

# **Open Government Data Support for the Awareness of Employment Opportunities Among the Youth in Alexandra Township in Gauteng Province in South Africa**

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**Abstract:** In South Africa, one of the major reasons for the lack of employment opportunities among youth is a skills deficiency and in some cases a mismatch with the skills required. The challenge of finding employment opportunities is exacerbated by a lack of access to relevant information. Open government data (OGD) could potentially be useful in meeting the information needs. However, that possibility has not been investigated and described in this context. Therefore, the focus of this study is to investigate how access to OGD can support the awareness of employment opportunities among youth in a township in the Gauteng province. The Choice Framework is used as the theoretical framework to analyse the individual's choice with a focus on social structure, individual agency, the degree of empowerment, and the development outcomes. The research design involves a case study with semi-structured interviews being conducted in the Alexandra Township of Johannesburg. We collected data from 34 participants between the ages of 18 and 35 who are currently looking for work. Thematic data analysis was undertaken using Atlas.ti 8. Our findings show there was limited awareness of OGD and several challenges in optimally using OGD were identified. The study's contribution is to foster an improved understanding of youth's awareness of OGD including the challenges affecting youth in accessing OGD and recommendations towards overcoming those challenges.

**Keywords:** Critical skills, Youth unemployment, Open government data, Scarce Skills, Unemployment, Choice Framework

## **1. Introduction**

Cloete [1] describes youth unemployment in South Africa as “a thief of hope”. International Labour Organization (ILO) defines unemployment as the concept of citizens of the working-age that do not have jobs [2]. Du Toit and Roodt [3] argue that a major factor that has seen the South African economy not growing is the shortage of relevant skills. Another factor is the unemployed youth's inability to find relevant information on employment opportunities [4], [5]. To make information more accessible many governments are adopting the concept of “right to access information” (RTI) and “freedom of information” (FOI) [6]. This move has led to governments slowly resonating with open government data (OGD) [7]. One of the benefits of OGD, it is regarded as a powerful lever for social and economic development in a country [8]. OGD could potentially be useful in meeting the information needs on employment. However, that possibility has not been investigated and theorized for the South African context. To address that gap in the literature, we investigate

*“How can access to open government data support employment opportunities for the youth in a township in the Gauteng province?”*

In the next section, we will provide a literature review on the use of OGD to support employment opportunities and describe the theoretical framework this study has adopted. Thereafter, we will look at the methodology in the third section, which provides the approach of data collection, analysis, and presentation. The fourth section of this study will focus on findings and discussion. The findings of this study are influenced by the Choice framework (CF), which is the theoretical framework the study is using and then discuss the findings. In the final section, we look into the contribution and limitations.

## **2. Literature review**

Creating adequate employment opportunities for youth is becoming a complex problem for both developed and developing countries [9]. Employment is also referred to as a “Standard employment relationship” [10]. Theron [10] argues for employment to exist there has to be a contract agreement between the employer and the employee. An employment contract is presumed when a person (employee) works for another person (employer) for remuneration [11]. International Labour Organization (ILO) describes unemployment as the concept of citizens of the working-age that do not have jobs [2]. Amongst other countries in Africa, South Africa, Ghana, and Kenya have been faced with slow economic growth or a declining economy, which has led to a decline in job opportunities [12].

Unemployment has been described as a thief of hope in South Africa [1, p. 513] with many youths actively seeking employment opportunities. In the second quarter of 2019, youth unemployment was at 40.3% [13]. The United Nation standard definition of youth is any person between the ages of 15 and 24 [14]. However, in South Africa, Statistics South Africa defines youth as any person between the ages of 15 and 35 [1], [14], [15]. Likewise, this study defines youth as any person between the ages of 18 and 35 for ethical clearance reasons.

Skills shortage and skills mismatch are some of the factors that have been contributing to a lack of employment opportunities in South Africa [14], [16]. Du Toit [3] observe that one of the reasons South Africa was struggling to achieve the 6% economic growth rate in 2014, was due to the shortage of skills. The importance of the 6% economic growth is that it would have halved unemployment and poverty by 2014 [3]. The study discovered that this has led to insufficient opportunities for those with a probability of finding an employment. Other studies have discovered that the curriculum being taught in the school curriculum is outdated and has less or no impact on the job market [12], [17], [18]. Population growth in some African countries has also contributed to reduced chances of being employed [14], [20],[24]. The recent outbreak of coronavirus (commonly referred to as COVID-19) has disrupted the global economy which has led to a decline in employment opportunities [23]. The number one priority for the South Africa government is to create employment opportunities [4]. However, one of the challenges youth are facing in South Africa is where to access information on employment opportunities [5]. One such platform is OGD, which can be used to access information on employment opportunities.

OGD is defined as data that is being produced and controlled by the government or government entities [24]. OGD has two main characteristics namely; Government Data and Open Data [25]. Open Data is the process of democratizing data for individuals or organizations to use freely [26], [27]. On the other hand, Government Data is information or data that is commissioned by government or government agencies [25].

In September 2011, eight countries signed an Open Government Partnership (OGP) [28]. The countries that signed the agreement include: Brazil, Indonesia, Mexico, Norway, the Philippines, South Africa, the United Kingdom, and the United States. However, in Africa, the growth of OGD has been slow since its launch in September 2011 [7]. OGP is a

voluntary, international initiative that aims to secure government commitment to its citizenry by fighting corruption, empowering citizens, promoting transparency, and good governance [29]. In 2016 only 11 countries out of 69 in Africa had signed the OGD declaration. Moreover, only 7 countries out of the 11 in Africa had a functioning OGD portal, these nations are Ghana, Sierra Leone, Tunisia, Morocco, South Africa, Kenya, and Tanzania [7].

Some of the benefits derived from OGD include: political, social, and economical [30], [31], [32]. OGD can generate income by commercialising government data [25]. Policies and programmes of OGD continue to grow, to support governance framework in the political sphere [33]. Moreover, the social benefit of OGD can develop a government that is efficient, effective, and innovative in service delivery and the public operation sector [25]. It is through these benefits that the youth can acquire employment opportunities from different government agencies and organizations working with the government. The opportunities can be in the form of permanent or contractual employment. However, there are barriers to OGD. The four categories of OGD barriers are: technological, economical, legal, and institutional barriers. The legal barrier includes amongst others, data ownership and privacy to information, security [34]. The economic barrier is associated with the cost to update and maintain the data sets. The institutional barrier is categorized by the organisation's management willingness or policy in opening their data. The technological barrier includes accessibility and quality credibility among other qualities of data [34].

This research used the Choice framework (CF) as its theoretical lens. The CF was developed in the field of ICT4D and applied to human development [35]. The CF focuses extensively on addressing social structure, individual agency, the degree of empowerment, and the outcome [35], [36]. Figure 1 presents the Choice framework that is read backwards. It starts with development outcomes to structure, agency, and choice for it to be able to analyse how the outcomes will be reached.

The development outcomes are made up of primary and secondary choices [37]. Klein's theory depicts that, the primary development outcome is choice [37], [38]. Individual choices lead to secondary outcomes [38]. The secondary outcome will vary from person to person [37].

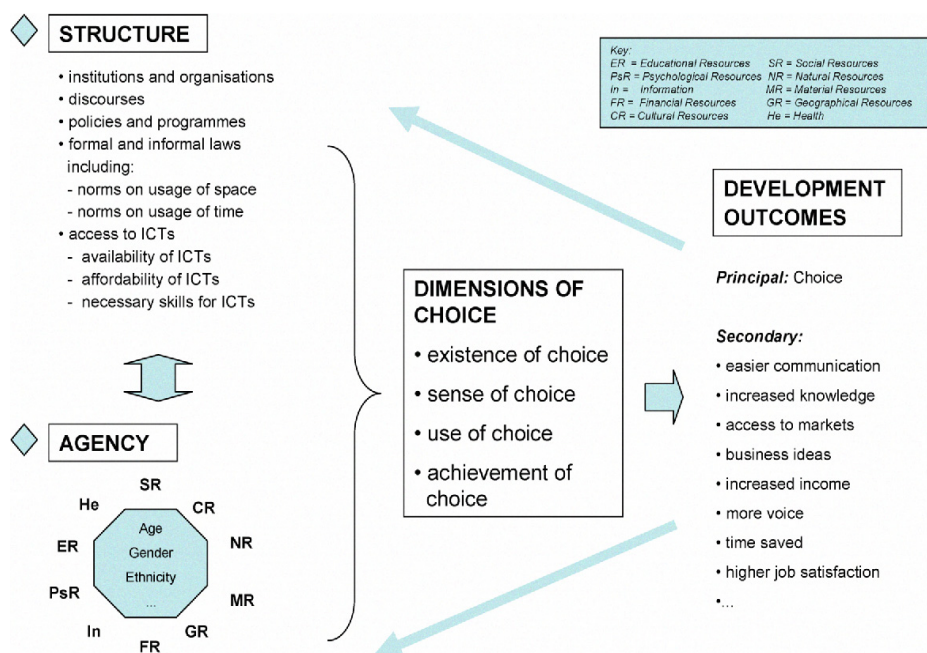


Figure 1: Choice Framework Model source [37]

Agency is made up of eleven tangible resources namely, social, material, geographical, health, information, financial, natural, cultural, psychological, and educational resources [37], [39]. Sen is using the term “resource” within the capability approach. Resources in CF is interpreted as individual agency-based capability inputs, together with structure-based capability inputs, this can be converted into capabilities [38].

The structure of CF includes the rules, laws, formal and informal norms, and policies that influence the agency. Other structures include access to ICT, and institution and organizations [37]. Structures take into account individual agency, and structures that aid agency. Structures in this study consist of institution and organization, ICT access and rules, law, informal and formal norms and policies [37], [38], [40], [41].

Dimensions of choice are referred to as “degrees of empowerment” by [37], [38]. Firstly, the existence of choice, the different possibilities that exist, and the principles to attain the combination of their resource portfolio and the structural conditions that would allow [37], [38]. The second dimension of Kleins’s [42] was appended based on the results of the fieldwork experience in ICT and development. For any study that focuses on technology that is new to the interviewee, the dimension of “sense of choice” will play an important role. The “use of choice” dimension alludes to whether or not a person makes the choice and the “achievement of choice” attributes to whether the outcome will match the choice being expressed.

### **3. Methodology.**

The research adopted interpretivism as its philosophy to understand the use of OGD that can support employment opportunities among the youth in the community of Alexandra. Interpretive philosophy gives the position of understanding the youth using OGD to support employment opportunities from their point of view [43]. Interpretivism also acknowledges subjectivism epistemology, which is based on the perception of the researcher on the study [44].

A case study was used in this research to investigate the use of OGD to support employment opportunities among the youth in contemporary phenomenon [45]. Alexandra Township (also referred to as Alex) is impoverished due to the legacy of apartheid that neglected the town [46]. 58% of the population in Alexandra is unskilled, 18% skilled and 24% is semi-skilled and out of the 70% defined as a youth in Alexandra, 58% are not employed [47].

This study is guided by a purposeful and snowballing sampling strategy. Purposive sampling in this study was applied while selecting the participants for this research. We visited Alexandra Township with a friend who is familiar with the area and he introduced the researcher to the research assistant. Snowballing was applied, after interviewing a participant, the interviewer would ask the interviewee if they could refer them to a friend or “chomi” as they would say in ‘Alex’ who is not working.

The study uses a semi-structured interview technique to collect data in the community [48], [49]. The questions in the research were influenced by the CF, which is the theoretical framework the study adopted.

The data in this research was thematically analysed using Atlas.ti. Thematic analysis is defined as the process of identifying, analysing, and reporting patterns in qualitative data [50]. The data analysis of this research was influenced by CF as the theoretical framework of this research.

In this study, the saturation point was reached after interviewing 34 participants. Marshall [51], observes that a single case study should generally contain a sample size of 15 to 30 interviews. Hennink, Kaiser, and Marconi [52] consider saturation in relation to the size of the sample distinguishing the difference in the term "code saturation" (where there are no additional issues to be identified) and ‘meaning saturation’ (where there are no

further insights to be gained). In this study, we examined 34 transcribed documents, transcribed from audio recording of semi-structured interviews. The code saturation was reached after analysing 75% of the documents. In terms of the meaning saturation, it was achieved after interviewing participant 33.

An ethical clearance certificate was issued by the UNISA School of Computing Research Ethics Committee. The data collected from the participants was collected voluntarily, informant consent was required and finally, confidentiality and anonymity of the respondents were observed by using pseudonyms of participants 1 to 34 to represent the participants.

## 4. Findings and Discussion

34 participants in Alexandra township including 15 males and 19 females were interviewed. The population is predominantly black. As a result, the data collected show more blacks (33 participants) than coloureds (1 participant).

The age group categories of the participant were: 18-24 (17 participants), 25-30 (14 participants), and 30-34 (3 participants).

The findings also looked at Information and Communication Technology (ICT) access and ownership. Out of the 34 participants interviewed, 28 participants had smartphones, 6 participants had both a laptop and a smartphone, while 2 other participants had both a desktop computer and a smartphone. All the participants interviewed had access to an Internet café. Internet café services include amongst others the use of the Internet, printing, and scanning. ICT can be regarded as a powerful tool for a variety of ways of empowerment [36].

Participants were also interviewed about the highest qualification achieved. The participants' responses indicated: below matric (9 participants), matric (14 participants), certificate (7 participants), and diploma (3 participants). One participant chose not to disclose. None of the participants had a degree or a postgraduate qualification.

Delving into CF, we used the concepts in the theory as the themes. Therefore, development outcomes, structure, agency, and degree of empowerment, as the constructors of CF shown in Figure 1 were analysed and are presented in Sections 4.1 to 4.4.

### 4.1 Agency

As mentioned in Section 2, the agency depends on ten tangible resources, which include social, material, geographical, health, information, financial, natural, cultural, and educational resources. The resources identified in this study are discussed below.

**Material resource:** the data collected found participants had smartphones, laptops, and desktop computers as material resources. 82% of the participants interviewed had a smartphone to access the Internet. All the participants interviewed had access to the Internet café where they got access to the Internet, printing, and scanning services. Our data also shows some of the participants had both a smartphone and a desktop computer or a laptop.

In terms of **financial resources** the participants interviewed were mostly unemployed and relied financially on friends, family, and government grants as indicated by participant no. 6 who also had a child responded by saying;

“ Uh, I only receive a Social Grant, For my child”

As **information resource**, our data indicates the information was either through the Internet and social media platforms or word of mouth. Participant no 9 who got information from social media platforms said;

“... uhm yeah we do get I do get more information from  
Twitter, Facebook, Instagram.”

However, participants received information through word of mouth from friends, family, neighbours, and community organisations such as churches. For example, participant no. 3 says;

“Yes. So you’ll find that you’ll join uh uh uh a social club which really is not your thing but you will still join it just to try and get information”

As **educational resources**, the data collected indicates 68% of the participants interviewed had matric and below, 21% a certificate, and 9% a diploma. One participant preferred not to say.

**Social resources**, information on OGD, and employment opportunities were obtained from family, friends, neighbours, and contact peers. Social resources echo the sentiments discussed on information received by word of mouth.

For **human resources**, participants were not aware of the critical and scarce skills the country was looking for. Participant no. 7 response was;

“You know to be honest I don’t know the skills which the country looks for”

**Health resource**, our data indicates that apart from one participant who was visually challenged (short-sighted), all the other participants were healthy. The participant who raised the issue about her health said;

“About my short sight. I think there’s a lot of people that are experiencing the same thing...”

**Geographical resources**, participants noted that Alexandra township did not have enough opportunities in skills development training. Participant no. 11 was quoted saying;

“One of the disadvantages I’ll start there, is in Alexandra we don’t have uh a lot of training facilities...”

**Cultural resources**, some of the participants noted that they could not be employed because they did not speak certain languages. Participant no. 23 noted the reason why she did not get the employment opportunity she applied was;

“ ... they said they couldn’t hire me because I couldn’t speak Afrikaans...”

**Natural resources**, due to heavy rainfall in Alexandra township and the weak physical structure, at times heavy rainfall can hinder one from leaving one's place and travelling to search for opportunities. Participant no. 17 said;

“ ...so I woke up one morning and found out the whole street was flooded, I couldn’t even jump over, ... poles were smashed...”

**Psychological resource**, the participants had traits such as willingness to learn, hardworking among other traits as motivation to their strengths. Participant no. 5 had this to say;

“ Okay, I’m keen to learn new things. So if you’re willing to teach me then I will be able to learn”

To summarise the discussion of agency in this study, information was either through word of mouth or the Internet using social media platforms such as Facebook, Instagram, or LinkedIn. The use of social media platforms could be linked to a similar study that was done in Chile where there is peer pressure for people to conform and join [53]. On material resources, 82% of the participants had a smartphone to access OGD over the Internet. In a study in Cape Town, Noruwana [36] attributed the reduction in the cost of mobile phones due to innovation and competition. Those who did not have a smartphone would access the Internet in the internet café.

However, participants had challenges accessing OGD. These challenges include: the cost of data and internet café, network issues caused by heavy rains, and lack of information regarding OGD. The financial resource the participants are experiencing is attributed to lack of employment opportunities among the youth in Alexandra Township.

According to Pyke [54], ‘Black Africans’ of the ages between 15-24, make more than a third of the 53.7% of the youth unemployment rate. Heavy rains which are a natural resource are a major problem to the residents in Alexandra township [55]. The social resource, where information on employment opportunities is through the word of mouth can be attributed to the spirit of Ubuntu. The spirit of Ubuntu in African culture is where resources are shared without expecting anything back in return [56]. A similar study was conducted in Brazil, where information on courses and job vacancies was obtained from contact with peers, relatives, and teachers [39]. For human resources, 53% of the total population in Alexandra Township are unskilled [47]. According to Nkere [47], Education stands a huge challenge among the youth of Alexandra, since 10% of the population of 20 years have no form of education affecting their income level.

#### 4.2 Structures

The agency discussed in Section 4.1 is formed by the structures in which it operates. Access to ICT and institutions and organisations form part of the elements in structures [37]. In Alexandra Township, our data found participants had access to ICT. The three factors that were associated with access to ICT are: availability, affordability, and ICT skills.

The availability of Internet café, smartphones, laptops, and desktop computers has given participants access to ICT and its services. The Internet café services included scanning, printing, and using the Internet to send emails and browsing information. 82% of the participants had a smartphone to access the Internet. Moreover, some participants had both a smartphone and a laptop or desktop computer. At least all the participants had access to the Internet café in the area.

Participants had difficulty supporting themselves financially, since they do not have work. The participants noted ICT services are expensive and costly, hence they struggle to afford them. For example, participant 29 quoted below complained about the cost of printing;

“ Yeah I know at the internet café its seven Rands (\$0.50) per page”

68% of the participants had matric and below. Although this cannot be linked directly to the lack of ICT skills, some participants think this is related to a lack of ICT skills. Participant 33 says;

“I think schools should provide internet access for children at an early age. Children should know how to use these things; children should know how to coz you get a job now you need computer access. I might lie on the interview ...”.

The data we collected shows that most participants do not know government institutions and organisations such as SETA which provide skills needed in the country. Participant 20 is quoted below saying;

“I don’t know about SETA”

Our data indicate that participants had access to ICT. However, they experienced challenges on affordability and skills to use ICT. The data we collected also revealed that participants interviewed did not know government institutions and organisations that offer or list skills the country is looking for. Participants were given information regarding the skills South Africa is looking for and government institutions such as SETA that offer these skills to support the awareness of employment opportunities. Yu [5] confirms our finding by indicating that not knowing where to find information has contributed to the lack of employment opportunities among the youth.

#### 4.3 Dimension of choice

In CF, refer to Figure 1, individual choices in the agency can operate in a given structure to reach the degree of enabling, such as the existence of choice, sense of choice, use of choice,

and achievement choice [37]. Regarding the choice of using OGD, there were mixed responses. The “OGD use” can be supported by participant no. 24 response below;

“ I have a group on Facebook,... where most of the people they find jobs. You’d see someone posting that they applied in that same group someone posted uhm a post about a certain government post, then they applied and then they were called and are now working”

The alternative option was social contact (includes word of mouth and Information from friends, family, and the community). Social contact is discussed in detail in Section 4.1 while discussing social resource and information resource (see word of mouth).

Participants who were aware of OGD were only 13%. 87% of the participants received information through social contact. The sharing of information by social contact is attributed to the spirit of Ubuntu in African culture.

#### 4.4 Development outcome

In the context of this research on OGD, the results may be measured by what people value the most in their life [37].

Our data found that most participants were not aware of OGD to support employment opportunities and awareness of the shortage of skills. Some participants were using OGD data, but they did not know they are using OGD data. The development outcome of the study was “improved awareness of OGD”.

Participants also gave recommendations on how to be made aware of the information on OGD. Some participants suggested advertisements can be done on TV, social media, and hanging of posters on street poles. For example, participant no. 7 was quoted saying;

“Yes. I think now it’s difficult to go around door-to-door advertising the... I think the only way is to bring out posters”

Participant 5: “I think if they can try to advertise them on TV, Social Medias, on the streets”

Participant 6 suggested the government could host a career expo in schools to create awareness.

“I think there should be like career expos”

The development outcome of this research was Improved access to open government data (OGD). The research and research assistants presented the participants with links that show critical and scarce skills list the country needs together with government organisation websites such as SETA for them to be aware of where to acquire some of the skills the country is looking for. The findings confirm Vulekamali [4] that lack of information about OGD to support employment opportunities is attributed, to the youth not knowing where to find information.

## 5. Conclusion

Concerning our research question, “*How can access to open government data support employment opportunities for the youth in a township in the Gauteng Province?*” This study made both practical and theoretical contributions. The practical contribution encompasses the recommendations on the challenges relating to accessing OGD, awareness of skills shortage, and access to employment opportunities. The challenges relating to access OGD include the cost of data, inadequate ICT skills and lack of awareness of OGD information. The participants recommended how these challenges can be addressed. Firstly, regarding the cost of data, participants suggested that a government subsidy will help them afford the cost of data and to access internet café and their services. Other participants recommended that community organisations such as churches and NGOs can help the youth by providing them with free internet use on their premises. Secondly, regarding inadequate ICT skills, the participants suggested that the school curricula should accommodate ICT skills for students to have knowledge of using ICT. Other participants recommended the community



and the government can work together to establish computer centres where the youth can learn ICT skills. Finally, the recommendation on improving awareness is based on information we received from the participants. The participants suggested politicians and NGOs such as churches could spread the word on the importance of OGD. This is because politicians and church leaders influence the community. Participants also recommended the message should be advertised to the community through television and posters in the mall and on polls.

The study's contribution to theory is the application of the CF to understanding the use of OGD in supporting awareness of employment opportunities thereby improving the participants' choices and hence their development outcomes. Although the CF has been used in ICT for development research, this is the first account of where it has been used to analyse the awareness of OGD for increasing information about employment opportunities for the youth in a given context.

The first limitation of this study is that it was done in a township, namely Alexandra Township, and therefore, the findings might be limited to the services available in that community. Secondly, the focus of the study was the youth, which is only one section of the population but that is justified by the fact that unemployment is highest among the youth. The study recommends the study to be carried in other townships in South Africa. Moreover, the study focused on the awareness of OGD to support employment opportunities. As noted earlier, the CF has been used in the context of ICTs and development. However, the application of the CF in OGD research is methodologically novel.

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