



HAL
open science

A Framework for Understanding the Empowerment Effects of Telecentres on Rural Communities in Developing Countries

Sellina Khumbo Kapondera, Roberta Bernadi, Niki Panteli

► **To cite this version:**

Sellina Khumbo Kapondera, Roberta Bernadi, Niki Panteli. A Framework for Understanding the Empowerment Effects of Telecentres on Rural Communities in Developing Countries. 15th International Conference on Social Implications of Computers in Developing Countries (ICT4D), May 2019, Dar es Salaam, Tanzania. pp.104-115, 10.1007/978-3-030-18400-1_9 . hal-02285298

HAL Id: hal-02285298

<https://inria.hal.science/hal-02285298v1>

Submitted on 12 Sep 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

A Framework for Understanding the Empowerment Effects of Telecentres on Rural Communities in Developing Countries

Sellina Khumbo Kapondera¹[\[http://orcid.org/0000-0001-6686-6788\]](http://orcid.org/0000-0001-6686-6788), Roberta Bernardi²[\[https://orcid.org/0000-0001-9983-2058\]](https://orcid.org/0000-0001-9983-2058) and Niki Panteli³[\[http://orcid.org/0000-0003-0822-3842\]](http://orcid.org/0000-0003-0822-3842)

¹ Royal Holloway University of London, London, UK; skapondera@gmail.com

² University of Bristol, Bristol, UK; roberta.bernardi@bristol.ac.uk

³ Royal Holloway University of London, London, UK; Niki.Panteli@rhul.ac.uk

Abstract: *This paper proposes a framework for understanding how individuals empowered by telecentres, in return, empower their rural communities. The issue is that although ICT4D projects such as telecentres are viewed as a vital way to foster social economic development, their effectiveness on reducing digital exclusion is continuously being questioned. This research suggests that the way telecentres users empower communities is key to understanding how communities can harness ICTs (Information and Communication Technologies) to fight against digital exclusion. The study adopts qualitative research methods and targets two telecentres in Malawi. The study will help understand how individuals empowered by the use of ICTs such as telecentres can then empower members of their community. Hence, this study will provide insights of how ICTs can also become means to generate collective empowerment.*

Key words: digital exclusion, empowerment, telecentres, ICT4D

1 Introduction

Telecentres provide public access to Information and Communication Technologies (ICTs) such as Internet and computers [22] in order to foster social economic development and reduce digital exclusion. Digital exclusion is the gap between those who have access and ability to use and benefit from ICTs and those who do not [13, 24, 38]. Yet, the issue of telecentres being effective in removing digital exclusion remains unresolved. Some scholars claim that telecentres are removing digital exclusion by fostering social economic development. For example, telecentres give users easy access to information on various aspects of life such as education, agriculture, and health [45, 48]; increase incomes by, for example, providing users with information on jobs and helping users start-up businesses [8]; and train people in the use of ICTs [3, 6]. On the other hand, some scholars argue that telecentres do not reduce digital exclusion because they are only used by a few people, most of whom are already advantaged such as the youths, males, and the relatively educated [12, 32]. The purpose of this paper is to propose a framework that furthers our understanding of the empowerment effects of ICT4D interventions on communities.

The divergent opinions about the development impact of telecentres highlight how existing research fails to view digital exclusion as a multi-layered phenomenon. This paper argues that the opponents to the benefits of telecentres only concentrate on the first two layers of digital exclusion: i) access and usage patterns divide, also known as economic divide, which looks at the groups of people who can own or afford ICTs [5, 36]; and ii) usability divide, which looks at the skills that enable one to use the ICTs [36, 48, 50], frequency of using the ICTs [5], and how users that belong to different groups use and engage with ICTs [50]. However, the third layer, which is the empowerment divide, has been ignored. This layer is about making full and meaningful use of ICTs [36, 48]. Even when people have

access to and use ICTs, some would not make use of all the opportunities offered by such ICTs. For example, some people do not participate in online community discussions even when they belong to them. On meaningful use, some people would use ICTs for activities that would not change their lives such as playing games. The third layer of digital exclusion could be associated with the changes that people experience after using ICTs. Even though existing research has investigated the measurable impact that telecentres can have on socio-economic development (e.g. how telecentres increase incomes), it has not given full consideration of the impact of telecentres on empowerment as a means of achieving socio-economic development [45, 27, 54, 55]. For example, someone who is empowered by having increased confidence may be able to start up a business that would lead to increase in the finances. Although some aspects of individual empowerment have been identified by some scholars (such as 4, 38 and 40), little attention has been paid to community empowerment. Secondly, little is known about the relationship between individual empowerment and collective empowerment in rural communities. Specifically, thorough literature review shows that no efforts have been done to understand how individuals empowered by telecentres lead to community empowerment.

This research suggests that the way telecentre users empower communities is key to understanding the empowerment effects of ICTs on communities and, consequently, the impact of ICTs on digital exclusion. Empowerment in this case is the process that enables people to do things that they were unable to do previously [2, 25]. However, the literature lacks a sound theoretical framework that would help us understand the empowerment effects of ICT4D such as telecentres on communities. Therefore, this paper proposes a framework (henceforth the Proposed Research Framework) for understanding how individuals empowered by telecentres can also empower rural communities. In particular, the Proposed Research Framework, is based on Zimmerman's [59, 60] Psychological Empowerment Framework while taking elements from Gigler's [14, 15] Alternative Evaluation Framework and the empowerment literature. The proposed framework theorises about the link between ICTs and community empowerment.

The significance of the proposed framework is that it may provide insights into how ICTs and, specifically, telecentres can benefit the communities by, for example, benefiting indirectly the people who do not access and use the ICTs due to lack of resources and skills. It may also provide insights into how individuals empowered by the ICTs empower communities and, thereby, become means to generate collective empowerment. The study framework may extend the existing theory by focusing empowerment outcomes at individual as well as community levels and by focusing on the empowerment process.

The paper is structured as follows: Section 2 discusses how the proposed framework has been developed; Section 3 discusses the proposed framework; Section 4 discusses the methodology and data analysis before providing preliminary results in Section 5.

2 Conceptual Foundations

2.1 Zimmerman's Psychological Empowerment Framework

Zimmerman's Psychological Empowerment Framework allows us to understand individual empowerment, which is also known as psychological empowerment (PE). In particular, it divides PE into three components: intrapersonal empowerment, interactional empowerment, and behavioural empowerment. **Intrapersonal empowerment** is the basic element of empowerment concerning the way individuals view or think about themselves [51, 52, 59, which, ultimately, enhances their ability to control their environment and goal achievement [2,59]. Some of the elements include: self-esteem referring to the evaluation component of the self [53]; self-efficacy, namely, peoples' belief in their ability to successfully accomplish

a task essential for achieving desired goals [39]; impact, referring to the extent to which a person may influence outcomes [56]; competence, referring to one's belief in being able to perform activities given the skills they possess [53]; and meaningfulness, which is the "value of task goal or purpose, judged in relation to individuals' own ideals" [56:672]. **Interactional empowerment** is how individuals understand and relate to their environment. The elements of interactional empowerment are critical awareness, decision making skills, leadership skills and problem solving skills [41, 51, 59]. Although some scholars such as [43] consider interactional empowerment as collective empowerment, this study considers it as individual empowerment because its elements do take place at the individual level. **Behavioral empowerment** is about the activities or actions that people engage in to address specific needs in a specific environment [2, 38, 51, 52]. Some of the behavioral elements include organizational participation, community involvement and coping mechanisms [52, 59], although the behavioral elements vary based on available opportunities [2]. Behavioral empowerment occurs as a result of developing intrapersonal and interactional empowerment. For example, after becoming confident (the *intrapersonal component*) and being aware of the social services in the community (the *interactional component*), people can participate in writing proposals for funding so as to improve their communities. The interactional component acts as a bridge between perceived ability to control their lives (the *intrapersonal component*) and actually taking control (the *behavioral component*) [59]. A thorough review also indicates that the behavioural component of PE is not just about individual empowerment as it appears in the Psychological Empowerment Framework, but it could well be associated with the mechanisms by which individuals empower communities. Therefore, this study considers this component and its elements (i.e. organizational participation and community involvement) as mechanisms of empowering communities. For example, community involvement in empowerment literature in the field of health and psychology is about taking part in active citizenship that may include engaging in socio political activities like demonstrations, which aim at bringing positive political and social change in a particular community. It can be said that the Psychological Empowerment Framework is useful to partly understand the empowerment process. The empowerment literature in the fields of health and psychology shows that there are more factors including sense of community and social cohesion that may lead to community empowerment as I discuss in Section 2.3. In addition, the Psychological Empowerment Framework is only good in understanding indicators of empowerment at individual level and not at community level. The paper is interested in proposing a framework for understanding how individual empowerment may translate into community empowerment. Therefore, the proposed framework addresses this limitation through the Alternative Evaluation Framework and empowerment literature from psychology and healthcare.

2.2 The Alternative Evaluation Framework

The Alternative Evaluation Framework mainly comes from Amartya Sen's Capability Approach which evaluates development based on what people can do or be depending on what they value [3, 11, 21, 47]. The Alternative Evaluation Framework also incorporates the Sustainable Livelihoods Framework, which offers an analytical way of understanding the lives of the poor by focusing on capitals or assets (social, human, financial, natural and physical) that are critical for people's livelihoods [19]. Based on the principle of capabilities, which are things that a person thinks is able to achieve [26, 47,49, 57] and the focus of the Capability Approach on what people value [37, 47], the Alternative Evaluation Framework considers empowerment as capabilities. Indeed, empowerment is considered as a process that

helps people gain substantial and new capabilities to perform some specific actions that people could not previously do [11, 25]. In addition, empowerment is a process that enables people and communities to gain mastery over issues that are important to them [60].

The Alternative Empowerment Framework suggests that people can achieve individual empowerment when they have access to resources and when there are favourable contextual conditions (e.g. ICT policies) that allow access and use of ICTs. The framework also suggests that ICTs can lead to community empowerment. Given its interest in how ICTs can lead to community empowerment, elements from the Alternative Evaluation Framework will be borrowed to compensate for the lack of community empowerment in Zimmerman's Psychological Empowerment Framework.

In particular, the use of the Alternative Evaluation Framework gives five indicators of community empowerment, namely, information, organisational, political, cultural, and psychological indicators [14, 15]. The theory is only useful in understanding empowerment indicators at community level which helps to address the limitation of lack of community empowerment indicators in the Psychological Empowerment Framework.

However, much as the Alternative Evaluation Framework considers empowerment at both individual and community level, the framework lacks the link between individual empowerment and community empowerment. In other words, it lacks the factors or mechanisms that can enable individuals to empower communities. Therefore, the theory is only good for understanding empowerment indicators but not empowerment process.

2.3 Mechanisms of Achieving Community Empowerment

The empowerment literature especially in the fields of health and psychology shows that for community empowerment to take place, three main conditions are needed: individual empowerment; the mediating factors such as mutual groups and community involvement; and community empowerment [28, 29, 46]. Therefore, even when people are empowered, community empowerment cannot take place unless they engage in mechanisms that would lead to collective action. As stated above, these mechanisms could also be partly linked to the Psychological Empowerment Framework, particularly, the behavioural component of the framework which is about things people engage in to change their lives as well as their community [59]. The literature shows that there are four main mechanisms through which empowered individuals empower communities namely: *community participation, community organisations, social cohesion and sense of community* [1, 9, 31, 33, 39, 41].

Community organisation involves people defining themselves as community members and involving themselves in strategic discussions with an aim of achieving the vision of the community. Through community organisations, groups identify problems affecting the community at large and common goals and collectively mobilise resources for solving collectively identified problems and achieving collectively set goals [31]. *Community participation* is concerned with being involved in active citizenship by participating in wider socio political activities such as demonstrations and writing a letter influencing policy in one's community, and being a member of an organisation [9, 33, 39, 52]. Community participation increases the feelings of people that they can influence decisions and leads to community action [46]. In addition, participation increases PE such as confidence [17, 23] and promotes critical awareness of social issues through communication (interactional empowerment) [9]. *Social cohesion* expands the concept of participation by incorporating notions of trust or shared emotional commitment and connectedness [41, 42, 44]. Connectedness is the state of belonging to a larger world which increases opportunities in

one's life. It helps people to be aware of what is happening around them, be in touch with people and learning and being informed (6). Social cohesion empowers communities by, for example, helping individuals to be aware of what is happening around them and to acquire high competence [6]. *Sense of community* is a feeling that a person has that they belong to a larger community which is reinforced by interpersonal sharing and emotional connection and that their needs can be met when they stay together [7, 33]. Sense of community aids problem coping behaviour and achieving common objectives for the betterment of the community [1, 43, 46]. Both sense of community and social cohesion deal with connectedness and are sometimes used interchangeably.

3 The Proposed Research Framework

As already stated, the Proposed Research Framework uses the Psychological Empowerment Framework as its foundation and combines it with the Alternative Evaluation Framework. Specifically, the Proposed Research Framework aims at proposing the effects of ICTs such as telecentres on empowerment at individual and community levels as well as the link between individual and community empowerment, which is missing in the literature.

By drawing on the Psychological Empowerment Framework, the Proposed Research Framework helps our understanding of empowerment as an intangible aspect and, partly, aids an understanding of the empowerment process. It addresses the weaknesses of the Psychological Empowerment Framework, namely, its lack of community empowerment indicators, by borrowing elements from the Alternative Evaluation Framework and the empowerment literature. In addition, it adds the link between individual and community empowerment not fully addressed in the Psychological Empowerment Framework and the Alternative Evaluation Framework. The Proposed Research Framework addresses this weakness by combining the behavioural component of individual empowerment with the healthcare and psychology literature on mechanisms that lead to community empowerment.

The main elements of the Proposed Research Framework include: access and use of telecentre services/ICTs; individual empowerment; mechanisms of empowering communities; and community empowerment.

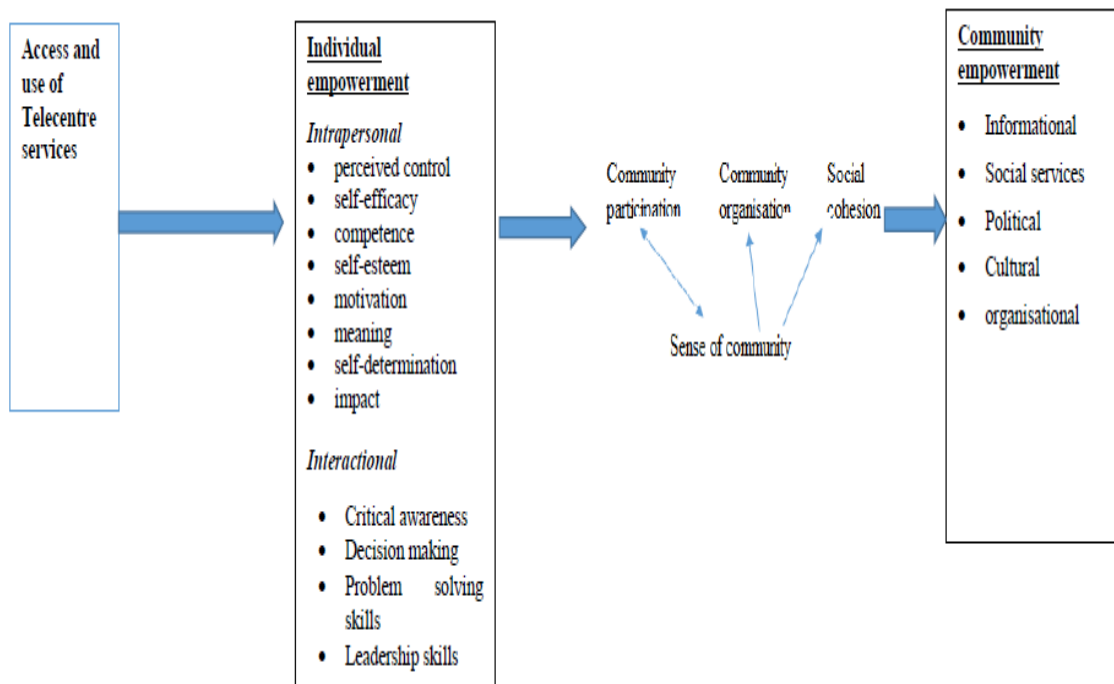


Figure 1: The Proposed Research Framework

In summary, the Proposed Research Framework suggests that there is a link between ICTs and community empowerment. This link starts with physical access to ICTs such as telecentre services as a means for achieving empowerment [19, 20]. However, the presence of ICTs alone will not enable empowerment but rather, the use of it. Therefore, to achieve individuals as well as collective empowerment, people have to use the telecentres services/ICTs which may lead to individual empowerment such as increasing self-esteem and awareness of community problems.

Furthermore, the framework suggests that the psychologically *empowered individuals* may empower communities such as families and friends and collective community. However, this link is not direct as the community empowerment may take place when the empowered individuals engage in activities such as *community organisation*, *sense of community*, *social cohesion* and *community participation*, which, eventually, may lead to collective action. The empowered individuals may empower their communities through *community organisation*. Psychologically empowered telecentre users may engage in discussions pertaining to the vision of the community [34], thereby fostering a number of community empowerment indicators such as social empowerment. Furthermore, telecentres users can empower communities through *community participation* which will allow them to be involved in political and social activities aiming at fostering change in their communities. Through community participation, telecentre users may also empower their fellow community members as participation increases psychological empowerment such as confidence (intrapersonal empowerment) [17, 23] and promotes critical awareness of social issues (interactional empowerment) [9]. In addition, through *social cohesion*, psychologically empowered telecentre users may empower communities because their connectedness and trust may lead them to work together which, in the end, may lead to collective action like improving community health conditions hence leading to social services empowerment which is one of the community empowerment indicators. Through social cohesion, users may also be interacting with other community members and empower them by increasing their

awareness of what is happening in their environment. This implies that when telecentres increase users' psychological empowerment, through social cohesion, empowered users can benefit members of their social groups and their local communities. Finally, telecentre users may lead to community empowerment if they have a *sense of community*. The sense of community may help them to engage in collective action. Therefore, as argued by [33], sense of community in this framework is positively related to participation. Moreover, according to [9], sense of community is higher in those who participate as compared to their counterparts. The relationship between sense of community and participation is reciprocal, i.e. sense of community leads to participation [33], which, in turn, leads to sense of community [9]. In addition, sense of community is important for forming and strengthening interpersonal relationships and for belonging to organisations and, thereby, it affects social cohesion and community organisation respectively. Therefore, in the Proposed Research Framework, sense of community is linked to all the other three mechanisms. The link between empowered individuals and the community through the described mechanisms may be constrained or enabled by a number of factors such as norms, education and incomes. For example, some communities would require members to fulfil certain conditions such as qualifications to take part in community activities (community participation). In some contexts, norms would restrict women from using the ICTs. In addition, regardless of the fact that social cohesion may have positive impact on community empowerment, this mechanism may also serve as a hindrance to achieving community empowerment as some would be negatively advised by their peers or families not to use the ICTs, and some empowered users may transfer the benefits of ICTs only to those considered in their social circles [35].

A community may be made of families, language groups or clan. In addition, a community may be composed of heterogenous people who take an action together to achieve collective goals [29]. Community empowerment is a broader view of empowerment whereby individuals are able to form groups, community organisations and partnerships with an aim of achieving common goals [14, 46]. Empowered individuals may empower communities which could be through empowering individuals such as family and friends leading to individual empowerment (intrapersonal and interactional empowerment); and collective empowerment (community empowerment). The collective or community empowerment indicators come from the Alternative Evaluation Framework. These include:

- *Information*: some of the indicators include strengthened traditional information systems; improvement in information flow within the community; and improved information exchange with other communities.
- *Organisational*: this is about how things take place within a community. Some indicators include transparency in selecting leaders, improvement in information flows, better coordination among different organizations that exist within a community and increased efficacy in community operations.
- *Social services*: this is about whether ICTs have improved access to social services such as health and education services within the communities.
- *Political*: this is associated with improved participation in political systems and increased transparency in political institutions among others.
- *Cultural*: some of the indicators include strengthened indigenous systems and languages and improved dissemination of communities of culture [14, 15, 28].

To sum, this study has four main domains reflected in the Proposed Research Framework which include: telecentre services/ICTs, empowered individuals, mechanisms for empowering communities; and community empowerment. The focus on this will help understand how individuals empowered by telecentres empower their communities.

4 Methodology

The study adopts an interpretive qualitative approach [18] to understand subjective experience on the role of telecentres in empowering rural communities. Moreover, in order to understand the 'How' problem as is the case in this study, qualitative methodology is appropriate [58]. Currently, discussions are taking place with two telecentres in Malawi whereby the users of the telecentres who have had impact on their communities will be identified to participate in the study. The study is being conducted in Malawi because it is one of the developing countries where telecentres are being established to reduce digital exclusion. The study targets users empowered by telecentres, in-direct beneficiaries such as families and friends of users, managers, and key informants, especially leaders within the communities served by the selected telecentres and Malawi Communications Regulatory Authority (MACRA) officials who are responsible for implementing telecentres in Malawi as study participants.

The study adopts individual interviews, focus groups, and observations as data collection methods. Preliminary interviews will be conducted with telecentre managers. Furthermore, early 2019, we will conduct focus groups and individual interviews with purposively selected users of the two telecentres will be interviewed. The Most Significant Change [30] technique will be employed to some of the purposively chosen participants. For example, the users who are empowered by the telecentres would be asked to indicate the most significant change in their participation aiming at bringing social or political change resulted from using the telecentres. Key informants such as leaders within the community and MACRA officials will also be interviewed to get their views on how users have empowered their respective communities. In-direct beneficiaries such as users' families, friends and colleagues will also be interviewed. The interviews will be useful in getting in-depth individual information. We plan to conduct 50 interviews. In addition, observation will be done with at least 10 purposively chosen users. One of the researchers will spend at least a week with each of the purposively chosen users through 'living with them' in their communities, learning their life to ably understand how they empower their communities.

The study adopts Gioia method for data analysis [10, 16], using Nvivo software for data analysis. This involves identifying first order codes from the participants data; followed by identifying themes in the first order quotes and labelling the themes; and finally aggregating dimensions and building the relationships in the aggregate dimensions which later form a theory [10, 16].

5 Preliminary Findings

At the time of writing, contacts with two telecentre managers have been made with an aim of selecting two cases for the study. Through the preliminary telephone interview with one of the telecentres manager, it was found that some users have been able to empower rural communities. For example, after obtaining computer literacy skills, individuals gained confidence such that they have been able to write proposals leading to formation of organisations within the community. For example, the users have formed Prison Fellowship Malawi, an organisation which targets the ex-convicts to be transformed and responsible community members. It is envisaged that more data will be collected early 2019 from users, managers and key informants as already stated above, which will be presented at the conference.

References

1. Ahmad, M.S., Talib, N.B.A.: Analysis of community empowerment on projects sustainability: Moderating role of sense of community. *Social Indicators Research*, 129(3), 1039-1056 (2016).
2. Aji, Z. M., Yusof, S. A. M., Osman, W. R. S., Yusop, N. I.: A conceptual model for psychological empowerment of telecentre users. *Computer and Information Science*, 3(3), 71-79 (2010).
3. Alampay, E.: Beyond access to ICTs: Measuring capabilities in the information society. *International Journal of Education and Development Using ICT*, 2(3), 4-22. (2006).
4. Alao, A. Lwoga, T.E., Chigona, W.: Telecentres Use in Rural Communities and Women Empowerment: Case of Western Cape. In Choudrie, J., Islam, M.S., Wahid, F., Bass, J.M., Priyatma, J.E. (eds). *International Conference on Social Implications of Computers in Developing Countries ICT4D 2017*, Yogyakarta, Indonesia, May 22-24, 2017, Switzerland: Springer. 119-134 (2017).
5. Attewell, P.: Comment: The first and second digital divides. *Sociology of Education*, 74(3),252-259 (2001).
6. Baron, L.F., Gomez, R.: Relationships and connectedness: Weak ties that help social inclusion through public access computing. *Information Technology for Development*, 19(4), 271-295 (2013).
7. Chiessi, M., Cicognani, E., Sonn, C.: Assessing Sense of Community on adolescents: validating the brief scale of Sense of Community in adolescents (SOC A). *Journal of Community Psychology*, 38(3),276-292 (2010).
8. Chilimo, W.: Information, communication technologies, & sustainable livelihoods: a case of selected rural areas of Tanzania. Doctoral Dissertation, University of KwazuluNatal (2008).
9. Cicognani, E., Mazzoni, D., Albanesi, C., Zani, B.: Sense of community and empowerment among young people: Understanding pathways from civic participation to social well-being. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, 26(1), 24-44 (2015).
10. Corley, K. G., & Gioia, D. A.: Identity ambiguity and change in the wake of a corporate spin-off. *Administrative Science Quarterly*, 49(2), 173-208. (2004)
11. Dasuki, S.I., Abbott, P., Azerikatoa, D. ICT and empowerment to participate: a capability approach. *Information Development*, 30(4):321-331 (2014).
12. Faroqi, M.G., Siddiquee, N.A.: impacts of telecentre on users: the experience of the Union Digital Centre in Bangladesh. In *Proceedings of the 10th International Conference on Theory and Practice of Electronic Governance*, 149-156 (2017).
13. Gamage, P., Halpin, E.F.: E-Sri Lanka: bridging the digital divide. *The Electronic Library*, 25(6), 693-710 (2007)
14. Gigler, B.S.: Including the Excluded-Can ICTs empower poor communities? Towards an alternative evaluation framework based on the capability approach. Paper for 4th International Conference on the Capability Approach, 5-7 September, 2004 University of Pavia, Italy (2004)
15. Gigler, B.S.: Informational capabilities-the missing link for the impact of ICT on development (2011). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2191594 .Accessed 10 April 2018
16. Gioia, D. A., Corley, K. G., & Hamilton, A. L.: Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15-31. (2013)

17. Gomez, R., Fawcett, P. & Turner, J.: Lending a visible hand: an analysis of infomediary behavior in Colombian public access computing venues. *Information Development*, 28(2), 117-131 (2012).
18. Gray, D.E.: *Doing research in real world*. London: Sage (2013)
19. Grunfeld, H. *The contribution of Information and Communication Technologies for Development (ICT4D) projects to capabilities, empowerment and sustainability: a case study of iREACH in Cambodia*. PhD Thesis. Victoria University, Melbourne, Australia (2011).
20. Hatakka, M., De, R.: Development, capabilities and technology: an evaluative framework. In *Proceedings of the 11th International Conference on Social Implications of Computers in Developing Countries*, May, Kathmandu, Nepal, (2011).
21. Hatakka, M., Andersson, A., Grönlund, Å.: Students' use of one to one laptops: a capability approach analysis. *Information Technology & People*, 26(1),94-112 (2013).
22. Ibrahim, Z., Ainin, S.: The Influence of Malaysian Telecenters on Community Building. *Electronic Journal of e-Government*. 7(1): 77-86 (2009).
23. Itzhaky, H., York, A.S. Empowerment and community participation: Does gender make a difference?. *Social Work Research*, 24(4), 225-234 (2000).
24. Khan, F., Ghadially, R.: Empowerment through ICT education, access and use: a gender analysis of Muslim youth in India. *Journal of International Development*, 22: 659–673 (2010).
25. Kabeer, N.: Resources, Agency, Achievement: Reflections on the Measurement of Women's Empowerment. *Development and Change*, 30(3):261-302 (1999).
26. Kleine, D.: ICT4WHAT?—Using the choice framework to operationalise the capability approach to development. *Journal of International Development*, 22(5), 674-692 (2010).
27. Laizu, Z., Armarego, J., Sudweeks, F.: *The role of ICT in women's empowerment in rural Bangladesh* (2010). <http://researchrepository.murdoch.edu.au/id/eprint/4342/> C (Accessed 03 August 2018).
28. Laverack, G.: Using a 'domains' approach to build community empowerment. *Community Development Journal*, 41(1),4-12 (2005).
29. Laverack, G., Wallerstein, N.: Measuring community empowerment: a fresh look at organizational domains. *Health Promotion International*, 16(2), 179-185 (2001).
30. Lennie, J.: *The Most Significant Change technique. A manual for M&E staff and others at Equal Access*. São Francisco: Equal Access (2011).
31. Leung, L.: User-generated content on the internet: an examination of gratifications, civic engagement and psychological empowerment. *New media & society*, 11(8), 1327-1347 (2009).
32. Mamba, M. S. N. & Isabirye, N.: A framework to guide development through ICTs in rural Areas in South Africa. *Information Technology for Development*, 21(1):135-150 (2015).
33. Mannarini, T., Talò, C. & Gelli, B.: Sense of community, empowerment and social action: an analysis across political orientations. *Psicología Política*, (48), 7-24 (2014).
34. Minkler, M. & Wallerstein, N.: Improving health through community organization. *Community Organizing and Community Building for Health*, 26-51 (2005).
35. Mullins, L. J.: *Management and organisational behaviour*. 8th ed. Essex: Pearson Education Limited. (2007)
36. Nielsen, J.: *Digital divide: the 3 stages*. (2016) <https://www.nngroup.com/articles/digital-divide-the-three-stages/>. (Accessed 15 June 2018)

37. Nkhoma, P. Understanding Child Prostitution in Malawi: A Participatory Approach Doctoral dissertation, Durham University. (2017)
38. O'Bryant, R. L.: Low-income communities: technological strategies for nurturing community, empowerment and self-sufficiency at a low-income housing development. Doctoral dissertation, Massachusetts Institute of Technology. (2003)
39. Ohmer, M.L.: Citizen participation in neighborhood organizations and its relationship to volunteers' self-and collective efficacy and sense of community. *Social Work Research*, 31(2), 109-120 (2007).
40. Osman, M. A., Tanner, M. 2017. The influence of telecentre components on the psychological empowerment of underserved community members in the Western Cape, South Africa. *The Electronic Journal of Information Systems in Developing Countries*, 81(1), 1-29 (2017).
41. Peterson, N. A., Hughey, J.: Social cohesion and intrapersonal empowerment: Gender as moderator. *Health Education Research*, 19(5): 533-542 (2004).
42. Peterson, N.A., Lowe, J.B., Aquilino, M.L., Schneider, J.E.: Linking social cohesion and gender to intrapersonal and interactional empowerment: Support and new implications for theory. *Journal of Community Psychology*, 33(2), 233-244 (2005).
43. Petrič, G., Petrovčič, A.: Individual and collective empowerment in online communities: the mediating role of communicative interaction in web forums. *The Information Society*, 30(3), 184-199 (2014).
44. Reimer, B.: Understanding and Measuring Social Capital and Social Cohesion, Montréal: Canadian Rural Restructuring Foundation, Concordia University (2002).
45. Rega, I., Vannini, S., Fino, E., Cantoni, L.: Exploring the meanings of community multimedia centers in Mozambique: A social representation perspective. *Information Technologies & International Development*, 9(4), 35-54 (2013).
46. Rissel, C.: Empowerment: the holy grail of health promotion? *Health Promotion International*, 9(1), 39-47 (1994).
47. Robeyns, I.: The capability approach: a theoretical survey. *Journal of Human Development*, 6(1), 93-117 (2005).
48. Selwyn, N. Reconsidering political and popular understandings of the digital divide. *New Media & Society*, 6(3), 341-362 (2004).
49. Sen, A. 1999. *Development as freedom*. Oxford: Oxford University Press
50. Shank, D.B., Cotten, S.R.: Does technology empower urban youth? The relationship of technology use to self-efficacy. *Computers & Education*, 70, 184-193 (2014).
51. Speer, P.W. Intrapersonal and interactional empowerment: Implications for theory. *Journal of Community Psychology*, 28(1), 51-61 (2000)
52. Speer, P.W., Jackson, C.B. & Peterson, N.A.: The relationship between social cohesion and empowerment: support and new implications for theory. *Health Education and Behavior*, 28, 716-732 (2001).
53. Spreitzer, G.M.: Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of management Journal*, 38(5), 1442-1465 (1995).
54. Tabassum, G., & Yeo, A.: Measurement of tangible and intangible impacts of telecentres on rural communities. Paper presented at the ICTD '15, May 15-18, 2015, Singapore, Singapore 1-4. (2015). doi:10.1145/2737856.2737882
55. Tabassum, G. Kulathuramaiyer, N, Harris, R., Yeo A. W. True value of telecentre contribution to Barrio Community Development. In Choudrie et al. (Eds.). *Information and Communications Technologies for Development*. IFIP, International Federation for Information Processing. 640-653 (2017).

56. Thomas, K. W., Velthouse, B. A.: Cognitive elements of empowerment. *Academy of Management Review*, 15(4), 666-681 (1990).
57. Uys, C.S. Framework for evaluation information technology in local communities. Doctoral thesis, Cape Peninsula University of Technology, South Africa (2016)
58. Yin, R.K.: Case study research design and methods. (2nd ed). Thousand Oaks, CA. Sage Publications (1994).
59. Zimmerman, M.A.: Psychological empowerment: Issues and illustrations. *American Journal of Community Psychology*, 23(5), 581-599 (1995).
60. Zimmerman, M. A. Empowerment theory: psychological, organizational and community level of analysis. In J. Rappaport & E. Seidman: *Handbook of Community Psychology*, 43–63. New York: Kluwer Academic (2000).