

USING GEOGRAPHIC INFORMATION SYSTEM (GIS) PEDAGOGY AS A CATALYST FOR COMMUNITY ENGAGEMENT

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ABSTRACT

In the last decade there has been a surge of urban development throughout the world. For the first time urban population growth has surpassed rural settlement. Urban areas continue to be planned through the formal approach. The informal sector however is growing in South African cities and plays an important political role in determining the type of urban space and settlement it becomes. In recent years there has been a paradigm shift towards 'community-led development' in South Africa whereby partnerships are created between informal settlement communities and local governments. The purpose of these partnerships is to engage with communities so that residents become active partners in upgrading their built environment. Local governments are required to provide more resources to prevent urban insecurity, violence and environmental deterioration. Without participation and involvement of the poor a crisis in governance can result. Human beings have needs that are complex and interconnected. Urban prosperity lies in the linking of all city-dwellers in their interdependence. The Cape Peninsula University of Technology (CPUT) has adopted the triad partnership model that identifies three partners: the local government (service provider), the community and academia (CPUT). This tri-sector partnership approach is believed to encourage equitable and sustainable participation in economic growth and opportunity. The first paper 'The importance of service learning and community engagement within the GIS pedagogy of the Town and Regional Planning Department (CPUT)' was presented at the Africa Geospatial forum 2013. This paper reports on CPUT's proposal that different disciplines brought together in a common community-led enumeration and mapping event will promote sustainable and meaningful community engagement and partnership building amongst professionals.

1. RESEARCH PROBLEM

The illegal stigma associated with informal settlements invariably results in a lack of municipal services and civic rights. These low-income and poor urban communities are exposed to manipulation and neglect. Contractors have little interest in this form of housing and are reluctant to engage with these communities directly. Contractors can usually be found to undertake work if it is paid for by the local or provincial authority.

2. RESEARCH QUESTION

Can a simple community-led enumeration and mapping event be the catalyst for creating partnerships between researcher, community and service providers? Can this result in a better understanding of the social dynamics of the community while building social capital among its residents?

3. RESEARCH METHODOLOGY

This study investigates methods of engaging with communities whose aspirations are not within modern planning norms but are entrenched in the context in which they live. The on-going mapping and enumeration of the Flamingo Crescent Informal Settlement is intended to build partnerships that reveal facts in a manner that informs further practice. The main feature of this study is community-led, bottom-up development through the sharing of power and ownership where knowledge is transferred among partners. This research uses mapping as a tool both for engaging with communities and developing trust between participants. Relationships are built at grass-roots level through participatory measuring and mapping of shacks, water points, chemical toilets and topography. This collaborative mapping encourages community participation and stimulates social interaction. The rationale of using mapping, modelling and diagramming for the common task of engagement is that participants do not need to have equal literacy levels, but can express their ideas using symbols and drawings. This mapping exercise is linked to group meetings and discussions that builds social capital amongst residents. The analysis of data is based on constructivist grounded principles. A semi-structured interview was setup to investigate the resident's thoughts on community-led mapping and enumeration and whether they felt a bottom-up approach to development is effective. Interviews were completed after 're-blocking' was finalised.

4. INTRODUCTION

In South Africa many local authorities are turning their attention towards community-led development. At the heart of this is the notion of partnership building and an understanding of the role communities play in

enabling change to their lives and livelihoods. But undertaking community-led development requires a clear picture of what ‘community’ is and what practice is to be used during engagement. The premise of this paper is that community-led development through engagement starts with building trust. Through the simple task of survey and mapping trust is built and participants are introduced to the community environment and culture. All communities live in complex environments where cross-scale relationships and self-organising exists. Today the South African Government’s human settlement creation policy is facilitative and strives to create an enabling environment in which people become the centre of human settlement. However the aim of government is also to curb the spread of informal settlements and ensure that a desirable and equitable urban form is achieved. In this regard it seems that government’s planning approach is unachievable. This paper reports on development that communities aspire to, rather than attempt to realise the sometimes ambitious modern norms that institutions think are appropriate. This is not to say that communities in informal settlements do not aspire to some forms of modern planning but what is evident is that their aspirations are entrenched in context. It is this context that partners need to understand. Professional openness is required when considering different approaches to urban development. Radical planning builds community capacity and empowers them to negotiate and plan with the state. South Africa’s urban growth is dependent on planning *with* communities, not *for* communities. Community involvement is fundamental in preparing the foundation of an overall development framework that responds to the broader development challenges facing particular communities. The intrinsic worth of informal settlements needs to be better understood so that this form of housing is not neglected. Residents of informal settlements see themselves as legitimate despite displaying some form of illegality.

CPUT’s Department of Town and Regional Planning has engaged in a triad partnership model to develop strategies, practice and gain knowledge in upgrading informal settlements. The Community – Higher Education – Service Partnerships (CHESP) triad model consists of three partners, being the service providers, the community and academia (figure 1). It is believed that a tri-sector partnership could benefit the informal sector by ensuring equity of economic growth and prospects for better living conditions, which are sustainable for all the partners. (CHE, 2006:93).

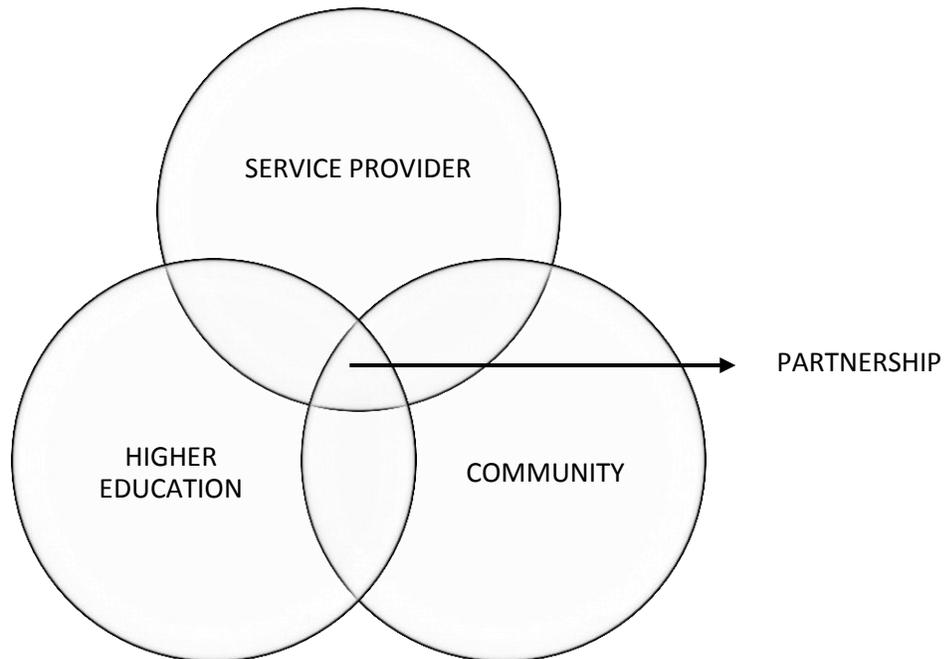


Figure 1: Triad partnership model (Lazarus in CHE,2006:93)

This study is an iterative process of action research and enquiry (figure 2) that takes place in Flamingo Crescent Informal Settlement, situated in the Lansdowne Industrial Park, Cape Town, South Africa. The project is a community-led mapping and enumeration exercise which includes shack dwellers, students, scholars, non profit organisations (NPO's) and the service provider, being the City of Cape Town. The mapping exercise documents the muddled spatial patterns and intense clustering of dwellings in the community, while enumeration builds information about the community. Through this process, new knowledge is gained that is not always understood. Reflection is used to make sense of community living and develop strategies for a deeper understanding of their challenging situations (Eyler, Giles and Schmiede, 1996: 14).

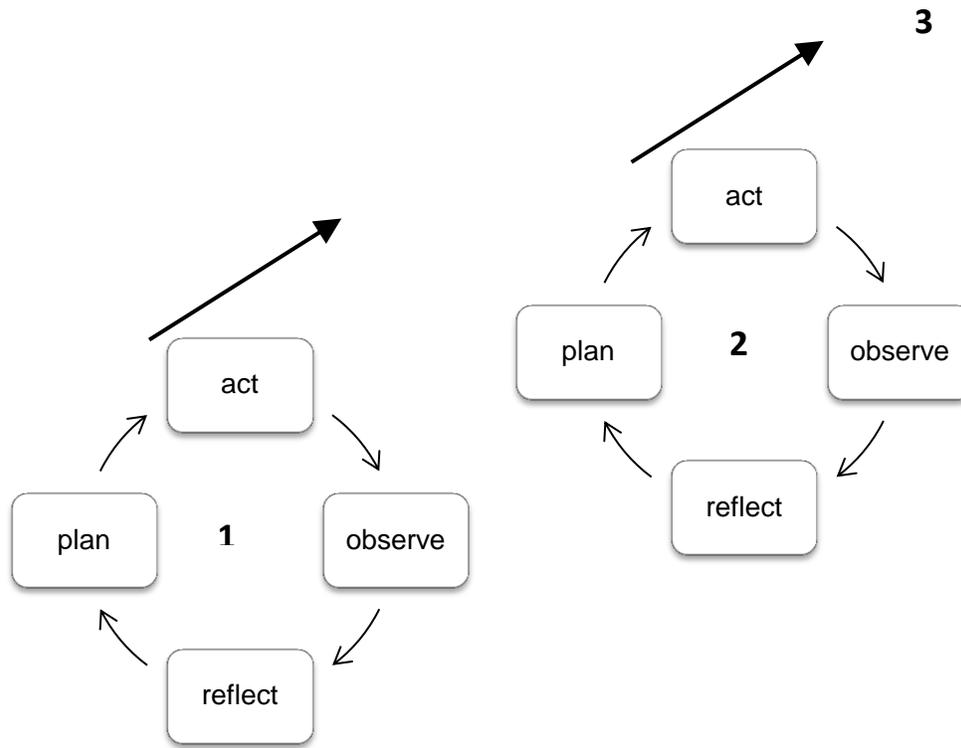


Figure 2: Iterative process of action research (Lewin, in CHE,2006:20)

At first informal settlements might seem unattractive, unsafe, dirty and depressing but through engagement these views can ameliorate to reveal an understanding of community structure, with acceptable procedures, a reasonable quality of life and a feeling of utility among the community. Informal settlements have a cultural content and meaning that professionals need to understand. This research examines community-led development through partnership building rather than placation of community quandary through tokenism. Community-led mapping and enumeration can be used as a vehicle to involve professionals and provide a way for them to engage with communities. This research does not seek to romanticise informal settlements and does not view/see such settlements as exotic urban environments, but rather attempts to practically document indigenous urban forms that emerge from within these informal settlements.

5. COMMUNITY ENGAGEMENT WITHIN HIGHER EDUCATION, SOUTH AFRICA

The conceptualisation and integration of community engagement at universities, brings into question the definition of the terms ‘community’ and ‘engagement’. Slamet (2010:107) believes there is no need for a generalised definition of community for the sake of quality assurance that will hold for all institutions. Hall (2010:5) quotes Lang (2008) in saying that there is no clear answer to who the community is. Hustedde & Ganowitz (2002) and Bhattacharyya (2004) in Smith-Tolken (2010) believe that defining a community can only be unpacked when outlining what engagement activity is proposed. Lange (2008) wonders if ‘community’ includes those living near the university or further afield. Nongxa (2010:57) makes it clear that it would be unjust for rural universities to identify with communities far away, as local communities in rural areas have unique societal problems that are best addressed by the resident university. Hall (2010:23) refers to Naidoo’s (2008) comments that within universities different faculties engage with communities in different ways that is practical to the individual faculties. Favish (2010:93) acknowledges the difficulty of identifying a single community for the university as a whole, given that members of the university work with a very wide range of external constituencies at local, provincial and national levels. Does ‘community’ comprise of all stakeholders such as industry, the labour market, provincial and local government and NPOs (Lange in CHE, 2008)?

Lazarus et al (2008:58) found that although higher education institutions (HEI) employ community engagement policy and have many community engagement projects, HEI do not always conform to partnership models; this results in projects being ‘add on’ rather than curriculum based. The current debates taking place on the conceptualisation and integration of community engagement as a core function in higher education attempts to define the terms ‘engagement’, ‘partnerships’ and ‘collaboration’. According to Smith-Tolken (2010) ‘engagement’ is defined by a particular institutional model. Engagement is the energy created through partnerships. ‘Partnership’ can be seen as the building process, the relationship that provides scholarship and service to wider society, while ‘engagement’ is the process of carrying out the project. Jacoby, in Smith-Tolken (2010), refers to partnership as close mutual cooperation between parties who have common interests and responsibilities and who share privileges and power. Jacoby recognises the link between partnership and collaboration. ‘Collaboration’ is the exchange of knowledge and resources at a local, regional/state, national or global level. Smith-Tolken adopts the definition of collaboration as a ‘synergistic process involving interactions between individuals with various roles, working to create shared understandings in order to provide a cohesive outcome’.

South African HEI have been criticised for not providing the foundation for cultural tolerance or the needs of South African society (DoE, 1996: 3). The Green Paper on Higher Education Transformation (DoE, 1996) in South Africa, which was tabled in response to the National Commission on Higher Education report (NCHE, 1996), stipulates that HEI must develop curriculums that have more modes of delivery and variation in the patterns of teaching. As a result the Green Paper evolved into the White Paper 1997 that finally informed the National Plan for Higher Education (Ministry of Education, 2001). The National Plan suggests that through knowledge and supply of infrastructure for community service projects, students can be made aware of social responsibility (White Paper DoE, 1997:11). The tabling of the Higher Education Act, 1997 resulted in the establishment of the Higher Education Quality Committee (HEQC), being a permanent subcommittee of the South African Council on Higher Education (CHE). In 2001 the HEQC included the concept of community engagement as one of the main tasks of a university, along with knowledge transfer and research. Despite this being a clear policy change universities have been reluctant to embrace it (Hall, 2010:2).

Auf der Heyder, in Hall (2010:6) believes greater conceptual clarity of what is meant by community engagement is needed. According to Hall the nature and scope of knowledge and how it is structured and organised at traditional universities in South Africa is a problem. Hall (2010:10) believes that there is a conflict at the boundary between explicit and implicit knowledge. Young and Muller (2007:190) refer to Cassirer explanation of the concept of ‘symbolic knowledge structures’ that distinguishes between four forms of analysis:

- the practical classification of things or objects into a specific typology
- the analysis of the structure and function of the basic categories
- analysis of the ways in which these forms have varied across social contexts and through time
- and finally the analysis of act which is the subjective experiences of cultural forms.

Cassirer’s ‘symbolic knowledge structures’ forms the foundation for a general theory of knowledge that preserves its unity (Hall 2010:11). But this intellectual lineage of knowledge does not exist in face-to-face argument and information gathering. Muller in Hall (2010:13) distinguishes between explicit and implicit knowledge. Explicit knowledge, as described by Cassirer, is knowledge translated into symbolic representations defined by boundaries of validation; representations that can be stored in a particular medium. Implicit knowledge is localised, developmental and usually communicated by direct interaction.

According to Hall (2010:15), knowledge is the continuum between explicit and implicit information. Codified, explicit knowledge is necessary because of its integrity through cross referencing and makes knowledge available for general benefit; implicit tacit knowledge on the other hand is vital for innovation and creativity. Hall believes the gap between policy and practice in community engagement is due to the confused and incomplete theorisation of the way in which new knowledge is constructed.

6. FLAMINGO CRESCENT INFORMAL SETTLEMENT SERVICE-LEARNING PROJECT

Flamingo Crescent is an informal settlement that, to a large degree, has been neglected, discredited and abandoned. It is a place that strives for morality and human rights. On approaching the site the facade of the settlement appears to reveal a community that is dangerous, dirty and disorganised. The informal housing haphazardly imposes on the pavement of a busy industrial road in Lansdowne. In and between the shacks there are many people. Remnants of cooking fires are scattered among the dwellings; some of these fires still smouldering, leaving a thick aroma of wood smoke. Small children play on the pavement unattended. Houses are made of wood, plastic and corrugated iron and can only be reached on foot; there is no vehicle or motorcycle access. The houses have multiple rooms to accommodate extended-family members. In these compounds many families live together and each clan has a specific room allocation. The site is flat with no drainage. Access is via uneven, irregular pathways which also serve as shallow drainage channels for household waste water. In the harsh Western Cape winters houses often become waterlogged and damp. At first there is little evidence that this is a functional environment but it soon becomes obvious that the community has assets that can be developed.

CPUT's Department of Town and Regional Planning (the Department) has formed a relationship with Slum Dwellers International (SDI) and Community Organisation Research Centre (CORC) through the Association of African Planning Schools (AAPS) of which the Department is a member. The Memorandum of Understanding (MoU) between SDI, CORC and AAPS incorporates community-led mapping and enumeration, GIS data management and analysis. The partnership between intern students, Informal Settlers Network (ISN) members and community members aim to assist the community to achieve its own development. The inaugural site visit of Flamingo Crescent was held on the 4th March 2013. Since then community leaders and ISN members have worked closely with CPUT intern students in mapping the Flamingo Crescent settlement. A problem-based method was used where students talked to the community, providing informed choices and possible solutions; from this intern students learned more about community engagement. The notable success of the measuring exercise was the interaction of

students with community and community with students, enabling knowledge transfer. Importantly the partnership between intern students, ISN members and community members ensured a holistic approach that encouraged community participation wherever possible, rather than dominance by any one group.



Figure 3: Mapping and Enumeration – Cape Peninsula University of Technology students at Flamingo Crescent Informal Settlement

The second phase of onsite fieldwork began in May 2013 with a community-led layout design planning session to facilitate ‘re-blocking’ of the layout which involved situations where structures had to be moved. Students were divided into groups and allocated areas on site. Each group was accompanied by the community residents from the area allocated to them. Using a field plan and scaled cardboard cut-outs of each shack in plan, the residents advised students as to where they would like their structure moved to. In response the students then advised residents on the best solution as per their acquired knowledge. This process resulted in an improved layout, negotiated by the community residents themselves. This layout plan has stimulated further negotiations and contributions by other universities and finally led to the acceptance by the City of Cape Town. Subsequently the physical ‘re-blocking’ of Flamingo Crescent

Informal settlement has begun, i.e. residents breaking down their shacks and rebuilding new corrugated iron structures according to the planned layout (Pinfold and Moodley, 2013).

During the Flamingo Crescent pilot project decision making was collaborative and consultative. Communication and information sharing was encouraged through community-led mapping and enumeration. This allowed community residents to visualise their being within the community and claim ownership of their space. Global Positioning System (GPS) and tape measuring of shacks was encouraged during the mapping exercise, as this technology can be accessible to the community. Formal communication was established with ISN and the Flamingo Crescent community leadership; furthermore informal communication was established through face-to-face dialog with community residents during the onsite mapping and enumeration exercise.



Figure4: Triad partnership – Service Provider (City of Cape Town), Academia (Cape Peninsula University of Technology) and the Flamingo Crescent Informal Settlement Community with Non Profit Organisation (Informal Settlement Network)



Figure 5: Flamingo Crescent Informal Settlement mapping exercise.



Figure 6: Facilitating knowledge sharing and joint learning experiences

7. FLAMINGO CRESCENT INFORMAL SETTLEMENT COMMUNITY ENGAGEMENT SURVEY

The mapping of the Flamingo Crescent community has been iterative, allowing close interaction with residents who provide complex social knowledge that can be referenced to spaces within the settlement. This referencing allows spatial analysis that creates differing points of view about managing space. A semi-structured interview schedule was setup in order to evaluate the resident's attitude towards the project. Interviews were completed after the 're-blocking' layout was finalised. In the context of a developing country such as South Africa, much more time and extensive longitudinal research is needed to determine how social capital building and social constructivism is stimulated through community engagement. This study reflects only on the community response during this collaboration and on the experience within the limited timeframe of the study.

The survey evaluated the attitudes of residents towards the engagement of CPUT with the community. The sample obtained during the survey consisted of 41 occupants of individual dwellings. This secured a sample of 45% of all dwellings on site. The results reveal that the majority of residents (80%) welcomed the university's initiative to engage with their community. The remaining 20% indicated that they did not think students were necessary or useful and preferred them not to be there. The negative effects experienced were due to poor communication between the residents and the students. The bulk of residents (78%) said they understood what the CPUT students were doing and why they were in their community while 7% were not sure and 15% did not know why. During the engagement 68% of the residents said they happily contributed to the project and helped the students with the mapping process. Others did not, as they were either not at home or busy with household chores such as washing clothes, preparing food and looking after children. The community enumeration and mapping team enthusiastically contributed however this enthusiasm diminished as the project progressed. The main reason for the loss of interest was the absence of monetary remuneration for work done. The community was not entirely convinced that they had learnt something from the students, 29% were sceptical and said they had not learnt anything, 12% were undecided, but 59% felt they had gained some knowledge from the students. Sixty three percent of participants felt that the students had also learned something from them. The main outputs provided by the students were plans and information that the community could study, change or accept. The concern was that residents could not understand the plans; however the survey revealed that 68% of the residents could understand the plans. One of the outcomes of the community-led mapping and enumeration exercise was to re-design the community layout to facilitate

improved service delivery. This ultimately involves residents breaking down their own shacks and re-building them according to an agreed layout (re-blocking). This ‘bottom up’ approach depends on residents themselves agreeing to the process of ‘re-blocking’. The survey checks with residents if they are in agreement with their community leaders in this regard. Residents indicated that they supported their community leaders (88%) and felt they were doing a good job, 2% were unsure and 10% did not. The vast majority of the residents (95%) indicated they wanted a new shack and 88% supported the ‘re-blocking’ process, however 44% did not want to relocate their shack to accommodate the new layout. Furthermore, 73% felt that they should be given a house rather than a new shack and that government should provide this. When asked if they thought government was helping them 76% believe government is helping them, 12% were sceptical, 5% did not think so and 7% did not know. One hundred percent of respondents were positive about their future and felt they would be happier in the coming years.

8. CONCLUSION AND RECOMMENDATION

Knowledge and information is a product of collaboration between partners. This collaboration allows each individual to communicate their experiences and express local information within the group. As new knowledge becomes known and information is made available, individuals start appreciating that their knowledge is partial and incomplete within the context. The partnership enables actors to revise their knowledge of the situation, using the multiple viewpoints and shared experiences obtained during the collaboration. It is important to remember that the production of knowledge is influenced by the participants within the group. It is therefore important that the right people be involved. The practice of survey, mapping and enumeration at Flamingo Crescent Informal Settlement allows researchers, students, professionals and service providers to bond at grass-roots level (with shack dwellers) and not just with community leaders and selected stakeholders. This allows an equitable understanding of conditions, concerns and possibilities within the community. The testing of theory in the local context of Flamingo Crescent Informal Settlement has produced new information that has been converted into new knowledge. This new knowledge allows changes to happen that are effective within the context of the community and provides locally relevant adaptation options to space, housing and employment. Technology choices must consider inequalities in the educational background of participants. Community-led survey, mapping and enumeration must not employ difficult technology that is not accessible to all participants if local capabilities are to be extended. The use of hand held GPS’s together with tape measuring was a useful method of mapping that encouraged engagement with residents.

Reciprocal, mutually beneficial relationships between students, service providers and community, create sustainable partnerships. According to Nchabeleng (2000) cited in CHE, (2006:93) community engagement is a strategy that is used to improve communities through social and human capital development. Community-led mapping and enumeration is useful as a vehicle to initiate, facilitate and develop community empowerment that allows the community to have the capacity to negotiate with the service providers for improved service delivery (Bender, 2006:97). An important aspect of social capital is the building of social bonds, networks and trust. Bridger and Luloff (2001) and Dale and Newman (2010) argue that developing social capital in a community is one of the priority factors that needs to be enhanced in the development of sustainable communities in the future.

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