

## THE VIABILITY OF TWITTER FOR DATA COLLECTION IN GOVERNMENT STUDIES IN SOUTH AFRICA

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**Abstract:** Uncertainty surrounding an agreeable theory in government studies and public opinion in South Africa, resulting in financial and research capacity shortages to generate big data in supporting empirical, theoretical postulation and conceptual clarification is an undisputed reality. It is on this basis that the authors of this article use this space to proffer the use of the social media as convenient means for gathering data in government studies, which we choose to refer to as sociomedism. We have also argued that social media can be used in multiple areas of academic endeavor. Equally important, such big data is poised to have utility value in solving societal challenges in South Africa and beyond. Methodologically, we relied on document study and interdisciplinary discourse analysis in its broadest form.

### 1. INTRODUCTION

The usefulness of Twitter in the generation of information is unquestionable (Prestridge 2013). However, the use of the instrument in generating data for scientific research, conceptual clarification and scholarly publications seems questionable (Ahmed et al., 2017). This is probably because the concept is quite new and there are potential ethical contours for scientific research. However, for conceptual clarification, information disbursement and political polls the instrument is well established, particularly in countries that are advanced in terms of internet, twitter penetration and higher technological access. Twitter is one of the numerous social media instruments used for interaction and communication via the internet. Twitter can also be seen as a platform that uses microblog to permit users to post 240 characters as Tweets (Twitter 2018). In the scientific community, Twitter has been used in creating artificial classroom scenario for learning (Domizi in TrendTech 2013). Findings have demonstrated that tweeting research publications and published findings increases the access to a broader audience and readership, as well as, increases journal impact factors by way of views and downloads (Shuai, Pepe and Bollen, 2012; Darling et al., 2013). It is the well-considered view of the authors of this article that tweeting also enhances the visibility of the institutional affiliations of the published scholars, thereby posing both universities and scholars for improved ranking at the national and international level (Sebola 2018). Eysenbach (2011) argues that articles tweeted on Twitter have the potential of been viewed 11 times over articles which are not advertised on Twitter. It is on this premise that this article aims to explore the usefulness of Twitter as an instrument for data collection

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in government studies in South Africa. This is probably because in South Africa, there is plethora of philosophical, practical or scholarly concepts needing conceptual clarification and demarcation, and classification or categorisation. A few of these concepts would include Tenderpreneur, White Monopolist Capitalist, Community Economic Development, Radical Economic Transformation, and Decolonisation among others (Nkuna and Shai 2018; Ndaguba and Hanyane 2018).

This is not to say that the orthodox or traditional means of data collection (survey, interview, focus group discussion etc.,) should be disregarded or disdained (Morse and Richards 2002). Rather in matters requiring urgency and swift decision-making, a poll with the use of a verifiable social media as Twitter could be the solution. More so, on issues requiring public participation on national discourse, one could argue that a poll is not a bad idea. Twitter polls can come in quite handy in this regard. It must be recounted that there are three major problems that plagues orthodox data collection instruments, namely, cost, time, and convenience. This is arguably one of several reasons why there are shortages in research findings of grand scale, especially in government studies (especially public administration) that receives minimal grants (Sebola 2018).

The argument in this article can be better understood when located in three sections; the first being the context background, literature review and the reason for the twitter option. Then the why of social media, conceptual positioning of sociomedism, philosophical underpinning of sociomedism, and methods in sociomedism constitute the second section. The third section will look at twitter as a viable tool and its ethical dilemma. However, the rise and earliest instruments for data collection will take center stage.

## **2. THE CONTEXTUAL BACKGROUND AND THE BUILD-UP TO SOCIAL MEDIA**

The rise of social media has been phenomenal and appealing to both the young and the old (Levine et al., 2012).<sup>\*</sup> The earliest documented evidence of the instruments for data collection is dated to 550BC, postal communication. Postal communication was introduced as a means for communication and gathering data via postal service (Geek Tips Marketers 2011; Georgescu, and Popescul 2015). The trends of the media has so far metamorphosed from an era of postal communication in 550BC to: telegraph in 1792, telephone in 1890, radio in 1891, email in 1966, ARPANET and CompuServe in 1969, USENET in 1979, BBS in 1978, MUD1 in 1978, The WELL in 1985, Listserv in 1986, IRC in 1988, The Palace and *MoveOn.ona* in 1994, Napster in 1999, Blogger in 1999, Wikipedia in 2001, Friendster in 2002, Facebook in 2003, MySpace in 2003, SecondLife in 2003, deLicio.us in 2003, Flickr and dig in 2004, YouTube in 2005, and Twitter in 2006 (Thompson 1995; Hahn 1996, 553; Bartle 2003, 9-10; Geek Tips Marketers 2011; Sajithra and Patil 2013, 69; Digital Trends 2014).<sup>\*\*</sup>

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The second stage of the development of the media is argued to be participatory, smart, and interactive (Sajithra and Patil 2013; Manning 2014, 1156-1160; Digital Trends 2014). The foregoing assertion is premised on the notion that the first stage was much monotonous (broadcast age/ stage) and provided a single narrative (see CNN, NBC, FOX, BBC views on Africa and Arab World) (Harvey 2014). The revolution of the social media was an introduction of interactive, durable, portable, smart and participatory action media. This platform has made communication to be instantaneous, quicker, and cost effective (Manning 2014; Harvey 2014). Mobile applications on smart phones have aided the spread and use of the social media applications as, YouTube, blogs, WhatsApp, microblog, and Twitter on one's mobile device (Aichner and Jacob 2015, 256-259). These and several conditions are the *raison d'être* for this review and proposition for a social media methodology for data collection in government studies in South Africa. Based on the fact that the traditional mechanism for data collection has proven hideous and problematic in generating 'big' data and providing data feeds instantaneously at a cost effective rate and pace.

### 3. SOCIAL MEDIA IN PERSPECTIVE

Social media is a computer mediated instrument that allows both companies and individuals to create, share, post or exchange career interests, information, ideas, videos and pictures in a virtual network (Buettner 2017). The concept of social media is continually evolving by differing any clear-cut boundaries or definition. In this article, social media is conceived in its broadest sense, as a means through which individual/s, agencies and organisations are brought under a certain social communication stream, to communicate using computer aided device for collaboration, communication, networking and/ or streaming. While it facilitates communication, networking, and collaboration on the one hand, it incorporates a vast range of mobile-based platforms and personal computing techniques that is launched, re-launched, and developed (Obar and Wildman 2015, 6). Until recently, research in the area of data collection through the social media was mainly focused on the tools of Web 2.0 among other web related data collection feeds (internet questionnaire) and social tagging (Collins and Quan-Haase 2014, 49).

Findings have revealed increasing usage of various mobile technologies in various locations (Chua and Goh 2010). The notion of technological determinism is that the technological developments and spread of technology have a uniform and strong effect on society, irrespective of characteristics of the social system and social interaction (Quan-Haase 2013; Collins and Quan-Haase 2014, 49). Furthermore, Obar and Wildman (2015, 6-8) at the 49th Annual Hawaii International Conference on System Sciences at Kauai, Hawaii identified four critical elements in the definition of the social media, and the paper included a fifth:

1. Social media is currently Web 3.0 internet-based application (Kaplan and Haenlein 2010; Obar and Wildman 2015, 8);
2. The lifeblood of social media organism is the user-generated content (UGC) (Boyd and Ellison 2010);
3. Users of the social media create unique identification for the app or site maintained and designed by the social media organization with the user allowed personalization of homepage in some instance (Kietzmann and Kristopher 2011; Obar and Wildman 2015);
4. It facilitate the development of online portals in the social networks by connecting profile or telephone numbers to those of mutual friend or organization (Kietzmann and Kristopher 2011); and
5. It integrates phone directory, search local platforms, provide the right information, unblock hidden phone numbers, and grant accessibility to places and people regardless of location.\*\*\*\*\*

#### **4. WHY SOCIAL MEDIA IN GOVERNMENT STUDIES IN SOUTH AFRICA?**

Over the years gathering big data in government studies in South Africa have proven to be difficult, time consuming and problematic (Luna et al., 2014; Marivate and Moorosi 2018). It is perhaps problematic in terms of gathering participants, getting approval for such a study and securing funding for research in government studies. Problem in distributing and analysing questionnaires emanate from coding, capturing, storing and synthesizing big data. According to the TechAmerica Foundation's Federal Big Data Commission (2012), "big data is a term that describes large volumes of high velocity, complex and variable data that require advanced techniques and technologies to enable the capture, storage, distribution, management, and analysis of the information." In similar submission, Gartner Incorporation conceptualised big data as, "high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making." (Gartner IT Glossary n.d.). Stretching the notion of big data even further a survey conducted by IBM in 2012 stated that datasets just over a terabyte is considered to be big data (Schroek et al., 2012). Thus, one could agree that big data is time consuming, very expensive, and diverse.

When the term big data is mentioned the first thing that comes to mind is the size of the data. In most scenarios, the only dimension that leaps out at the mention of big data, ignoring other dimensions, Velocity and Variety (the three V's of big data, Volume, Velocity and Variety) (Chen et al., 2012; Kwon et al., 2014).

Taking into account the cost, the manpower required, and the academic knowledge needed for transdisciplinarity to occur in South Africa is enormous

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(Ndaguba and Ijeoma 2017). Hence, the time expended and the general lack of capacity of academics in the discipline to gather such data can no longer be stalled owing to the lack of finance among others. In that, the probability to ever generating big data in government studies in South Africa could be dashed. Consequently, the ability to refute theoretical postulations and for generating new theories in the discipline will be of no effect. It could be said that these constitute a reason why contestations abound on most issues (theories, methods, and concepts) in government studies in the country.

Since the postulation of JJN Cloete (arguably the father of public administration in South Africa) there is hardly any single theory, framework or principle that have been generally accepted in public administration research in South Africa as the Generic Principle. On the other hand, concepts such as white monopolist capitalist, decolonialism, decolonization, and radical economic transformation among others. Seems to be seldom clause that requires interpretation in the field of government studies. Without a consensus on how the discipline can harness its potentials.

## **5. CONCEPTUALISING SOCIOMEDISM IN GOVERNMENT STUDIES**

Every generation tend to welcome a new idea, new thought pattern, new methodology and new challenge, thereby embracing new solutions. However, M.H. Maserumule (as cited by Sebola 2018) strongly avers that that for the new to emerge, the old must die. It can also be said that new innovative scholarly ideas to flourish, the old once must be killed; especially if they are not useful in providing political, economic and social problems in the society. It is argued by the authors of this article that old ideas must die because their advocates tend to violently defend them as the only voice in providing explanations on certain fundamental issues in the society (Maserumule 2015). While some scholars tend to shift paradigm (as Woodrow Wilson on Politics-Administration Dichotomy; Frederick Taylor on the Scientific Management School; Abraham Maslow on the Pyramid of motivational needs; François Bourguignon and Christian Morrisson on poverty and inequality; Christopher Columbus vs. Pythagoras on argument of a flat or spherical world; Albert Einstein on theoretical physics; Molefi Kete Asante on Afrocentricity and Thomas Kuhn on paradigm of scientific methodologies in data science among others). Others give new perspectives to event and occurrence (as generic principle, modernization theory, new public management, human research approach etc.,) that shapes the worldview of a discipline, event and/or circumstance.

Therefore, the ability of academics to shift, change or provide perspectives on new issues or contending trends, events and development in a field make them noble. While breaking down complex thought processes makes them professors. Therefore, the complex the confusion in the world system (in terms of conceptual clarification of buzzwords as decolonization, Africanisation, white monopolist capitalist), the

more a need for social scientist, government analysts and commentators in keeping with the pace of the media.

In recent times, the complex nature of data collection in government studies and public opinion (GSPP) had limited the opportunities of GSPP researchers to develop cutting edge approach or solution in ameliorating a deficiency in the public sector as a result of the want of data for problem solving in government parlance.

## **6. PHILOSOPHICAL UNDERPINNING OF SOCIOMEDISM**

The term sociomedism is a combination of two words ‘socio’ meaning “collaborative workspace” and ‘media’ meaning “instantaneous access”. Hence, sociomedism is defined in its simplest sense as the scientific method of generating data for research in a communicative and collaborative interactive terminal instantaneously. Put succinctly, sociomedism is seen as the vessel through which communication is transmitted instantly with the aid of a social media instrument. It can also be referred to as a means through which sample for research is derived from the entire population in a selected social media group. Sociomedism is the science of data collection through the use of a social media instrument.

Noteworthy is that there are four assumptions that stimulate the research into the conceptualization of the term sociomedism:

1. Sociomedism holds significant potential for generating viable and reliable data for theoretical postulations and conceptual clarification in research.
2. Sociomedism can be used in establishing relationships between phenomena, building consciousness and public opinion in a public discourse in a polity.
3. Data can be gathered in a cost effective manner and shortened gestation period.
4. Sociomedism can be seen as a host that houses all social media instrument.

This data collection method is reviewed against the backdrop of exploring the opportunities bequeathed to the social media instrument. This is on the basis of cost effectiveness, storage, verifiable, reliability, representative, controllable, and ultimately time saving.

Time is an integral aspect in a researcher’s life cycle as well as a research findings. In that, a relevant and topical issue within a period might become irrelevant in the nearest morai. And therefore, such findings as well, might also become redundant and dismissive. Hence, there is a need to utilize a method that guarantees effective throughput of publication on contentious issues in public policy

and administration even as the events unfold. This is important in the sense that it will enable researchers to shape policy decisions before they go totally wrong (DeVoe and House 2012).

## **7. SOCIOMEDISM METHODS (QUALITATIVE AND QUANTITATIVE)**

The instruments of sociomedism for data collection method may include, Twitter, Facebook, WhatsApp, Emails, Blogs, Microblog, and diverse mobile technologies as LinkedIn, Tencent QQ, WeChat, and QZone among others. On the other hand, sociomedism instruments for qualitative research would include, Skype, YouTube, Facebook Group Chat (as focus group), Facebook Voice (for interview), and VOIP Apps among others. However, this article is limited not just to the quantitative paradigm but the use of one of its instruments - Twitter. According to Gandomi and Halder, (2015, 138-140), the following attributes of sociomedism as easily editable content and questionnaire facilitates interactive communication and community that tends towards reducing duplication, in that, Re-Tweeting and sharing, cheaper storage, and realizing the 3 V's of velocity, volume and variety are overwhelming opportunities for academics in the social sphere of research (Chen et al., 2012; Kwon et al., 2014). According to Gandomi and Haider (2015, 138), velocity is defined as the rate at which data is gathered and the pace at which it is analysed and utilized for decision-making. Volume on the other hand, refers to the magnitude of data gathered, in reference to size. While variety may be seen as the characteristics of data gathered, it can also be referred to as the structural heterogeneity in dataset, structured or unstructured.

The complexity in analysing these data for decision-making is critical for public office holders, decision-makers, government consultants, and for those engaged in governmental studies. This is because of the various methods for data collection listed above for generating data under the sociomedism methodology. Twitter is favoured as an instrument or a method for generating data for problem solving in the field of government studies, based on several merits of the Twitter, one of which is its account verification process among others over other sociomedism instruments.

## **8. WHY TWITTER?**

In recent times, scientific data collection procedures are becoming increasingly complex, difficult, time consuming and expensive. With several competing and conflicting instruments for data collection, it is expedient to seek for the most convenient, relevant, timely and cost effective. Especially, where finances are sparse and access to respondents difficult. It is on this note that Twitter is advanced in this article to be a viable instrument for gathering information in sociomedism. For problem solving on issues ranging from government intervention, to insight on trending national issues, and in generating public opinion for academic discourse.

Twitter has been used on different occasion (elections polls, community organisation polls, international development poll etc.) for generating public opinion and building consensus on trending issues with regards to international aid, aid management, votes among others (see elections in Nigeria, America, France among others). Therefore, the thesis for the utilisation of the social media is not entirely new, however, what is distinct is the name sociomedism; which is explained as a methodology housing several methods and instrumentalities for generating scientific data and big data for problem solving in South Africa.

### **9. TWITTER AS A VIABLE MEANS OF DATA COLLECTION: RECONSIDERED**

Sociomedism is the scientific methodology for data collection with the utilisation of a social media instrument. The social media has several instruments by which data collection is made possible either for quantitative or qualitative purposes.\* As argued by Aichner and Jacob (2015, 258), “social media technologies take many different forms including blogs, business networks, enterprise social networks, forums, microblogs, photo sharing, products/services review, social bookmarking, social gaming, social networks, video sharing, and virtual worlds”. These methods can provide both qualitative and quantitative data for scientific research, especially with the use of Twitter.

#### **Twitter**

According to McMahon (2015), Twitter is a social media professional microblogging service that allows registered members of this social network to broadcast and post views within 140 characters called Tweets. Also members of this social network use several mediums to promote their ideas, philosophies or concerns such as Tweets, Replies to Tweet, Re-Tweet, and Follow. All of the above can be actioned via the desktop computer, cell phone, through texting, and the Twitter website (Beal 2016).

Twitter is also useful in enhancing critical thinking, sharing research outcomes and findings, getting scholarship and funding opportunities, communication building, and extending class discussions. In Domizi’s study published in TrendTech of 2013, Domizi argues that microblogging can be used to foster weekly classroom engagement and announcement. And a critical finding in Domizi’s study was that graduate students find the network useful both for personal and professional communication. This therefore validates the argument that Twitter is a fundamental modus of gathering reliable information.

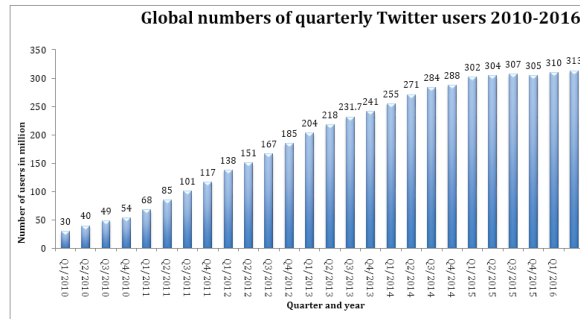
In the South Africa context, the use of Twitter as a means through which class engagement is facilitated has been undermined. This unfortunate situation is probably because scholars in government studies have not been able to adapt themselves to new trends of the 21<sup>st</sup> century. However, on a global pedestal the

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rise and usage of this social network has been phenomenal, most researchers and organisations as the OECD, World Bank, United Nations, and Development Initiatives among several others published frequently post results of their findings on twitter via broadcasting a link which links to details of the research.

**Figure 1: Global numbers of quarterly Twitter users 2010-2016**



Source: Statista (2016)

As seen above the rise of Twitter has been phenomenal. It grew from 30 million subscribers in the first quarter of 2010 to 313 million in the first quarter of 2016. Also the awareness of these media among professionals and professional organisations has risen as well. Most university and scholarly articles being promoted through this media. More so, one of the reoccurring displays in this network is the increasing use for job advertisement and curriculum vitae upload by users of the social media.


Since, the global approach to this social network as seen above, it is imperative to understand how the alleged big data could be gathered through a quantitative paradigm in social research.

This questionnaire/ poll can be created via a desktop computer through the Twitter.com

**How to Create a Twitter Questionnaire**

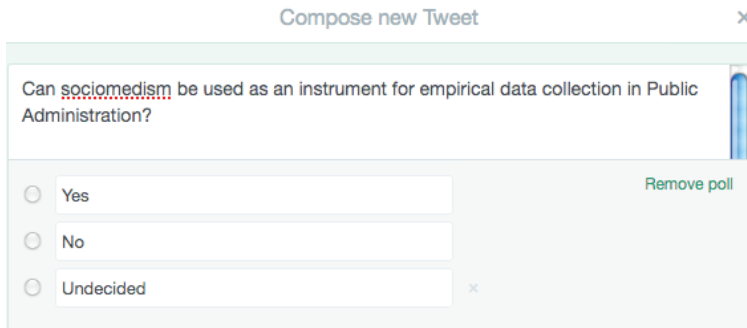
“You can create your own Twitter Poll on the web or in the Twitter app (iOS or Android) for an exploration of how iOS or Android questionnaire on Twitter can be generated see illustration II.

**Illustration I: To create a poll/ questionnaire on twitter.com:**

1. Click into the compose box at the top of your Home timeline, or click the **Tweet** button in the top navigation bar.
2. Click the **Add poll icon** 

3. Type your poll question into the main compose box. You can use up to 140 characters in your poll question.
4. Insert your first poll option into the **Choice 1** box, and your second poll option into the **Choice 2** box. You can use up to 25 characters for each option.
5. Click + **Add a choice** to add additional options to your poll. Your poll can have up to four options.
6. Your poll's duration defaults to 1 day. You can change the duration of your poll by clicking **1 day** and adjusting the **days**, **hours**, and **minutes**. The minimum amount of time for a poll is 5 minutes, and the maximum is 7 days" (Twitter, 2016).

**Figure 2: How to ask a question**



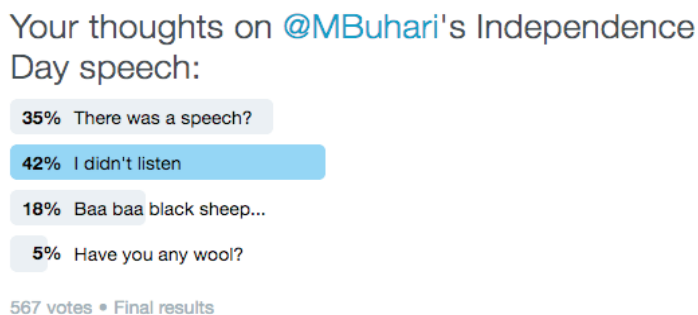
Source: Twitter (2016)

7. Click **Tweet** to post the poll.

Source: Adopted from Twitter (2016)


A typical example of a concluded questionnaire called poll would be:

**Figure 3: How the results look like**



Source: Twitter (2016)

**Illustration II: “To create a poll on the Twitter app (iOS or Android):**

1. Tap the **Tweet** button (iOS) or tap on **What’s happening?** (Android).
2. Tap the **Add poll icon** 
3. Type your poll question into the main compose box. You can use up to 140 characters in your poll question.
4. Insert your first poll option into the **Choice 1** box, and your second poll option into the **Choice 2** box. You can use up to 25 characters for each option.
5. Click + **Add a choice** to add additional options to your poll. Your poll can have up to four options.
6. Your poll’s duration defaults to 1 day. You can change the duration of your poll by tapping **1 day** and adjusting the **days**, **hours**, and **minutes**. The minimum amount of time for a poll is 5 minutes, and the maximum is 7 days.
7. Click **Tweet** to post the poll (Twitter, 2016”).

**Note:** Photos cannot be included in a Twitter poll, and that the method for creating the poll or questionnaire was adopted from Twitter verbatim.\*

**10. ETHICAL CONSIDERATION, IMPORTANCE AND PROSPECT**

Firstly, social media in the form of Twitter or any known social network is not a creation of this article. More so, it must be stated clearly that the essence for the use of the social media in this article is not to present sociomedism as an original postulation or creation of this article nor does it intend to argue in favour of sociomedism for the ownership of the media. However, it argues strongly for the use of a social media as Twitter to be used as an instrument for data collection. Based on the notion that account holders of this media are in most cases verified.

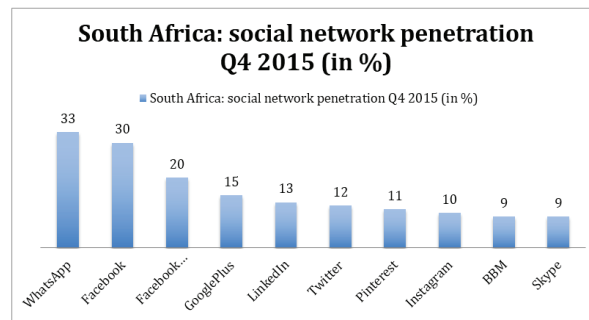
- It argues that sociomedism can be used for review articles and papers, seminar presentation and for Honour Degree Research in the field of government studies, development studies and several social science disciplines premised on the time given the gestation period.
  - Sociomedism is very imperative for pilot studies and review papers.
  - Sociomedism is very useful in gaining insight and public opinion on a public discourse even before and original research is conducted.
  - Sociomedism can be used to test a study carried out elsewhere to understanding the perception on the same issue in a different country.
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- The major ethical notice in this paper is that author does not have authority to the copyright of the research pierce. However, it is deemed very helpful and useful in data collection based on the aforementioned.

## 11. CONCLUSION

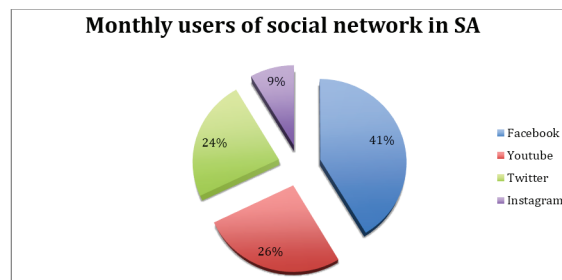
Emerging from the foregoing analysis, we have answered the question the article intended to engage and set the scene for futuristic engagements of this concept. Though the article is argued on the standpoint of Twitter at the quantitative realm, we however, do acknowledge that sociomedism has enormous potential in qualitative studies as well. With the current penetration rate of Twitter (see figure 4) and the increasing demands for publication (publish or perish) in South Africa and the wider continent for laurels and promotion purposes sociomedism cannot be ignored.

**Figure 4: Social media penetration rate in South Africa for the fourth quarter of 2015**



Source: Statista (2016) \*

**Figure 5: Monthly users of social network in South Africa by million**



Source: Snyman (2016)\*\*

It must be noted as seen above (figure 3 and 4) that social network as Twitter and others like Facebook are highly rewarding and equally highly accessed due to

its ability to circulate information timeously both for leisure and research. Hence, Bik and Goldstein argued that Twitter for academic purpose is thus, an information driven social network used in broadcasting scientific evidence premised on the ability of the researcher to use it effectively (Bik and Goldstein, 2013). The usability of sociomedism is premised on the researcher's knowledge of the social network, which is arguably similar to using any other research instrument (quantitative or qualitative) over the years. This observation depends on the ability of the researcher to be acquainted with the do's and don'ts of the instrument, including how data derived are computed, presented and analyzed are all the duties of the researcher. But in the case of sociomedism, data are automatically computed and presented as seen in the sample above (see figure 3).

Lastly, in this article, we have presented an argument for the adoption and use of a social network for data collection with the use of a social media instrument called the Twitter. The significance of twitter is premised on the idea of verification of its users and the number of user (see figure 5), which other social networks take for granted. Also, that the network is a professional social network outlet that can be exploited for gathering information timely. From the argument ensued this article therefore concludes that Twitter is a viable means through which public administration researchers can generate data that are reliable, valid and reliable at the cheapest cost yet with a wider participants convenience. It states lastly that sociomedism has the potential or capability and capacity of ushering a new paradigm in data collection and generation in the 21<sup>st</sup> century.

Finally, it is observed that the functioning and non-functionality of any government lies beneath the cooperation of its citizens and its bureaucrats thereof. As such, sociomedism can therefore be seen as a means through which the government of South Africa to bridge the gap between it and her citizens. Therefore, in the long run, the concept or tool or model or framework is envisaged to assist in shaping government policies, programmes, projects, initiatives, and intervention.

#### *Note*

1. <http://www.digitaltrends.com/features/the-history-of-social-networking/>
2. <http://historycooperative.org/the-history-of-social-media/>
3. <http://callapp.com/>
4. <http://callapp-caller-id-and-block.en.uptodown.com/android>
5. <https://www.facebook.com/CallApp/>
6. It must be stated that social media is the umbrella body housing instrumentalities as the social network. Hence, this article relates issues of the social media as it concerns the social network.
7. The information presented on "To create a poll" was extracted from Twitter.com

- |    |                         |  |
|----|-------------------------|--|
| 8. | Source                  | We Are Social; GlobalWebIndex                        |
|    | Conducted by            | GlobalWebIndex                                       |
|    | Survey period           | 4th quarter 2015                                     |
|    | Region                  | South Africa   |
|    | Type of survey          | n.a.   |
|    | Number of respondents   | n.a.   |
|    | Age group               | 16 to 64 years                                       |
|    | Special characteristics | n.a.   |
|    | Note:                   | Data has been re-based to show national penetration. |
|    | <b>Publication</b>      |  |
|    | Published by            | We Are Social  |
|    | Publication date        | January 2016   |
|    | Original source         | Digital in 2016, page 394 and 395                    |
|    | ID                      | 284468   |
9. <http://www.worldwideworx.com/socialsa2016/>

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