

FRAMING AI DISCOURSE A STUDY OF AI DISCOURSE TWITTER PLATFORM IN KENYA AND SOUTH AFRICA

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Framing AI discourse: A study of AI discourse Twitter platform in Kenya and South Africa

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Abstract

Artificial Intelligence (AI) has become a main feature of news coverage and social media discourse. News and social media coverage can drive the ongoing discussions about the use of AI and influence attitudes towards it. The study used mixed methodology (automatic content analysis and manual coding) to establish the framing of AI on Twitter in Kenya and South Africa. The analysis mainly focused on determining the different local and regional narratives in tweets and retweets in the countries of study pertaining to AI in different categories. The study substantiated the claims, and general views, espoused in the analyzed tweets with data from local and international resources to determine their veracity. A total of 256 tweets from Kenya and 516 tweets from South Africa pertaining to AI sent between 2016 – 2021 were analyzed. These tweets were categorized into 7 different groups: (i) automation and job replacement, (ii) education, (iii) AI and development, (iv) commercial services, (v) health, (vi) AI and governance, and (vii) ethics and regulation, and then further delineated according to 3 sentiments: positive, negative or neutral tweet. The sentiments conveyed by the compiled tweets across these 7 categories was assessed. Study findings showed that, in general, there is still a tendency toward an optimistic view of the possible impact of AI on solving problems in Kenya and South Africa. The differences in negative and positive sentiments across the different categories skews, for the most part, toward higher positive sentiments in Kenya on a particular topic than in South Africa. Finally, the sentiments, both positive and negative, espoused in these tweet mirror those of Global North countries concerning AI, even when the on-the-ground-realities do not support these concerns.

Keyword: AI, Framing, Social Media

Introduction

Artificial Intelligence (AI) has become a main feature of news coverage and social media discourse. The coverage includes discourse on its contribution to business, its social impact, its contribution to scientific progress, and many more. This news and social media coverage can drive the ongoing discussions about the use of AI and influence attitudes towards it. According to Robert M. Entman, frames in communication have four basic functions: they (1) define problems, (2) diagnose causes, (3) make moral judgements and (4) suggest solutions (Entman, 1993). In this way, social media framing of AI provides a social interpretation of AI's potential and perception. The study detailed in this paper sought to understand how twitter accounts in South Africa and Kenya covered artificial intelligence in the past five years. The study used a mixed methodology (automatic content analysis and manual coding) to establish the framing of AI in both countries. The analysis mainly focused on determining the different local and regional narratives in tweets and retweets in the countries of study pertaining to AI in different categories. The study substantiated the claims, and general views, espoused in the analyzed tweets with data from local and international resources to determine their veracity.

Framing theory and media

Framing theory has its roots and applications in many disciplines including psychology, sociology, politics, and communication studies. Erving Goffman used the term 'primary frameworks' to refer to "*relatively stable and socially shared category systems that human beings use to classify new information*", and described framing as "*the process of observing and making sense of events*" (Goffman, 1974). Goffman argued that every person applies his or her own values and perspectives, or frames of reference, to the interpretation of new events or occurrences (Goffman, 1974). In communication studies, framing analysis provides researchers with a rich theoretical framework for studying news items. In the framing model, the media's selectivity gains importance. In Entman's words, "*to frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described*" (Entman, 1993). Framing is a way to encourage people to think about specific events from a point of view determined from the person setting the frame.

Framing, therefore, may be studied as a strategy of constructing and processing news discourse or as a characteristic of the discourse itself. Researchers have found that news frames affect the audiences' interpretation of news. Framing theory proceeds from the assumption that there is a relationship between how an issue is characterized in news reports and how it is understood by audiences. Selectivity in the news coverage frames the mind of audiences by helping them categorize, label, and evaluate information. If people use news frames to process the news and retain items that are consistent with their previous knowledge, it is said, news frames influence audiences and affect their interpretations and judgements.

Social media as a framing tool

Social media framing presents itself as a fascinating research source; particularly, in the social and behavioural sciences and in the political realm. Ideally, rational choices should be driven

by concrete data, and similar data, presented similar way, should yield similar results (Tversky & Kahneman, 1981). However, social media has proven that on-the-ground realities are quite different from this expectation. People alter their decision-making based on circumstantial data. Furthermore, individuals are more likely to support decisions framed in positive terms than ones based in negative terms (Tabesh, Tabesh, & Moghaddam, 2019; Donovan & Jalleh, 1999). The public often relies on informed groups to highlight important issues and then make decisions based upon those concerns. Social science research shows that elites and media act as framers of issues. A political issue's presentation will affect the degree of support it has (Hamdy & Gomaa, 2012; Tabesh, Tabesh, & Moghaddam, 2019). If an issue can be articulated in an easily understood framework, then it is more likely to gain support.

Entman explains that framing is essential in political problem solving because to frame is to select some aspects of a perceived reality and make it more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described (Entman, 1993). However, citizens do not take cues similarly from all political actors. Studies have shown that citizens are likely to respond to the information from the sources they find trustworthy, whether these are political actors or media sources (Zaller, 1992; Druckman, 2001). The perceived trustworthiness and credibility of the source has a direct influence on the readiness with which the public responds to its framing cues (Petty & Wegener, 1998; Lupia & McCubbins, 2000; Miller & Krosnick, 2000).

Social media can serve as a new venue of issues framing, when societal conditions challenge the credibility and trustworthiness of established media and elite sources (Reddick & Aikins, 2012; Hon, 2016; Hemphill, Culotta, & Heston, 2013; Mendelsohn, Budak, & Jurgens, 2021; Surzhko-Harned & Zahuranec, 2017). Each user acts as both a reporter and consumer, providing information to their immediate followers and feedback to others. This information can then be shared if it has social value, or ignored if it does not. The importance of information is determined by the online community, which in turn assigns trustworthiness and credibility to the information in the eyes of the consumers. Event participants, eyewitnesses, and experts converge in social media sites to present and process the information in real time, creating and re-creating framing cues. Unlike most other political tools, social media feeds directly into itself. The public produces reports, which influence public perception, which produce future reports. Robert D. Benford and David A. Snow identify three strategies in the framing process: diagnostic, which identifies the injustice; prognostic, which involves articulation of the proposed solution, and action mobilization, or a 'call to arms' (Benford & Snow, 2000). Social media framing allows users to identify their problem, identify an adversary, propose the solution, and motivate others to pursue change. Moreover, social media can act as more than just a platform for information sharing, but can be an interactive undertaking where "shared meaning" of the information is actively negotiated and re-negotiated, i.e., it can facilitate the social construction of reality (Gamson, Croteau, Hoynes, & Sasson, 1992; Gamson & Stuart, 1992; Vera, 2016; Berger & Luckmann, 2016). The application of framing in media allows for an exploration into the way several concepts can drive the discourse in a nation up to and including in political processes, regulatory frameworks and government decisions. Artificial Intelligence is framed in several ways; as an emerging technology, it is positioned as a

possibility for future technologies or a disruptor of others. In Africa, the positioning of AI discourse is likely to be a determining factor in the public's attitude to it and in the approach taken by policymakers in developing its governance and regulatory structures. This study traces perception of AI in several sectors and analyses the facts, myths and consequences of positive and negative framing within the African context.

Methodology

This research was conducted using Twitter as the social media network of study and conducted by manual scraping and coding which utilized geolocation in the advanced search feature. The searches established a geolocation coordinate for both countries of study, Kenya and South Africa, and extended the radius as it was applicable to the country's borders. The tweets pertaining to AI over a five-year period, ranging from 2016 to 2021, were collected. The tweets were first subdivided into seven categories, determined by their prevalence and relevance in AI discourse online: (i) automation and job replacement, (ii) education, (iii) AI and development, (iv) commercial services, (v) health, (vi) AI and governance, and (vii) ethics and regulation. Other topics of discussion that came up in the compiled data pertained to AI events and educational webinars, agriculture, cybersecurity, and entertainment. These categories were not included in the analysis, however, as their data was sparse. Each tweet was then further categorized as a positive tweet, a negative tweet, or a neutral tweet. Positive tweets are characterized as tweets indicating a general good regard for AI, in terms of the language, content as well as with any accompanying emoji or emoticons indicating their sentiments about AI. Negative tweets are tweets which espouse a general disapproval for AI in the categories listed above. Neutral tweets are considered tweets which directly report events related to AI without providing any sentiment, either in a positive or negative light, about Artificial Intelligence.

Results

Overall sentiments of tweets pertaining to AI in Kenya and South Africa

In Kenya 264 tweets in total were collected with 121 being categorized as positive, 45 being categorized as negative and 98 being considered neutral. In South Africa a total number of 516 tweets were collected with 183 being considered positive, 83 being considered negative and 250 being considered neutral.

OVERALL SENTIMENTS OF ANALYZED TWEETS COLLECTED IN KENYA AND SOUTH AFRICA

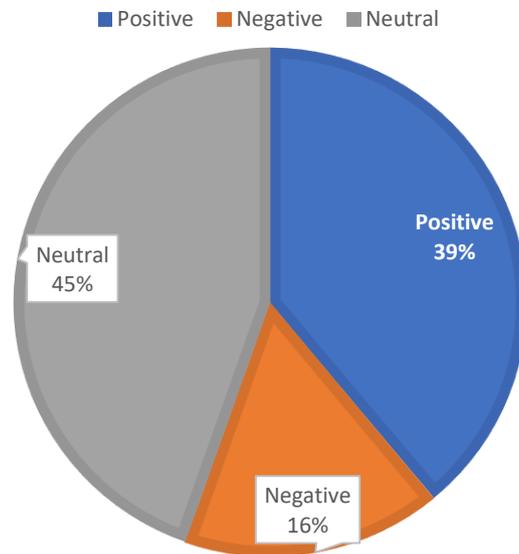


Figure 1: The figure above details the overall sentiments espoused in the tweets analysed across the 7 categories outlined earlier in this paper in Kenya and South Africa. 39% of the 780 total tweets compiled from Twitter platforms in both countries are categorized as positive; 16% are categorized as negative, and 45% are determined to be neutral.

Sentiments of tweets pertaining to AI and Development

The tweets analyzed from Kenya's Twitter platform pertaining to the use of AI in furthering the nation's socio-economic development were largely positive. In the 5-year period analyzed, 33 tweets definitively related to AI and development. 17 of the 33 tweets had a favorable outlook on the use of AI in the nation's development; 0 of the analyzed tweets were negative, and 16 were characterized as neutral.

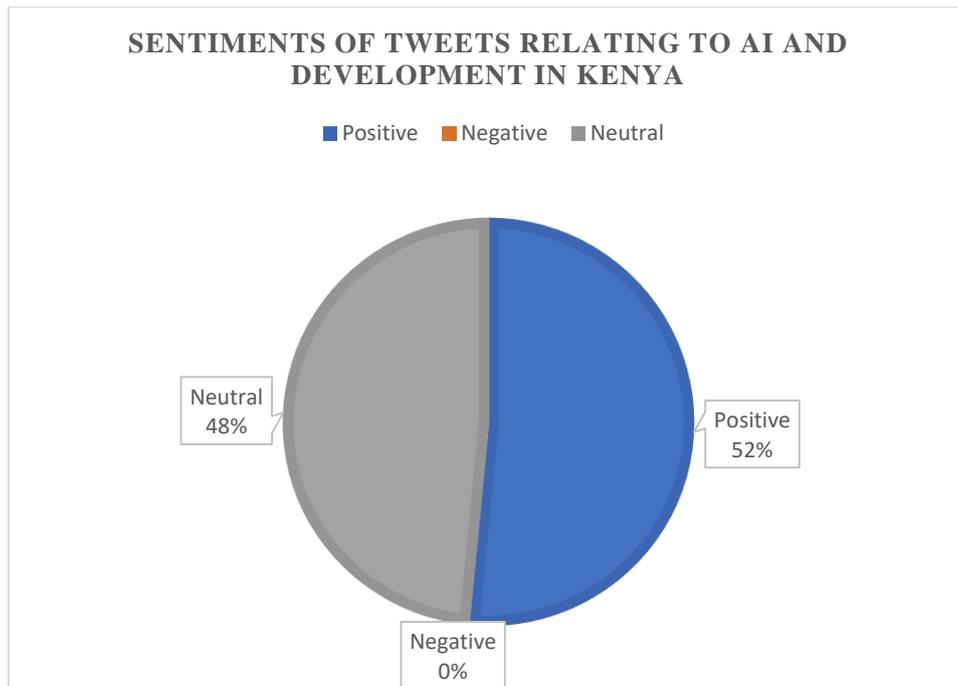


Figure 2: The image above details the sentiments observed in tweets compiled from Kenya’s Twitter platform pertaining to AI and development. Of the total 33 tweets on the subject from 2010 – 2016, 52% are characterized as positive, 48% as neutral, and none express negative views on the utilization of AI for development.

The results were starkly different in the tweets analysed from South Africa’s twitter platform. 31% of the 91 tweets analysed from South Africa’s Twitter platform on AI and development were negative. The tweets suggest that the platform’s users believe in the inability of AI to overcome matters of corruption with the country. Additionally, the tweets suggest that twitter users believe that AI technologies may be employed as tools of oppression and may even, ultimately, usher in a negative dystopian future where cognitive processes are controlled by AI, and primarily dictated by the government which is considered untrustworthy.

SENTIMENTS OF TWEETS RELATING TO AI AND DEVELOPMENT IN SOUTH AFRICA

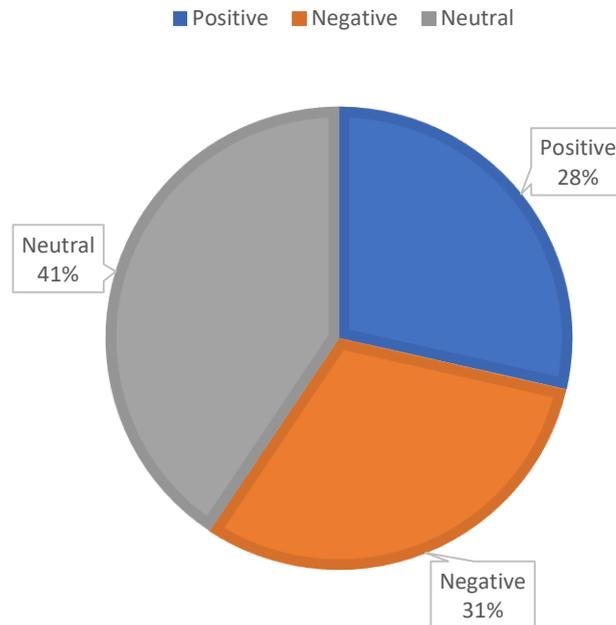


Figure 3: The figure above details the sentiments of tweets compiled from 2016 – 2021 from South Africa’s Twitter platform on the utilization of AI in the meeting the nation’s development goals. 91 total tweets were analysed. A majority, 41%, of these contain factual content only, no sentiments, either positive or negative, are expressed; 28% are positive, and 31% are characterized as negative.

The reason for the discrepancy in the negative attitudes towards AI and development in these two countries may be attributed to the age of the AI ecosystems in the respective nations. Covid-19 amplified the discourse around and use of AI in development in both countries (Solis, 2020). Both the private and public sector in Kenya and South Africa increased their utilization of AI platforms in the years since the pandemic began. Government bodies in both countries deployed AI technology to ensure citizens were able to access service despite restrictions implemented in deference to the pandemic. Prior to the pandemic, both the private and public sectors in Kenya and South Africa were facing increasing demands for digital services which forced technology leaders to prioritize automation (Solis, 2020). However, in Kenya, the AI ecosystem is comparatively young relative to that of South Africa. In fact, in Kenya, there are still concerns on whether the country is prepared for the 4th Industrial Revolution (Wakiaga, 2020). In 2021, the Government Artificial Intelligence Readiness Index by Oxford Insights ranked Kenya 78 out of 160 countries in terms of the country’s AI readiness (Wamugu, 2022). South Africa, meanwhile, is ranked 59th in AI readiness by the Government Artificial Intelligence Index (Shearer, Stirling, & Pasquarell, 2020). Development and adoption of AI technologies is much for wide spread (and the practice much older) in South Africa than it is in Kenya – with South Africa housing a number of research and innovation hubs dedicated to AI, and even issuing the first global patent to AI in 2021 (Ferrein & Meyer, 2012; Naidoo, 2021). It may be that the South African public is past the ‘techno-optimism’ phase experienced with emerging technologies while the Kenyan public is still firmly in it. Techno-optimism is the general belief that technology will play a key role in ensuring that good prevails over the bad (Königs, 2022). Prolonged use of AI tools for development may have disabused the South

African public of this notion. This would account for the negative sentiments expressed in regards to AI's role in development in the analyzed tweets. Meanwhile, Kenya is still largely grappling with how best to deploy this tools to aid in the country's development goal. To boost development, Kenya has put in place an 11 team AI task force to boost application of AI in the country through structured governance (Wamugu, 2022). The public is still largely excited about the potential impact these AI tools. Since this strategy of utilizing AI tools in Kenya is in its infancy, the positive narratives surrounding it remain largely unchallenged by on-the-ground realities – unlike South Africa's AI ecosystem. Moreover, this positive narrative – in the absence of contradictory evidence – is likely to be amplified in social media platforms such as twitter. This would account for the absence of any negative views regarding AI and development in tweets analyzed from Kenya's Twitter platform.

Sentiments of tweets pertaining to AI and commercial services

A total of 45 tweets were found in the period of 2016 – 2021 to relate the use of AI in providing commercial services. 34 of the tweets espoused a positive view point in the use of AI in this sector; 10 were neutral, and only 1 of the analyzed tweets showed any negative leanings on the subject. The narratives on this, in the timeframe of study, largely centered around Kenya's banking and financial services ecosystem. Kenya's banking sector has embraced the use of AI tools to improve the manner in which it provides services to its customers. In fact, of the 45 tweets analyzed in this category, a significant portion of them specifically mentioned the Kenyan bank, ABSA, and its deployment of the AI Chabot application known as Abby. Abby operates as a 24/7 digital personal banker to the bank's customer; it aides customers in making payments, buying airtime, accessing account information and answering general queries (ABSA Bank). The ease and convenience offered by these AI tools may be the driving force behind the positive sentiments seen on Kenya's Twitter platform. The small number of negative sentiments may be due to cybersecurity concerns and fears of job loss due to automation – concerns prevalent in other regions that have adopted AI technologies (Jakšič & Marinč, 2019). There are also conversations in the analyzed tweets on the use of Artificial Intelligence to write adverts. The sentiments expressed in these conversations were mainly positive. AI provides novel ways to improve traditional marketing practices – automation of data compilation, pattern recognition, micro targeting, etc. - which may account for the general positive outlook in the Kenyan marketing landscape.

SENTIMENTS OF TWEETS PERTAINING TO AI AND COMMERCIAL SERVICES IN KENYA

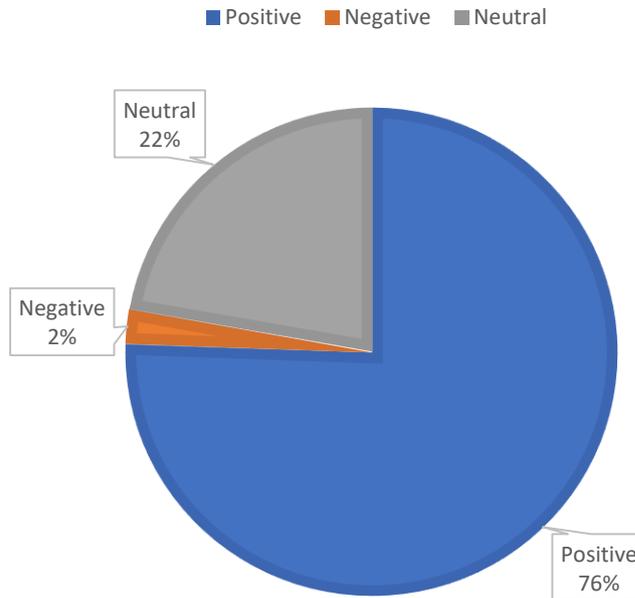


Figure 4: The figure above details the positive, negative and neutral sentiments in 45 tweets pertaining to AI and commercial services obtained from Kenya's Twitter platform from 2016 – 2021. The sentiments skew largely positive, 76%. Only a small number, 2%, of the analysed tweets express negative sentiments in the adoption of AI for commercial services.

There were 78 total tweets pertaining to the use of AI in commercial services in the time period of study. 57 of these tweets were characterized as positive; 3 as negative, and 18 offered only factual sentiments on the topic. It is interesting to note that the breakdown of sentiments around this topic in both countries is very similar. In both countries, the discourse around AI as regards its use in commercial services is predominantly positive, 76% in Kenya and 73% in South Africa. The negative sentiments on the topic are very small; 2% of the total tweets in the category in Kenya and 4% of the total tweets in South Africa. In South Africa, the analyzed tweets show a preference for the use of AI powered applications in developing customer services and utilizing AI as a way to create faster more efficient transactions. The negative tweets expressed concern that the use of Chabot's and algorithm powered messengers has led to miscommunication; as well as concerns about the impersonal service that can be rendered to a customer particularly where the user needs a more personal touch.

SENTIMENTS OF TWEETS PERTAINING TO AI AND COMMERCIAL SERVICES IN SOUTH AFRICA

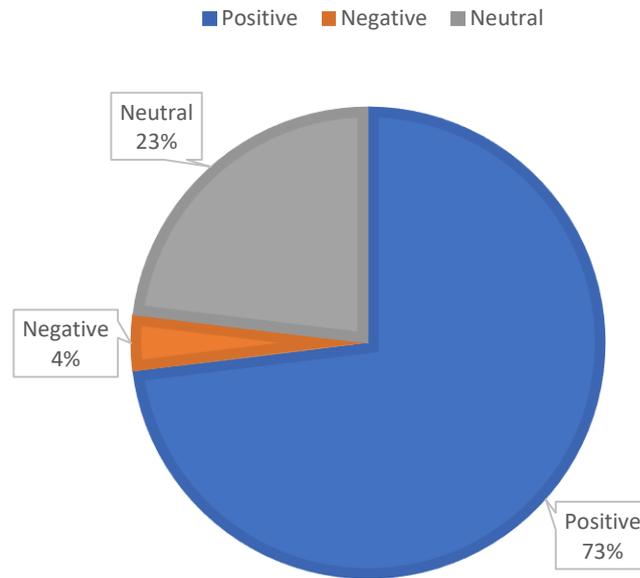


Figure 5: The figure above details the sentiments expressed in tweets from South Africa's Twitter platform on the use of AI in commercial services. The sentiments are primarily positive, 73% of the 78 total tweets on the topic. Only a small number, 4%, express any negative views on the topic.

It is important to note, that concerns around job loss from automation have not been realized or observed (at this time) in either of the countries of studies. Yet, this fear persists. It could be argued that discourse on this fears on social media platforms such as Twitter amplify this concerns, unfounded or not, and keep it in the public discourse.

Sentiments of tweets pertaining to AI and health

The number of tweets concerning AI and health in both countries are comparatively few. In Kenya, only 10 of the 264 tweets on AI pertain to health. In South Africa, that number is even smaller with only 13 of the total 516 tweets relate to heath. In both Kenya and South Africa, the outlook on the use of AI in the healthcare industry is largely positive. AI technologies within the health sector of Low-Middle Income Countries(LMIC) are held to be a relatively new (Wahl, Cossy-Gantner, Germann, & Schwalbe, 2018). The positive outlook can be attributed to the anticipated benefits by the public from the use of these AI technologies. AI chatbots, as an example, are already in use in both countries' health sector. The chatbots increase accessibility to follow up services especially within "stigmatising" settings (Alami, et al., 2020). A key example of this is the chatbot askNivi, deployed in Kenya, a free sexual and reproductive health information service that aims to bridge the information gap that exists between the young population and health providers (AskNivi). In the tweets analysed, the narratives do not, for the most part, highlight local developments rather they are mainly focused on international developments and applications. This may be due to the fact local development of AI health platforms in both countries is still in its infancy (especially compared to the EU, USA, and UK) and these innovations are not widely publicized or known by the public. The

discourse on social media platforms like Twitter may perpetuate the narrative that AI health platforms are only developed in the USA, EU, UK or China – the globally dominant AI ecosystems. These narratives may also play a role in the public’s attitudes towards locally developed AI health platforms.

SENTIMENTS OF TWEETS PERTAINING TO AI AND HEALTH IN KENYA

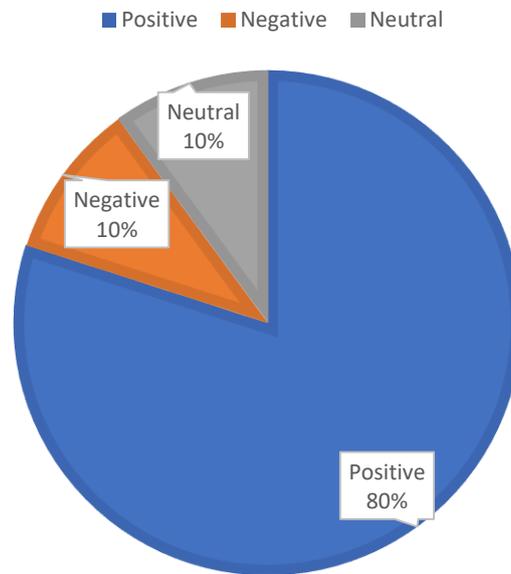


Figure 6: The image above details the sentiments of tweets compiled from Kenya’s Twitter platform from 2016 – 2021 on the use of AI in Kenya’s health sector. Of the total 264 tweets on AI from this period only 10 concerned the use of AI in the health sector or the utilization of AI to facilitate some manner of health benefits. A majority of these tweets, 80%, are positive. The ratio of negative and neutral tweets, as characterized in previous sections of this documents, are equal, 10%.

SENTIMENTS OF TWEETS PERTAINING TO AI AND HEALTH IN SOUTH AFRICA

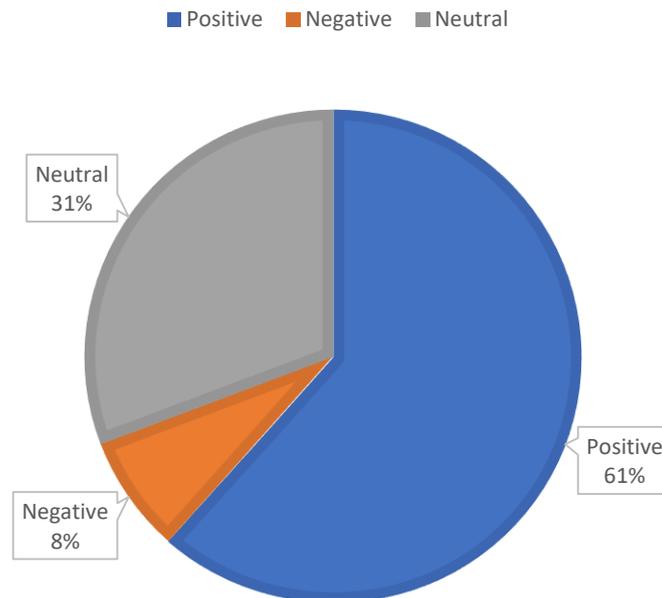


Figure 7: The figure above details the sentiments of tweets from South Africa's Twitter platforms pertaining to AI and health sent in the time period between 2016 – 2021. Only 13 of the 516 tweet on AI, in this time frame, related to the use of AI in the health sector or in supporting health related activities. The sentiments conveyed in these tweets are mainly positive, 61%; 31% did not express positive or negative views, relaying only factual information, and 8% express negative sentiments on the use of AI in the health sector.

Sentiments of tweets pertaining to ethics and regulation

Data ethics and protection are a critical component of the development of AI technology. In Kenya and South Africa the discourse around ethics and regulations of AI are primarily negative. 65% and 57% of the tweets analysed in the category in Kenya and South Africa, respectively, expressed negative views of the ethics surrounding AI development and adoption, and the regulatory strategies pertaining to these technologies. The concerns on this issue in both countries are very similar. Generally, the beliefs expressed in the analysed tweet are that AI technologies should be designed, developed and used in respect of fundamental human rights and in accordance with the principles of fairness, transparency, and intelligibility to ensure the objective of effective implementation is achieved. However, most of the tweets did not believe that these principles were actually used in the development of AI technology.

Concerns around cybersecurity were also part of the discourse in the tweets analysed in this study. The reactive nature of cybersecurity - where problems can only be solved after they have occurred; the expensive and time-consuming process of identifying threats, and the proliferation of anonymous or undetectable hacking programs are all concerns raised in the analysed tweets. The possibility of weaponizing AI was also discussed.

SENTIMENTS OF TWEETS PERTAINING TO AI ETHICS AND REGULATIONS IN KENYA

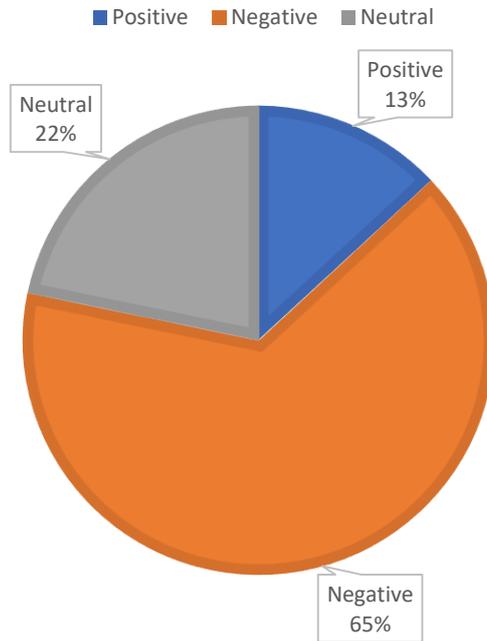


Figure 8: The figure above details the sentiments of tweets from 2016 – 2021 on AI Ethics and Regulations compiled from Kenya’s Twitter platforms. A total of 23 tweets were compiled in this category. The sentiment expressed around this topic are predominantly negative, 65% of the analysed tweets. The ratio of positive and neutral tweets is 13% and 22%, respectively.

SENTIMENT OF TWEETS PERTAINING TO AI ETHICS AND REGULATIONS IN SOUTH AFRICA

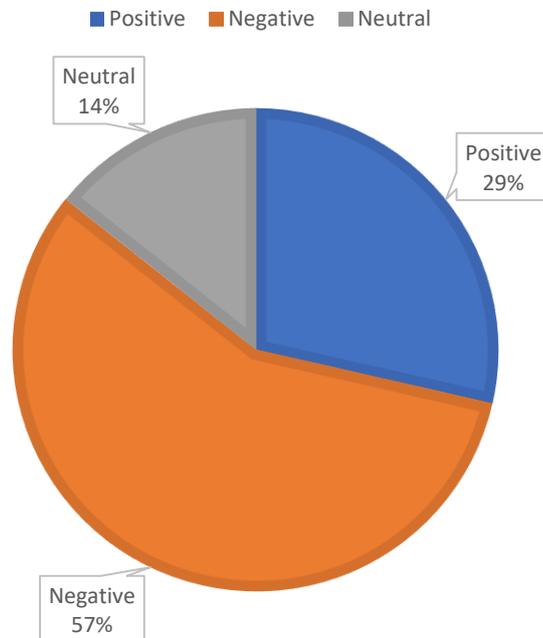


Figure 9: The figure above details the sentiments on AI Ethics and regulations compiled from South Africa’s Twitter platform from tweets sent out in the period between 2016 – 2021. A total of 42 tweets relating to AI Ethics and Regulations were compiled. The sentiments espoused in these tweet are largely negative, 57%; 29% were positive and 14% neutral.

Concerns on increasing unemployment rates with the increasing adoption of AI in the workplace; the issue of ownership of AI and liability, and the extent of recognition of robots as persons also came up. These concerns align with global concerns. In fact, increasingly, countries are coming together to develop and ratify agreements on Ethical and Responsible AI. For instance, in 2021, 193 UNESCO member states adopted the first ever global agreement on ethical framework of Artificial Intelligence (UNESCO, 2021). Yet, it is worth noting that there is no evidence that fears of job loss from automation have been realized. Similarly, the use of AI enabled robotics is not wide spread in either country of study; thus, fears surrounding AI enabled robot do not stem from on – the – ground realities.

Sentiments of tweets pertaining to AI enabled automation and the future of work

There were no tweets pertaining to AI and the future of work on Kenya’s Twitter platform for the time period of study, 2016 – 2021. A total of 24 tweets were compiled from South Africa’s Twitter platform in the given time frame. The tweets on this topic from South Africa were largely neutral – providing only information on the subject matter and not expressing any sentiments on it. 33% of the tweets were positive and 17% expressed negative sentiments on the topic.

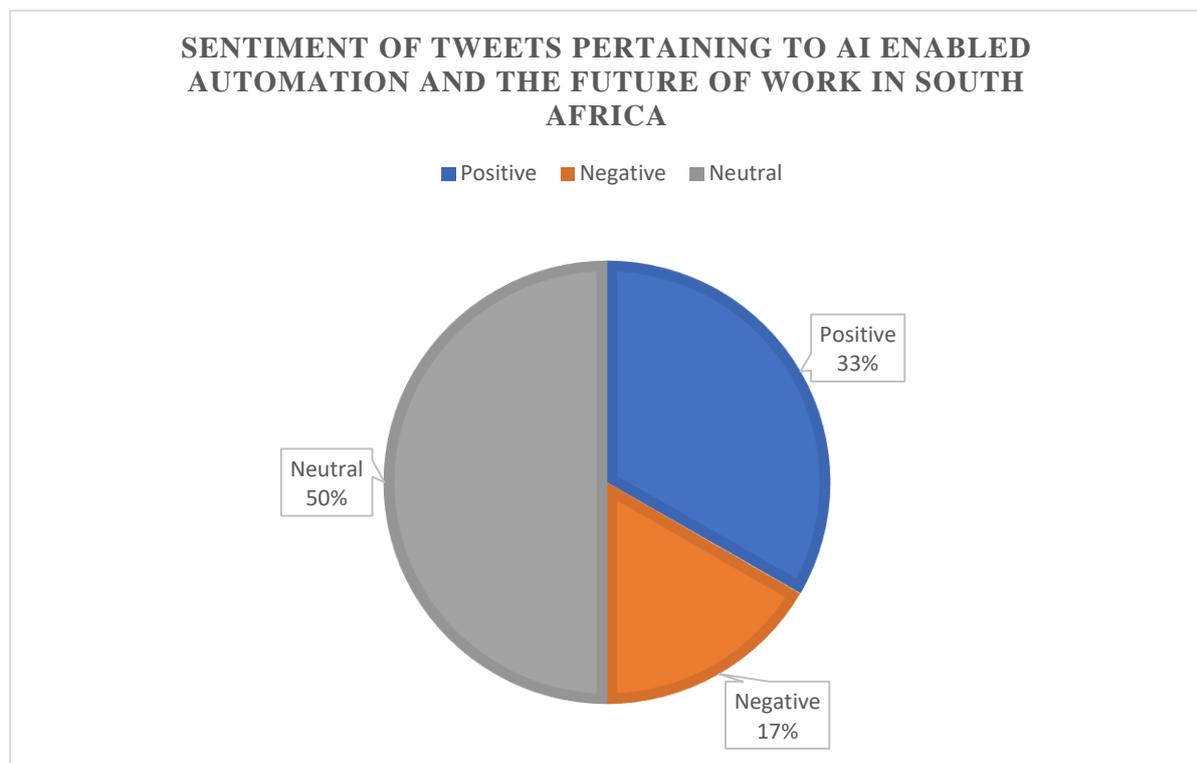


Figure 10: The image above details the sentiments of tweets from South Africa’s Twitter platform on AI and the future of work from 2016 – 2021. A total of 24 tweets were analysed. The tweets analysed are primarily classified as neutral, 12 of the 24 tweets. 33% of the tweets are positive, 8 of the 24 tweets, and 17% are negative.

Automation in both countries is mainly linked to service delivery. For instance, Kirinyaga AI solutions is a Kenyan company that is working to create food delivery robots (Opera News, 2021). The automation of services through the implementation of AI in other regions has drastically transformed the national marketplace and impacted national economies (Bock C, Barbedo, Del Ponte, Bohnenkamp, & Mahlein, 2020). It is an innovation that influences

customer experiences, choices as well as the quality of services and productivity. In this context, automation has had, largely, a positive impact on the public. Automation has benefits for product transportation. However, this contributions in both countries, at this point, is largely still theoretical. Despite, the benefits there seems to be a negative correlation between automation and job replacement. With increased digitization and automation, there is disruption of labour markets by making workers redundant. Automation raises numerous data-related concerns such as data distortion and biased inferences during data collection processes and misleading content resulting from the type of algorithms set up (Shao, et al., 2018). These concerns may account for the negative tweets.

Sentiments of tweets pertaining to AI and education

Based on the tweets analyzed in this project, reception of AI utilization within the education sphere in both Kenya and South Africa is largely positive. 60% of 15 tweets analyzed from Kenya’s Twitter platform on this topic, and 44% of 39 tweets in South Africa. AI can be applied in education systems for several purposes including learner profiling, performance prediction, assessment, evaluation, personalization and adaptive learning, among others (Zawacki-Richter, Marin, Bond, & Gouverneur, 2019). The anticipated impact of adopting these AI enabled tools area likely contributing factor in the positive attitudes around AI and education. A large number of the tweets in both countries were advertisements for locally available AI courses. For example, courses for data science and AI replication kits, the creation of open and un-biased AI training data, and the development of AI training models (AI Lab Makerere)

SENTIMENT OF TWEET PERTAINING TO AI AND EDUCATION IN KENYA

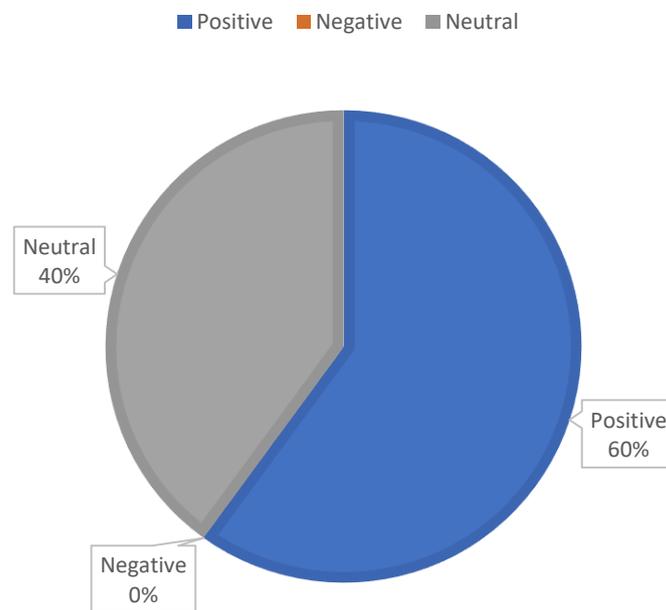


Figure 11: The figure above details the sentiments expressed in tweets pertaining to the use of AI for educational purpose. A total of 15 tweets on the topic were compiled from Kenya’s Twitter platform from the period between 2016 – 2021. The sentiments in the analysed tweet are predominantly positive, 60%. There are no negative views expressed in the analysed tweets. The rest of the tweets, 40%, give only factual information on the topic.

SENTIMENT OF TWEETS PERTAINING TO AI AND EDUCATION IN SOUTH AFRICA

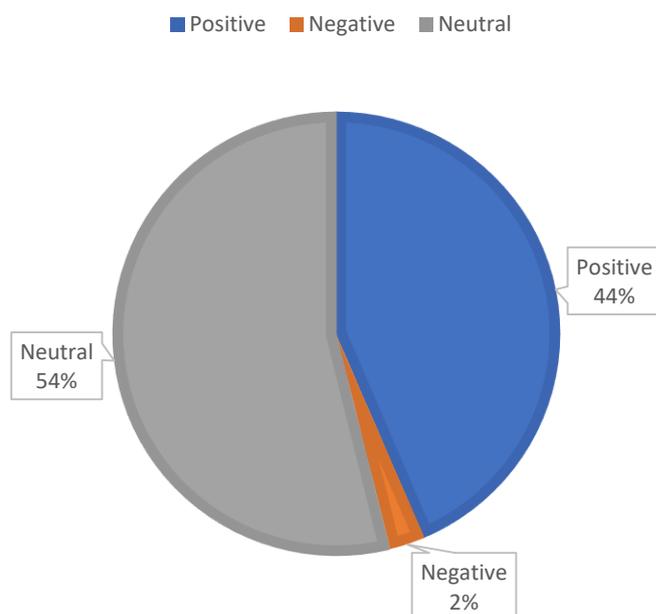


Figure 12: The figure above details the sentiments expressed in tweets on the use of AI for educational purposes compiled from South Africa's Twitter platforms from 2016 – 2021. A total of 39 tweets were compiled on this topic. Of these tweets 17 are positive, 1 is negative, and 21 are classified as neutral.

Despite the existence of locally developed AI powered educational platforms in both Kenya and South Africa, such as M-shule and FoondaMate, there are no narratives on either country's Twitter platforms, in the time period of study, that create awareness of such apps or discuss the benefits (FoondaMate; M-Shule). The discourse in the analyzed tweet is not on major Ed-tech developments; rather, the narrative focus is mainly on personal experiences, advertisements, and webinars. There are no negative sentiments expressed in tweets analyzed from Kenya's Twitter platform. It's participation in AI enabled Ed-tech is much more recent than South Africa. The lack of negative viewpoint of utilization of AI in Kenya's educational sector may be due to an ongoing sense of techno-optimism by the public. The relatively small number of negative tweets in South Africa may be attributed to fears around data breaches, the privacy rights of minors, issues of access – mainly due to inadequate infrastructure, and the possibility of these tools widening existing inequalities in the education sector.

Sentiments of tweets pertaining to AI in government and politics

The number of tweets on AI and its inclusion in politics or government are relatively few in both countries in the timeframe of study – 9 tweets in Kenya and 15 in South Africa between 2016 – 2021. The prevalent sentiments of these tweets is significantly different in both countries. In Kenya, the sentiments of the inclusion of AI in politics is largely positive, 45%. In South Africa, the views expressed on this topic are mainly neutral, 60% – the tweets primarily provided factual information on the subject. The amount of negative views on the inclusion of AI in politics and governments in Kenya is relatively high, 33%. In stark contrast to this, there are no recorded negative tweets on this subject from South Africa's Twitter platform in the timeframe of interest.

SENTIMENT OF TWEETS PERTAINING TO AI AND GOVERNMENT / POLITICS IN KENYA

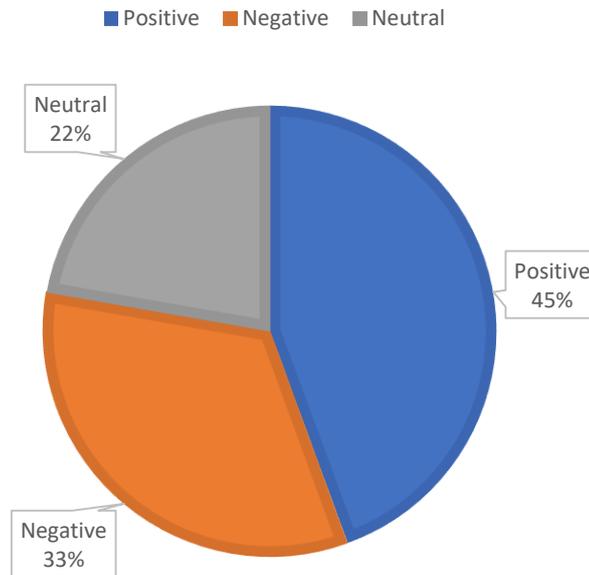


Figure 13: The figure above details the sentiments expressed in tweets between 2016 – 2021 pertaining to AI in politics or governance compiled from Kenya’s Twitter platform. There are relatively few tweets on Twitter on this topic during this time frame. Only 9 tweets of the 256 total tweets on AI pertain to AI and politics or governance. Of these 9 tweets, 45% are positive, 33% are negative, and 22% neutral.

SENTIMENT OF TWEETS PERTAINING TO AI AND GOVERNMENT / POLITICS IN SOUTH AFRICA

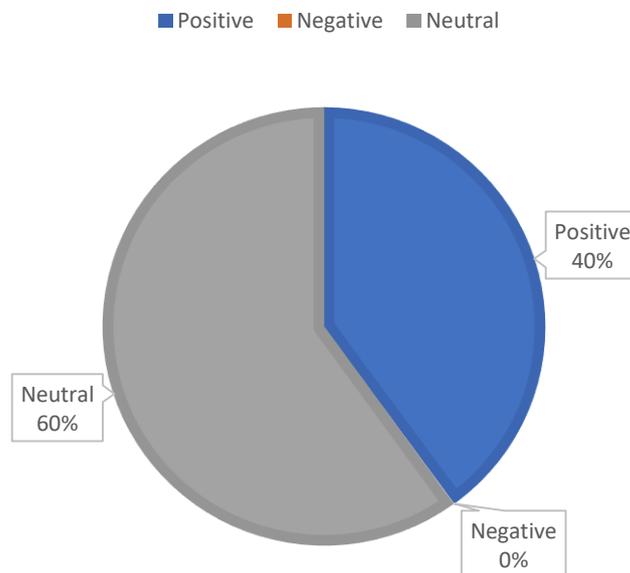


Figure 14: The above figure details sentiments expressed on AI and politics or governance obtained from South Africa’s Twitter platform from 2016 – 2021. A total of 15 tweets were compiled on this topic. The tweets in this category are primarily classified as neutral; 40% are positive, and none expressed negative sentiments on the subject.

The difference in viewpoints and attitudes may be due to the starkly differing political landscapes in Kenya and South Africa. The use of digital platforms and databases in Kenya has

been plagued with controversy. For example, in the 2017 national election, electoral officials were accused of selling voter registration rolls from the national database to politician (Wasuna, 2018). This may contribute to the negative perception of AI in politics. Discourse on social media to that end may re-enforce and even bolster this belief. South Africa, meanwhile, seems to have successfully deployed technology to re-enforce election integrity. The South African public may be less wary of trusting the adoption of AI tools to improve transparency and accountability in politics.

Conclusion

The framing of topical issues in AI in Africa is an indicator, to an extent, of the general understanding of the current AI landscape and its impact. There is still a tendency toward an optimistic view of the possible impact of AI on solving the concerns and resource gaps in Kenya and South Africa. The differences in negative and positive sentiments across the different categories skews, for the most part, toward higher positive sentiments in Kenya on a particular topic than South Africa. This difference may be due to the fact that South Africa's AI ecosystem is much older than that in Kenya. The South African public may be more grounded in terms of expectation on the impact of AI technologies and more aware of their shortcomings. Kenya is still, largely, in the 'techno-optimism' phase experienced from the adoption of emerging technologies. Both the positive and negative viewpoints expressed in the analyzed tweets seems to align with global attitudes. The fears and concerns espoused in these tweets mirror concerns in the Global North countries concerning AI, even when the on-the-ground-realities do not support these concerns. This is evidence of the ability of a popular narrative to supersede objective, factual evidence in influencing the public's attitudes. Social media framing is largely about users becoming authority/news sources in and of themselves which can set a dangerous stage for fearmongering and the spread of disinformation, but can also be an enabling space for further learning and exploration of the potential of AI in the African context. The challenge is to ensure the latter flourishes while curbing the use of social media for disinformation and fearmongering.

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