what interviewees and workshop participants 'say' which is limited to what they are able to express in the languages of communication used as well as limited to what they want the researcher to hear [4]. PD thus involves in-depth knowledge often from few, as such PD has sometimes been criticized as being small scaled and short-lived [12], mapping only to a small or local context and dying once the project is completed, we acknowledge this criticism as a critical ethical issue however we reduce the chance of running into this issue by working with NGOs as partners capable of dissemination information about and mediating the use of any artefact resulting from this work over different intakes of students.

Participatory design addresses power dynamics that come with social innovation [12], doing this by attempting to give a voice to a variety of participants.

### 2.3 Co-design

Co-design is process of collective creativity throughout a design process [10] among different kinds of experts[13]. The experts could be different academics, researchers, designers as well as *experiential experts*- Experts of the experiences.

Co-design enables several benefits: Co-design fosters joint creativity [13], induces ownership and sustainability [2] and promotes the generation of inspired ideas through the trigger of probes [10]. Many other benefits also result from working with the individuals impacted by the project such as saved costs, improved user satisfaction and user learning, see [13].

Although it is beyond the scope of this paper to discuss the differences of PD and co-design; It is worth mentioning that they are overlapping concepts, we make use of co-design as an ideology for the workshops under the umbrella of a PD process, where the entire project is conducted with a PD cycle.

### 3. RELATED WORKS

A number of studies have attempted to use ICTs to tackle unemployment and poverty problems. Ummeli [5] is a text-based mobile unemployment solution that was targeted at semi-literate individuals. A different study has shown that voice based employment exchange system is desirable in -rural context and potentially among low skills or low education individual as per the findings from studies in Karnataka India [14].

Ummeli provides functionality for its users to browse for jobs, post and recommend jobs, create CVs and communicate with other job seekers. It was tested in the South African township of Khayelitsha [5]. Gitau attributes the unemployment to a lack of skills among the low-income. Brittan's work, which creates profitability software for micro and Small Enterprises (MSE), attributes the cause of under-employment to lack of funding. The lack of funding is then attributed to insufficient cash flow paper work, which could attract investors. Lack of funding is an issue for both small businesses and unemployed individuals who would like to start businesses. In addition to lack of funding, minimum wage and work conditions restrictions from bargaining councils and wage boards, which are applied uniformly irrespective of company size incur relatively higher labour costs on small businesses [6]. This is true for the small subset of individuals who manage to enter the labour force, however it is suspected that barriers such as disempowerment and restrictions of past apartheid period, lack of infrastructure, land and capital would bar the

potentially self-employed, unemployed persons from employment. It is no surprise that poverty discourages job-search activities [8]. Babajob (babajob.com) utilised cellphone numbers as an alternative to email addresses and also involves people, who may guide the use of technology. Babajob's interface is simple with very few steps required from a job applicant as opposed to Indeed and CareerJet. Babajob also allows users to apply directly through the site, as well as subscribe to get SMS<sup>3</sup>.

Meissner and Blake attribute unemployment to weaknesses in the career guidance support that young people receive from school and family [7]. Meissner and Blake made use of personas to show that low-income community youth faced challenges of family pressure to find jobs as soon as possible, low or no guidance on how to propel their careers as well as a need to manage the much constrained resource-time. These young individuals had to juggle between school and watching over younger ones, or between working and watching over young ones. They proposed to address this problem by offering career guidance which involved using a computer and a website, but also admitted that these individuals were time-constrained and lacked advisors who would give them advice when using the websites.

## 4. METHODS

### 4.1 Cycle One

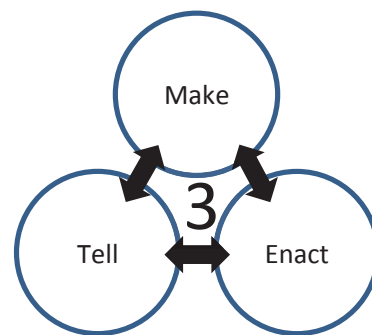


Figure 1: The Tell-Make-Enact Cycle

The research method adopted for this research is Participatory design as has been discussed under the sub-heading - "Participatory Design" making use of the tell-make-enact cycle over three iterations. The cycle was coined by Brandt and others[12]. Brandt suggests that the traditional participatory action research design cycle (Plan→Do→Observe→Reflect) be replaced by a Tell↔Make↔Enact cycle that allows prototyping to happen in any stage, and acknowledges that design entails movement in both directions around the circle.

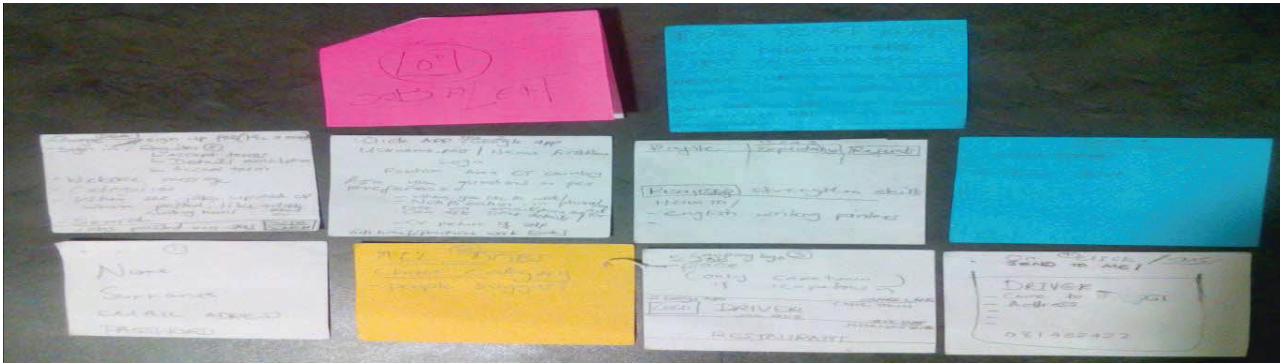
**Tell:** A co-designer/s describe an employment related idea to other co-designers

**Make:** A co-designer/s make a prototype of the idea

**Enact:** The created prototype spurs new ideas in the workshop, and serves as a bases for the next co-design cycle. Co-design is used mainly in the workshops.

The research is conducted using participant observation, trainer interviews, student interviews and student workshops. The participant observation is conducted as a long-term source of unspoken information as well as tacit knowledge. We conducted interviews with both student and trainers.

<sup>3</sup> www.babajob.com/



**Figure 2: Prototypes of Ideas at Workshop 1**

The trainer interviews provided supplementary information as intermediaries for the students whereas the student interviews were for gaining in-depth information from actual job seekers who are potential users of the future intervention.

## 4.2 Cycle Two

In this cycle, we will focus on one particular idea generated as part of Cycle 1, developing and evaluating an artefact.

### 4.2.1 Step 2.1: Idea selection and implementation (MAKE)

The researcher will select one idea from those generated in Cycle 1, one that is feasible to implement within the time-frame allowed. The researcher will then create a working artefact based on the paper prototypes.

### 4.2.2 Step 2.2: One-on-one Co-design sessions

The researcher will select five participants from each NGO (ten total) for one-on-one co-design sessions, each of which will last about 1.5 hours, taking place in the NGO offices. This will be done individually so they each participant has an in-depth engagement with the artefact.

For each session, the following will occur:

- Researcher gives context, explaining how the idea was selected, and the basic features of the artefact, providing design rationale based on findings from Cycle 1 (TELL)
- The participant will do a cognitive walkthrough of the artefact (ENACT)
- The participant will provide feedback and make recommendations for improvements (TELL)
- The researcher and participant will co-design paper prototypes to capture new ideas and recommendations for improvements (MAKE)

### 4.2.3 Step 2.3: Reflection and reporting

The created artefact will be reflected on through prototypes and cognitive walk-throughs with co-designers in order to “make” recommendations for improvements, which “enacts” the researcher to create a refined higher prototype.

## 4.3 Cycle Three

Similar to cycle 2, the input will be collected from potential beneficiaries to improve the developed artefact.

This will be done with 5 participants from each organization.

## 5. FINDINGS

### 5.1 Participants' Demographics

Cycle one of this research has been completed with adjustments to the actual methodological plan, we discuss the rationale behind

the changes and the impact of the changes. Table 1 gives some of the findings about participant from both organizations' workshops, all participants who answered the survey questions were willing to return to school if the funds were available. Many of the details will be discussed in a follow-up paper.

### 5.2 Interviews

Two trainers and two students were interviewed from each organization. The trainer interviews provided supplementary data to what was learnt directly from the students. The co-design approach entailed working directly with the individuals affected by the situation, that is, the unemployed or underemployed student participants through interviews (and the workshops discussed in the following two sections).

**Trainer interviews (2 per NGO):** The trainers are first interviewed as intermediaries to provide entrant information about unemployed persons they coached and unemployment itself.

**In-depth Student Interviews (2 per NGO):** The student job-seekers interviews are then conducted in order to gain in-depth information from actual job seekers. We sought demographic information as well as information on prior jobs and training.

### 5.3 Workshop One: The Zanokhanyo Network at Wynberg

**Brainstorming workshop (1 per NGO):** The data collected was then triangulated by collecting information in an ideas generation workshop. Utilising a workshop approach allows us to obtain multiple views [9] in a single sitting. The workshop session involved seven co-designers (five unemployed or underemployed participants, the researcher, and research assistant).

1. **Survey and Study primer:** First, the researcher asked a series of questions about the participants (nationality, mobile literacy and usage), and about struggles faced in job searching. Through this process, we identified problems together, triggering ideas that would be useful in the ideas brainstorming section of the workshop.

2. **Ideas Brainstorm discussion:** Then a brainstorming section was undertaken, where participants were given a chance to mention unemployment related difficulties and ideas that they felt could be solutions to the job searching problem. Each participant was free to engage in the discussion in any order. Issues such as language barriers in speaking English and Afrikaans, and lack of experience which were sought by employers were raised.

3. **Prototyping session:** Participants were given a chance to prototype ideas after the discussion.

4. **Ideas Presentation and discussion:** The participants were then given a change to discuss their ideas.



Most of the ideas suggestions at the workshop revolved around the creation of a job searching application, see figure 2. The prototyping session was not very diversified, many of the prototypes were created by the researcher once an idea came up. In divergence from the app idea was the idea of a language learning app which could potentially tackle lack of proficiency in English or Afrikaans.

**Table 1: NGO Workshops Participants' Information**

Participants information	TZN Participants	AT Participants
Common Native Languages	French	Xhosa
Smart Phone ownership	3/5	2/5
Affirm interest in returning to school	5/5	5/5

#### 5.4 Workshop Two: Afrika Tikkun at Mfuleni

Another workshop was then conducted at AT in Mfuleni, but it differed from the earlier workshop as the researcher allowed it to be largely driven by the trainers i.e. the intermediaries. Instead of a workshop with about 7 participants we had a session with all the students that were present, some graduates and a trainer of the job readiness programme. The session included 34 students, 7 graduates, a trainer and the researcher. A scribe was chosen from the students who used markers to write down the ideas on a markerboard.

The focus of the session was to discuss the struggles and some solutions for the unemployment problem as was also done in the workshop at Wynberg, however this session yielded more issues. Several issues were raised, some of which could be aided by a technological intervention. We recognize the role of the trainers as intermediaries in directing the workshop, the intermediary assisted in getting the students to participate, facilitating the workshop by introducing it in a manner that made it appealing to the students, and it is possible that the session yielded more results because the students trusted the intermediary who took part in the co-design session.

#### 6. FUTURE STEPS

Several design ideas emanated from this research as anticipated, one or some of which will be developed and evaluated whereas others will be suggested as future recommendations to address the unemployment problem.

The ideas that have emerged can be categorized as follows:

1. Information and knowledge dissemination technology on how and where to seek employment
2. Application to find jobs in a simple way unlike CareerJet and other websites
3. Professional networking site similar to LinkedIn oriented to low-skilled individuals
4. Applications to teach job seekers English and Afrikaans to improve employability

The design direction that will be selected may make use of technologies such as USSD, SMS, Bluetooth, emailing and other technologies which may be incorporated in a braided fashion [3]. The technology will be open source and available for use or future development.

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