METHODS AND TOOLS FOR COMMUNITY BASED RESEARCH PROJECTS: DISTRIBUTED DESIGN AND DISTRIBUTED INFORMATION FOR VOLUNTEER ORGANISATIONS IN SOUTH AFRICA: UNLOCKING VALUE IN TEACHING AND LEARNING PROGRAMMES

Arnaud Nzawou
Cape Peninsula University of Technology, Cape Town, South Africa. nzawoua@cput.ac.za
Ephias Ruhode
Cape Peninsula University of Technology, Cape Town, South Africa. ruhodee@cput.ac.za

ABSTRACT

The growing global challenges such as rising global population and youth unemployment have devastating impacts on developing countries. Many not-for profit organisations strive to reduce unemployment by running volunteer programmes for the youths while socially and economically improving communities. The aim of this research is to provide sustainable information and communication technology (ICT) solutions within the Sustainable Product Service System (S.PSS) framework to facilitate social innovation of volunteer organisations in order to scale social impact of developmental programmes in South Africa. The paper adopts the theoretical principles of S.PSS to design the proposed solutions. A qualitative case study approach is followed. Multiple methods of data collection were used to gather rich data from the volunteers and their mentors, allowing to better understand the extent to which an ICT based intervention could sustain developmental programmes for social impact. The findings show that the developmental programmes proposed by volunteer organisation presents challenges at different levels.

Key Words: S.PSS, Social Innovation, ICT4D.

1. INTRODUCTION

The growing global challenges such as rising global population and youth unemployment have devastating impacts on developing countries. It is to this effect that the United Nations General Assembly (2015) established the global agenda 2030 to address such challenges. The sustainable development goals (SDGs) are set to guide efforts towards addressing global challenges. In particular, Goal four of the SDGs speaks of quality education with a specific target ensuring that all learners acquire knowledge and skills promoting sustainable development practices (United Nations General Assembly, 2015). With less than 5% of the global population and less than 4.5% in South Africa going to higher education there is a need to establish alternative and innovative ways to ensure continuous skills development for the majority of the youth and more specially for the youth in marginalized communities in order to stimulate sustainable development and lifestyles (South Africa, Department of Higher Education and Training, 2018:6). Harnessing ICT in service of the world most severe problems require a clear understanding of these challenges (Dada, 2006; Heeks, 2008). Thus, existing institutions or organisations within South African communities can have a positive influence on ICT interventions. Development organisations and Non-Governmental Organisations (NGOs) such as volunteer organisations are well positioned to prioritise ICT-based interventions to achieve developmental goals (Marais, 2011; Dada, 2006:8; Ashraf et al., 2008). Hence, the South African National Integrated ICT Policy articulate that all South African must benefit from the ability of ICT to support social development and improve the quality of life of individuals and communities (National Integrated ICT Policy White Paper, 2016:3). Moving toward using available technologies to address existing socio-economic challenges is the main objective of these organisations (Marais 2011:120; Sithole et al, 2013).

This paper, being part of an ongoing study, investigates the challenges faced by an NGO which provides teaching and learning support to primary schools in under-resourced communities in Cape Town, South Africa. It has been observed that a number of NGOs and Non-for Profit Organisations such as volunteer organisations are working towards providing skills development to the youth within marginalised communities. Yet, the impact of their actions are not scaling and lack sustainability. Under this background, the question which the paper seeks to answer is: How can ICT strategies be designed to support a sustainable teaching and learning experience by volunteers in developmental programmes?

The next section describes the empirical case in the study, which is Action Volunteers Africa (AVA). The section that follows one on the empirical setting describes and explains the concept of sustainable product service system (S.PSS), followed by the section on the social pillars of sustainable development. The theoretical lens guiding the study is explained in the next section, followed by data collection before the paper ends with finding and recommendations.

2. EMPIRICAL SETTING

In 2012 Action Volunteers Africa (AVA) was set up as the CSI initiative of Action Appointments, a well- established NGO recruitment agency. AVA became an independent not for profit organisation (NPO). AVA has had a great impact on the 300+ young people who have volunteered on our programmes. Over 90% of the youth who have passed through AVA programmes have managed to secure further opportunities for work or full time study and are firmly on the path towards sustainable careers. The AVA project has also had a positive impact on the capacity of the partner organisations and schools, allowing them to expand or extend their impact at no extra cost. AVA has played an active role in advocating for the large scale use of volunteering as a means to address our growing youth unemployment.

3. SUSTAINABLE PRODUCT SERVICE SYSTEM (S.PSS)

According to Vezzoli et al. (2015), S.SPP is an offer model providing the integrated mix of products and services that are together able to fulfil a particular demand of (customer) satisfaction, based on innovative interactions between the stakeholders of the value production system, where the economic and competitive interest of the providers continuously seek after environmentally beneficial new solutions. S.PSS is a dynamic system with a multidimensional impact (Lee, et al., 2012; Annarelli, et al., 2016:1024). S.PSS has the potential to bring change in consumption and production patterns which could accelerate the shift towards sustainable practices and societies (Mont, 2002:239; Manzini & Vezzoli, 2003; Tukker & Tischner, 2006:1554; Baines et al., 2007:5; Vezzoli et al., 2015). Hence, S.PSS allows the identification of opportunities, trends and developments in societies and provide an innovative space for social systems. Thus, S.PSS enable close relationships between all stakeholders, effective and efficient communication, decentralisation in decision making, establishment of new performance indicators and the creation of new networks focusing in the identification of societal needs and changes such as shifts in social sustainability elements, information sharing networks and best practices. By following the S.PSS approach, volunteers organisations could deliver high value ICT-based solutions to communities and society at large (Baines et al., 2007:6). Such innovative solutions lie on the premise that existing technologies within organisations could be systematised (Manzini et al., 2003). This systematisation rely on innovative partnerships of all stakeholders (Chou et al., 2015).

S.PSS needs to be designed at the systemic level and must be user-oriented and users' involvement at the early stages of the solutions design process (Morelli, 2006); Baines, et al., 2007:7; Lee, et al., 2012:174; Gaziulosoy, 2015:104); Chou, et al., 2015). There is a need for interrelated innovation systems to support new models provid-

ing insight into societal developments and changes (Joore & Brezet, 2015). The scope of PSS solutions must meet broader sustainability issues. Systems combining and connecting users, organisations and sustainability must be established (Figure: 2) (Chou et al., 2015). Organisations need to focus on contextual conditions which may favour or bloc societal embedding of S.PSS approaches (Ceschin, 2013:5).

S.PSS can potentially deliver social welfare with limited negative environmental and societal impact (Lee, et al., 2012:174; Joore et al., 2015; Vezzoli, et al., 2015; Xin et al., 2017:399). Understanding social aspects of S.PSS within specific contexts is important to achieve sustainable development (Ceschin, 2013; Reim et al., 2015). The contribution of S.PSS on social sustainability depend on the acceptance level of S.PSS solutions and change of existing unsustainable practices (Mylan, 2015:13). Social transformation need to occur at the institutional, social, cultural, organisational and technological levels to achieve sustainability (Gaziulusoy, 2015:104; Mylan, 2015:13). Therefore, societies need to co-evolve and align with sustainability goals.

4. SOCIAL PILLARS OF SUSTAINABLE DEVELOPMENT

There is a need to focus on the social pillar of the sustainable development concept rather than just the economic and environmental dimensions (Vallance et al., 2011). Murphy (2012) recall the need to clearly understand the social pillar of sustainable development. McKenzie (2004:21) calls for new models of understanding and collaboration in social sustainability. There are currently limited integrated social sustainability frameworks due to the fact the social sustainability dimension has been neglected compare to the environmental and economical dimensions (Missimer et al., 2017b). To overcome this challenge, there is a need to develop frameworks which focus on the social dimension within specific contexts. Andrade et al., (2008) suggest that an integrated framework need to incorporate aspects of human capital, social capital and institution theories. Cuthill (2010) also mention the need to focus on aspects of social justice and equity (equity, rights, access, participation), social capital (social networks, social norms, trust, civic engagement, institutions, relationships, attitudes, values), engaged governance (inclusion of all stakeholders in the decision-making process) and social infrastructure (health, education, activity centres, transportations). Colantonio (2009) discuss social sustainability concepts (Table: 1) by contrasting between hard and soft concepts. The former includes employment and poverty while the later speaks of happiness, social mixing and sense of place. Murphy (2012) also identify awareness, equity, participation and social cohesion as essential elements for social sustainability.

Cuthill (2010) note the importance of shifting toward soft infrastructure elements which aim at identifying community needs and build capacity to meet those needs. The capacity building exercise need to bring clear outcomes to impact social sustainability. While there are many well established indicators such as social impact assessment (SIA) which focus more on assessing hard social sustainability concepts, little focus has been on understanding the impact of new emerging themes on social sustainability. There is a shift toward developing new set of indicators which will focus emerging themes (Table: 2) such as well-being, social capital, happiness and fairness rather than just looking at looking more traditional themes of equity, poverty and employment. For example, Rogers et al, (2012) argue that the well-being is a multidimensional concept and all components need to be measured objectively and subjectively to monitor progress.

5. THEORETICAL LENS

S.PSS principles propose three main approaches which organisations can follow to achieve successful analysis, design and implementation of solutions within the S.PSS framework. The three approaches as shown in Figure 2, involve service or product design, user oriented and result oriented. The three have been adopted to provide ICT solution for sustainable development within the learning and development programme of the volunteer organisation in the study. Several researchers, including Mont (2002), Manzin et al. (2002), Tukker et al. (2006), Baines et al. (2007) and Vezzoli et al. (2015), have identified key principles of successful development of ICT solutions within the S.PSS framework as: PSS solutions involves close relationships of all stakeholders throughout the process, Effective and efficient communication between oragnisations and users, Decentralised decision making process, Establish new performance indicators in dealing with stakeholders and Creation of new networks focusing on identifying societal needs and changes.

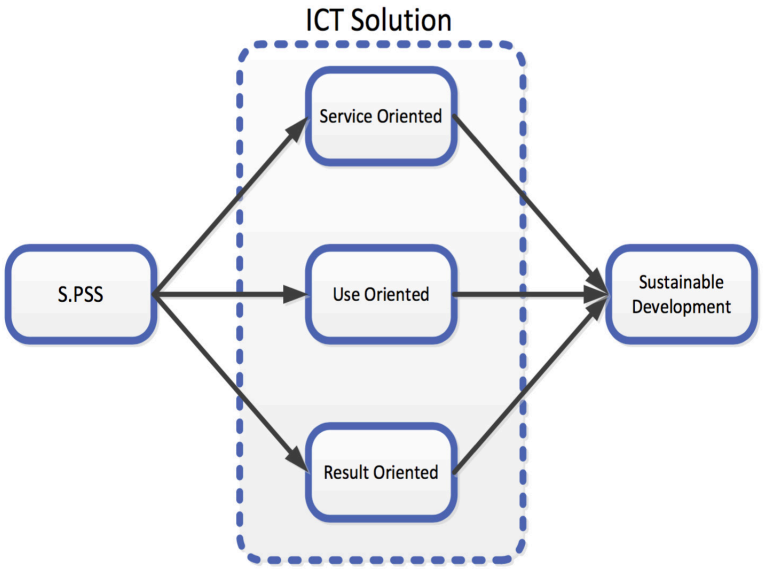
6. DATA COLLECTION

Multiple methods of data collection were used to gather rich data from the volunteers and their mentors, allowing Tukker, A., Tischner, U.(2006). Product-Services as a Research Field: Past, Present and Future. Reflections from a Decade of Research. Journal of Cleaner Production, 14(17), 1552–1556.

United Nations General Assembly. (2015). Transforming our world: The 2030 agenda for sustainable development. Vallance, S., Perkins, H.C., Dixon, J.E. (2011). What is social sustainability? A clarification of concepts. Geoforum, 42(3), 342–348. Vezzoli, C., Ceschin, F., Diehl, J.C., Kohtala, C. (2015). New design challenges to widely implement 'Sustainable Product-Service Systems'. Journal of Cleaner Production, 97, 1–12.

Xin, Y., Ojanen, V., Huiskonen, J.(2017). Empirical Studies on Product-Service Systems - A Systematic Literature Review. In Procedia CIRP. 399–404.to better understand the extent to which an ICT based intervention could sustain developmental programmes for social impact. The following approaches and tools were used simultaneously

and sequentially in some cases: Stakeholder mapping and analysis, Focus group discussion, Patterns quest (explore deeper interviews outcome to identify deeper reasons behind issues), Creating storyworld (develop an understanding of structure of entities), Problem definition (to narrow down from a rich picture about complex interconnected

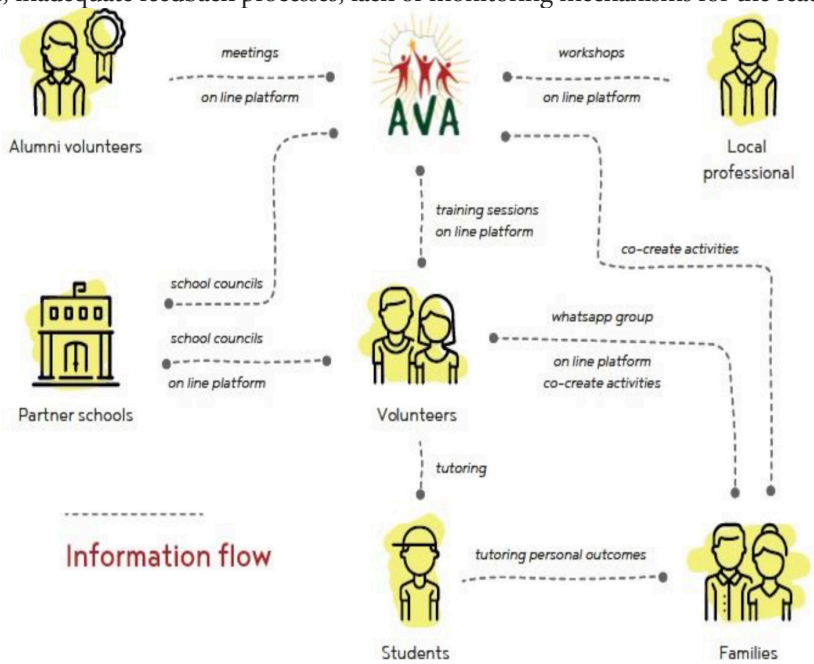


[Figure 1] S.PSS theoretical principles

issues, towards a key issue which could be improved upon and helps participants reveal their unspoken assumptions about how they interpret what is going on and why it matters), Jam sessions (aim to create ideas with group of participants), Observation (observing social phenomenon in their natural context) and Participatory research or co-design (users are part of the creative process and tools are provided to participants to discuss their experiences and express solutions).

7. FINDINGS AND RECOMMENDATION

The findings show that the developmental programmes proposed by volunteer organisation presents challenges at different levels. At the of Data administration, there is limited data sharing; at Management level, challenges of data integration, poor conflict resolution, inadequate feedback processes, lack of monitoring mechanisms for the reading activities.



[Figure 2] Recommended ICT Solution

The recommended ICT solution which considers all three S.PSS approaches is shown in Figure 4. With this solution, data seamlessly flow in a realtime environment among all stakeholders. The solution brings together volunteers, the mentors, school teachers and parents. Identified challenges like poor data integration and lack of proper feedback systems can be addressed. The flow of data throughout the stakeholder network may eventually leads to easy of volunteer integration into schools, evaluation of volunteers' performance, conflict resolution as well as a shared understanding of expectations.

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