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# Digital Service Adoption Model for the Youths Living in the Informal Settlements

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**Abstract**

Marginalized and unemployed youths can benefit from digital services specifically designed for them to sustain a living [16]. However, more adoption failure than success stories dominate the literature, which [8] attributes to the shortcomings of the first phase of Information Communication Technology for Development, largely working in a top-down manner with huge power structures in place. In Namibia, numeral technological services are designed to support youth development, especially those living in informal settlements. A preliminary investigation shows that the youths are unaware of the services and do not make use of them. Thus, it is of outmost significance that appropriate digital services are deployed using a valid technology adoption model to ensure a wide usage by the target group. This paper presents our current endeavor of co-designing an appropriate technology and service adoption model with the unemployed youths living in one of the largest informal settlements in Namibia.

### **Technology adoption models**

Technology Adoption Model, Motivation Model, Theory of Reasoned Actions Rogers Innovation Adoption theory and The Unified Theory of Acceptance and Use of Technology [14]

### **Models applied to youth technology usage**

[18] Postulate that young entrepreneurs in the rural areas in Malaysia can benefit from Technology if TAM is used. They discovered that the young entrepreneurs' intention to adopt ICT is moulded by believes of how the usage of ICT will advance their enterprises, e.g. their "perceived usefulness" but not those technologies that are necessarily easy to use. [11] revealed that young people are more likely to adopt a technology if there is entertaining aspect in it. [3] Discovered that social externalities, such as friends, or status gain, play a huge role as social factors in technology adoption.

### **Author Keywords**

Digital service adoption, youth unemployment, informal settlements.

### **ACM Classification Keywords**

H.1.m. Models and principles: Miscellaneous;

### **Introduction**

Namibia has a population estimate of 2.2 million, with a 39.2 percentage rate of youth unemployment [10]. Most of these youths migrate from rural areas to the urban areas in search of new job opportunities [10]. Migration to cities has been observed and proven to have negative consequences as more people especially young people end up living in the informal settlements [9].

Youth unemployment has become a serious socio-economic issue in Namibia. Thus government is prioritising youth development. As a result, numeral initiatives have been started to counter fight this trend in order to empower the current marginalised and unemployed youths to sustain a livelihood. This includes: skills training opportunities, services and technology development. However, the adoption and integration of such services and technologies has not always been successful.

Thus the focus of our research is on the development of an appropriate technology and service adoption model for youth in informal settlements. We have established a long-term collaboration with youth in one of Windhoek's largest informal settlements, known as "Havana". Together with Rlabs (Reconstructed Living Labs) under the Faculty of Computing and Informatics at the Namibia University of Science & Technology a

number of technology co-design and co-development activities are currently taking place to establish relevant services for the Havana youth, such as job-matching, crowdfunding, and career counselling among others [15]. Our study is concerned with the deployment of these very same technologies to the wider Havana community who were not part of the co-design process.

### **Digital Service Access in the informal settlements**

Most people living in the informal settlements have little technology access due to a lack of infrastructures in their areas [7]. Nevertheless, there is a substantial increase in those that are using cell phones to access services; for instance, in Kenya, Nigeria and Mozambique people are using their mobiles phones to report crimes to a server that is accessible to everybody in their community [1]. In South Africa, R Labs has created a digital currency where the youths can earn this currency if they do well in their communities [4]. The challenges of adopting and using ICTs can hinder access to relevant information enabling the marginalised communities back in the economic mainstream [3]. Therefore, to measure the success of a technology or a service, one evaluates if the users have adopted or have accepted it as anticipated.

### **Technology Adoption models**

Six widely used adoption models were evaluated for their suitability to the Havana informal settlement context (see side bar). Most of those models have been applied to youth technology usage before. Even though most of the theories have been applied on different settings and practices, we opted to derive our own model based on previous research undertaken in Havana to identify relevant factors and strategies.

[12] Indicated that, the literate community members are the main driving force in bringing technology closer to those that are non-technology users. [13] suggested Participatory Action Research as a viable method to develop and deploy technologies in slums. In a quest to understand how the inhabitants of urban slums in Nairobi, Kenya uses social media, [17] discovered that, factors unique to slums such as poverty, employment, gender, and language proficiency affects the impeccable adoption of ICTs. Conversely, in South Africa, [2] proposed a new model "MOPTAM" for mobile phones adoption. Their model has looked at the determining factors such as social influences (which has to do with peer opinions), Facilitating conditions (which encompasses of the actual system design and services, the costs) that influences mobile phone adoption such as demographic, social-economic factors and social factors.

### **Towards a localized adoption model**

A series of workshops with the youths in Havana were conducted with the aim to co-develop the adoption model with the youths. The first exploratory workshop was to establish and discover the current digital service used in Havana. The youths have identified organisations like RLabs Namibia and the and the Shack Dwellers Federation of Namibia which encourages the youth to save, offers training in profiling, mapping, survey and enumeration on computers

The second workshop was to explore needs and if the youths are aware of the digital services available online they can benefit from such as; Funzi a mobile learning application [5], Fuzu a career website for writing curriculum vitae and for searching for jobs[6] , a mobile wallet application for budgeting and keeping track of expenses. In an explorative session the angry bird game was added to evaluate the value of entertainment. The youths reported that, even if the game was fun, it does not add value to their lives and it flattens their batteries as they do not have electricity in their homes. However, the youths were very impressed with the Funzi application and suggested that translating the app into local indigenous languages will attract more youths that do not understand English.

The third workshop was to present the adoption model which was designed using factors as analyzed from the literature and those of the youths from the first and second workshop. Four main factors were considered: perceived usefulness, infrastructure, perceived ease of use and peer influence. The model relies on Havana youth as "ambassadors" of a system to be deployed, thereby considering the influence of peers. The system

to be deployed is a crowdfunding platform for social enterprises, as requested by the youth in the previous year. The system was designed for ease of use, ensured through a number of usability evaluation sessions with the Havana youth. Fifteen youth committed to become the crowdfunding technology deployment ambassadors. The youth ambassadors will act as intermediary users to ensure that the non-computer illiterate community members also benefits from using the. They got additional training to be familiar with all the details of the crowdfunding application.

In the fourth workshop, the youth ambassadors designed their technology deployment campaign. For starters they opted to use posters and create a Facebook page where they will be able to reach a mass of youths. The campaign is set to run for two months.

### **Way Forward**

This study is a continuing research with the objective to develop a digital adoption model for the unemployed youths living in the informal settlement in Namibia. The next step will be to evaluate the adoption of the system and to refine the model. The refined adoption model will then be tested with the citizen journalism platform to ensure a wide spread of essential livelihood information reaches the most in need.

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## Workshop in Havana



Figure 1 Explaining how the system works to the ambassadors



Figure 2 the ambassadors being trained on how to use the crowdfunding system

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