


# The South African Perspective of the Impact of Language on the Delivery of Healthcare Services

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## ABSTRACT

Despite its essentiality, spoken languages continue to pose severe challenges within the South African health facilities, which can be attributed to the country's adaptation of 11 official languages. Some of the challenges can be attributed to the fact that the limits to an individual's language are commensurate to the limits to an individual's real-life world and meaning, which are often influenced by semantics. The objectives of this study was to establish the factors that influence spoken languages, and how the semantics in the languages can be translated from local dialects to English by using mobile systems. The interpretivist approach was applied in the study. Data was collected through semi-structured interview technique. The actor-network theory was used as a lens to guide the analysis of the data. From the analysis, the following factors—heterogeneity of networks, bilingualism, healthcare facility, and information engine—were found to influence language semantics in South African healthcare. Based on the findings, a framework was developed that can be used to understand how language semantics influence healthcare services in the country. Thus, the study can be of interest to healthcare practitioners, language specialists for translation purposes, and IT experts for support and enablement.

## KEYWORDS

Actor-Network Theory, Healthcare, Information Systems and Technologies, Language Translation, South Africa

## 1. INTRODUCTION

The limits to an individual's language are commensurate to the limits to an individual's real-life world. The fact of the matter is that the 'real world' is, to a large extent, unconsciously built upon the language habits of a group: different communities of humans, speaking different languages, think differently to the extent that their languages differ from one another (Gleitman & Papafragou, 2012). The situation as described above happens in every part of South Africa. Thus, it is problematised for a possible solution through this study. ICT' artefacts has the potential to make major impacts in improving the health and well-being of poor and marginalised populations, combating poverty, and encouraging a sustainable development and governance (Clarke, Wylie & Zomer, 2013).

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The use of ICT artefacts for healthcare are often to facilitate communication, processing and transmission of information electronically to improve health (DiCarlo *et al.*, 2015). This is primarily because ICT can make significant improvements in healthcare delivery, reducing medical errors, improving clinical care through adherence to evidence-based guidelines, and preventing duplication and inefficiency in the delivery of clinical care (Peña-López, 2010). WHO (2000) explained that experts have agreed that it will take an unprecedented transformation to reverse the tide of failing healthcare systems, particularly in light of shrinking resources that must now be used more efficiently. Fortunately, support is increasingly available through a set of breakthrough tools known as e-Health (electronic health) and M-health (mobile health), commonly understood to be the innovative application of emerging information and communications technology (ICT) in health systems. This includes the use of software and mobile systems by healthcare practitioners, working from any location to access, track and trace patients' records in order to provide services to them (Ventola, 2014).

However, this does not address the challenges of language and its semantics of translation, which is vital in providing improved services to communities in South Africa. Hatim and Munday (2004:6) define *translation* as “the process of transferring a written text from source language (SL) to target language (TL)”. The challenges arise, not only because of the content of word-for-word, literal translations, but also the linguistic form of the language, such as tone, syntax, manner of questions posed, and the concept of the consent; similarly, contexts of use affect meaning (Hanrahan *et al.*, 2015). For example, countless community members are hesitant to be enrolled for healthcare services primarily because they feared that a language they do not understand will be used as medium of communication. Interestingly, the same people are frequent users of the mobile phones. Therefore, this identifies a gap that needs to be addressed to be certain that a better healthcare service is rendered to everyone, irrespective of where they stay and which language they speak.

Translation is described as a way of collaborating different entities and convincing them to have interest in connecting and relating to produce results (Van Der Duim, 2007). The translation occurs between humans and objects once the actor/network has been formed (Comber, Fisher & Wadsworth, 2003). In ANT, the translation is triggered by the four moments of translation. Callon's (1986) four moments of translation include the following, problematisation, interesement, enrolment and mobilisation.

The objectives of this study were: (1) to identify the factors which influence semantics in South African languages; and (2) how the semantics impact the services that healthcare practitioners provide to the community. The objectives are aimed at understanding the challenges towards improving the healthcare services in South Africa. This article is divided into six main sections, the first and second section provide introduction to the study and presents the review of literature, respectively. The third section discusses the research methodology, which is followed by the analysis of data. The fifth section presents the interpretation of the findings, which discusses an understanding of language translation in the South Africa healthcare environment.

## 2. LITERATURE REVIEW

Information and communication technology (ICT) is key to enhancing and improving communication among healthcare providers and patients with chronic conditions (Barr *et al.*, 2017). According to Hlagala (2015), communication is enabled between people by mobile systems; these devices give them the capability to communicate and exchange information with other. Fix *et al.* (2016) argue that the potential of health practitioners to make use of ICT systems to engage with patients in their care services and concomitantly increase their satisfaction.

Quality of care can be measured by patients' satisfaction. In the health environment, there has been incorrect recording of diagnoses, wrong medications and inappropriate prescriptions (Ball *et al.* (2015), which are sometimes caused by poor communication as a result of semantics in some of the languages (Nemutanzhela & Iyamu, 2016). Also, research compares English and non-English

speaking patients revealed that language barriers were associated with lower patients' satisfaction among non-English speaking patients (David & Rhee, 1998; Morales *et al.*, 1999). However, the relationship between language barriers and adherence is not consistent (Kaplan *et al.*, 1989). Even though these studies were conducted long ago, the situation has not changed (Ayong & Atanga, 2017) rather got worst in some developing countries such as South Africa where there are eleven official languages (Naidoo, 2014).

Language semantics form a vital of culture from the perspective of communication. in terms of linguistic, cultural and socioeconomic specificities that are different from the homogeneous population (Mendes, 2013). Other studies on ethnic minorities and health professionals also reveal structural and psychological factors as barriers to providing care (Parmet *et al.*, 2017). Cultural diversity poses many challenges to healthcare systems whereby health professionals have to care for patients with different cultural backgrounds. At times it is not easy or deemed possible to fulfil the interest of individuals and groups in the provision of healthcare in complex environment from the perspective of diverse languages (Nemutanzhela & Iyamu, 2016). For example, not *all* African languages could be translated using the mobile systems, rendering *some* healthcare services still difficult to carry out in *some* areas of need (Naidoo, 2014).

Therefore, it is necessary to design and implement a semantic-based healthcare service on cloud for storage, retrieval and manipulation of patient data and medical records. *Semantic translation* remains within the original culture and assists the reader in its communications only if they constitute the essential method where there is a conflict (Hanrahan *et al.*, 2015). The term *translation* is associated with the network in terms of representation of actors or networks. Translation is the process through which actors realise their actor-worlds (Callon, 1986). Translation can be seen as constituted by various moments, which entails negotiation towards achieving consensus of stability. In many IS studies, ANT has been used to study network stability and hence technology adoption as the complexity and dynamic nature of the networks are recognised (Alexander & Silvis, 2014). According to Iyamu (2015), with regards to stability, ANT attempts to answer how a diverse group of actors' reach agreement at all times; that is, how a social order establishes a certain degree of stability or exhibits structural properties.

### 3. RESEARCH METHODOLOGY

Based on the objective of the study as stated in the introduction section, the interpretivist philosophy, and subjective stance were selected. This was primarily because in achieving the objective, opinions and views of views of individuals were required. According to Vosloo (2014:296), "the interpretive approach is the assumption that access to reality is only possible through social constructions such as language and shared meanings", which individuals or groups associate with things or events.

The case study approach was applied. This was mainly because of its empirical inquiry nature, which is considered most appropriate for investigating a contemporary phenomenon within real-life context and setting (Yin, 2013). Tshwane community was selected for the study because it host inhabitants who speak six different indigenous languages, which is the highest in the country. As shown in Table 1, the six different languages are isiZulu, Sepedi, Sesotho, Setswana, Tshivenda, and Xitsonga. It is uncommon in South African to find a community where more two indigenous languages are spoken. Interesting, the entire community seek healthcare services from the same facility. The Tshwane community was therefore considered a good place to elicit information in studying the impact of language semantics on healthcare services.

As shown in Tables 2 and 3, thirty-nine people from both the community and health facility participated in the study. The number was reach at the point of saturation. Iyamu (2015) defines saturation as a point where no new information was forth coming during the interview process.

The semi-structured interview technique was used to collect data from the participants. The technique was most appropriate as it allows conversation to happen between the researcher and the

Table 1. Tshwane community demographics

Language	People	Percent
Sepedi	112,359	28.20
Setswana	66,518	16.70
Xitsonga	59,976	15.05
isiZulu	54,099	13.58
Sesotho	31,978	8.03
Other	7,338	18.44
Total		

Table 2. Participants from the community

Language	Literate		Illiterate		Total
	Male	Female	Male	Female	
Sepedi	1	2	2	1	6
Setswana	2	3	1	1	7
Xitsonga	2	2	-	1	5
isiZulu	3	2	1	2	8
Sesotho	2	2	-	-	4
<b>Total</b>	<b>10</b>	<b>11</b>	<b>4</b>	<b>5</b>	<b>30</b>

Table 3. Participants from the health facility

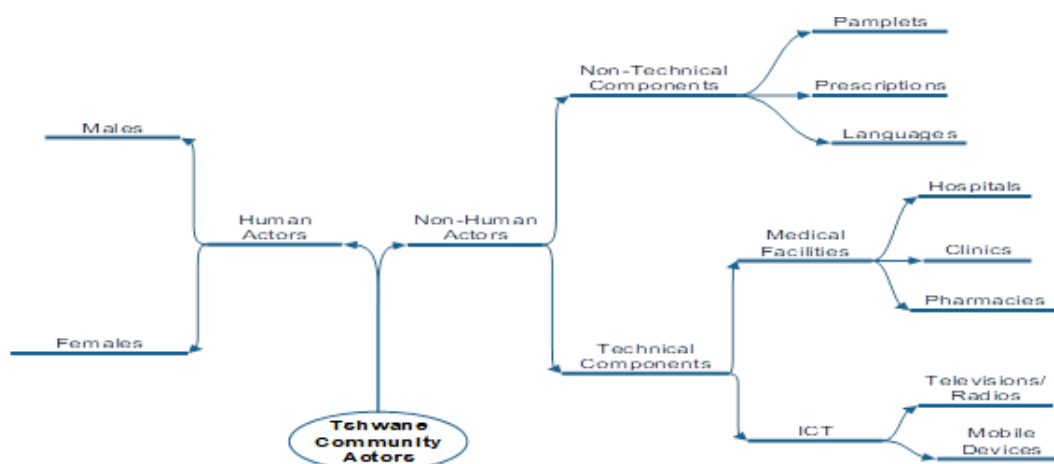
Language	Doctors		Nurses		Total
	Male	Female	Male	Female	
English	2	1	-	1	4
Setswana	1	-	1	1	3
isiZulu	-	-	-	2	2
<b>Total</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>9</b>

interviewees. The data was analysed through the interpretive approach, and guided by actor-network theory's (ANT) moments of translation. *Translation* is described by Callon (1986) as a process of alignment, where diverse interests of actors are channelled towards a common goal through negotiation. The four moments are problematisation, interesement, enrolment and mobilisation (Iyamu & Sekgwele, 2013).

#### 4. DATA ANALYSIS AND DISCUSSION

In Actor-network theory (ANT), actors are both human and non-human (O'Connell, Ciccotosto & De Lange, 2014). Also, the actors are treated equally in ANT. Figure 1 is used to illustrate the

Figure 1. Tshwane Community actors



representation of actors in the study. The figure is intended to help with an understanding of the existence of the actors as we begin the analysis of the data.

#### 4.1. Human Actors

The human actors in the community of Tshwane included both males and females of various age groups. These actors were from different ethnic and cultural backgrounds, and spoke different languages, encompassing of Tshivenda, Xitsonga, Isizulu, Sesotho, Sepedi and Xhosa. The ages of the actors were between twenty-two and sixty-five years.

#### 4.2. Non-Human Actors

Non-human actors do not reason like human actors, but they are able to perform what they are directed to do (Sekgweleo & Iyamu, 2014: 163). The non-human actors include healthcare facilities (hospitals and clinics), pharmacies, mobile phones, pamphlets, billboards, televisions, radios and computers. “With regards to going to the clinic most of the time is that you get pamphlets there or you can ask the information” (TC07, 18:518–519). In recent years, some health facilities have improved their methods of sharing information and communicating with the patients. According to one of the participants TC07, (18:519– 520), “I was very excited when one of the medical aids service providers announced that video conferencing will henceforth be used for consulting”. This means that the actual physical presence of patients with healthcare providers will no longer be mandatory. This was well-received by many patients, especially for those who are physically challenged or seriously illness, making movement near impossible.

#### 4.3. Networks

In ANT, network consist of actors, such as people, organisations and standards of the aligned interest (Callon, 1986). Also, networks can be heterogeneous within social systems (Law, 1992). At the Tshwane Community, there were various networks of people, some formed on the basis of spoken language, age group, cultural affiliation, religion affiliation and health challenges.

Several networks of people who spoke the same language, such as Tshivenda, Xitsonga, Isizulu, Sesotho, Sepedi or Xhosa, were unconsciously formed. These people groups shared information and ideas and communicated on matters of common interest using their native language, which encompasses different semantics. Also, they shared information and communicated using technologies such as mobile phone and social media services.

Some of the community members were part of many networks, through which networks were formed within networks, creating heterogeneity of networks. For example, some of those actors who speaks Tshivenda, a network, were part of another network of people with chronic conditions, such as kidney failure. One of the elderly women who participated in the study stated that *“in most cases, I share appointment periods with people who speaks Tshivenda, which makes it easy for us to interact and share our health challenges and experiences”* (TC15, 39:1142-1143). Similarly, some members of the community were at the same time in three different networks, such as Sepedi-speaking, religious affiliation and medical condition.

Due to the linguistic nature of some of the actors with the ability to speak many languages, these were part of various groups. This creates heterogeneous networks within the community. According to TC08, 21:604-607, *“English is often used at most of the hospitals, hence I use it often. But I can also speak Tswana or Sotho which are as well used as medium of communication”*. These heterogeneous networks were formed because of the cultural and Christian beliefs shared amongst the different actors who speak the same language. This heterogeneity of networks increases the semantics of language to be critiqued and was significant to many people within the community.

The importance of the heterogeneity of the networks includes the fact that some actors were able to bridge the communication and language barrier themselves and between other actors through interpretation of the spoken languages of others. From an English language perspective, the actors acted as interpreters to those who were illiterate or were not fluent in the language that was being used as a medium of communication at the time. The scenario is that, *“Doctors often comes with a nurse who speaks the same language as I do, who then interpret the narrative of my circumstance”* (TC16, 41:1224-1225). This type of scenario made many patients more comfortable with understanding, removing the fear that they will be misunderstood, which is likely to lead to wrong diagnosis or medications.

Other networks were formed along cultural affiliations. These groups of people were divided along their individual cultural affiliations. This was because they shared common interests in how they adhere to and abide by their culture. Thus, they were guided by their culture on areas such as how they greet, communicate and share information among themselves. For example, it is a cultural belief of the Venda people (Tshivenda) to first consult among themselves and their traditional healers before visitation to health facilities.

Two main differing beliefs and religious groups, Christianity and traditionalism, were prevalent in the Tshwane community at the time of this study. The traditionalists visit the native doctors (Sangoma) for consultations and treatment. This is their belief and tradition to do so. This groups of community members only made use of the health facilities as a last resort, meaning the physical condition has deteriorated, and they basically have no other choice. In some instances, they are taken to the health facilities by relatives or friends due to the worsened condition. According to one of the participants, TC18, 47:1402-1404, *“our family belief is that we must first consult with the native doctors, before visiting the English doctors (hospitals)”*. The group of Christians made use of the health facilities either for themselves or to provide support to the patients. This they did by constantly visiting and providing counselling to patients at different hospitals. *“I often visit health facilities, to support the ill people. It is part of our Christian practice to provide counselling to the ill”* (TC17, 42:1255-1257). This type of scenario made patients feel loved and supported, especially those who did not have relatives coming to visit them. The Christian groups also played the role of friend and family for those patients.

Some of community members of Tshwane formed networks in accordance with their health challenges or diagnoses, such as diabetes, kidney failure and high-blood pressure. These health relationship groups happened whether consciously or unconsciously. The conscious group contained those patients who enrolled themselves in support groups relating to the illnesses, while unconscious groups contained those patients who started mingling and interacting because they had to attend

check-ups of treatments at the same time due to their similar illnesses. “*My regular visits to hospital makes me interact with those who are suffering from kidney failure*” (TC15, 38:1103-1104).

The community members were divided into different groups: literate and illiterate, male and female, old and young. These groupings happened both consciously and unconsciously among the members of the community. Groups of literate people, consisting of both males and females, made use of the internet facility to access medication information. According to one of the participants, “*I use the internet first to consult before seeking clarity, on which I rely on my relatives to help with explanation*” (TC10, 25:726-727).

#### 4.4. Moments of Translation: Problematisation

*Problematisation* is the first stage of translation. At the Tshwane community, healthcare services were problematised. The problematisation of the healthcare included how the services were delivered and received and the manner in which they were delivered, such as attention to patients, nature of facilities, distribution of medication and the use of language for communication. One of the elderly men in the community who participated in the study asserted as follows: “*I have experienced a situation where I felt the healthcare practitioners did not understand my health challenges, even though I tried to explain it several times*” (TC02, 3:81:82). Such misunderstanding could be attributed to various factors, which include language barriers as well lack of interest from the practitioner’s perspective. The question was how did the patient know that he was not being understood? According to one patient (TC02, 4:85-87), “*I always suffer from ulcers. At times some healthcare practitioners ignore your explanation because they did not understand you, and diagnose you for something totally different*”. These are some of scenarios where we find that patients end up being given wrong prescriptions. Some of elderly participants referred to *cancer* as a wound when translated to their native languages; however, those who are in their youth and speak the same language as the elderly participants referred to an *ulcer* as a wound when translated into their spoken language. “*words such as cancer are difficult to translate in, mainly because cancer is associated with a ‘wound’ that does not heal in Tshivenda*” (TC16, 41:1233-1236). The question will then be, what did the patient do after realising there was the problem? “*When it comes to issues like this, that’s when I go to my private doctor who always know my health condition*” (TC02, 4:87-88).

From different perspectives, actors within the community problematised the services which were provided to them by healthcare service providers. Some of the actors did so for themselves, and others did so on behalf of their families and relatives. The actors did so on behalf of their families and relatives for various reasons: (i) some of the patients were either too old or ill to speak for themselves; (ii) some were children who needed representation; and (iii) there was barrier in the spoken language that caused some patients and health practitioners to not understand themselves well enough, which impacted health services. Some of the participants briefly explained as follows: “*Most of the times I am not the one going for medical attention, I go there because I have a child that I sometimes take to the clinics*” (TC16, 42:1252-1253). “*There are certain things that I am unable to express in other languages but in my language*” (TC04, 13:36-37).

At Tshwane community, many of the participants emphasised the need for healthcare services. The actors do need and request for different types of healthcare services from the available healthcare facilities. According to one of the participants, “*I always visit a particular healthcare clinic in Tshwane on regular basis for my diabetes prescriptions*” (TC16, 40: 1192-1193). The request for healthcare services was either for individual participants or their families. One of the community members explains how they normally visit the healthcare facility.

In Tshwane community some actors required healthcare services after they were either diagnosed or went for regular check-ups or others seek general healthcare information. According to TC14 (34:974-977), “*I prefer to do my own research health condition before consulting with practitioners*”. The need for healthcare services was demonstrated by actors who stay in Tshwane. It was interesting to note that irrespective of where the actor stays or originates from, their healthcare needs were

more or less the same. Some of the Tshwane community members faced challenges due to difficulty understanding the language spoken by healthcare practitioners; for those who can only speak one language it becomes a mounting challenge as they will have to either depend on the healthcare practitioners to come with someone who can translate for them or bring a relative or friend along to the consultation. According to TC16 (42:1253-1256), “*We have a lot of uneducated people around our area, using language that they don’t understand, will require ways or tools to explain it*”. During translation, some of the meanings get lost in translation; the information they intend to communicate to the doctor and vice versa is not exactly translated or shared precisely as they intended. According to TC03 (11:301), “*The explanation of some terms are not translated correctly*”.

However, those actors who are bilingual share the same sentiments that because they understand both English and their own home language, they have realised that some of the words or terms once translated to their native language don’t carry the same meaning as what they would in English language. According to TC16 (42:1268–1270), “*For example we have Tuberculosis (TB) in English, however when it’s translated to Tshivenda it’s called ‘Lufhiya’ or ‘Luhotola’ from semantics perspective, they mean different thing, in that if translated back to English they mean ‘Flu’*”. The participants also showed the element of uncertainty where a doctor will require a nurse to translate, they are not certain if the information is being translated correctly as the patient would be someone who don’t understand the spoken language and their semantics. “*We cannot really say, because the patient who need that translation doesn’t understand English, so one will never know if it was translated properly or no*”. (TC16, 42:1264-1266). From experience, another elderly male patient explained: “*The use of nurses as translators help as those are people who have the knowledge and an understanding of the medical terms*” (TC16, 42:1266-1268). This does not necessarily address the challenge as the impact continues to be detrimental to many patients.

Many of the challenges revealed above are primarily influenced by lack of interest. The challenges worsen in that the interests of practitioners are not measured or there are no guidelines to manage and monitor practitioners’ responses to issues that are problematised by patients; even though there are codes of conduct, these do not cover or explicitly address interest, or lack thereof. In this context, *interest* can be considered as passionate expression of feeling towards execution of duty, for a favourable outcome. This is instrumental to relationship between practitioners and patients. Relationship enacts interaction, which in turn fosters understanding.

#### 4.5. Moments of Translation: Interesement

The second stage in the ANT translation process is *interesement*. At this stage, the focal actor tries to impose its identity on other actors who have become part of the alliance thus far (Callon, 1986). Some of interests of community members from Tshwane community were influenced by relationships they have with patients, their cultural and religious beliefs. Actors such as those who were diagnosed with chronic disease and are either literate or illiterate, not surprisingly became more interested in how the service was delivered by healthcare sectors. These actors were exposed to the interesement strategies, which can involve some compromise, persuasion and seduction in order to get actors interested in the roles proposed to them (Harry, Sewchurran & Brown, 2014).

The relationship between the community of Tshwane and healthcare facilities was defined by their types of interactions, communication and association. Different actors were involved and influenced the relationship between the community members and healthcare practitioners. The actors included illiterate and literate patients, patients’ relatives and associates, religious groups and the devices that were used for communication and information searches. Some of the patients had direct, and others had indirect relationships with the healthcare practitioners. The relationship defines the various interest, which was based on the services that the healthcare facilities provides to the community.

Also, the interest informed how some members of the Tshwane community contacted and interacted with the healthcare facilities or accessed health information. Many of the patients visit the facilities only when they are critically ill; otherwise, they have no interest in the healthcare services



that are available. Community members who have chronic conditions are interested in the services that healthcare facilities provide to them. Thus, they show interest in the communication that they get from healthcare providers concerning their medications and check-ups. According to TC11 (28:818-820), *“cellular phone text messaging helps me a lot as I sometimes forget that I need to collect my medication and I only remember when I get the text message to remind me for collection”*.

Interest of some community members was based on their relatives who had to access the services of health facilities. This was due to the fact that they had to act as language interpreters between patients and healthcare practitioners who could not speak or understand the same spoken languages. Other people were interested in how the medical practitioners communicate with their parents and grandparents, especially those who are illiterate. One of the community members explains: *“Most of the times if I have surgery appointment for an operation, I go with my daughter who have to experience (as a witness) and act as a language interpreter between me and the medical practitioners who speak different languages”* (TC16, 38:1107-1109).

Another type of interest was based on the fact that some of the people had to take their children (or other minors) or aged parents, who cannot speak or express themselves, to the facilities. Some parents are interested on the healthcare services on behalf of their children, to ensure that their children receive deserving care. *“I equip myself with information about children infections from internet by using search engines.”* (TC06, 16:457-459). Also, some of the community members were illiterate, meaning that they could neither write nor speak the facility’s official language, English. As a result, they needed assistance from relatives or associates to complete medical record forms on their behalf. According to one participant, *“I sometimes use sign language to demonstrate to the health practitioners what the problem is if I feel that I am struggling to express myself in the best that I can be understood”* (TC15, 37:1095-1096).

#### 4.6. Moments of Translation: Enrolment

*Enrolment* is the third stage of the translation phase (Callon, 1986), requiring actors to participate (enrol) in an activity. At this stage, the actors accept the roles and responsibilities that were proposed or assigned to them by the focal actor. It is within this frame that many medical practitioners, such as nurses, carry out their tasks in addressing patients’ needs. Also, patients are expected to fulfil their prescriptive measure in the course of their illnesses.

Not everyone who is or was interested in patient well-being or improved healthcare participates in finding a solution. This is attributed to different factors, both conscious or unconscious nature. Also, participation was influenced factors such as lack of know-how and lack of facility. For example, there were no facilities which could enable improved distribution of chronic medications to patients in their various geographical locations, or technologies that could translate semantics in the languages that were spoken by many Tshwane community members.

Many community members participate in their own healthy well-being as prescribed by medical practitioners. For example, community members who are diagnosed with chronic diseases visit healthcare facilities regularly for follow-ups to renew prescriptions and collect new medications. According to one of the participants, TC16 (40:1196-1199), *“I prefer to consistently make use of the same health facility, where I am understood, and they know my types of medications”*. The participants further indicated that they get informed once the medications have been dispatched and they need to collect the medication. *“Once I receive a text message for my prescriptions, I then go and collect the medications at the nearest pharmacy or clinic”* (TC16, 40:1178–1181).

The issue of culture plays a significant role in the Tshwane community because of the degree of understanding and compliance with treatment options recommended by healthcare providers who do not share their cultural beliefs. Some patients believe that a practitioner who doesn’t give an injection may not be taking their symptoms seriously and some patients also retain their own perceptions of how some chronic diseases should be treated that is not necessarily how healthcare providers treat the diseases. According to TC15 (41:1213-1215), *“the times and my cultural background plays a*

*big role when it comes to understanding or accepting diagnosis*". The participant further stated that, *"Our culture some of things like depression or stress we don't as illness"* (TC15, 41:1216-1218).

Some community members often carry out a slow and deliberate search on health-related conditions and matters. This type of interest was drawn from previous unpleasant healthcare experiences. Some community members also carry out such research by attending information briefings and centres on behalf of their children and elderly parents. *"My passion for healthcare related matters drives me to acquire more knowledge about matters from healthcare practitioners"* (TC10, 26:736-737).

Based on the various types of interest, information was accessed and facilities were contacted through which interaction takes place and relationships were established among both human and non-human actors. Information was accessed through internet, radio and television channels, including pamphlets. The internet was accessed using mobile cellular phone and personal computers. *"I don't follow one media channel, I prefer listening to the radio, or search on the internet"* (TC17, 46:1378-1377). This person also asserted that *"most of the time I prefer reading pamphlets and watching television to keep myself informed"* (TC17, 46:1378-1379).

#### 4.7. Moments of Translation: Mobilisation

*Mobilisation* is the fourth and a final stage of translation. Here, the focal actor needs to continually convince the actors that their interests are still the same. At this stage, controversy no longer exists if there is support from the actors (Harry, Sewchurran & Brown, 2014).

Tshwane community members have established different spokespersons with the various healthcare facilities; these spokespersons differ depending on the case of each patient. Some of the patients are spokespersons themselves because they can understand and speak the language of communication, while other patients nominate their own spokesperson because of the language barriers (illiterates and old people); and still others rely on a spokesperson because they are minors and therefore need a parent or guardian to speak on their behalf.

As these spokespersons act on the interest of both the patient and the healthcare practitioners, they must make sure that the confidentiality between the patients and the healthcare practitioner is kept intact. The interest of both parties must be respected. According to TC15 (38:1110-1112), *"the health practitioner always emphasizes that we have communication challenges due to languages, we should come with someone we trust for translation purposes"*. In order for the patients to get the best services from their healthcare practitioners, it is required that their chosen spokespersons are properly able to represent them and will neither betray them nor breach their trust. In some cases, spokespersons are nominated due to their ability to communicate or express matters better. In the case of the Tshwane community, some of the spokespersons were chosen because of language barriers between the patient and the health practitioners, even when this was not an ideal situation: *"It is not comfortable to consult in front of your daughter, however circumstances do force us to accept that it's a better option to do so"* (TC15, 38:1117-1121).

Once the needs of the different actors are met, it is possible for some actors to speak on behalf of the focal actor. Some of the Tshwane community showed that as much as healthcare facilities are trying their best to accommodate everyone when it comes to delivering best healthcare services, the challenges still remain in terms of the method of communication used to receive reminders of prescriptions and repeats: the reminder language is the same for everyone irrespective of whether or not they understand the language spoken. According to TC16 (41:1235-1237), *"I like the use of mobile text messages to remind me of the dates, to fetch my medications"*. When a patient is on chronic medications and requires routine check-ups, collecting the medications on time is imperative to avoid patients skipping their dose and defaulting. Irrespective of understanding the spoken languages, there are other patients who cannot both speak and read the language. *"But my concern is on those who can't read or understand the language used via text message. It therefore defeats the purpose of reminder"* (TC16, 41:1237-1238).

## 5. UNDERSTANDING TRANSLATION OF LANGUAGE SEMANTICS

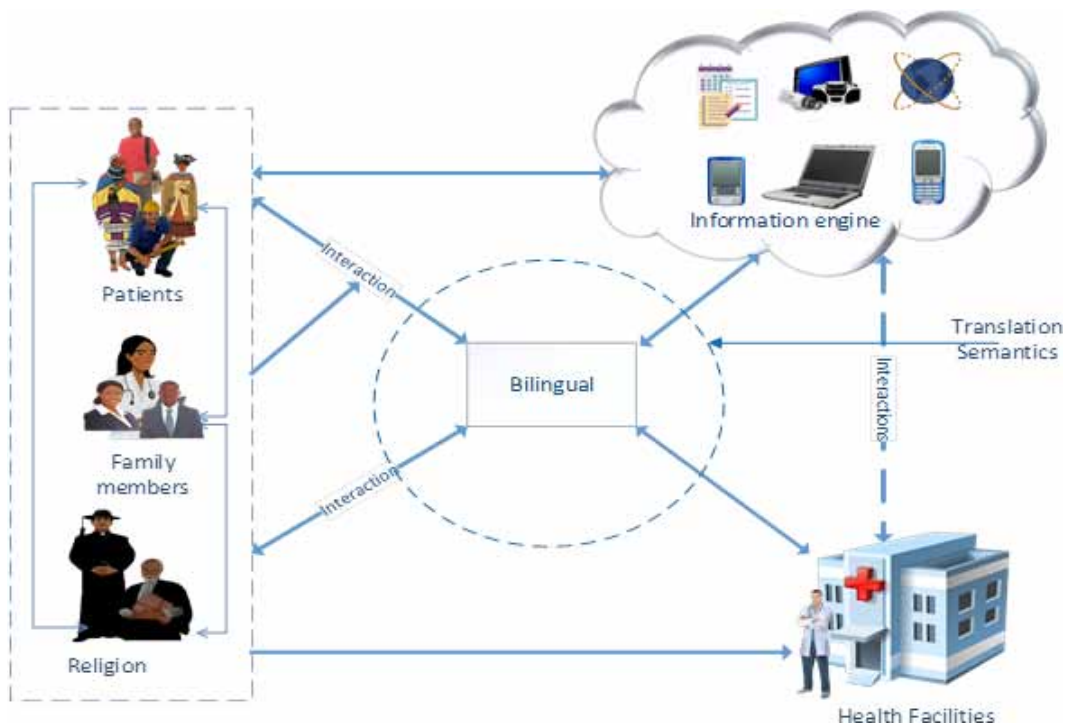
From the data analysis as presented above, some factors were found to influence the translation of language semantics in the delivery and receiving of healthcare services in South Africa. As shown in Figure 2, the factors are heterogeneity of networks, bilingualism, healthcare facility, and information engine. These factors are interconnected and based on interaction, communication, and relationship.

### 5.1. Heterogeneity of Human Networks

Within the heterogeneous networks, members of the Tshwane community had to interact with healthcare service providers for a variety of reasons such as visitation to hospital, collection of scripts or medications, or simply accompanying family members or friends. During these different interactions, there were semantics in their spoken languages which influenced meanings associated with wording and tenses. Due to the various semantics, different meanings and interpretations were reached, which sometimes affected the type and effectiveness of services provided and received. For example, when directly translating “ibhande” in Isizulu to English, this word means ‘belt’, which is incorrect for medical translation. The patient was actually trying to communicate that she is suffering from shingles.

Through misinterpretations from language translation of semantics, healthcare practitioners were able to ‘make or break’ the relationship they have with their patients. Relationship between some community members and healthcare practitioners were unconsciously affected as they continue to struggle with different meanings surrounding certain issues, due to semantics of words in the languages that they spoke. As it was revealed in the data analysis, some words like ‘tuberculosis’ (TB) mean a totally different thing when translated. For example, if translated in Tshivenda it ends up meaning ‘flu’. Due to this misinterpretation, some of the community members began to avoid

Figure 2. Source of semantics in languages



certain health practitioners. As a result, they did not receive attention for their health challenges, which allowed their condition to worsen. Also, the feeble relationship led to some patients having to visit alternative healthcare facilities for medical attention. Additionally, some of the community members felt uncomfortable expressing themselves, which led to low self-esteem.

## **5.2. Information Engine**

There are several ways in which Tshwane community members received healthcare information from the healthcare providers which included but were not limited to pamphlets, radio or television, search engines and on mobile cellular phones as a text message. With pamphlets, several community members were able to confirm that depending on the dominant language used in that community, those would be the languages of pamphlets. However, with a medium of communication such as radio, television, engine searches and text messages, members of Tshwane community stated that most of the times the messages were rendered in English.

Through the use of information searches, some community members solicited information from search engines, and drew meaning and conclusion out of it on their own, and interpreted those meanings predicated on their own understanding. This led to inaccurate self-diagnosis, a trend which can result into dire consequences. Most medical terms, when translated into native languages, don't carry precisely the same semantics. Other terms do not even exist in other languages. For example, with 'cancer' as stated in Tshivenda and Pedi language semantics, this word does not even exist: Tshivenda-speaking community members referred it as a 'wound'. In the Sepedi language, they call it 'kanker', which is an Afrikaans meaning. Therefore, these examples demonstrate just how easily it would be for people to not give this condition the attention it deserves by assuming it is just a minor ailment.

When community members are unable to receive proper healthcare information, they fail to react on time to certain health issues that need quick responses; this can lead to relapse or loss of lives. Community members are deprived of the right to accurate information which, according to our constitution, is a right of every South African.

Language translation of semantics needs to be built into this system (i.e. search engines) in an effort to deliver a better, more accurate healthcare information and services to all people, irrespective of the languages they speak. As it was revealed from the data analysis, even though healthcare facilities are trying their best to accommodate everyone, when it comes to delivering the best healthcare services, the challenges still remain in the methods of communication for receiving reminders for repeat prescriptions. The language conveying these reminders is the same, irrespective of whether or not the recipients understand the language.

Some other healthcare facilities are worse as they don't even have systems in place to remind the patients about their upcoming visit. This they still do it manually by writing the next appointment date on a file. This is challenging for those community members who don't set reminders on their own, and then they frequently miss their appointments. Some of those community members relapsed because of this.

## **5.3. Healthcare Facilities**

Healthcare facilities are extremely important to each community as that is where community members are able to interact face-to-face with their healthcare practitioners. Healthcare facilities need to render services to the community; healthcare facilities at Tshwane Community assist community members who speak different languages, who have cultural sensitivities, and who have different religions beliefs. These differences can be a burden to healthcare service providers when attempting to accommodate all these languages, cultures and religions.

Other healthcare institutions have employed interpreters or use staff members as interpreters to manage the challenge of communication barriers from language translation of semantics, as well as trying to provide another way of bridging a cultural and communication gap. Interpreters are still human beings so sometimes the way they speak or do things can be influenced by their background. Therefore, relying totally on the interpreters might not necessarily solve this problem.

Community members have highlighted a few words that, when translated to their language, lose accuracy of meaning. For example, it was revealed in the data analysis that some conditions, like 'kidney failure' are referred to 'Tswio' which in the Tshivenda language just mean kidneys. These semantics can cause confusion in a patient's life, as other patients asserted that there are even other things they are unable to express in other languages but can only express in their own language.

Also, there are no accessible facilities which could enable improved distribution of chronic medications to patients in their various geographical locations, and technologies that could translate semantics in the languages that were spoken by many Tshwane community members. These issues require a standardised system that can be programmed for a host of languages and interpret the semantics into the correct meanings of each programmed word.

#### 5.4. Bilingualism

The majority of the Tshwane community members speak more than one language; however, those who are unable to speak any other language except their mother tongue it difficult to communicate. South Africa is a very diverse country in which almost 11 official languages are used with regularity. Healthcare providers are challenged with issue of language essential to assessing a patient's problem and determining the appropriate care and treatment. To combat these issues, they rely on other healthcare workers to function as interpreters for people who brought in patients.

Because of this issue, hospital visitation becomes a nightmare. Some people spend unnecessary hours at the hospital trying to secure an interpreter, while others end up with a negative perception of the service being rendered. Having interpreters does not necessarily solve the problem, as some of the problems are more to do with the language semantics, not necessarily the translation, so technologies need to be put in place to ease the burden of healthcare practitioners and limit patients' frustrations with the situation.

As revealed with the data analysis, some of community members showed some elements of uncertainty when a doctor uses a nurse to translate, because they were not certain the information is being translated correctly as the patient might be someone who doesn't understand the spoken language and its semantics.

### 6. CONCLUSION

Many studies have been conducted in the areas of translation of languages, semantics of language, and the use of mobile systems in healthcare, but separately. This study combines the three areas, making it of interest to health practitioners, ICT specialists and academics. Thus, the contributions of this study comes from both theoretical and practical perspectives.

Theoretically, the ad to existing literature in the areas of healthcare and ICT. Also, the empirical evidence from this study can help the South African government in developing or amending its policies that relates to the use of language in public health. The study can also be of interest to governments of other countries, especially developing countries where similar challenges exist. Practically, patients as well as the health professionals would undoubtedly benefit from this study by being aware of the factors that influence the translation of language and its semantics. From such understanding both patients and healthcare practitioners will gain more insights on how and why services are provided and received in the manner that they do. In addition to practical contribution, the ICT specialist will be better equipped and prepared in developing application to enable and support solution for translation of language semantics in South Africa.

Owing to numerous interests in both the healthcare and ICT areas, two of the fastest growing domains, we expect this study to trigger more investigations from practitioner and academics. Thus, the study can prompt similar studies in other African countries where there are multi-lingual challenges. Also, further studies can be conducted to examine the challenges of languages semantics from different viewpoints, such as diffusion of technology innovation to address the challenges of African languages.

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