

ICTs and Survival Tactics for the Day-Labour Workers: Implications for Design

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Abstract: In this paper, we show how results of data collected on the survival tactics of day-labour workers with regard to the cost of using mobile phone services played a role in software systems design. The paper uses findings from Nairobi Kenya. The results showed that workers, depending on the choice of available network tariffs adopt different survival tactics which range from being personal to involving others. In conclusion, workers as mobile phone users adopt the different survival tactics depending on what the market provides. The competitiveness of the market dictates the options available. Lessons from this research were used in making software design decisions for the day-labour market. They can also be used, among other things, by Information and Communication Technology researchers who wish to intervene for the poor in society. Other uses include for policy formulation, especially those that touch on reducing the digital divide gap.

Keywords: DLM, Day-labourer, tariffs.

1. Introduction

The term “day-labour” refers to a type of employment arrangement not covered or regulated by formal labour laws. It is often referred to as the day-labour market (DLM) [1,2]. A day labourer is someone who gathers at a street corner, an official or non official hiring site, or other spots to sell their labour for the day, an hour, or for a particular job [3]. Day-labour workers/job seekers are either skilled or semi-skilled. One such group of day-labourers gather along one of the major streets of Nairobi—Moi Avenue. Such gathering places are referred to as worker collection points [4]. Day-labourers face a number of challenges which include spending a lot of money and time in commuting costs; very low earnings; conman ship; harsh weather conditions and lack of sitting space [5, 6].

In this paper, we show the implications on software systems design decisions of the results of data collected over two years on the survival tactics of day-labour workers with regard to the cost of using mobile phone services and other general livelihood survival tactics. The objective of the study was to find out suitable ICT applications that can alleviate some of the challenges faced by the Day-labour workers. We highlight some findings obtained from our observations and chatting (hanging around) [7] with the job seekers and potential employers. The methodology applied can be categorised as rapid ethnographic [8], involving participant observation and focused non-structured face-to-face interviews [9]. We categorise the findings into three major categories namely technology use; Day-labour organisation and general life survival tactics. We concentrate in the Nairobi (the capital city of Kenya) findings and only occasionally use findings from South Africa and Namibia for comparison purposes. According to the interviewees, the Moi avenue worker collection site has been in existence since 1932.

The key contribution of the paper is findings on the three themes as having shaped our design decisions. The findings can also be used in other areas such as for policy formulation, especially those that touch on reducing the digital divide gap in the developing countries and working on ICT initiatives that touch on the poor in the society. Other policy uses may include by the mobile service providers when coming up with tariff plans for the mobile services users.

The rest of the paper is organised as follows: Section two presents the methodology, Section three presents the findings combined with the discussion on the three themes while section four gives the design implications of our findings. Section five is the Conclusion.

2. Methodology

Although we did the study in the three case study areas covering Cape Town South Africa and Windhoek Namibia, we concentrate on the data collection methods for Nairobi for because this paper is about the Nairobi findings.

2.1 The Study Process

We conducted both non-structured and structured face-to-face interviews with the Day-Labour Market (DLM) job-seekers and employers. We also observed them for many hours go about their daily business. Photography, voice recording, and field notes were used to capture data. A total of 33 day-labour workers and five potential employers were interviewed during the fieldwork which was divided into four milestones. We interviewed more than half of our interviewees more than once.

2.2 Information Collected About the Nairobi DLM

Next is the information collected during the field work study and describe the purposes for collecting each of the information elements:

1. Demographic information (e.g. age and gender): we used this for the general understanding of the DLM in Nairobi.
2. How long a day-labourer has been at the collection point: the purpose was to find out if the day-labourers had a long term stay at the collection point or that the collection point was there to help them obtain long term employment.
3. The DLM organisation: The idea was to understand how the Nairobi DLM was organised in terms of how the stakeholders related.
4. How individual job-seekers went about seeking for jobs: This was to help us understand the day-to-day activities of a typical day-labourer.
5. Technology related information that included mobile phone ownership; telephone usage; airtime on phone at that time: The purpose was to find out whether job-seekers were already using ICTs in running their day-to-day activities and to understand how the day-labourers were using the ICTs at their disposal.
6. Education level: This was meant to measure the literacy levels of our participants. Research has shown that designing for non-literate and semi-literate is different from designing for the literate [10].

3. Findings and Discussions

In presenting the results and the discussions, we concentrate on the three major themes developed during the study process. The themes were technology use; the day-labour organisation and the general survival tactics for the day-labourers.

3.1 *The Technology Use Especially the Mobile Phone*

A majority (90%) of the day labour workers in Nairobi own mobile phones while 100% of the job seekers have access to it [5]. The workers mostly use the mobile phone for voice calls communication. They make calls and receive them mainly from their peers; their clients (potential employers); family and friends. There were a few (10%) of the day labour workers who used short message service (SMS). We could not establish a clear reason why majority of the workers have not adopted the SMS. The use of SMS for communication would have been expected to be high as the cost is lower compared to voice calls. In addition, the job seeker population is relatively educated to a level where you would expect them to adopt SMS. One of the reasons we thought could be hindering the adoption of SMS was the workers age brackets, with the average age being 44 years.

The high cost of voice calls in Kenya has brought about different cost cutting survival tactics by both the day-labour workers and the Kenyan population at large. These cost saving measures by subscribers cut across all the four mobile service providers. The following are some of the tactics we picked out from the day labour workers:

1. Ownership and use of more than one SIM cards.

In the days when different service providers used to have different service plans (tariffs), users would have two Subscriber Identity Module (SIM) cards from the same service provider. Each SIM card would be used at different times depending on the plan. For example flat rate SIM cards were preferred during the day (peak hours), while those with lower calling rates during non-peak hours were in use at night and weekends. During the study period, almost all the service providers in Kenya each had one service plan for prepaid tariffs. What this meant to the prepaid tariff consumer is that they had a choice between service providers and not service plans as it used to be. Day-labourers have continued the ownership of more than one SIM card from different service providers. The following are different scenarios in which one could hold up to three SIM cards:

- **To use specific services provided by specific service providers** - For example a client who sends money to his/her rural folks would rather have a Safaricom SIM card, which has a mobile money service (M-Pesa) with agency points countrywide. This is compared to service providers whose penetration is still lower.
- **To have cheaper call rates across and within networks**-The interconnection fee across different service provider networks is set by the industry regulator in Kenya— Communications Commission of Kenya (CCK). Currently, the interconnection is not zero rated and hence calls across networks will be charged as a combination of the within and the interconnection fee. The voice call charges within networks differ from provider to provider with other providers charging as low as KES 10 (0.13 USD) per day within network while others charge as high as KES 4 (0.047 USD) per minute. Hence, the cost of calling across networks is more expensive than within networks. To guard against this, subscribers have adopted a strategy where they own more than one SIM card. One of the SIM cards will be providing the cheapest call rates within the network and perhaps another one with the cheapest call rates across networks.

- **To have cheaper data bundles-** Data bundle plans in Kenya differ from service provider to another. Mobile phone service providers with the cheapest voice call rates do not necessarily have cheap data bundle plans. This has forced those subscribers who wish to access Internet services from their mobile phones to use other SIM cards from other subscribers. In our findings from the day-labour workers, access to cheaper data bundles was not a major reason to own an extra SIM card.
- **To use free or cheaper SMS services** – In Kenya, some service providers have free SMS service within network but relatively expensive to other networks. Also, providers with cheap SMS services do not necessarily have cheap voice call rates. To take advantage of the cheap (in some cases free) SMS services in one network and cheaper voice call rates in another network, subscribers choose to have more than one SIM cards. Because the day-labour job seekers do not use SMS service, using free or cheap SMS service was not among the major reasons for adopting dual SIMs.
- **To beat the network coverage challenges.** The mobile service providers with the cheapest voice call or SMS rates do not have 100% network coverage in Kenya. This means that rural areas inhabitants with poor network coverage do not have the luxury of choosing between different mobile service providers. This consequently has an impact on the subscribers living in places where all the providers have full network coverage. The subscribers living in cities and its surrounding are forced to have more than one SIM cards too, one for local (within city or its environs) calls and one for long distance calls (calls to places where one or two providers may have network coverage).
- **To retain his/her network of clients, friends and family** – Subscribers rarely make inter network calls except where very necessary. In many instances, acquiring a new SIM card and consequently changing a service provider means change of telephone numbers. This means that clients, friends and family members who had old telephone numbers may lose them. To avoid such inconveniences, day-labourers have adopted a multiple SIM card ownership strategy.

3.2 *Reaction by Industry to Ownership and Use of More than One SIM Cards*

The service providers and the mobile phone manufactures reacted to the need by the subscribers to have flexible but cheap mobile phone related services.

Mobile service providers reacted in different ways. The two in Kenya which had limited network coverage increased their network coverage to include previously uncovered areas such as many rural areas. Another service provider which already had network coverage provided relatively cheap voice calling and SMS rates. The expansion of network coverage was meant to encourage mainly the urban areas inhabitants to use their services even when calling or writing SMSs to those in the rural areas. On the other hand, the provision of cheaper call and SMS rates by the third provider may have been to counter the two providers which had expanded their networks. To counter the three competitors, the leading mobile service provider decided to continue strengthening its non-core services such as mobile money, different data bundle plans and other services such as ‘*semeni*’, which is a group SMS service that allows one to communicate better with members of a social group.

To adapt to the market dynamics, the mobile phone manufactures and importers/suppliers had to rethink their strategy too. We noticed two major ways in which the manufactures adopted. The first was the manufacturing or importation of cheap mobile phone handsets (as low as 12 USD). This, in our opinion, was expected to convince

subscribers to own more than one mobile phone. Other manufacturers decided to seek leave from the subscribers. For instance the mobile phone manufacturer, Tecno, which manufactures dual SIM card mobile phones, got into the city of Nairobi in a stormy way. Similarly, importers of mobile phones turned to China for cheap dual SIM mobile phones.

4. Making Use of Value Added Services Provided by Mobile Service Providers

“*Please call me*” is an example of such service. It is a USSD service that allows a subscriber to send a free message requesting for a call back. This service was common among the day-labour workers in Kenya as there is no cost involved. The day-labour workers mainly used the “*Please call me*” service to request for calls from their clients, friends and family members who might be better off in terms of income. “*okoa jahazi*”, a service that some providers loan airtime/credit to subscribers was a service used by day-labourers to borrow airtime on credit when out of work and returns it back (with interest), only when they have worked and have been paid. The “*sambaza*” service by Safaricom allowed the day-labourers either to receive or transfer airtime to their dependants or friends.

3. Use of low denomination airtime.

The low denomination airtime, as low as KES 5 (0.06 USD), has given the day-labour workers an opportunity to use mobile phone services efficiently. Before the low denomination airtime was introduced, subscribers would be forced to buy airtime for a denomination that is higher than what they needed at any particular time. The higher denomination airtime was and is still a major challenge to subscribers as the poor majority (e.g. day-labourers) do not afford to buy.

3.3 The Day-Labour Organization

This was our second theme with the key objective of finding out the overall organisation of workers at the collection point. By organization, we mean how the workers controlled and managed the overall activities at the collection point in order to make it orderly. The most important thing was to find out how the Nairobi day-labourers conducted themselves given that they had no formal organisation/institution running the collection point. Because the issue of approaching customers (employers) is an important one in the day-labour job search process, we also sought to check how the Nairobi day-labour workers dealt with it.

The other issues we were looking at regarding the organization of the workers were their socialization plan and the role of mobile telephony in socialization; job search activities and how the workers controlled themselves in terms of waiting space occupation. The following are what we found out:

The Moi avenue worker collection point is along the pavement and with relatively smaller space given the number of workers. To avoid congestion, the city council of Nairobi (which manages the city planning) ordered that a few individuals of the day-labour workers be allowed to stand on the front of the street. The majority of the workers waited behind the buildings in the same street.

The observation study we carried out in Nairobi followed numerous studies done in a total of six worker collection points in South Africa (SA) and Namibia (NA). Findings from these six sites in SA and NA indicated that mass approach of potential employers (also referred to as mobbing) was common among the day-labourers. To make the worker collection point friendly and hence increase job offers, organisations such as Men on the side of the road (MSRSA¹ and MSRNA²) trained and controlled workers on how to approach clients.

In addition to mobbing, when approached by employers, workers would claim to have skills asked for by the employer. This would not give any chance to a worker not around

¹ www.msra.org.za

² www.msra.org.na

and it would also jeopardise the trust on workers waiting at collection points. The picture seen in Nairobi was totally different. First, we thought that because it is a self-organised group of job seekers, the approach to clients would be chaotic. This was not however the case. Instead, potential employers were approached in a calm manner by a few day-labourers. In cases where the approaching individual did not have the skills required, he would make arrangements to contact his colleagues either directly, through other colleagues or by a phone call.

To find out what drives the excellent organization in Nairobi, we engaged ourselves in trying to find the role of the mobile phone in the self-organisation of the Nairobi day-labour job seekers. Findings did not show any correlation between the mobile phone and the good organization enjoyed by the workers.

The job seekers used the mobile phone to contact their colleagues only when they were away from the collection point. We did not see any direct relationship between the seemingly perfect organisation and the mobile phone use. However socialisation among job seekers, their friends and relatives seemed to depend very much on the mobile phone. Job seekers, most of whom had left their families back in their rural home made do with the mobile phone, voice call and SMS, as their main means of interaction. On the other hand, socialisation at the worker collection point was mainly through face-to-face conversations. Indeed, one of the main reasons given by workers for coming to collection point is to “pass time” while socialising and getting updated on matters of politics and current affairs.

Although the workers occasionally received money from friends, colleagues or family members through mobile money services, they were mainly the ones who send it to their family members (mainly dependants).

3.4 General Life Survival Tactics: Dealing with Life

During our participant observation of the Nairobi DLM, we picked up three interesting things about the day-labourers’ life within and outside the collection point. The first issue was the commute time and cost to and from their homes to the collection points. The average daily commute cost was reported to be between USD 1 to USD 1.25. To reduce the cost of commuting, job seekers commuted during off-peak hours. Majority of those who used “*matatus*” (motor vehicle public transport) or train services arrived at the collection point between nine and ten AM and leave for home early (at three to four PM) or late (at seven to eight PM).

The second issue was to find out how the workers spend a typical day at the collection point. We found that chatting with colleagues and being vigilant for a potential employer takes a lion’s share of the day. In few occasions, workers use part of their waiting day to catch up with friends who may not necessarily be job seekers in the day-labour industry.

The last interesting finding was on dealing with visits to their families in the rural home. The workers discussed their visiting strategy as one that considers cost saving. During the months of January to November each year, their visits depended on availability of money; urgency of the visit (e.g. emergency) and the time of the month. Mostly, the workers made their trips mid month and on week days. These are the days when the upcountry bus fares are at their lowest. In our December 2011 observation, we got up with many workers at the collection point as late as 23rd. By the 12th of January, majority of our interviewees (73% of the 23 workers) had not come back to their collection points.

4. Design implications and the software applications

Our design implications were as a result of the findings on the mobile phone ownership and use; types of mobile phones owned ; the cost of using the technology and the how technology affected travel among the DLM workers. The key objective of the study was to

find out the kind of software systems, mainly mobile phone and web-based software systems that could be developed for the DLM to reduce some of the challenges faced by members of the day-labour market especially workers. The issue was to find a way of reducing their total commute time and the monetary and time expenditure for the day-labourers and hence increasing their income. This therefore required that during the study, there was need to find out whether building applications to support their activities was a viable option. One of the things we were looking at as a determinant was the type of mobile phones owned and/or used by the day-labour workers.

With the type of mobile phones owned by our target group, it was not viable to build systems for the workers directly as the type of systems we needed to develop required at minimum Java enabled mobile phones. Most of the day-labour workers did not have such phones. We also thought of building SMS applications for the DLM workers. However, we found that the SMS adoption rate among the workers was low. Our thought was that the reason for such a low adoption rate would be because the voice calls charges, though still expensive by the poor standards, is affordable compared to other countries like South Africa and Namibia where voice call rates are higher.

In Nairobi, compared to South Africa and Namibia, we found that the DLM workers had a high mobile phone ownership (up to 90%). The Nairobi workers also had education levels (and hence literacy levels) higher than those from South Africa. They could also communicate with each other without any language barrier. We therefore made a design decision to build software systems for the DLM workers as primary users.

With regard to the cost of using technology, it was clear that the DLM workers were very sensitive about the costs. For example, they would switch from one service provider to another in order to save on costs. The design decision was to have a mobile based client application connected to the web server through the internet. This was because data bundles were cheaper compared to other alternatives.

4.1 The Software Designs

The software system was designed and tested with the DLM workers in Nairobi. The application had a central database accessible through the web and a mobile application. The design architecture was proposed and tested by developing them as prototype applications. The design process was therefore a series of design ideas generated from understanding the Nairobi DLM and prototyping it. The prototypes would then be tested with the users to solicit more design ideas. The prototypes were shown to job-seekers and potential employers in Nairobi and asked what they thought about it.

The mobile application consisted of three main functionalities: (1). new user registration module (2). user details update module and (3) the employers' job posting module. The new user module was for both job-seekers and employers who were not members but needed to register as members. The user details module was also needed for both workers and employers who wanted to change or update their details e.g. addresses for employers or new skills for workers. The mobile applications were developed using J2ME development environment.

5. Conclusions

In this work, to understand the survival tactics of the day-labour workers with regard to the cost of using mobile phone services such as voice calling and other general livelihood survival tactics, we have described the technology use; the day-labour organisation and the general life survival tactics for the day-labour workers in Nairobi. We have shown that day-labourers' use of technology choices is highly dependent on the plans provided by the service providers and their affordability. Although the key objective of the study was to

draw lessons for use in making software design decisions for the day-labour market, the findings could also be used, among other things, by ICT researchers who wish to intervene for the poor in society.

Because our study was contextualised to the DLM, lessons drawn from these results are likely to be true for DLM and not necessarily for the wider informal sectors. As a recommendation for future work, there is need to study ICTs innovations among various types of informal jobs and workers which are non-DLM related. This will provide capacity to generalise findings for the developing world, ICTs innovations and the informal sector.

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