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

Asnath P Kambunga

Namibia University of Science and
Technology
Windhoek, Namibia
akasnath@gmail.com

Heike Wenschiers-Theophilus

Namibia University of Science and
Technology
Windhoek, Namibia
hwenschiers@nust.na

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, numerous 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 unemployed youths living in one of the largest informal settlements in Namibia.

Author Keywords

Digital service adoption, youth unemployment, informal settlements.

Technology adoption models reviewed

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.

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 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. The Namibian 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. Some of the initiatives are: skills training, services and technology development. However, the adoption and integration of such services and technologies has not been successful.

Therefore, the focus of our research is on the development of an appropriate technology and service adoption model for youth in informal settlements of Windhoek, the capital city of Namibia. We have established a long-term collaboration with the youth in one of Windhoek's largest informal settlements, known as "Havana". The development of an appropriate technology and service adoption model is done together with Reconstructed Living Labs (RLabs) under the Faculty of Computing and Informatics at the Namibia University of Science & Technology. A number of technology co-design and co-development activities that 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 proper infrastructures in their areas [7]. The challenges of adopting and using Information Communication Technologies (ICTs) can hinder access to relevant information enabling the marginalised communities back in the economic mainstream [3]. 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 mobile phones to report crimes to a server that is accessible to everybody in their community [1]. In South Africa, RLabs has created a digital currency where the youths can earn this currency if they do well in their communities [4]. Therefore, to measure the success of a technology or service, one should evaluate 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 in order 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 four (4) workshops with the youths in Havana were conducted with the aim to co-develop the adoption model. The first exploratory workshop was to establish and discover the current digital service(s) used in Havana. The youths have identified organisations like RLabs Namibia and the Shack Dwellers Federation of Namibia which encourages the youth to start savings, as well as training in profiling, mapping, survey and enumeration using computers.

The second workshop was to explore the needs and if the youths are aware of the digital services available online which they can benefit from such as Funzi, a mobile learning application [5]; Fuzu, a career website for writing curriculum vitae and for job searching [6], and 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 cell phone 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 application 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 identified/perceived by 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 aspired 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. Fourteen 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 benefit from using the system. The ambassadors received training to be familiar with all the details of the crowdfunding application.

In the fourth workshop, the youth ambassadors designed their technology deployment campaign. They opted to use posters and a Facebook page where they will be able to have a larger audience.

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 that a wide spread of essential livelihood information reaches the most in need.

Acknowledgements

We would like to extend our profound appreciation to the National Commission on Research and Technology for funding this research as well as fellow Masters students and mostly the Youths in Havana settlement for always availing their time to work with us on a voluntary basis.

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

References

1. Aker, J. C. & Mbiti, I. M., 2010. Mobile phones and economic development in Africa, Washington DC: Center for Global Development.
2. Biljon, J. v. & Kotzé, P., 2007. Modelling the Factors that Influence Mobile Phone Adoption. Sunshine Coast, ACM.
3. Bjoern, N., Elena, G. & Ralf, P., 2012. Social Aspects in Technology Acceptance: Theory Integration and Development. Hawaii, IEEE, pp. 3149-3158.
4. Burn, V., 2014. /rlabs-youth-tech. [Online] Available at: <http://moneyspentwell.org/2014/05/rlabs-youth-tech/>
5. Funzilife Inc, 2017. about. [Online] Available at: <https://funzi.mobi/about> [Accessed 18 March 2017].
6. Fuzu ltd, 2016. Home. [Online] Available at: <https://www.fuzu.com> [Accessed 16 March 2017].
7. Graham, S., 2002. Bridging Urban Digital Divides: UrbanPolarisation and Information and Communications Technologies (ICTs). *Urban Studies*, 39(1), p. 33 – 56.
8. Heeks, R., 2009. *The ICT4D 2.0 Manifesto: Where Next for ICTs and International Development?*, Manchester: Development Informatics Group.
9. Indongo, N., Angombe, S. & Nickanor, N., 2013. *URBANISATION IN NAMIBIA*, Windhoek: University of Namibia.
10. Namibia Statistics Agency, 2015. *Namibia Labour Force Survey 2014 Report*, Windhoek: Namibia Statistics Agency.
11. Rangaswamy, N. & Cutrell, E., 2012. Anthropology, development and ICTs: slums, youth and the mobile Internet in urban India. *ACM*, pp. 85-93.
12. Sambasivan, N., Rangaswamy, N., Cutrell, E. & Nardi, B., 2009. UbiComp4D: infrastructure and interaction for international development—the case of urban Indian slums. *ACM*.
13. Steyn, J., Rampa, M. & Marain, M., 2013. Participatory Development of ICT Entrepreneurship in an Informal Settlement in South Africa. *The Journal of Community Informatics*, 9(4).
14. Venkatesh, V., Morris, M. G., Davis, G. B. & Davis, F. D., 2003. User Acceptance of Information Technology: Toward a Unified View. *Ms Quatery*, pp. 425-473.
15. Winschiers-Theophilus, H. et al., 2015. ICTD within the Discourse of Locally Situated Interaction: The Potential of Youth Engagement, Zanzibar: IDIA.
16. Woelfer, J. P. & Hendry, D. G., 2010. Homeless Young People's Experiences with Information Systems: Life and Work in a Community Technology Center. Atlanta, ACM, pp. 1291-1300.
17. Wyche, S., 2015. Exploring mobile phone and social media use in a Nairobi slum: a case for alternative approaches to design in ICTD. New York, ACM.
18. Zaremohzzabieh, Z. et al., 2015. A Test of the Technology Acceptance Model for Understanding the ICT Adoption Behavior of Rural Young Entrepreneurs. *International Journal of Business and Management*.