Factors Influencing the Intention of Youth to Adopt Electronic Voting in South Africa

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by

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ABSTRACT

Background: The rapid increase in the adoption of the internet in developing countries and the growth of citizen-centric e-government technologies has sparked interest in electronic voting (e-voting) systems. E-voting systems enable voters to participate in elections remotely, using internet-based technologies. In 2020, the Independent Electoral Commission of South Africa stated its intention to introduce e-voting to lower the costs of voting, improve electoral transparency and efficiency, and to improve overall voter participation. There is, however, little research to explain the factors that could potentially influence voters, particularly young people (18-35 years) who are a growing voting demographic with a declining interest in electoral participation.

Objective: The primary objective of this research is to investigate the factors that influence the intention of young people to adopt electronic voting in South Africa. Secondarily, the study seeks to investigate how South African youth perceive e-voting.

Research methodology: Using a deductive approach, a conceptual model with constructs from the technology acceptance model (TAM), the theory of planned behaviour (TPB), and the diffusion of innovation theory (DOI) is proposed. An online survey is used to collect data (n = 412) from South African youth between the ages of 18 – 35 years.

Key Findings: Structural equation modelling and factor analysis applied on a pre-tested and pre-validated quantitative survey reveal that technology stickiness, access to ICT, skills in ICT, attitude towards ICT, relative advantage and political affiliation positively impact the intention to use e-voting. Eighty-one (81%) percent of respondents agree that they will use e-voting should it become available.

Value of the study: The study contributions are twofold. First, the research proposes an empirically tested theoretical framework to assess the intentions of youths to participate in e-voting and second, the study the study makes recommendations for policymakers regarding the e-voting perceptions of young people.

Keywords: Electronic voting, Trust of the government, Trust of the internet, Skills in ICT, Access to ICT

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1 INTRODUCTION

1.1 Background

Electronic Voting (e-voting) is a process of casting votes, counting, and issuing results by means of Information and Communication Technology (ICT) (Adeshina & Ojo, 2017). Voting processes from the registration stage, pre-voting and voting, verification of results and counting of results are processed through ICT. This can be national, provincial or municipal elections. With the use of e-voting, the country stands to achieve improved electoral management, improved participation, faster vote count and reliable election results. (Avgerou, Masiero, & Poulymenakou, 2019; Adeshina & Ojo, 2017; Goretta, Purwandari, Kumaralalita, & Anggoro, 2018).

An election is a process that allows citizen of a country to elect people to lead at national, provincial, or municipal legislative levels. While the Independent Electoral Commission (IEC) is the custodian of the electoral processes and systems in South Africa; they are independent from the government and report directly to parliament in terms of the Electoral Commission's Act 51 of 1996. In South Africa, the electoral system has remained the same since the dawn of democracy where voting is paper based and has required people to administer the entire process. The research paper forays to the realm of e-Voting, a system that would be new for the current electoral system (South African Government, 1996).

The aim of e-voting is to improve the election process, by reducing costs, providing faster vote counts and by improving voter participation (Schaupp & Carter, 2005). The availability of voting technologies has increased over the years. In 2010, there was an estimate of between 795-1469 implementations around the world compared to 2 700 in 2013 (Zolotov, Oliveira, & Casteleyn, 2018; Shat & Pimenidis, 2017). The e-voting can make voting process convenient and accessible youth, improving youth participation (Schaupp & Carter, 2005; Arshad, 2015).

The South African electoral system is faced with the challenge of declining youth participation in electorate (Business Tech, 2019). The youth constitute thirty percent (17.84 million) of the South African population (Statistics South Africa, 2019). South African youth who register to vote and those who vote are low compared to other age groups; it is noted that South African youth engage on political issues and they

increasingly share their views about politics on digital social media platforms, but they show a declining interest in voting (Business Tech, 2019). For the 2019 general elections, less than fifty percent of South African youth were registered to vote and according to the 2019 elections' report, less 40% (less than 7.12 million) of youth participated in the national and provincial elections (Electoral Commision of South Africa, 2019). Ninety-three percent of these voters have South African Identification which makes them eligible to vote (Electoral Commission of South Africa, 2014; Mail & Guardian, 2019).

There was a decrease in youth voter participation between 2014 and 2019 national and provisional elections; in 2014 national and provisional elections just over 534 000 youth between 18-19 participated in voting compared to just over 273 000 voters in 2019. Over 4.15 million youth between 20 and 29 participated in voting in 2014 compared to 2.95 million in 2019. And 4.27 million youth between 30 and 39 participated in voting in 2014 compared to 3.89 million in 2019 (Electoral Commission of South Africa, 2014; Electoral Commision of South Africa, 2019).The decrease in the participation of youth in elections and the political processes is a concern for the relatively young democracy like South Africa's.

Prior research shows that e-voting can be instrumental in improving participation, transparency and accountability of the electoral processes (Zolotov, Oliveira, & Casteleyn, 2018). The youth should be included in activities and decision-making processes surrounding elections in order to encourage improved participation (Jafarkarimi, Sim, Saadatdoost, & Hee, 2014). The fact that South African youth show an interest in political discourses, but show a declining interest in voting raises the question of whether the adoption of e-voting can help to improve the interest of youth voters (Mail & Guardian, 2019).

1.2 **Research Problem**

Thiel, et al. (2016) asserts that public participation is the pillar of democracy. The Independent Electoral Commission statistics show that over fifty percent (50%) of eligible South African youth are not participating in elections (Electoral Commission of South Africa, 2014). Voters' participation in any country is important to sustain the country's democracy and e-voting adoption could be a key consideration for South

Africa's young democracy. Over the years, the private sector has proven that the use of ICT has the power to transform and deliver value (Achieng & Ruhode, 2013; Verkijika & De Wet, 2018; Electoral Commission of South Africa, 2014; Mail & Guardian, 2019).

1.3 Research objective

The aim of the study was to investigate the factors that influence young people's adoption of e-voting in South Africa. The proposed research question is: *What factors influence the intentions of young South Africans to adopt e-voting?*

1.4 Research question

The research primary question is as follows:

- *What factors influence the intentions of young South Africans to adopt e-voting?*

And the secondary research question is:

- *What is the perception of South African Youth on e-voting?*

1.5 Significance of research

The purpose of this research is to explore what role e-voting can play in influencing South African youth to participate in elections. The paper contributes towards literature by providing new data that was collected with information regarding youth non-participation in elections and the adoption of e-voting as a means of influencing youth participation; the research contributes towards comparative research on youth engagement in elections worldwide (Kitanova, 2019).

2 LITERATURE REVIEW

The literature review section evaluates current literature on e-voting. A complete literature review forms the foundation and inspiration for useful research as it outlines the work that has been done. The literature review is used to show the gaps that are not covered in current literature and how this research plans to fill those gaps (Boote & Beile, 2005).

Literature available was synthesised through searching key terms such as ‘factors influencing e-voting’; ‘factors influencing e-governance’. The key terms were searched on articles in Google Scholar and other academic databases like IEEE Xplore, ScienceDirect, Springer Link, ACM Digital Library, and others. The following concepts of e-voting were *identified; trust of the internet, trust of the government, Access to ICT, Skills in ICT, Perceived Utility of ICT, Political interest.* Understanding and addressing these factors might lead to youth participating in elections. See below table with previous research studies:

Research interest	Author	Model(s) used	Constructs adopted	Constructs relationship	Role of the construct
E-voting in India	(Chauhan, Jaiswal, & Kar, 2018)	UTAUT	Trust of technology / internet	Trust of internet impact the use of e-voting	***Trust of the internet*** construct tests the influence on intention to use e-voting
Trusting e-voting	(Avgerou, Masiero, & Poulymenakou, 2019)	The model of electoral integrity	Trust of internet	Trust of internet impact use of e-voting	***Trust of the internet*** construct tests the influence on intention to use e-voting
Factors for e-voting adoption	(Adeshina & Ojo, 2017)	DOI; TAM	Trust of internet; trust of government; perceived utility of ICT	Trust of internet, trust of government and perceived utility of ICT impact use of e-voting	***Trust of the internet and government; Perceived utility of ICT,*** constructs will be used to test the influence on intention to use e-voting
E-voting in Nigeria	(Bisong, 2019)	N/A	N/A	Access to ICT and Skills in ICT impact perceived utility of ICT	N/A
Youth political participation	(Kitanova, 2019)	General political participation model; Formal participation model;	Political affiliation	Political affiliation impact use of e-voting	***Political affiliation*** construct to test the influence on intention to use e-voting

Research interest	Author	Model(s) used	Constructs adopted	Constructs relationship	Role of the construct
		organisational membership model			
Use of e-participation	(Zheng & Schachter, 2017)	N/A	Access to ICT; skills in ICT; political affiliation	Access to ICT, skills in ICT impact perceived utility of ICT; political affiliation impact use of e-voting	***Access to ICT and Skills in ICT*** constructs to test the influence on perceived utility of ICT; ***Political affiliation*** construct to test the influence on intention to use e-voting
E-voting in Jordan	(Aljarraha, Elrehaila, & Aababneh, 2019)	TAM; DOI	Trust of internet; trust of government; compatibility; relative advantage; attitude towards ICT	Trust of internet, trust of government, attitude towards ICT, compatibility and relative advantage impact on e-voting readiness	***Trust of the internet and government; compatibility,*** constructs will be used to test the influence on intention to use e-voting
E-voting adoption in a	(Alomari, 2016)	TAM; DOI	Compatibility; Complexity; image; relative advantage;	Compatibility; Complexity, image, relative advantage,	***Compatibility; Complexity; image; relative advantage; attitude towards ICT***

Research interest	Author	Model(s) used	Constructs adopted	Constructs relationship	Role of the construct
developing country			attitude towards ICT	attitude towards ICT impact e-voting, attitude towards ICT impacts perceived utility of ICT	constructs will be used to test the influence on intention to use e-voting
Adoption of e-government	(Carter & Belanger, 2005)	DOI	Relative advantage; Image; compatibility; complexity	Relative advantage, image, Compatibility, Complexity impact e-voting	***Relative advantage; image; compatibility; complexity*** constructs will be used to test the influence on intention to use e-voting
E-Participation through Mobile Technology	(Ochara & Mawela, 2015)	Access, skills and attitude framework	Access to ICT; skills in ICT; attitude towards ICT; perceived utility of ICT	Access to ICT; skills in ICT, attitude towards ICT impact perceived utility of ICT	***Access to ICT; skills in ICT; attitude towards ICT*** constructs to test the influence on perceived utility of ICT; ***Perceived utility of ICT*** construct to test the influence on intention to use e-voting

Research interest	Author	Model(s) used	Constructs adopted	Constructs relationship	Role of the construct
Online stickiness	(Lin J. C.-C., 2007)	Lin Research model	Stickiness / technology stickiness	Technology stickiness impact use of e-voting	***Technology stickiness*** construct to test the influence on intention to use e-voting
Online study stickiness	(Xu & Liu, 2010)	Xu & Liu model	Stickiness / technology stickiness	Technology stickiness impact use of e-voting	***Technology stickiness*** construct to test the influence on intention to use e-voting

Table 1: Previous research studies

2.1 Potential Benefits of e-voting

E-voting can improve voting processes by increasing youth voter participation as the youth do not like the current paper-based process (Achieng & Ruhode, 2013). Disabled people will also benefit as colours as well as font size can be adjusted, and audio can also be used to help those with hearing problems (Achieng & Ruhode, 2013). Different languages can be used to help those who prefer using their mother tongue. E-voting also offers the accurate counting of votes. In some cases, the voter's mark of the preferred candidate is not clear or it crosses into the next candidate making the vote invalid; e-voting resolves these problems as each vote is explicit to one candidate (Achieng & Ruhode, 2013; Chauhan, Jaiswal, & Kar, 2018; Avgerou, Masiero, & Poulymenakou, 2019).

The 2019 Corona virus has forced the postponement of by-elections as the South African government is trying to curb the spread of the virus. The virus is also causing uncertainty for the 2021 local government elections. The virus cannot be allowed to cause a constitutional crisis indefinitely; the use of e-voting can help to allow democratic processes like elections to continue (City Press, 2020; AfricanLaw, 2020).

2.2 Challenges with e-voting

Poor ICT infrastructure can affect the implementation of e-voting; corruption and economic challenges make the implementation look like a luxury. Another challenge is the possibility of illegal participation; this can happen through terrorism, cheating and the manipulation of information (Bagui, Weimann, & Johnston, 2016). Illegal participation can harm the country's security and social stability. Elections that are not monitored and vulnerable to illegal participation can compromise the citizens' freedom and openness. (Airong & Xiang, 2008; Leitner & Bonitz, 2016).

2.2.1 Concerns of political parties

In 2018, the IEC stated they are ready to rollout e-voting as they believe that e-voting will help avoid ballot paper safeguarding and offer a speedy turnaround on results. South African political parties rejected the e-voting proposal. The IEC cannot adopt e-voting unless political parties agree to it (African News Agency/ANA, 2018).

Literature shows that it is difficult to assess the reliability of cast votes and that e-voting can be exposed to the fraudulent manipulation of technology used to cast votes. E-voting also reduces the likelihood of recounts when there are disputes. (Avgerou, Masiero, & Poulymenakou, 2019)

2.3 Measurement of success in e-voting

Illiterate and disabled people should benefit with technology that is friendly for them. E-voting, should be convenient and faster when it comes to issuing results (Adeshina & Ojo, 2017; Avgerou, Masiero, & Poulymenakou, 2019).

Political parties, technical capabilities and the involvement of citizens contribute to the success of e-voting; tools such as effective websites which direct people to the correct information and political parties engaging youth can contribute to the success of digital participation (Kaya, Medeni, & Sağsan, 2016).

2.4 Factors influencing e-voting

2.4.1 Poverty and education

All citizens must be offered an equal opportunity to participate, although not all citizens have access. There are dividing factors when it comes to digital participation; some of these factors are poverty and the levels of education (Airong & Xiang, 2008; Kaya, Medeni, & Sağsan, 2016).

Poverty is reflected in the unequal economic development of the country, where some regions have adequate network infrastructure and others do not. Those regions without adequate infrastructure are unable to access or make use of the information that is available. This poverty is exacerbated by the costs of devices used, network costs which can reduce number of users and reduce the digital participation (Airong & Xiang, 2008; Bagui, Weimann, & Johnston, 2016; Kaya, Medeni, & Sağsan, 2016).

Different levels of education can be a dividing factor as they lead to different abilities in using digital technologies and the internet by different groups of people. There is a correlation between the level of education and the ability to participate in digital platforms, because of the complexity in using technology, the use of digital

technologies can be unbalanced due to the level of education (Airong & Xiang, 2008; Bagui, Weimann, & Johnston, 2016; Alomari, 2016).

2.4.2 Trust

Trust is a common factor that influence adoption of e-government / e-voting, people must be able to trust the government that it will deliver required e-government resources and manage them effectively (Alzahrani, Al-Karaghouli, & Weerakkody, 2017). The use of Information and Communication Technology can help improve the country's efficiency, equity and quality of participation (Achieng & Ruhode, 2013). One of the objectives of digital participation is transparency, which is also a driver for participation as it reduces misconduct. Transparency improves public trust. For youth to trust e-voting, the IEC must be transparent in how the system works and educate people about the system. The IEC must also improve the security of the system and assure people about this security (Wirtz, Daiser, & Binkowska, 2016).

2.4.3 Access to ICT and Skills in ICT

A large number of users are joining the internet because of the development and access to information. Online political engagement also plays a role in online user participation. ICT is changing politics and governance as ICT, through e-participation can bring transparency, efficiency, and improved quality of services. The combination of e-voting and e-participation is also regarded as an effective and efficient way of influencing users to vote (Hilabi, Supangat, Warnars, Prabowo, & Mursitama, 2020).

In the South African context, internet usage has increased because of Covid-19 regulations that forced people to study and work from home. This improved user access to ICT has contributed to more South African youth having access to ICT (African News Agency/ANA, 2020; Forbes, 2020).

The use of e-voting requires knowledge and skills in ICT and it is important to ensure that most of the potential users can use e-voting without problems. Community groups and television programmes can be used to educate potential e-voting users to ensure that they are knowledgeable. Prototype apps can also be used to allow users to play with the system and gain skills in the e-voting system (Bisong, 2019).

2.4.4 Perceived Utility of ICT

We have substantial fake information on the internet, this negatively affects people's rational choices. Internet users do not have enough time to absorb increasing information. Users sometimes fail to differentiate between what is wrong and right; and this can potentially lead to wrong choices (Airong & Xiang, 2008).

Perceived utility of ICT is used in ICT adoption, users believe that using ICT will enhance their participation. Less cost and access to ICT increases utility gain. Ensuring access and educating helps to improve user's perception in e-voting (Airong & Xiang, 2008; Ochara & Mawela, 2015)

2.5 Political affiliation

Youth engagement can be used to highlight alternative political participation. The youth feel excluded from traditional political systems as they are not engaged in the decision making (Kitanova, 2019). The participation of youth can be influenced by being involved in process and decision making. Political parties have the duty to engage voters and they can also influence voters to participate in e-voting in their engagements. The support of e-voting from political parties can help improve the confidence of voters in using the e-voting system (Kitanova, 2019).

Political parties' engagement with the youth can help involve the youth in decision making, this can encourage youth to participate not only in discussions but in elections as well (Oyedemi & Mahlatji, 2016).

2.6 Gaps in literature

Factors influencing youth's adoption of e-voting were explored. The literature shows that youth do engage in political discussions and put forward their views; despite this the youth still do not participate in elections. This is not good for a democratic country as the strength of this democracy might be compromised (Parycek, Schöllhammer, & Schossböck, 2015).

The paper aimed to investigate factors influencing youth's intention to use e-voting. Research results can be used to add to the knowledge and understanding of the benefits of e-voting in South Africa. The political affiliation and technology stickiness

also opens an exciting discussion as they both seem to have an influence on the intent to using the e-voting system. The research paper sought to understand the influence of political parties in the respondent's intentions to use e-voting. Previously, political parties were not supportive of the use of e-voting but now they are supportive of the idea of e-voting. With the Covid-19 pandemic forcing people to socially distance and use technology more often than they used to; the research paper wished to understand the effect of the pandemic in forcing participants to utilise technology.

Factor influencing the adoption of e-voting in the South African context also needs to be research.

3 FRAMEWORK

The theoretical framework is a guide in research; it forms the research basis from existing theory in the field of the study. An existing theoretical framework can be adopted, or a conceptual framework can be developed. It works as a foundation through which the research is conducted. The theoretical framework assists in making research findings meaningful and acceptable (Adom, Hussein, & Joe, 2018).

Theoretical frameworks were evaluated to help guide the research process and form acceptance of research constructs; the following are frameworks that were evaluated and constructs that were used to develop the conceptual framework (Adom, Hussein, & Joe, 2018).

3.1 Model of Trust and risk in e-government adoption

The model of trust and risk in e-government was proposed by Belanger & Carter (2018), in their paper "Trust and risk in e-government adoption" where they investigated trust and risk in e-governance adoption. The research results show that, trust of the internet and trust of the government affects the intention to use e-voting (Belanger & Carter, 2008).

Both constructs were used to test if the trust of the internet and trust of the government will affect the intention to use e-voting. Perceived risk was not used as it is covered in the technology acceptance model. Trust of the internet and trust of the government are hypothesised as having a positive influence on the intention to use e-voting.

Hypothesis 1: High level of trust of the Internet positively influences the intention to use e-voting

Hypothesis 2: High level of trust of the government positively influences the intention to use e-voting

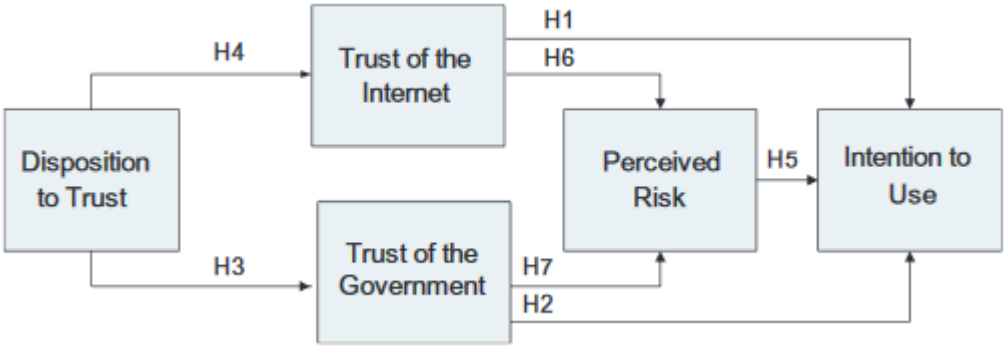

Figure 1: Model of Trust and risk in e-government adoption

3.2 External factors

External factors, such as the pandemic, can also affect the intention to participate in the e-voting processes. Literature examined how crisis informatics seriously affected communities and how those affected and those offering help used ICT to respond to natural disasters and health crises (Gui, Pine, & Chen, 2017).

The use of technology is an approach that the government is taking in fulfilling its accountability to the citizens and the citizens are also expected to take responsibility for themselves. These are viewed as external factors and citizens shift the responsibility to the government. Citizens taking responsibility may help to lower the resistance towards the adoption of ICT innovation (Lee, Park, & Lee, 2019).

South Africa has seen a sixty-two percent increase in internet usage since the country's lockdown and the number is expected to increase. This improved usage of the internet will lead to technology stickiness and as a result people will continue to use the technology; it is also noted that the high usage of the internet will continue and will remain beyond the Covid-19 crisis (Business Report, 2020; MyBroadband, 2020).

The technology stickiness which is defined as the incorporation of useful technology that continues to attract people to said tech and they end up using the technology longer; these adjustments help with the adoption of new technology in times of crisis

as people are forced to use the technology. During the Covid-19 pandemic, people were forced to use technology in order to avoid getting infection with the virus (Shklovski, Burke, Kiesler, & Kraut, 2010; Lin J. C.-C., 2007).

The technology stickiness construct is used to test if it affects intention to use e-voting. Technology stickiness is hypothesised as having a positive influence on intention to use e-voting

Hypothesis 3: Technology Stickiness positively influences the intention to use e-voting

3.3 Access, skills and attitudes framework and Ochara and Mawela's model

The access, skills and attitudes framework was used by Ochara and Mawela (2013); Verdegem and Verhoest (2009); the framework proposes that the access to ICT and skills in ICT affect perceived usefulness positively. This can be achieved by lowering access costs as this will increase the perceived utility of ICT / usefulness. Even those with fewer skills or resources, when the added value is notable, participants will be motivated even though they have limited resources and skills (Verdegem & Verhoest, 2009; Ochara & Mawela, 2015).

Access to ICT, skills in ICT and attitude towards ICT affect perceived utility of ICT; and perceived utility of ICT affects the use of e-government (intention to use). The attitude towards ICT and use is addressed via the technology acceptance model. Access to ICT and skills in ICT are hypothesised as having a positive influence on intention to use e-voting.

Hypothesis 4: Access to ICT positively influences Perceived utility of e-voting

Hypothesis 5: Skills in ICT positively influences Perceived utility of e-voting

Hypothesis 6: Attitude towards ICT positively influences Perceived utility of e-voting

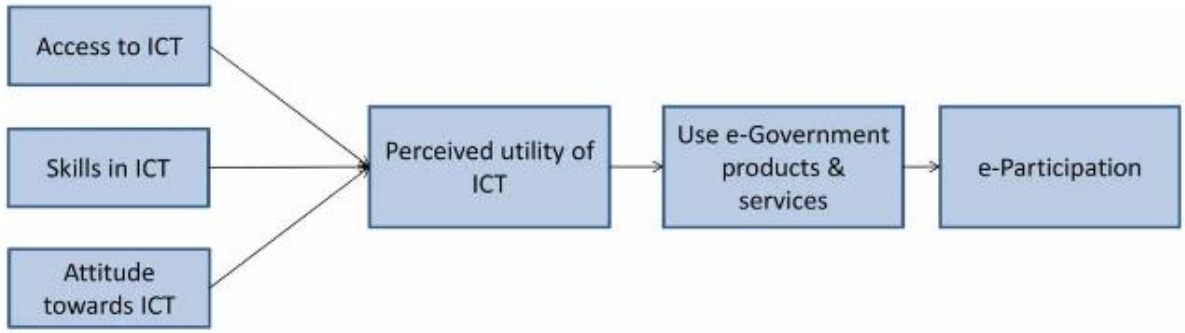

Figure 2: Ochara and Mawela model

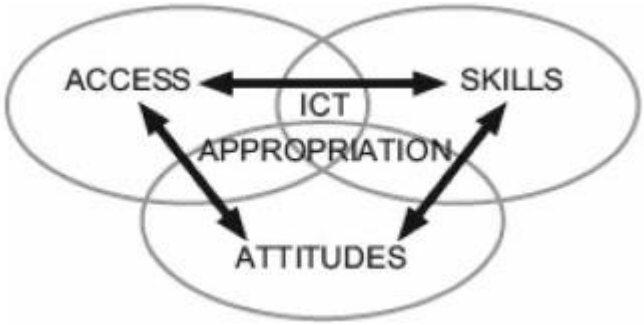

Figure 3: Access, skills and attitudes framework

3.4 Technology acceptance model (TAM)

Current literature shows that there is a need to examine if citizens' perceptions can influence attitude towards ICT. Current research suggests that some perceptions provide an advantage without evidence (Zheng & Schachter, 2017).

Human behaviour can be predicted and explained by using the TAM. The TAM links the flow of sequence from external variables to actual system use. These external variables influence perceived usefulness and perceived ease of use; and they both influence attitude, attitude then influences behaviour that will lead to system use. The TAM was used to validate the citizens' adoption of e-Government in Gambia (Lin, Fofanah, & Liang, 2011)

Attitude (towards ICT); the 'perceived usefulness' and the 'perceived ease of use' were used to understand how this is affecting attitude (towards ICT). 'Perceived usefulness' and 'perceived ease of use' are hypothesised as having a positive influence on intention to use e-voting.

Hypothesis 7: Attitude towards ICT positively influences the intention to use e-voting

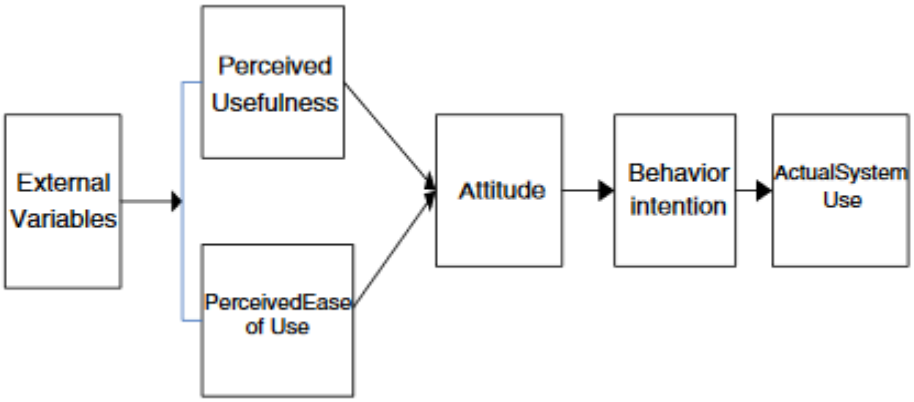

Figure 4: Technology acceptance model

3.5 Theory of Planned Behaviour (TPB)

The intention to perform a certain behaviour is preceded by the attitude and subjective norms in society. The study was used by Ozkan and Kanat (2011) in a paper where they were predicting and explaining the behaviour of citizens regarding the use of government services; they were looking at factors that influence the acceptance of e-government services. TPB suggests that attitude influences subjective norms and intention to use e-voting. The relationship between subjective norms and the intention to use ICT could not be proven due to instrument validity (Ozkan & Kanat, 2011).

Attitude and the intention to use constructs were used in developing a conceptual framework. Attitude towards ICT is hypothesised as having a positive influence on the intention to use e-voting.

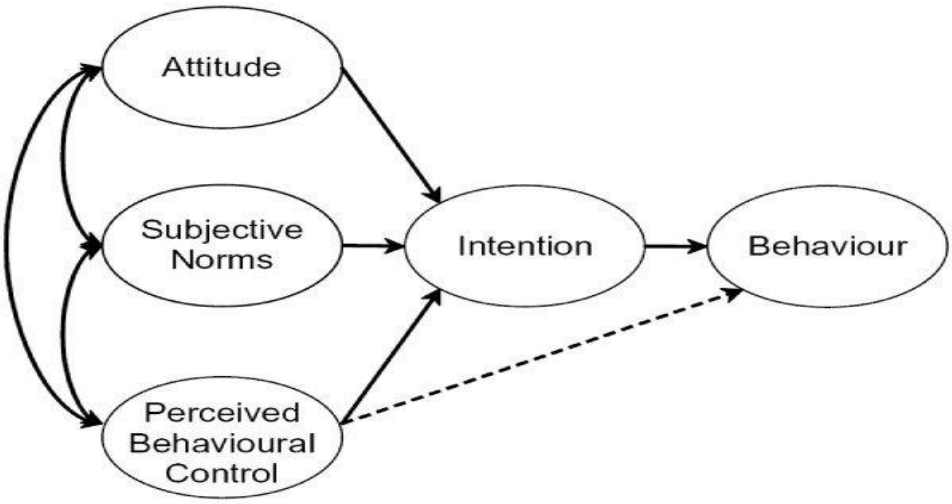

Figure 5: Theory of planned behaviour

3.6 Diffusion of Innovation Theory (DOI)

DOI constructs which include relative advantage, image, compatibility and complexity were adopted. The IEC must identify and communicate the advantages of e-voting. E-voting offers faster and more convenient services. The use of image enhancement increases the citizen's intention to participate. The status of those using e-voting influences other citizens to use the e-voting system. Targeting prestigious citizens can have a positive influence on e-voting. The use of e-voting should be compatible with youth lifestyle as the compatibility is associated with an increased intention to use. Complexity must be considered as a system that is not complex is associated with increased intention to use rather than having a complex e-voting system (Carter & Belanger, 2005; Aljarraha, Elrehaila, & Aababneh, 2019; Alomari, 2016).

The research adopted the four constructs, relative advantage, image, compatibility and complexity in the conceptual model, these four constructs affect the intention to use. Relative advantage, image, compatibility and complexity are hypothesised as having a positive influence on intention to use e-voting

Hypothesis 11: Relative advantage positively influences the intention to use e-voting

Hypothesis 12: Image positively influence the intention to use e-voting

Hypothesis 13: Compatibility positively influences the intention to use e-voting

Hypothesis 14: Complexity negatively influence the intention to use e-voting

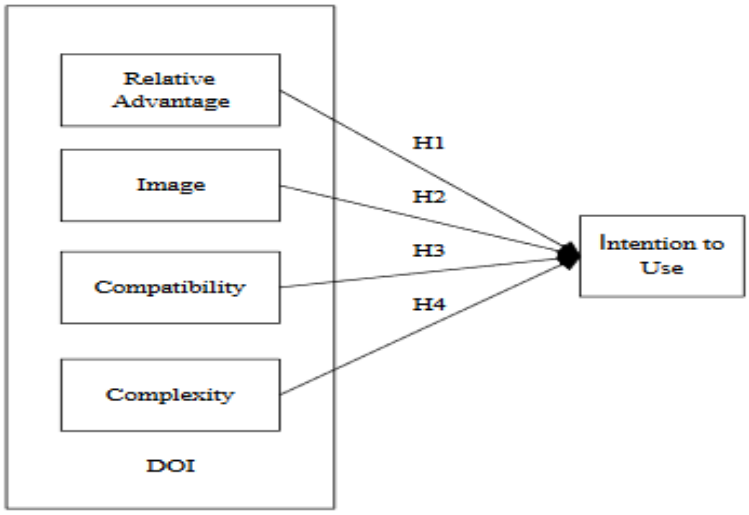

Figure 6: Diffusion of Innovation Theory

3.7 Carter and Belanger's e-government adoption model

DOI, TAM and Trust constructs were used from Carter and Belanger's e-government adoption model that is more common (Schaupp & Carter, 2005).

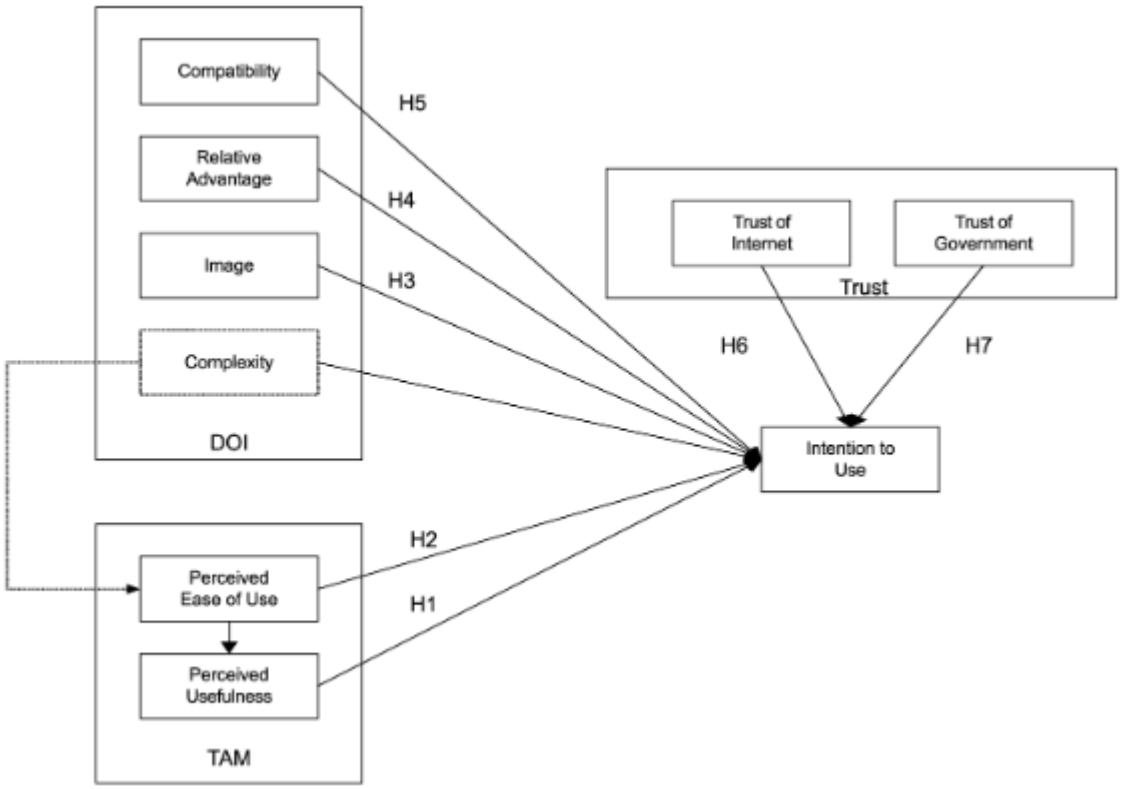

Figure 7: Carter and Belanger's e-government adoption model

3.8 Intention to use e-voting

Technology development in South Africa has made the use of Information and Communication Technology possible for the youth. Technology can transform the relationship between citizens and the country's public institutions, the IEC is a public institution that needs to initiate projects like e-voting showing the advantages to the electoral system. E-voting can be used as a tool to reach more South African youth and influence them to participate in elections (Rexhepi, Filiposka, & Trajkovik, 2018; Achieng & Ruhode, 2013).

There are factors that can influence voter's intention to use e-voting, these factors need to be analysed and those in authority like the IEC must ensure that these factors are taken into considering when planning and implementing the e-voting system. Should these factors be addressed and be accommodative to voters; this will help improve youth participation in elections. Factors that were analysed after data collection were trust of internet, trust of government, technology stickiness, access to ICT, skills in ICT, attitude towards ICT, perceived utility of ICT, relative advantage, image, compatibility, complexity and political affiliation; these factor are directly or indirectly influencing intention to use e-voting (Zhu, Azizah, & Hsiao, 2020; Yin, Chin, Meng, & Pung, 2020; Naranjo-Zoloto & Oliveira, 2019).

3.9 Proposed conceptual model

A conceptual model was developed based on constructs and theories from the vast technology adoption literature. One of the benefits of the conceptual model is that, it offers the opportunity to identify the constructs that are relevant to the research being investigated (Adom, Hussein, & Joe, 2018).

While a conceptual model helps to manage the scope of the variables to be assessed in a research project, it has the limitation of potentially excluding emerging concepts from the data being collected. Despite this limitation, the conceptual model was opted for based on the evaluated theories and constructs with the awareness and sensitivity to emergent effects that will be incorporated into the final proposed conceptual framework (Adom, Hussein, & Joe, 2018; Thomas, 2006).

Some of the factors that were used for collecting data and were considered for the e-voting framework theme are:

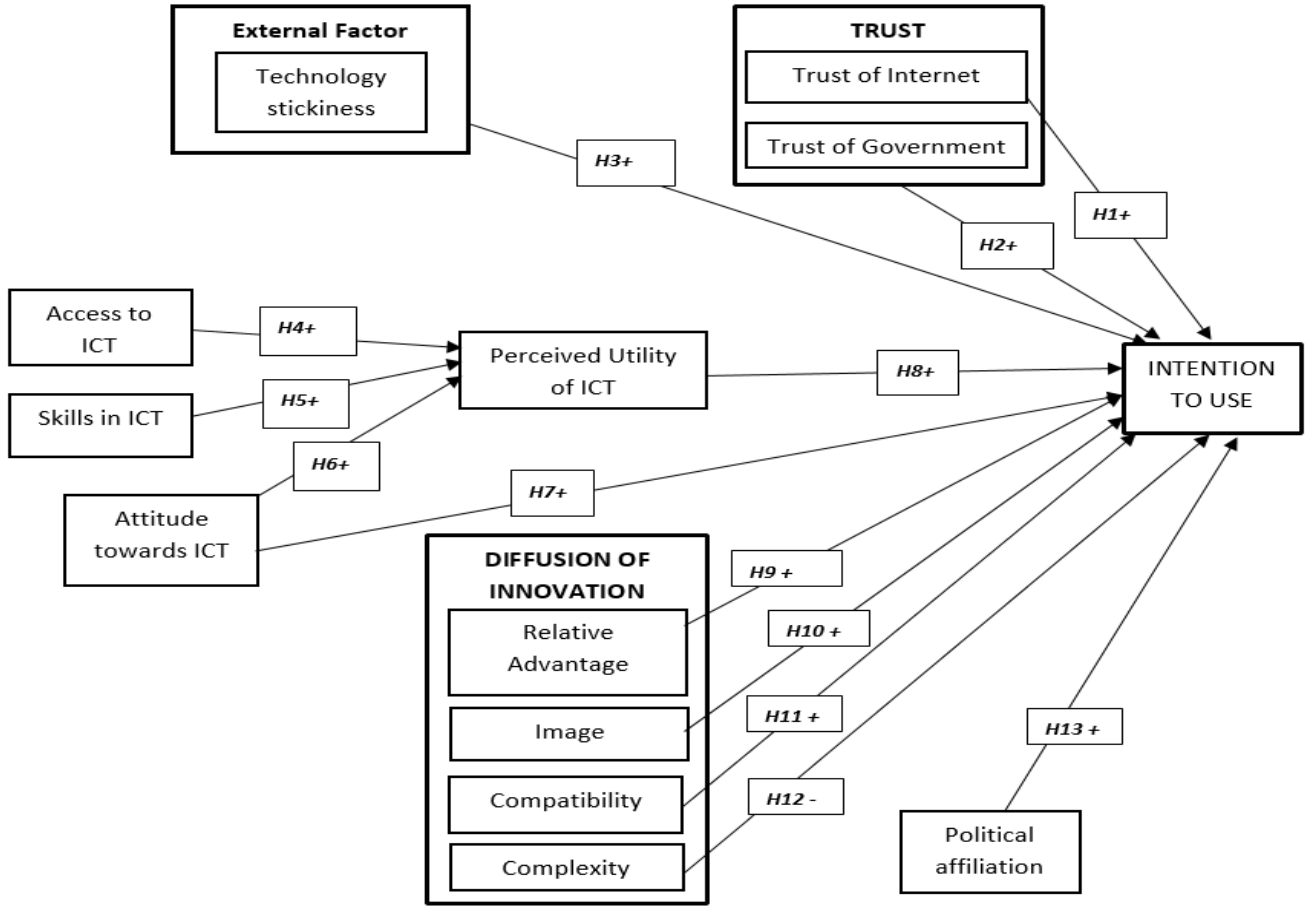

Figure 8: Proposed conceptual model

3.9.1 Summary of proposed conceptual model constructs

Construct	Description	Source
Trust of the internet	***Trust of the internet*** construct was used to test the influence on intention to use e-voting	(Belanger & Carter, 2008)
Trust of the government	***Trust of the government*** construct was used to test the influence on intention to use e-voting	(Belanger & Carter, 2008)
Technology stickiness	***Technology stickiness*** construct was used to test the influence on intention to use e-voting	(Lin J. C.-C., 2007; Xu & Liu, 2010)

Construct	Description	Source
Access to ICT	***Access to ICT*** construct was used to test the influence on perceived utility of ICT	(Verdegem & Verhoest, 2009; Ochara & Mawela, 2015)
Skills in ICT	***Skills in ICT*** construct was used to test the influence on perceived utility of ICT	(Verdegem & Verhoest, 2009; Ochara & Mawela, 2015)
Attitude towards ICT	***Attitude towards ICT*** construct was used to test the influence on perceived utility of ICT	(Ozkan & Kanat, 2011)
Perceived utility of ICT	***Perceived utility of ICT*** construct was used to test the influence on intention to use e-voting	(Ochara & Mawela, 2015)
Relative advantage	***Relative advantage*** construct was used to test the influence on intention to use e-voting	(Carter & Belanger, 2005)
Image	***Image*** construct was used to test the influence on intention to use e-voting	(Carter & Belanger, 2005)
Compatibility	***Compatibility*** construct was used to test the influence on intention to use e-voting	(Carter & Belanger, 2005)
Complexity	***Complexity*** construct was used to test the influence on intention to use e-voting	(Carter & Belanger, 2005)
Political affiliation	***Political affiliation*** construct was used to test the influence on intention to use e-voting	(Choi & Kim, 2012; Jarman, 2016)
Intention to use	Intention to use is a desired result, all of these constructs influence the intention to use construct directly or indirectly	(Carter & Belanger, 2005; Ochara & Mawela, 2015)

Table 2: Summary of conceptual model constructs

3.9.2 Hypothesis summary

The following table is a summary of the proposed hypotheses.

No	Independent	Dependent	Hypothesis predictions
H1	Trust of the internet	Intention to use	Trust of the internet positively influences the intention to use e-voting
H2	Trust of the government	Intention to use	Trust of the government positively influences the intention to use e-voting
H3	Technology stickiness	Intention to use	Technology stickiness positively influences the intention to use e-voting
H4	Access to ICT	Perceived Utility of ICT	Access to ICT positively influences Perceived Utility of ICT
H5	Skills in ICT	Perceived Utility of ICT	Skills in ICT positively influences Perceived Utility of ICT
H6	Attitude towards ICT	Perceived Utility of ICT	Attitude towards ICT positively influences Perceived Utility of ICT
H7	Attitude towards ICT	Intention to use	Attitude towards ICT positively influences the intention to use e-voting
H8	Perceived Utility of ICT	Intention to use	Perceived Utility of ICT positively influences the intention to use e-voting
H9	Relative advantage	Intention to use	Relative advantage positively influences the intention to use e-voting
H10	Image	Intention to use	Image positively influences the intention to use e-voting
H11	Compatibility	Intention to use	Compatibility positively influences the intention to use e-voting
H12	Complexity	Intention to use	Complexity negatively influences the intention to use e-voting

No	Independent	Dependent	Hypothesis predictions
H13	Political affiliation	Intention to use	Political affiliation positively influences the intention to use e-voting

Table 3: Hypothesis summary

4 RESEARCH METHODOLOGY

4.1 Research philosophy

The research philosophy section covers the research ontology and epistemology.

4.1.1 Ontology

Two ontological stances were evaluated which are subjective and objective ontological approaches. The objective approach assumes that the empirical world is independent of humans whereas the subjective approach exists through human creation and it also seeks to understand human behaviour. An objectivist ontological approach was taken as the empirical world is independent of humans (Orlikowsk & Baroudi, 1991).

4.1.2 Epistemology

There are three common research epistemologies used in academic research, these includes, interpretive, positivist and critical studies. Interpretive studies make the assumption that people can create and associate their own subjective meanings as they relate to the world. The foundation of positivist studies is based on the existence of prior fixed relationships from investigations with structured instruments, whereas critical studies aim to critique the existing situation, exposing structural contradictions within social systems (Orlikowsk & Baroudi, 1991).

Therefore, the positivist approach was followed as it is based on existing relationships that expose structural contradictions within a social system. This is important for this research as it also tries to understand whether there is a gap between the voting youth and political parties.

4.2 Research approach

Inductive and deductive approaches were considered as options; the deductive approach analyses a set of data to test whether it is consistent with previous assumptions, theories and hypotheses that were previously identified, whereas the inductive approach does not impose structured methodologies, it searches findings to develop themes (Thomas, 2006).

The deductive approach was opted for, as the plan was to analyse the set of data and test the relationship between constructs based on a conceptual framework.

4.3 Research purpose

Exploratory research, descriptive research and explanatory research were considered. Exploratory research investigates new research problems, while descriptive research describes the behaviour of a sample of the population; it also explains and validates the findings. Finally, explanatory research is used to describe the links in real life interventions (Baxter & Jack, 2008; Rowe, 2014).

The research purpose is explanatory as the research seeks to uncover the various factors that could impact the intentions of South African youths as well as their overall attitude towards e-voting.

4.4 Research strategy

Qualitative, quantitative and mixed methods were considered as research strategies; the quantitative technique believes that the research must be separated by the observed sample population whereas the qualitative technique argues that multiple realities succeed. A mixed method is when both qualitative and quantitative techniques are used together to collect data (Johnson & Onwuegbuzie, 2004).

The research must be separated from the reality; therefore, a quantitative research strategy was used.

4.5 Operationalisation and measurement of constructs

Operationalisation is a process of designing for abstract theoretical constructs (Bhattacherjee, 2012). The research study had thirteen constructs and these

constructs were adopted from previous studies and they were altered to ensure relevance to the e-voting context. All construct's attributes were measured with a five Likert scale.

See below the operationalisation and measurement of constructs (Agarwal & Selen, 2011).

Construct	Description	Construct measurement	Source
Trust of the internet	***Trust of the internet*** construct tests the influence on intention to use e-voting	The internet has enough safety measure to make me feel comfortable using e-Voting for elections	(Belanger & Carter, 2008)
		I feel assured that the internet technology adequately protect me from potential problems associated with e-Voting for elections	
		In general, the internet is now a reliable and safe environment to use e-Voting for elections	
Trust of the government	***Trust of the government*** construct tests the influence on intention to use e-voting	I trust the Independent Electoral Commission (IEC) to manage e-Voting for elections freely and fairly	(Belanger & Carter, 2008)
		I trust the national government to administer e-Voting for elections freely and fairly	
		I trust the local government to administer e-Voting for elections freely and fairly	
Technology stickiness	***Technology stickiness*** construct tests the	I am likely to accept and stick to e-Voting for the next elections should it be available	(Lin J. C.-C., 2007; Xu & Liu, 2010)

Construct	Description	Construct measurement	Source
	influence on intention to use e-voting	The Covid-19 pandemic has increased my likelihood to use a technology such as e-Voting	
		My general exposure to using the internet in the past has made me likely to use e-Voting for elections	
Access to ICT	***Access to ICT*** construct tests the influence on perceived utility of e-voting technology	I will take part in e-Voting if the facilities are provided	(Verdegem & Verhoest, 2009; Ochara & Mawela, 2015)
		I have access to the technology necessary to take part in e-Voting such as an internet enabled mobile phone	
		I have access to reliable internet to enable my participation in e-Voting	
		Using mobile device to access e-Voting services would not be expensive to me	
Skills in ICT	***Skills in ICT*** construct to test the influence on perceived utility of ICT	I can easily use mobile device to process my vote using e-Voting for elections	(Verdegem & Verhoest, 2009; Ochara & Mawela, 2015)
		I have no problem using the Internet by myself to get to e-Voting for elections	
		I do not need someone to explain how to use e-Voting to me	
		My friends and family will come to me for advice concerning the use of e-Voting for elections	

Construct	Description	Construct measurement	Source
Attitude towards ICT	***Attitude towards ICT*** construct to test the influence on perceived utility of ICT	I would like to use e-Voting for elections	(Ozkan & Kanat, 2011)
		It is preference for me to use e-Voting for elections	
		I am willing to learn how to use e-Voting for elections	
Perceived utility of ICT	***Perceived utility of ICT*** construct to test the influence on intention to use e-voting	Using e-Voting would enable me to interact with the IEC anytime not limited to regular business hours	(Ochara & Mawela, 2015)
		Using e-Voting would enable me to process my voting more quickly	
		The benefits of using e-Voting are clear to me	
		Using e-Voting could cut travelling expenses	
Relative advantage	***Relative advantage*** construct to test the influence on intention to use e-voting	Using e-Voting would enhance my efficiency in voting	(Carter & Belanger, 2005)
		Using e-Voting would make it easier to vote	
		Using e-Voting would give me greater control over voting	
Image	***Image*** construct to test the influence on intention to use e-voting	Using e-Voting would improve my social status	(Carter & Belanger, 2005)
		People who use e-Voting have a high profile	
		People who use e-Voting have higher status than those who do not	

Construct	Description	Construct measurement	Source
Compatibility	***Compatibility*** construct to test the influence on intention to use e-voting	I think using e-Voting would fit well with the way that I like to gather information from IEC	(Carter & Belanger, 2005)
		I think using e-Voting would fit well with the way that I like to contact IEC	
		Using e-Voting to vote would fit into my lifestyle	
Complexity	***Complexity*** construct to test the influence on intention to use e-voting	Learning to interact with e-Voting would be easy for me	(Carter & Belanger, 2005)
		I believe processing my vote with e-Voting would be a clear and understandable process	
		It would be easy for me to become skilful at using e-Voting	
Political affiliation	***Political affiliation*** construct to test the influence on intention to use e-voting	I think my political party would support e-Voting	(Choi & Kim, 2012; Jarman, 2016)
		I would use e-Voting if my preferred political party supports it	
		My views about e-Voting depend on what my political party prefers	
Intention to use	Intention to use is a desired result; all constructs influence the intention to use construct directly or indirectly	I would use e-Voting for elections should it become available	(Carter & Belanger, 2005; Ochara & Mawela, 2015)
		I would use e-Voting provided over the Web	
		Voting with e-Voting is something that I would do	

Construct	Description	Construct measurement	Source
		I would not hesitate to provide information to IEC for e-Voting	

Table 4: Operationalisation and measurement of constructs

4.6 Timeframe

Two research timeframes were considered, cross-sectional and longitudinal studies, in cross-sectional studies, data is collected in a defined time whereas longitudinal studies look at sample populations over an extended period (Street & Ward, 2012).

Due to time constraints, the cross-sectional timeframe was used for the purpose of this research.

4.7 Ethics

An ethics application was submitted to the University of Cape Town's Faculty of Commerce and department of Student Affairs for ethics approval and access to UCT students.

The requests were sent to different organisations where they have groups of youth within the targeted age groups. A letter of request was sent to the management of different organisations for their approval and they were asked to sign consent forms, including the UCT Department of Student Affairs. See appendix 9.1 for UCT's Faculty of Commerce ethics approval and appendix 9.2 for UCT's Department of Student Affairs application and approval for access to UCT students and application to access youth within an organisation.

The research purpose was explained to participants and they were asked to give consent by clicking 'agree' or 'disagree' should they not wish to continue with the questionnaire. Data collected from participants is secured and all information shared is kept anonymous although the location of participants might be revealed in the research paper should there be a need to highlight important findings. They were also given the right to withdraw their participation at any time they wished to do so.

4.8 Data collection

Questionnaires from previous research papers were adopted, these include, Belanger & Carter (2008); Karavasilis, Zafiropoulos, & Vrans (2010); Lallmahomed, Lallmahomed, & Lallmahomed (2017); Lin J. C.-C. (2007); Ochara & Mawela (2015); Carter & Belanger (2005); Choi & Kim (2012). An ethics application was sent for ethics approval from the UCT's Faculty of Commerce, ethics committee and UCT's Student Affairs for access to UCT students, both applications were approved.

The Qualtrics platform was used to design the research questionnaire, the questionnaire had three sections, the consent section, demographics section and conceptual model constructs section. The 5-point Likert scale was adopted to the conceptual model constructs with a low score of not supporting and a high score supporting the statement / question i.e. Strongly disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5).

4.8.1 Research instrument

Qualtrics was used to design and analyse the online questionnaire. Constructs were tested to validate the reliability of the proposed model. The questions were divided into demographics; conceptual model constructs and four open-ended questions. The demographic questions were closed-ended; respondents were given options from which to choose. The conceptual constructs related questions were on a 5-point Likert scale and four open-ended questions were included; this was done to get more views from respondents.

For the full online questionnaire that was sent to the research population, see Appendix 9.4 Research instrument.

4.8.2 Sample population

Quantitative sampling method was adopted for this research. The target population for this research is South African youth between the ages of 18-35 years (Marshall, 1996).

An online questionnaire was sent to South African youth between the ages of 18-35. The South African youth population between the ages of 15-35 is 17,8 million, therefore a sample size of 385 would be sufficient (see the sample calculation in

Section 4.8.3). This is based on a 95% confidence level and 5% margin of error (Qualtrics, 2018; Statistics South Africa, 2019; Department: Statistics South Africa, 2019).

The simple random sampling and cluster sampling were considered for sampling method. The simple random sampling method was used as it is participants were contacted via email, WhatsApp messaging and field collection (Otsuka & Aramaki, 2018).

4.8.3 Sample calculation formula

Infinite population formula, where S is the sample size for infinite population.

$$S = z^2 * p * (1-p) / m^2$$

	Value
Z (Confidence level)	1.96 (95%)
P (Population proportion)	0.5 (50%)
M (Margin for error)	0.05 (5%)

Table 5: Sample calculation formula

$$S = z^2 * p * (1-p) / m^2$$

$S = 1.96^2 * 0.5 * (1 - 0.5) / 0.05^2$

$S = 3.8416 * 0.5 * (0.5) / 0.0025$

$S = 1.9208 * 200$

S = 384.16 therefore the required sample size will be 385

4.8.4 Pilot study

A pilot study can be used to assess the feasibility of data collection, the adequacy for the data collection instrument and to detect the problems that may occur (Hertzog, 2008). Ten percent (10%) of the sample size is generally considered to be an appropriate size for the pilot study (Hertzog, 2008). For this research population sample, thirty-nine sample population was required for the pilot study to test the feasibility of the questionnaire (Hertzog, 2008).

4.8.4.1 Content validity

The research questionnaire was sent to nine experts for content validity check and six experts responded; content validity checks the quality and tool suitability for the questionnaire (reference). These reviews helped to identify potential problems with the questionnaire. For content validity, Criteria for Measuring Content Validity table that looks at the relevance, clarity, simplicity and ambiguity was used. See table below for Criteria for Measuring Content Validity (Yaghmale, 2003).

Relevance	1. Not relevant
	2. Item need some revision
	3. Relevant but need minor revision
	4. Very relevant
Clarity	1. Not clear
	2. Item need some revision
	3. Clear but need minor revision
	4. Very clear
Simplicity	1. Not simple
	2. Item need some revision
	3. Simple but need minor revision
	4. Very simple
Ambiguity	1. Doubtful
	2. Item need some revision
	3. No doubt but need minor revision
	4. Meaning is clear

Table 6: Criteria for Measuring Content Validity table

4.8.4.2 Face validity

The questionnaire was also submitted for face validity. Face validity ensures the readability of the questionnaire (Olson, 2010).

The research instrument was sent to seven individuals to assess face validity and they all responded, these were individuals with different backgrounds, qualifications, genders and races to ensure the diversity of the participants. Although it is criticised as the weakest form of validity, face validity gives important information as it

determines how participants will interpret and respond to the questions (DeVon, et al., 2007; Frantz & Holmgren, 2019).

4.8.4.3 Pilot study data collection

A questionnaire was sent to fifty South Africans between the ages of 18-35 for the pilot study, this was to test the feasibility and whether the questionnaire would have sufficient response categories. Forty-eight responded starting answering the questionnaire but forty-two completed the questionnaire. Based on the forty-two that completed the questionnaire, the following assessment was made:

4.8.4.4 Descriptive analysis

Forty valid responses were received from the pilot study participants. The demographics for age were distributed as follows: four participants were between the ages of 18-20; eight participants were between the ages of 21-25; nine participants were between the ages of 26-30 years and twenty-one participants were between the ages of 31-35.

On gender, seventeen participants were male and twenty-five participants were females. Forty-one participants confirmed that they have access to mobile devices with internet and one participant said that they have internet access through family members or friends.

4.8.4.5 Pilot study reliability analysis

A reliability analysis was conducted and with the aim of testing Cronbach Alpha, Standard deviation and mean. Cronbach Alpha is used to measure the consistency and reliability of the data collected. Cronbach Alpha ranges between -1 and 1, the closer the Cronbach is to 1, the more reliable and consistent it is. The following rule was used to rate constructs; >0.9 excellent; >0.8 good; >0.7 acceptable; >0.6 questionable; >0.5 poor and <5 unacceptable (Gliem & Gliem, 2003). Three constructs had Cronbach that was less than 0.7, Access to ICT, Skills in ICT and Political affiliation, contributing factors were noted to Access to ICT and Skills in ICT as there were statements that were not taking the same direction as the rest of the statements; i.e. in Access to ICT, there was a statement, ***'Using mobile device for e-voting services seems expensive to me'*** and participants had to select strongly disagree

for a positive selection. The statement was changed to ***'Using mobile device for e-voting services would not be expensive to me***'.

The same principle was applied to one statement on Skills in ICT construct, '***I need someone to explain how to use e-voting to me***' and the question was changed to '***I do not need someone to explain how to use e-voting to me***'

The political affiliation construct was rated poorly for Cronbach Alpha and to improve the construct, the question was changed to, '***My political party supports e-voting for elections***' to '***I think my political party would support e-voting***'.

Construct	No of questions	Cronbach Alpha
Trust of the internet	3	0.89
Trust of the government	3	0.88
Technology stickiness	3	0.84
Access to ICT	4	0.63
Skills in ICT	4	-0.61
Attitude towards ICT	3	0.95
Perceived utility of ICT	4	0.83
Relative advantage	3	0.75
Image	3	0.82
Compatibility	3	0.85
Complexity	3	0.93
Political affiliation	3	0.56
Intention to use	4	0.91

Table 7: Pilot study Cronbach Alpha

4.8.4.6 Pilot study conclusion

The pilot study played an important role in ensuring that the research instrument was improved before collecting research data. The pilot study helped to ensure that all questions were taking the same direction with regards to expected answers. The pilot

study also ensured that questions in the political affiliation construct were improved in order to limit unforeseen problems when the research data was collected.

See below table for changes that were made because of pilot study and recommendation from content and face validity:

Construct	Question	New question
Trust of internet	I feel assured that legal and technological structures adequately protect me from potential problems associated with e-Voting for elections	I feel assured that the internet technology adequately protect me from potential problems associated with e-Voting for elections
	In general, the internet is now a robust and safe environment to use e-Voting for elections	In general, the internet is now a reliable and safe environment to use e-Voting for elections
Technology stickiness	I am likely to embrace e-Voting for the next election	I am likely to accept and stick to e-Voting for the next elections should it be available
Access to ICT	Using the mobile device to e-Voting services seems expensive to me	Using mobile device to access e-Voting services would not be expensive to me
Skills in ICT	If I would consider accessing e-Voting using my mobile phone, someone needs to explain to me how to do it	I do not need someone to explain how to use e-Voting to me
Perceived utility of ICT	The results of using e-Voting are apparent to me	The benefits of using e-Voting are clear to me
Image	People who use the e-Voting have more prestige than those who do not	People who use e-Voting have a high profile
Compatibility	Using e-Voting to vote would be compatible with how I like to do things	Using e-Voting to vote would fit into my lifestyle

Table 8: Content and face validity recommendations

4.8.5 Final research data collection

The questionnaire was sent to South African youth in different provinces through organisations with which they are associated, like universities, churches, youth organisations and field collection.

A QR code was also used to ask the youth to scan the link and respond to the questionnaire.

4.9 Research methodology summary

SUMMARY OF RESEARCH METHODOLOGY	
Ontology	Objectivist
Epistemology	Positivist
Approach	Deductive
Purpose	Explanatory
Strategy	Quantitative

Table 9: Summary of research methodology

4.10 Research plan

TASK	DUE DATE
High level research proposal	01 Apr 2019
Research proposal	16 May 2019
Literature review	18 Jul 2019
High level research design presentation	12 Aug 2019
Research design	12 Sep 2019
Ethical clearance application	08 Jun 2020
Pilot study	09 Jun - 15 Jun 2020
Data collection	16 Jun 2020 - 15 Aug 2020
Data analysis	16 Aug 2020 - 30 Sep 2020
Findings discussion	01 Oct 2020 - 30 Nov 2020
Revision and corrections	01 Dec 2020 - 31 Jan 2021
Dissertation proofreading	01 Feb 2021 - 07 Feb 2021
Submission of draft	12 Feb 2021

TASK	DUE DATE
Final dissertation submission	12 Mar 2021

Table 10: Research plan

5 DATA ANALYSIS

This section was used to analyse data collected from the sample population.

Qualtrics was used to collect data as it offers advanced statistical analyses. Data was arranged and analysed. Research questions were divided into, demographics and research conceptual model constructs; the constructs were used to test the conceptual model and to identify trends from the collected data.

5.1 Data coding

Codes were used for both framework constructs and demographics. The 5-point Likert scale was applied with the high score supporting and the low score not supporting the statement / question i.e. Strongly Agree (5), Agree (4), Neutral (3), disagree (2) and Strongly disagree (1). The codes in table below were used for demographics:

Demographic	Options	Code
Age	18-20	1
	21-25	2
	26-30	3
	31-35	4
Gender	Female	1
	Male	2
	Prefer not to disclose	3
Province	Eastern Cape	1
	Free State	2
	Gauteng	3
	Kwazulu-Natal	4
	Limpopo	5
	Mpumalanga	6
	North West	7
	Northern Cape	8

Demographic	Options	Code
	Western Cape	9
Access to device with internet	No access to device with internet	1
	Yes, I have access through friend or family member	2
	Yes, I own a device with internet	3
Qualification level	Degree	1
	Diploma	2
	Grade 10-12	3
	Postgraduate degree	4
	TVET certificate	5
Marital status	Divorced	1
	Domestic partnership	2
	Married	3
	Prefer not to disclose	4
	Separated	5
	Single	6
	Widowed	7
Occupation	A student	1
	Employed	2
	Out of work and looking for work	3
	Out of work but not currently looking for work	4
	Self-employed	5
Political Party	African National Congress	1
	Democratic Alliance	2
	Economic Freedom Fighters	3
	Other political party	4
	Prefer not to disclose	5
	United Democratic Movement	6

Table 11: demographic codes

5.2 Data Demographics

5.2.1 Age distribution

Table 12 and Figure 9 gives breakdown of respondents by age group. Age group 21-25 had the highest participants with 37.1% (153) and the lowest participants were age group 18-20 with 18% (74). Age group 26-30 had 20.6% (85) compared to age group 31-35 with 24.3% (100).

Age	Frequency	Percentage (%)	Cumulative percent (%)
18-20	74	18.0%	18.0%
21-25	153	37.1%	55.1%
26-30	85	20.6%	75.7%
31-35	100	24.3%	100%
Total	**412**	**100%**	

Table 12: Age distribution

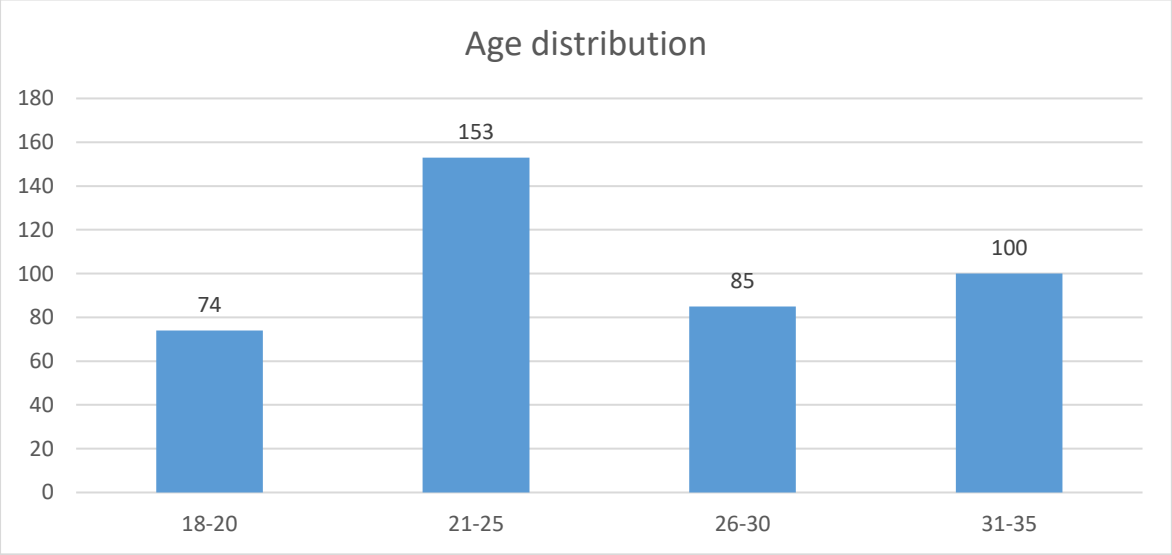

Figure 9: Age distribution

5.2.2 Gender distribution

Table 13 and Figure 10 gives the breakdown of respondents by gender. Females had the highest respondents with 55.8% (230) compared to males with 43.4% (179). Three respondents preferred not to disclose their gender with 0.7%.

Gender	Frequency	Percentage (%)	Cumulative percent (%)
Female	230	55.8%	55.8%
Male	179	43.4%	99.3%
Prefer not to disclose	3	0.7%	100.0%
Total	**412**	**100%**	

Table 13: Gender distribution

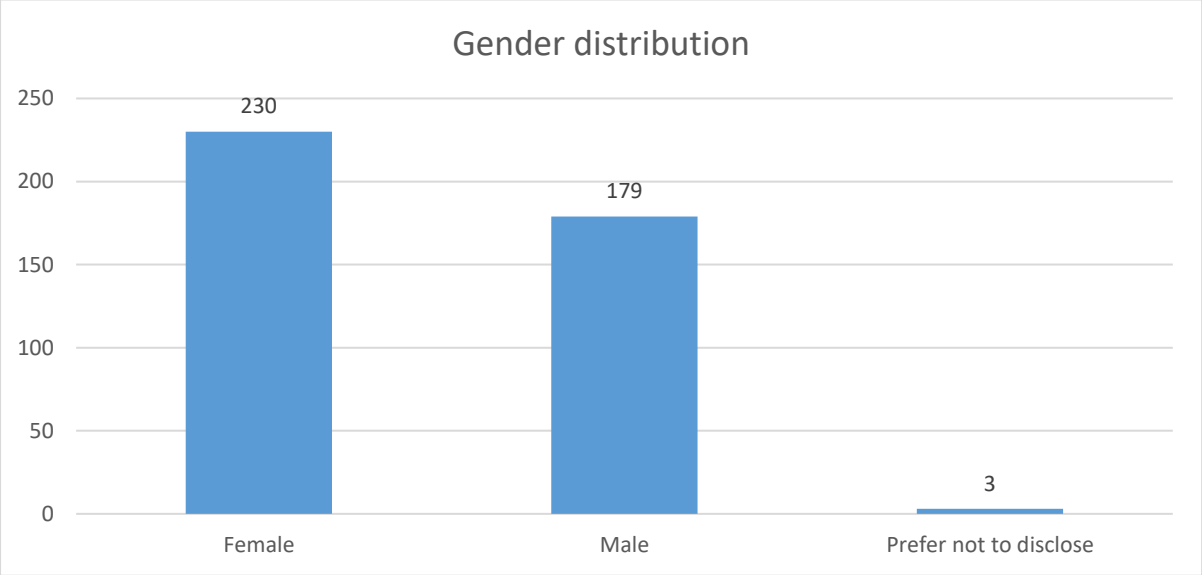

Figure 10: Gender distribution

5.2.3 Province distribution

Table 14 and Figure 11 gives breakdown of respondents by province. Western Cape Province had the highest respondents with 47.6% (196) followed by Gauteng Province with 18.9% (78). The province with the lowest respondents was the North West Province with 1.9% (8).

Province	Frequency	Percentage (%)	Cumulative percent (%)
Eastern Cape	44	10.7%	10.7%
Free State	12	2.9%	13.6%
Gauteng	78	18.9%	32.5%
Kwazulu-Natal	43	10.4%	43.0%
Limpopo	9	2.2%	45.1%
Mpumalanga	11	2.7%	47.8%
North West	8	1.9%	49.8%
Northern Cape	11	2.7%	52.4%
Western Cape	196	47.6%	100%
Total	**412**		

Table 14: Province distribution

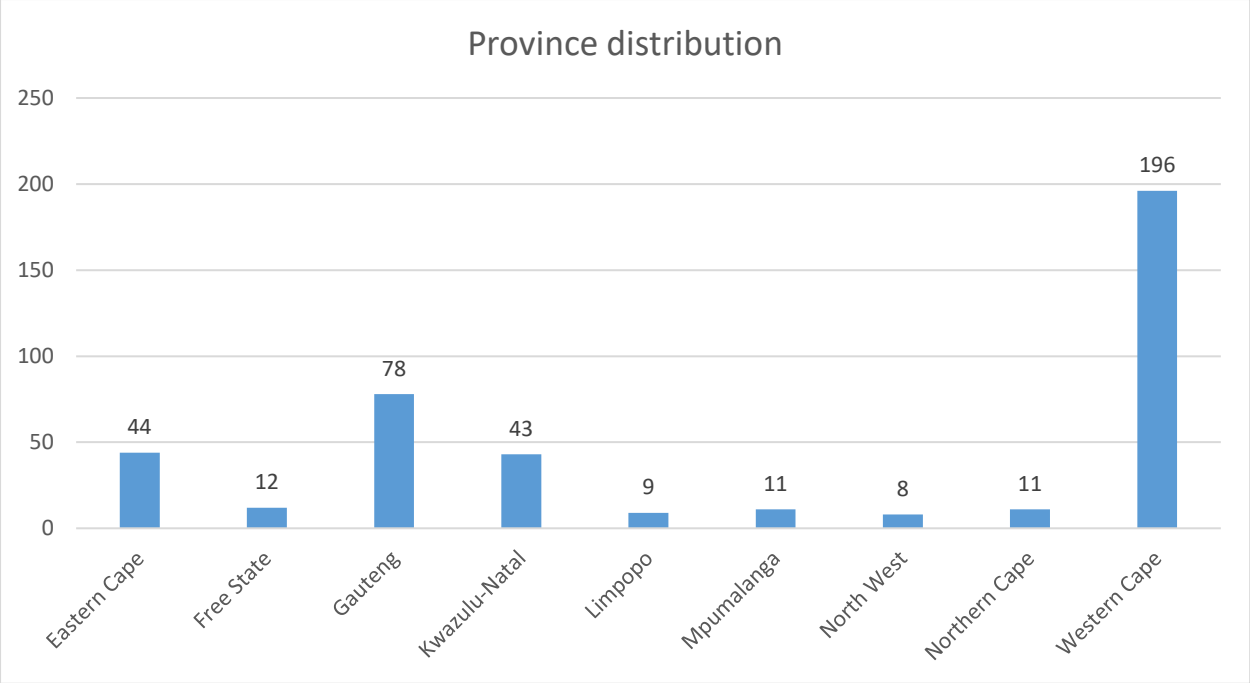

Figure 11: Province distribution

5.2.4 Access to device with internet distribution

Table 15 and Figure 12 gives breakdown of respondents with access to device with internet. Respondents who own device with internet had the highest respondents with 97.1% (400). Respondents who had access to internet through a friend or family member were at 1.9% (8). One percent (4) of respondents indicated that they do not have access to device with internet.

Access to device with internet	Frequency	Percentage (%)	Cumulative percent (%)
No access to device with internet	4	1.0%	1.0%
Yes, I have access through friend or family member	8	1.9%	2.9%
Yes, I own a device with internet	400	97.1%	100%
Total	**412**	**100%**	

Table 15: Access to device with internet distribution

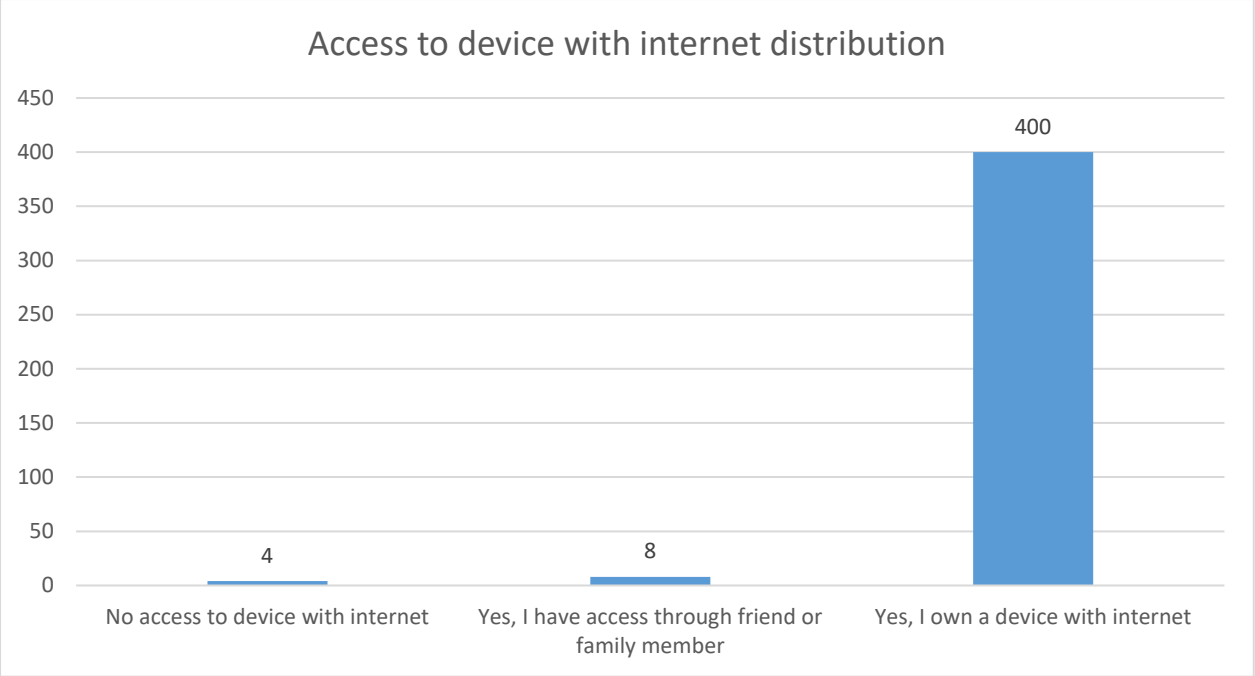

Figure 12: Access to device with internet distribution

5.2.5 Qualification level

Table 16 and Figure 13 gives the breakdown of respondents by qualification. The respondents with Grade 10-12 were the highest with 28.6% (118); followed by respondents with Postgraduate degree with 23.5% (97). Those with degrees were 22.8% (94) and the least were those with TVET Certificate at 10.4% (43).

Qualification level	Frequency	Percentage (%)	Cumulative percent (%)
Degree	94	22.8%	22.8%
Diploma	60	14.6%	37.4%
Grade 10-12	118	28.6%	66.0%
Postgraduate degree	97	23.5%	89.6%
TVET Certificate	43	10.4%	100%
Total	**412**	**100%**	

Table 16: Qualification level distribution

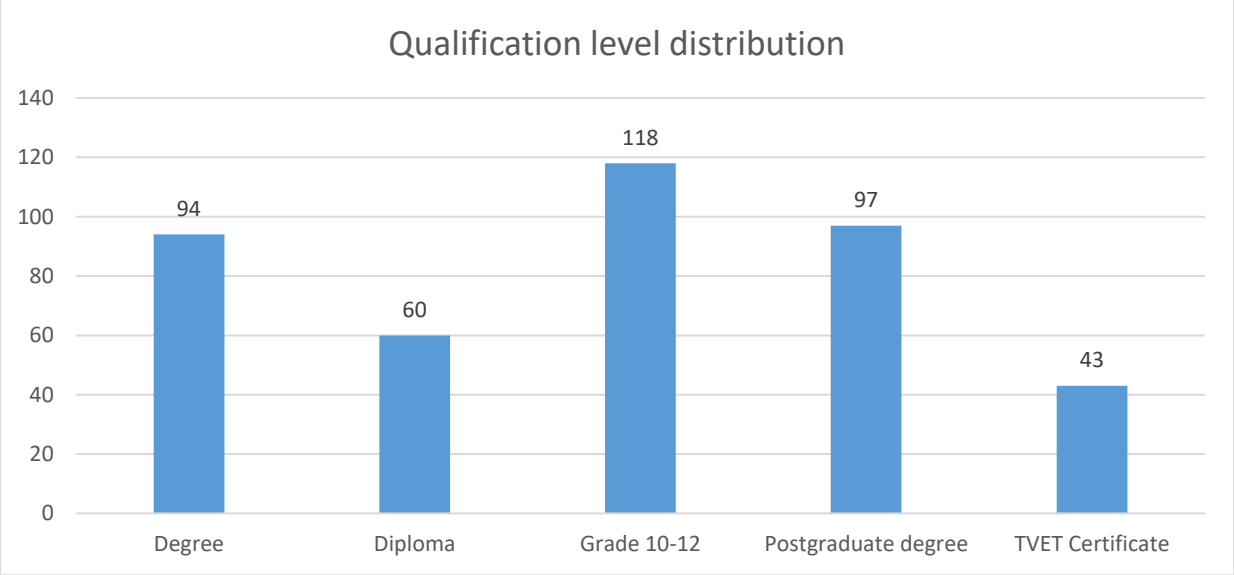

Figure 13: Qualification level distribution

5.2.6 Marital status

Table 17 and Figure 14 gives breakdown of respondents by marital status; 77.7% (320) of respondents were single and 15.5% (64) of respondents were married. Widows with the least represented with 0.2% (1).

Marital status	Frequency	Percentage (%)	Cumulative percent (%)
Divorced	2	0.5%	0.5%
Domestic partnership	19	4.6%	5.1%
Married	64	15.5%	20.6%
Prefer not to disclose	3	0.7%	21.4%
Separated	3	0.7%	22.1%
Single	320	77.7%	99.8%
Widowed	1	0.2%	100%
Total	**412**	**100%**	

Table 17: Marital status distribution

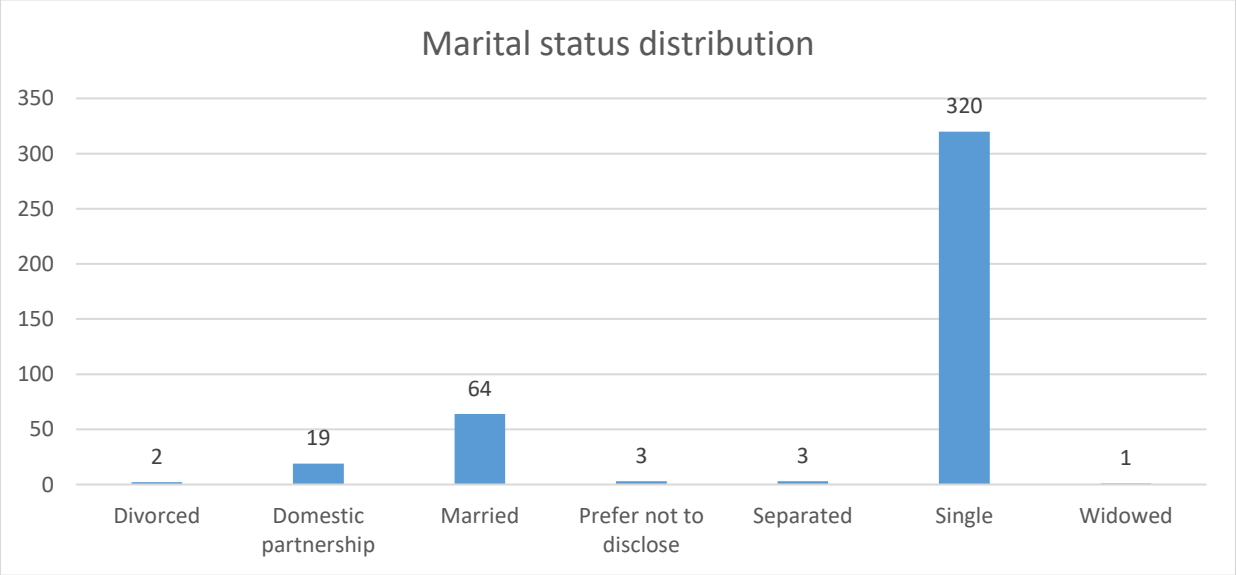

Figure 14: Marital status distribution

5.2.7 Occupation

Most of the respondents were students as they represented 48.1% (198) of the sample size. The employed were 39.3% (162). Those out of work and actively looking for work were 6.3% (26) compared to 6.1% (25) that were self-employed. Only 0.2% (1) that were not working and not actively looking for work. See Table 18 and Figure 15.

Marital status	Frequency	Percentage (%)	Cumulative percent (%)
A student	198	48.1%	48.1%
Employed	162	39.3%	87.4%
Out of work and looking for work	26	6.3%	93.7%
Out of work but not currently looking for work	1	0.2%	93.9%
Self-employed	25	6.1%	100%
Total	**412**	**100%**	

Table 18: Occupation distribution

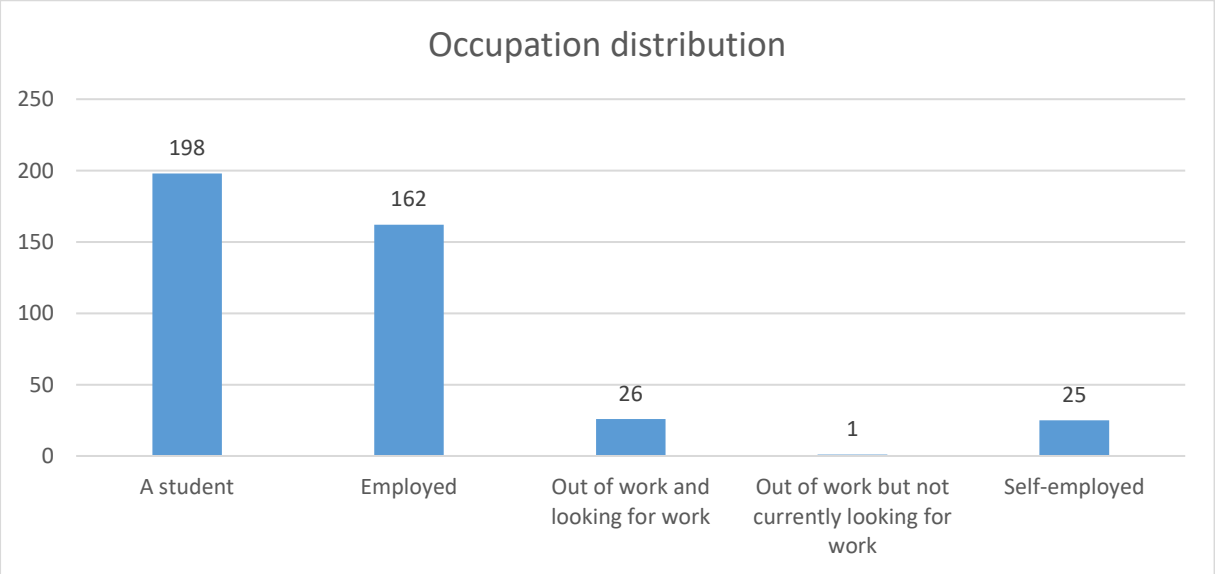

Figure 15: Occupation distribution

5.2.8 Political party distribution

Majority of respondents by political party were African National Congress with 34.2% (141); Economic Freedom Fighters had 20.4% (84) followed by Democratic Alliance with 18.2% (75). See Table 19 and Figure 16.

Political party	Frequency	Percentage (%)	Cumulative percent (%)
African National Congress	141	34.2%	34.2%
Democratic Alliance	75	18.2%	52.4%
Economic Freedom Fighters	84	20.4%	72.8%
Other political party	49	11.9%	84.7%
Prefer not to disclose	50	12.1%	96.8%
United Democratic Movement	13	3.2%	100%
Total	**412**	**100%**	

Table 19: Political party distribution

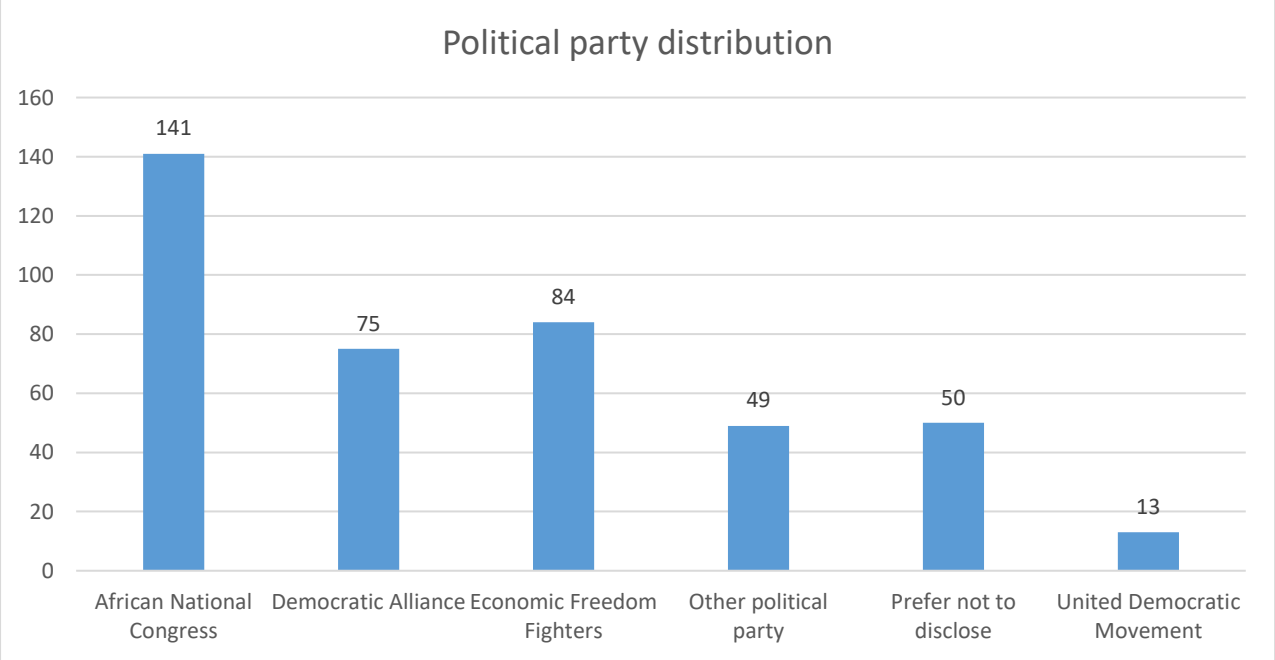

Figure 16: Political party distribution

5.3 Reliability analysis

5.3.1 Cronbach Alpha

The reliability analysis was conducted with the aim of testing Cronbach Alpha, standard deviation and mean. Cronbach Alpha is used to measure the consistency and reliability of data collected. Cronbach Alpha ranges between -1 and 1, the closer the Cronbach is to 1 the more reliable and consistent it is. The following rule was used to rate the constructs reliability; >0.9 excellent; >0.8 good; >0.7 acceptable; >0.6 questionable; >0.5 poor and <5 unacceptable (Gliem & Gliem, 2003). All constructs had Cronbach Alpha of more than 0.70 which is accepted except political affiliation which had a Cronbach Alpha of 0.66 which is questionable; a Cronbach Alpha of more than 0.60 is questionable. Other studies also suggest that a Cronbach Alpha of more than 0.60 can be used where attributes in a construct are three or less; the political affiliation had three attributes, the political affiliation construct was kept based on this and the Structural Equation Modelling also shows that the model's strength is much stronger with political affiliation included (Gliem & Gliem, 2003; Bhattacherjee, 2012; Taber, 2018).

Construct	No of questions	Cronbach Alpha
Trust of the Internet	3	0.92
Trust of the Government	3	0.88
Technology Stickiness	3	0.86
Access to ICT	4	0.73
Skills in ICT	4	0.70
Attitude towards ICT	3	0.89
Perceived Utility of ICT	4	0.77
Relative advantage	3	0.79
Image	3	0.87
Compatibility	3	0.86
Complexity	3	0.84
Political affiliation	3	0.66
Intention to use	4	0.91

Table 20: Cronbach Alpha

5.3.2 Factor analysis

The factor analysis tests if the attributes of a construct are related, it ranges between 0 and 1 where one is a perfect relationship, 0.5 and above is a strong relationship and anything less than five points shows weak relationships.

The correlations matrix tables were created to test the strength of existing relationship between different items. Most of the items show strong relationship but some were showing moderate to weak relationship.

The items in the following constructs had a strong relationship; Trust of the internet, trust of the government, technology stickiness, attitude towards ICT, relative advantage, image, compatibility, complexity, intention to use.

The items in the following constructs had moderate relationship; perceived utility of ICT, political affiliation.

The items in the following constructs had weak relationship; access to ICT, skills in ICT.

5.3.3 Factor analysis: Correlation matrix - Trust of the internet

	Trust of the Internet - The internet has enough safety measure to make me feel comfortable using e-voting for elections	Trust of the Internet - I feel assured that the internet technology adequately protect me from potential problems associated with e-voting for elections	Trust of the Internet - In general, the internet is now a reliable and safe environment to use e-voting for elections
Trust of the Internet - The internet has enough safety measure to make me feel comfortable using e-voting for elections	1,00		
Trust of the Internet - I feel assured that the internet technology adequately protect me from potential problems associated with e-voting for elections	0,83	1,00	
Trust of the Internet - In general, the internet is now a reliable and safe environment to use e-voting for elections	0,73	0,80	1,00

Table 21: Factor analysis: Correlation matrix - Trust of the internet

5.3.3.1 Factor analysis: Correlation matrix - Trust of the government

	Trust of the government - I trust the Independent Electoral Commission (IEC) to manage e-voting for elections freely and fairly	Trust of the government - I trust the national government to administer e-voting for elections freely and fairly	Trust of the government - I trust the local government to administer e-voting for elections freely and fairly
Trust of the government - I trust the Independent Electoral Commission (IEC) to manage e-voting for elections freely and fairly	1,00		
Trust of the government - I trust the national government to administer e-voting for elections freely and fairly	0,71	1,00	
Trust of the government - I trust the local government to administer e-voting for elections freely and fairly	0,64	0,79	1,00

Table 22: Factor analysis: Correlation matrix - Trust of the government

5.3.3.2 Factor analysis: Correlation matrix - Technology stickiness

	Technology stickiness - I am likely to accept and stick to e-voting for the next elections should it be available	Technology stickiness - The Covid-19 pandemic has increased my likelihood to use a technology such as e-voting	Technology stickiness - My general exposure to using the internet in the past has made me likely to use e-voting for elections
Technology stickiness - I am likely to accept and stick to e-voting for the next elections should it be available	1,00		
Technology stickiness - The Covid-19 pandemic has increased my likelihood to use a technology such as e-voting	0,64	1,00	
Technology stickiness - My general exposure to using the internet in the past has made me likely to use e-voting for elections	0,76	0,64	1,00

Table 23: Factor analysis: Correlation matrix - Technology stickiness

5.3.3.3 Factor analysis: Correlation matrix - Access to ICT

	Access to ICT - I will take part in e-voting if the facilities are provided	Access to ICT - I have access to the technology necessary to take part in e-voting such as an internet enabled mobile phone	Access to ICT - I have access to reliable internet to enable my participation in e-voting	Access to ICT - Using mobile device to access e-voting services would not be expensive to me
Access to ICT - I will take part in e-voting if the facilities are provided	1,00			
Access to ICT - I have access to the technology necessary to take part in e-voting such as an internet enabled mobile phone	0,29	1,000		
Access to ICT - I have access to reliable internet to enable my participation in e-voting	0,29	0,70	1,00	
Access to ICT - Using mobile device to access e-voting services would not be expensive to me	0,24	0,55	0,55	1,00

Table 24: Factor analysis: Correlation matrix - Access to ICT

5.3.3.4 Factor analysis: Correlation matrix - Skills in ICT

	Skills in ICT - I can easily use mobile device to process my vote using e-voting for elections	Skills in ICT - I have no problem using the Internet by myself to get to e-voting for elections	Skills in ICT - I do not need someone to explain how to use e-voting to me	Skills in ICT - My friends and family will come to me for advice concerning the use of e-voting for elections
I can easily use mobile device to process my vote using e-voting for elections	1,00			
I have no problem using the Internet by myself to get to e-voting for elections	0,59	1,00		
I do not need someone to explain how to use e-voting to me	0,36	0,41	1,00	
Skills in ICT - My friends and family will come to me for advice concerning the use of e-voting for elections	0,30	0,31	0,35	1,00

Table 25: Factor analysis: Correlation matrix - Skills in ICT

5.3.3.5 Factor analysis: Correlation matrix - Attitude towards ICT

	Attitude towards ICT - I would like to use e-voting for elections	Attitude towards ICT - It is preference for me to use e-voting for elections	Attitude towards ICT - I am willing to learn how to use e-voting for elections
Attitude towards ICT - I would like to use e-voting for elections	1,00		
Attitude towards ICT - It is preference for me to use e-voting for elections	0,85	1,00	
Attitude towards ICT - I am willing to learn how to use e-voting for elections	0,70	0,67	1,00

Table 26: Factor analysis: Correlation matrix - Attitude towards ICT

5.3.3.6 Factor analysis: Correlation matrix - Perceived utility of ICT

	Perceived Utility of ICT - Using e-voting would enable me to interact with the IEC anytime not limited to regular business hours	Perceived Utility of ICT - Using e-voting would enable me to process my voting more quickly	Perceived Utility of ICT - The benefits of using e-voting are clear to me	Perceived Utility of ICT - Using e-voting could cut travelling expenses
Perceived Utility of ICT - Using e-voting would enable me to interact with the IEC anytime not limited to regular business hours	1,00			
Perceived Utility of ICT - Using e-voting would enable me to process my voting more quickly	0,55	1,00		
Perceived Utility of ICT - The benefits of using e-voting are clear to me	0,49	0,49	1,00	
Perceived Utility of ICT - Using e-voting could cut travelling expenses	0,36	0,50	0,36	1,00

Table 27: Factor analysis: Correlation matrix - Perceived utility of ICT

5.3.3.7 Factor analysis: Correlation matrix - Relative advantage

	Relative advantage - Using e-voting would enhance my efficiency in voting	Relative advantage - Using e-voting would make it easier to vote	Relative advantage - Using e-voting would give me greater control over voting
Relative advantage - Using e-voting would enhance my efficiency in voting	1,00		
Relative advantage - Using e-voting would make it easier to vote	0,61	1,00	
Relative advantage - Using e-voting would give me greater control over voting	0,60	0,50	1,00

Table 28: Factor analysis: Correlation matrix - Relative advantage

5.3.3.8 Factor analysis: Correlation matrix - Image

	Image - Using e-voting would improve my social status	Image - People who use e-voting have a high profile	Image - People who use e-voting have higher status than those who do not
Image - Using e-voting would improve my social status	1,00		
Image - People who use e-voting have a high profile	0,72	1,00	
Image - People who use e-voting have higher status than those who do not	0,56	0,78	1,00

Table 29: Factor analysis: Correlation matrix – Image

5.3.3.9 Factor analysis: Correlation matrix - Compatibility

	Compatibility - I think using e-voting would fit well with the way that I like to gather information from IEC	Compatibility - I think using e-voting would fit well with the way that I like to contact IEC	Compatibility - Using e-voting to vote would fit into my lifestyle
Compatibility - I think using e-voting would fit well with the way that I like to gather information from IEC	1,00		
Compatibility - I think using e-voting would fit well with the way that I like to contact IEC	0,80	1,00	
Compatibility - Using e-voting to vote would fit into my lifestyle	0,58	0,65	1,00

Table 30: Factor analysis: Correlation matrix – Compatibility

5.3.3.10 Factor analysis: Correlation matrix - Complexity

	Complexity - Learning to interact with e-voting would be easy for me	Complexity - I believe processing my vote with e-voting would be a clear and understandable process	Complexity - It would be easy for me to become skilful at using e-voting
Complexity - Learning to interact with e-voting would be easy for me	1,00		
Complexity - I believe processing my vote with e-voting would be a clear and understandable process	0,62	1,00	
Complexity - It would be easy for me to become skilful at using e-voting	0,69	0,61	1,00

Table 31: Factor analysis: Correlation matrix – Complexity

5.3.3.11 Factor analysis: Correlation matrix - Political affiliation

	Political affiliation - I think my political party would support e-voting	Political affiliation - I would use e-voting if my preferred political party supports it	Political affiliation - My views about e-voting depend on what my political party prefers
Political affiliation - I think my political party would support e-voting	1,00		
Political affiliation - I would use e-voting if my preferred political party supports it	0,44	1,00	
Political affiliation - My views about e-voting depend on what my political party prefers	0,22	0,53	1,00

Table 32: Factor analysis: Correlation matrix - Political affiliation

5.3.3.12 Factor analysis: Correlation matrix - Intention to use

	Intention to use - I would use e-voting for elections should it become available	Intention to use - I would use e-voting provided over the Web	Intention to use - Voting with e-voting is something that I would do	Intention to use - I would not hesitate to provide information to IEC for e-voting
Intention to use - I would use e-voting for elections should it become available	1,00			
Intention to use - I would use e-voting provided over the Web	0,84	1,00		
Intention to use - Voting with e-voting is something that I would do	0,87	0,86	1,00	
Intention to use - I would not hesitate to provide information to IEC for e-voting	0,55	0,55	0,61	1,00

Table 33: Factor analysis: Correlation matrix - Intention to use

5.3.4 Principal component analysis

Principal component analysis (PCA) can only be applied if Kaiser-Meyer-Olkin (KMO) is greater than 0.5 and the research dataset KMO is 0.940 as shown in Table 34; that makes it suitably to apply PCA (Pechenizkiy, Tsymbal, & Puuronen, 2004).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.940
Bartlett's Test of Sphericity	Approx. Chi-Square	13242.917
	Df	903
	Sig.	.000

Table 34: KMO and Bartlett's Test

PCA is an extraction technique; it is on extracting axes on which data shows the highest variability. PCA was applied using Varimex rotation and factors account for 66.47% of variance (Pechenizkiy, Tsymbal, & Puuronen, 2004).

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.205	37.686	37.686	16.205	37.686	37.686	11.587	26.945	26.945
2	4.235	9.848	47.534	4.235	9.848	47.534	4.072	9.470	36.416
3	2.234	5.195	52.728	2.234	5.195	52.728	3.648	8.483	44.899
4	1.730	4.024	56.752	1.730	4.024	56.752	2.975	6.919	51.818
5	1.659	3.857	60.609	1.659	3.857	60.609	2.841	6.606	58.424
6	1.344	3.126	63.735	1.344	3.126	63.735	1.795	4.175	62.599
7	1.177	2.738	66.473	1.177	2.738	66.473	1.666	3.874	66.473
8	.980	2.279	68.752						
9	.894	2.079	70.831						
10	.851	1.979	72.810						
11	.836	1.943	74.753						
12	.723	1.681	76.434						
13	.669	1.555	77.990						
14	.613	1.426	79.416						
15	.594	1.381	80.796						
16	.580	1.349	82.146						
17	.565	1.315	83.461						
18	.521	1.211	84.672						
19	.491	1.141	85.813						
20	.466	1.084	86.898						
21	.424	.985	87.883						
22	.416	.967	88.850						
23	.384	.893	89.743						
24	.378	.879	90.622						
25	.349	.812	91.435						
26	.329	.765	92.200						

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
27	.320	.744	92.943						
28	.298	.693	93.636						
29	.289	.672	94.308						
30	.256	.594	94.902						
31	.251	.584	95.487						
32	.231	.538	96.025						
33	.229	.533	96.557						
34	.210	.489	97.046						
35	.190	.441	97.487						
36	.177	.410	97.898						
37	.172	.400	98.298						
38	.153	.357	98.654						
39	.144	.336	98.990						
40	.125	.290	99.280						
41	.120	.279	99.559						
42	.099	.230	99.789						
43	.091	.211	100.000						
Extraction Method: Principal Component Analysis.									

Table 35: Total Variance Explained

5.4 Descriptive analysis

Variable	Mean	Median	Mode	Frequency of mode	Std. Dev.	Skewness	Kurtosis
Trust of the Internet - The internet has enough safety measure to make me feel comfortable using e-voting for elections	3,33	4,00	4,00	182,00	1,17	-0,55	-0,70

Variable	Mean	Median	Mode	Frequency of mode	Std. Dev.	Skewness	Kurtosis
Trust of the Internet - I feel assured that the internet technology adequately protect me from potential problems associated with e-voting for elections	3,32	4,00	4,00	202,00	1,11	-0,59	-0,66
Trust of the Internet - In general, the internet is now a reliable and safe environment to use e-voting for elections	3,34	4,00	4,00	193,00	1,12	-0,62	-0,52
Trust of the government - I trust the Independent Electoral Commission (IEC) to manage e-voting for elections freely and fairly	3,09	3,00	4,00	167,00	1,15	-0,38	-0,93
Trust of the government - I trust the national government to administer e-voting for elections freely and fairly	2,86	3,00	4,00	125,00	1,19	-0,03	-1,09
Trust of the government - I trust the local government to administer e-voting for elections freely and fairly	2,91	3,00	4,00	139,00	1,14	-0,14	-1,06
Technology stickiness - I am likely to accept and stick to e-voting for the next elections should it be available	3,79	4,00	4,00	203,00	1,09	-1,09	0,66
Technology stickiness - The Covid-19 pandemic has increased my likelihood to use a technology such as e-voting	4,01	4,00	4,00	195,00	1,03	-1,30	1,36
Technology stickiness - My general exposure to using the internet in the past has made me likely to use e-voting for elections	3,78	4,00	4,00	194,00	1,09	-0,94	0,23

Variable	Mean	Median	Mode	Frequency of mode	Std. Dev.	Skewness	Kurtosis
Access to ICT - I will take part in e-voting if the facilities are provided	4,07	4,00	5,00	170,00	1,05	-1,24	1,03
Access to ICT - I have access to the technology necessary to take part in e-voting such as an internet enabled mobile phone	4,42	5,00	5,00	221,00	0,80	-1,96	5,20
Access to ICT - I have access to reliable internet to enable my participation in e-voting	4,41	5,00	5,00	217,00	0,75	-1,59	3,46
Access to ICT - Using mobile device to access e-voting services would not be expensive to me	4,19	4,00	5,00	186,00	0,98	-1,46	1,96
Skills in ICT - I can easily use mobile device to process my vote using e-voting for elections	4,40	5,00	5,00	210,00	0,74	-1,67	4,52
Skills in ICT - I have no problem using the Internet by myself to get to e-voting for elections	4,36	5,00	5,00	215,00	0,87	-1,91	4,52
Skills in ICT - I do not need someone to explain how to use e-voting to me	4,06	4,00	5,00	185,00	1,09	-1,07	0,16
Skills in ICT - My friends and family will come to me for advice concerning the use of e-voting for elections	3,85	4,00	4,00	166,00	0,94	-0,54	-0,25
Attitude towards ICT - I would like to use e-voting for elections	3,77	4,00	4,00	188,00	1,14	-1,05	0,45
Attitude towards ICT - It is preference for me to use e-voting for elections	3,71	4,00	4,00	179,00	1,17	-0,94	0,12
Attitude towards ICT - I am willing to learn how to use e-voting for elections	4,15	4,00	4,00	203,00	0,89	-1,45	2,62
Perceived Utility of ICT - Using e-voting would enable me to	3,83	4,00	4,00	199,00	0,95	-0,85	0,57

Variable	Mean	Median	Mode	Frequency of mode	Std. Dev.	Skewness	Kurtosis
interact with the IEC anytime not limited to regular business hours							
Perceived Utility of ICT - Using e-voting would enable me to process my voting more quickly	4,16	4,00	4,00	232,00	0,78	-1,36	3,31
Perceived Utility of ICT - The benefits of using e-voting are clear to me	3,78	4,00	4,00	207,00	0,99	-0,93	0,59
Perceived Utility of ICT - Using e-voting could cut travelling expenses	4,30	4,00	4,00	196,00	0,76	-1,47	3,61
Relative advantage - Using e-voting would enhance my efficiency in voting	3,96	4,00	4,00	205,00	0,93	-1,10	1,40
Relative advantage - Using e-voting would make it easier to vote	4,15	4,00	4,00	231,00	0,81	-1,41	3,04
Relative advantage - Using e-voting would give me greater control over voting	3,57	4,00	4,00	152,00	1,11	-0,59	-0,30
Image - Using e-voting would improve my social status	2,84	3,00	3,00	145,00	1,09	0,04	-0,63
Image - People who use e-voting have a high profile	2,60	3,00	3,00	153,00	1,03	0,27	-0,31
Image - People who use e-voting have higher status than those who do not	2,46	2,00	2,00	151,00	1,05	0,44	-0,34
Compatibility - I think using e-voting would fit well with the way that I like to gather information from IEC	3,60	4,00	4,00	212,00	0,92	-0,75	0,40
Compatibility - I think using e-voting would fit well with the way that I like to contact IEC	3,56	4,00	4,00	194,00	0,96	-0,68	0,27
Compatibility - Using e-voting to vote would fit into my lifestyle	3,89	4,00	4,00	224,00	0,92	-1,12	1,47

Variable	Mean	Median	Mode	Frequency of mode	Std. Dev.	Skewness	Kurtosis
Complexity - Learning to interact with e-voting would be easy for me	4,19	4,00	4,00	246,00	0,73	-1,45	4,59
Complexity - I believe processing my vote with e-voting would be a clear and understandable process	4,00	4,00	4,00	243,00	0,85	-1,34	2,77
Complexity - It would be easy for me to become skilful at using e-voting	4,10	4,00	4,00	245,00	0,78	-1,33	3,20
Political affiliation - I think my political party would support e-voting	3,67	4,00	4,00	196,00	0,86	-0,58	0,55
Political affiliation - I would use e-voting if my preferred political party supports it	3,42	4,00	4,00	163,00	1,08	-0,54	-0,30
Political affiliation - My views about e-voting depend on what my political party prefers	2,53	2,00	2,00	125,00	1,23	0,32	-1,07
Intention to use - I would use e-voting for elections should it become available	4,04	4,00	4,00	185,00	1,02	-1,36	1,71
Intention to use - I would use e-voting provided over the Web	3,93	4,00	4,00	206,00	1,04	-1,27	1,39
Intention to use - Voting with e-voting is something that I would do	4,02	4,00	4,00	195,00	1,03	-1,34	1,55
Intention to use - I would not hesitate to provide information to IEC for e-voting	3,56	4,00	4,00	171,00	1,13	-0,66	-0,31

Table 36: Descriptive analysis

6 FINDINGS DISCUSSIONS

This chapter is used to discuss findings; this includes conceptual model testing, hypothesis results and discussion of results per model construct. The aim of the study is to investigate factors that influence the intention of young people to adopt e-voting

in South Africa. The research question was; what factors influence the intentions of young South Africans to adopt e-voting? The discussion chapter is used to assess if these factors can influence young South Africans to participate in elections.

6.1 Conceptual model testing

6.1.1 Developed conceptual model

The conceptual model below was proposed; the model was tested using the Structural Equation Modelling (SEM) for strength of constructs. The image construct highlighted was dropped as it did not converge in SEM analysis; this is discussed in the conceptual model strength testing.

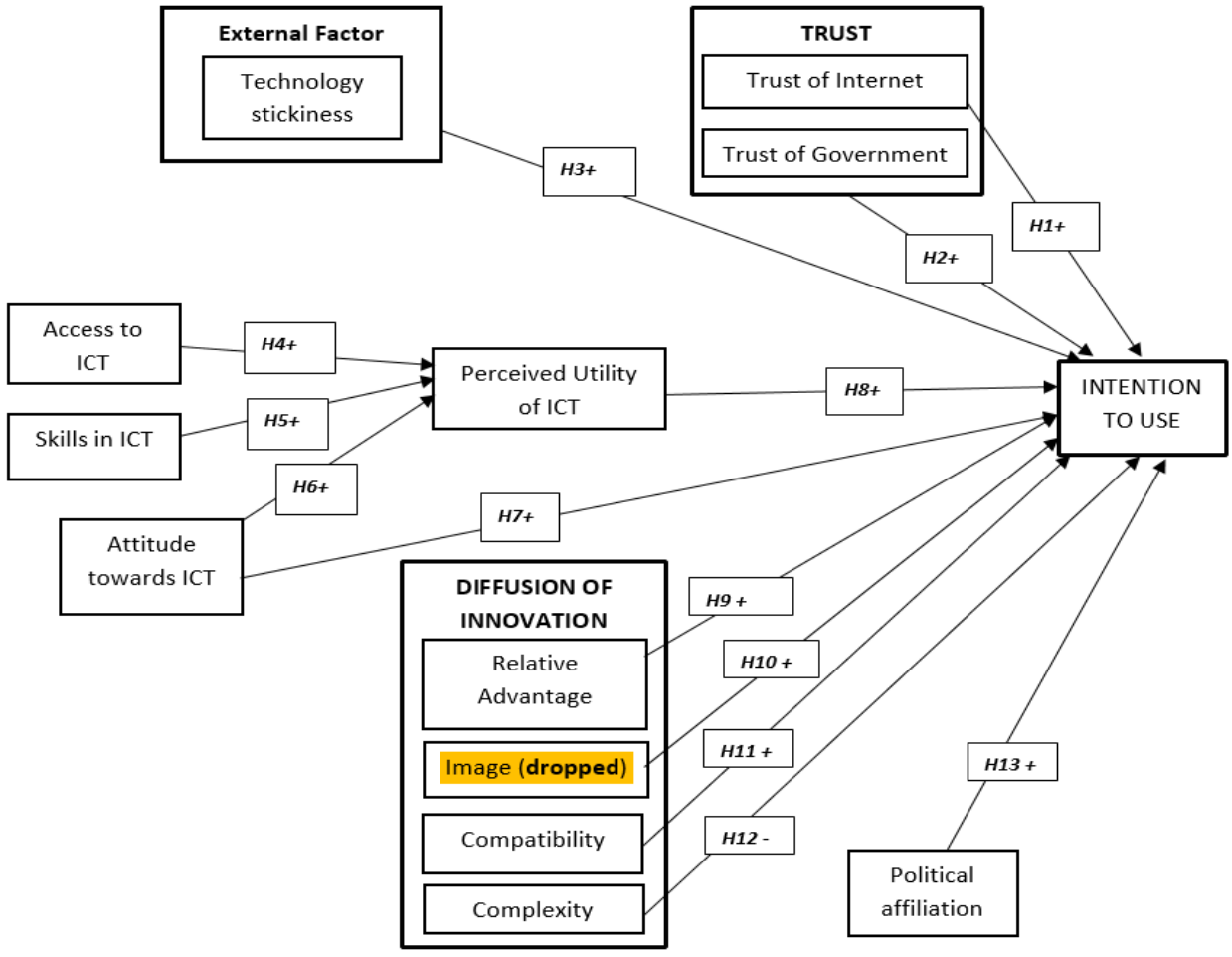

Figure 17: Developed conceptual model

6.1.2 Conceptual model strength testing

SEM using SmartPLS was used to test the strength of the proposed conceptual model. The image construct did not converge in SEM analysis and the construct was dropped. Different issues might cause a construct not to converge, including; the non-existence of estimates, numerical difficulties where there might be a maximum likelihood of estimates, Poisson regression exists but it is difficult to identify numeric difficulties and workaround where maximum likelihood estimate exists but convergence is not achieved (Silva & Tenreyro, 2011). The following are the results from SEM that were used to test the strength of the model; these results, together with Cronbach Alpha results, were used to decide on the new proposed model. For a detailed SEM analysis see appendix 9.6 Structural Equation Modelling diagram

Absolute Fit Indexes	Acceptable Value	Model-A (with political affiliation)	Model-B (without political affiliation)	Outcome
Goodness of Fit Index (GFI)	>0.9	0.868	0.865	Slightly below acceptable value but permissible
Adjusted Goodness of Fit Index (AGFI)	>0.9	0.865	0.823	Slightly below acceptable range but permissible
Root mean squared error of approximation (RSMEA)	0.5<RSME<0.8	0.508	0.468	Acceptable
Standardised Root Mean Squared Residual (SRMR)	<=0.5	0.338	0.353	Acceptable
Normed-fit Index (NFI)	>0.9	0.874	0.832	Slightly below acceptable range, but permissible
Tucker-Lewis index (TLI)	>0.9	0.873	0.880	Slightly below acceptable range
Comparative Fit Index (CFI)	>0.9	0.895	0.874	Slightly below acceptable range
Chi-Square test	>0.05	0.000	0.000	

Table 37: Structural Equation Modelling analysis

6.1.3 New proposed conceptual model

The following is the proposed conceptual framework. Image construct is dropped in the new proposed model. Coefficient and P-value were included to indicate the strength between constructs:

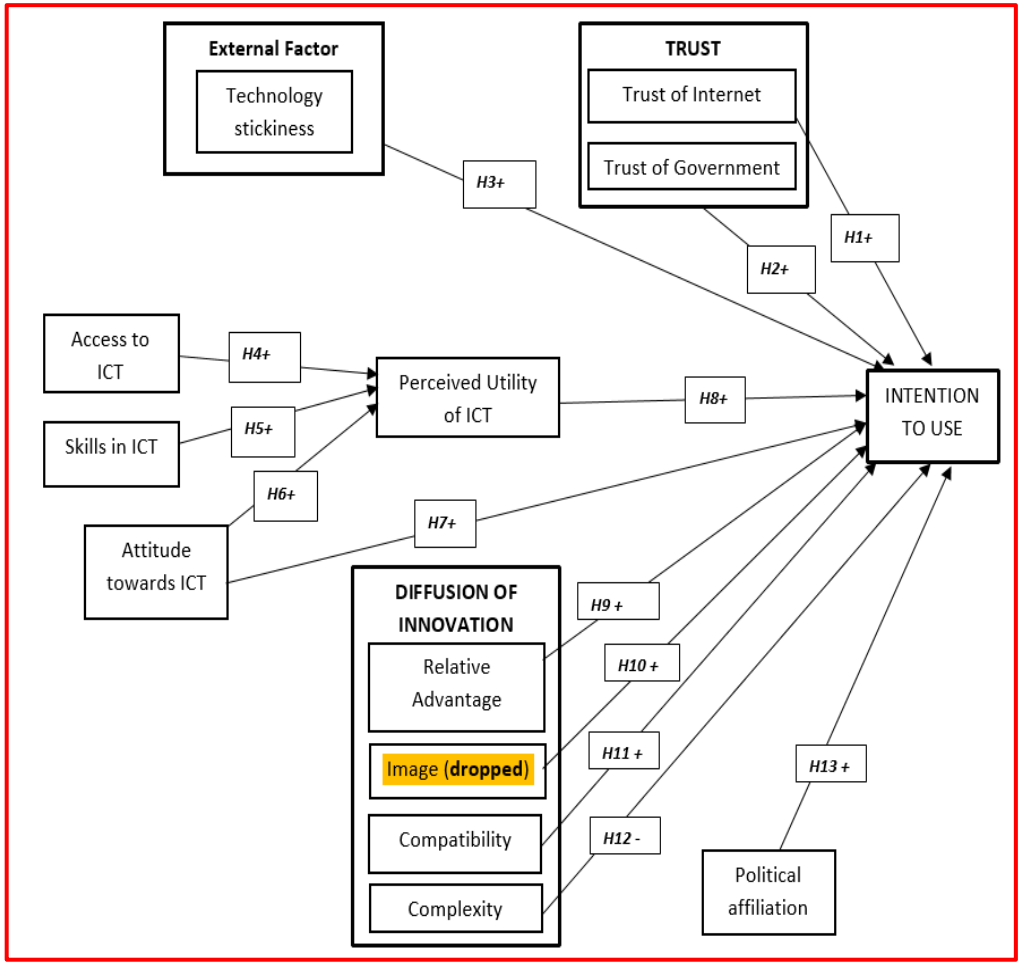

Figure 18: Proposed conceptual framework

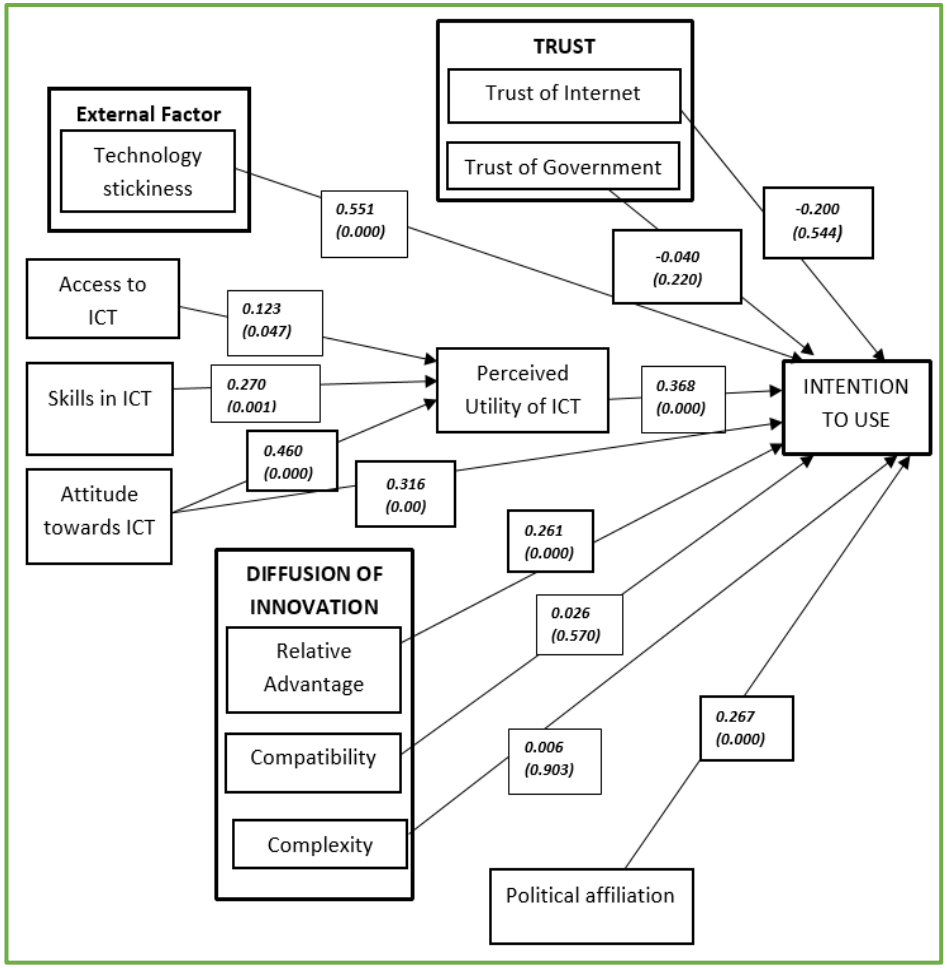

Figure 19: New proposed conceptual framework (No Image)

6.2 Hypothesis testing

Below, thirteen hypotheses were proposed; the P-Value was used to determine whether to support or not to support the hypotheses; some literature says the P-Value can be misleading in testing hypothesis; for this reason, Standard Error and Coefficient was also used which confirmed the hypothesis. P-Value < 0.05 is considered significant to support hypothesis, this is with a 95% confidence level. Standard error multiplied by two should be less than the coefficient to be considered significant to support see appendix 9.5 Structural Equation Modelling analysis results (Berger & Sellke, 1987; Harrison, et al., 2020).

6.2.1 Hypotheses discussion

Proposed thirteen hypotheses:

No	Independent variable	Dependent variable	P-Value	Hypothesis	Results
H1	Trust of the internet	Intention to use	0.196	Trust of the internet positively influences the intention to use	**Not supported**
H2	Trust of the government	Intention to use	0.169	Trust of the government positively influences the intention to use	**Not supported**
H3	Technology stickiness	Intention to use	0.000	Technology stickiness positively influences the intention to use	**Supported**
H4	Access to ICT	Perceived Utility of ICT	0.039	Access to ICT positively influences Perceived Utility of ICT	**Supported**
H5	Skills in ICT	Perceived Utility of ICT	0.001	Skills in ICT positively influences Perceived Utility of ICT	**Supported**
H6	Attitude towards ICT	Perceived Utility of ICT	0.000	Attitude towards ICT positively influences Perceived Utility of ICT	**Supported**
H7	Attitude towards ICT	Intention to use	0.000	Attitude towards ICT positively influences the intention to use e-voting	**Supported**

No	Independent variable	Dependent variable	P-Value	Hypothesis	Results
H8	Perceived Utility of e-voting	Intention to use	0.61	Perceived Utility of e-voting positively influences the intention to use e-voting	**Not supported**
H9	Relative advantage	Intention to use	0.00	Relative advantage positively influences the intention to use e-voting	**Supported**
H10	Image	Intention to use	-	Image positively influences the intention to use e-voting	No results
H11	Compatibility	Intention to use	0.908	Compatibility positively influences the intention to use e-voting	**Not supported**
H12	Complexity	Intention to use	0.413	Complexity negatively influences the intention to use e-voting	**Not supported**
H13	Political affiliation	Intention to use	0.00	Political affiliation positively influences the intention to use e-voting	**Supported**

Table 38: Hypotheses results summary

6.3 Discussion

Even though there are arguments about whether there is a decline in election participation or not, it has been proven that there is a decline in youth participation in elections. The literature shows that youth engage in political discussions, but they do not participate in elections.

The aim of this research paper was to investigate the factors that influence the intention of youth to adopt e-voting in South Africa. These factors were proposed in the research conceptual model. The model has 13 Constructs and thirteen hypotheses were proposed; seven of the proposed hypotheses were supported and five were not supported; one of the hypotheses did not return results as it did not converge in SEM analysis.

6.3.1 Factors with supported hypothesis

As discussed, seven constructs were supported; the Covid-19 pandemic forced people to work and study from home using technological tools, this contributed to

respondents' desire to stick to technological tools even for e-voting. This also enabled people to get access to ICT. Internet usage increased because of Covid-19. The support for technology stickiness and access to ICT will contribute in ensuring that more South African youth participate in elections (African News Agency/ANA, 2020; Forbes, 2020).

Ninety-two percent of the respondents indicated that they have skills to use electronic devices to process their votes using e-voting and they also indicated that they do not have a problem using electronic devices to process the vote. Seventy-seven percent indicated that they do not need someone to explain how to use e-voting. To help improve skills in ICT, workshops can be conducted targeting individuals who lack ICT skills. This will ensure that no one is disadvantaged because they lack ICT skills. The support for Skills in ICT is an important factor in ensuring that the youth can process their votes (Špur, et al., 2020).

Seventy-two percent of the respondents indicated that they would like to use e-voting and eighty-six percent indicated that they are willing to learn how to use e-voting. Individual attitude plays a big role in ICT adoption; this will help improve youth participation in elections (Okediran, Oyediran, Sijuade, & Wahab, 2020).

Seventy-eight percent of respondents believe that e-voting will enhance efficiency in voting and eighty-nine percent believe that e-voting would make it easy to vote. Relative advantage is considered a critical factor in the implementation of e-voting. The support of this construct is an important factor as it will give voters relative advantage and increase the number of youth voters (Sensuse, Pratama, & Riswanto, 2020).The following are the hypotheses that were supported:

No	Independent variable	Dependent variable	Hypothesis	Results
H3	Technology stickiness	Intention to use	Technology stickiness positively influences the intention to use	**Supported**
H4	Access to ICT	Perceived Utility of e-voting	Access to ICT positively influences the Perceived Utility of e-voting	**Supported**
H5	Skills in ICT	Perceived Utility of e-voting	Skills in ICT positively influences the Perceived Utility of e-voting	**Supported**

No	Independent variable	Dependent variable	Hypothesis	Results
H6	Attitude towards ICT	Perceived Utility of e-voting	Attitude towards ICT positively influences the Perceived Utility of e-voting	**Supported**
H7	Attitude towards ICT	Intention to use	Attitude towards ICT positively influences the intention to use e-voting	**Supported**
H9	Relative advantage	Intention to use	Relative advantage positively influences the intention to use e-voting	**Supported**
H13	Political affiliation	Intention to use	Political affiliation positively influences the intention to use e-voting	**Supported**

Table 39: Factor with supported hypothesis

6.3.2 Factors with hypothesis not supported

Five hypotheses were not supported:

Trust of the internet and government were both not supported; this is a concern as the lack of trust can influence youth not to use e-voting for elections. Issues of trust can be addressed by ensuring that the system used has adequate security measures that can issue audit reports and ensure that the system is protected against any possible attack and manipulation (Avgerou, Masiero, & Poulymenakou, 2019). To address the issue of trust, the government should engage voters on the privacy and authenticity of the e-voting system. These issues must be addressed and awareness must be made to show people and encourage them that these issues are addressed and taken seriously (Lubis, Kartiwi, & Durachman, 2017).

With perceived utility of ICT; eighty-nine percent of respondents acknowledged that e-voting would enable them to process their votes quickly and seventy-two percent of respondents indicated that e-voting would be beneficial to them. These are positive factors that the IEC must ensure that the systems implemented for e-voting limit time spent when voting and there are benefits for using e-voting.

Compatibility plays an important role in ensuring that system users are satisfied and this improves system usage. It was shown that compatibility positively influences user

satisfaction and system usage (Isaac, Aldholay, Abdullah, & Ramayah, 2019). Compatibility hypothesis was not supported but there were positives from the data collected; seventy-seven percent of respondents indicated that e-voting would fit with their lifestyle. This is a positive as it shows that e-voting will fit with the lifestyle of respondents and this can lead to more youth voting. The same applies to complexity, the hypothesis was not supported but ninety-one percent of respondents indicated that learning to interact with e-voting will be easy and eighty-four percent of respondents believe that processing a vote through e-voting will be easy and understandable for them. The e-voting system should be compatible and not complex; this will ensure youth participation.

The following are hypotheses that were not supported:

No	Independent variable	Dependent variable	Hypothesis	Results
H1	Trust of the internet	Intention to use	Trust of the internet positively influences the intention to use	**Not supported**
H2	Trust of the government	Intention to use	Trust of the government positively influences the intention to use	**Not supported**
H8	Perceived Utility of e-voting	Intention to use	Perceived Utility of e-voting positively influences the intention to use e-voting	**Not supported**
H11	Compatibility	Intention to use	Compatibility positively influences the intention to use e-voting	**Not supported**
H12	Complexity	Intention to use	Complexity negatively influences the intention to use e-voting	**Not supported**

Table 40: Factor with hypothesis not supported

6.3.3 Factors with no hypothesis results

One hypothesis relating to image did not converge to SEM analysis and did not give results. This resulted in the construct being dropped from the final research model.

No	Independent variable	Dependent variable	Hypothesis	Results
H11	Image	Intention to use	Image positively influences the intention to use e-voting	No results

Table 41: Factors with no hypothesis results

7 CONCLUSION

The research paper aimed to investigate factors that influence the intention of youth to adopt e-voting in South Africa and the paper also aimed to investigate how South African youth perceive e-voting.

The deductive approach with a conceptual model was used; constructs were adopted from TAM, TPB, DOI and they were extended with technology stickiness and political affiliation. An online questionnaire was used to collect data from South African youth (18-35); 412 participants had valid responses and they were analysed. Cronbach Alpha was used to test constructs strength; SEM was used to test the strength of relationship between model construct. P-value and coefficient was used to test hypotheses.

Thirteen factors were identified as factors that influence youth to adopt e-voting; some of these factors still need the IEC to work on them to ensure youth participation; i.e. the issue of trust of the government and trust of the internet; on trust of government it is important to ensure that the IEC is totally independent from government and any political party, this will improve trust as the IEC cannot be influenced. On the trust of the internet side, the system must be secure from manipulation, fraud and cheating. Concerns raised with regards to e-voting can be addressed by ensuring that the e-voting system is secure, compatible and not complex for users; this will help to improve voting numbers (Alvarez, Levin, & Li, 2018). Seven hypotheses were supported; four of them positively influence intention to use e-voting which are technology stickiness, attitude towards ICT, relative advantage and political affiliation; and three of them positively influence perceived utility of e-voting which are access to ICT, skills in ICT, and attitude towards ICT. Perceived utility of e-voting has an impact on intention to use e-voting.

The perception of South African youth on e-voting is positive; this is based on data collected from access to ICT, skills in ICT and attitude towards ICT. These three factors influence the perceptions of voters. Ninety-three percent of participants indicated that they have access to ICT; as identified in literature, there is an increase in ICT to ICT including access to internet. Ninety-one percent of participants indicated that they do not have a problem using electronic devices to process e-voting should it

become available. On attitude towards ICT, seventy-two percent indicated they will use e-voting should it become available and eighty-six percent is willing to learn how to use the e-voting system.

Eighty-one percent of respondents agree that they will use e-voting should it become available, one of the research questions is whether e-voting can improve youth participation in elections. The response from participants supports the question; therefore, e-voting can improve youth participation in elections.

7.1 Research contribution

The research is providing new data that was collected with information regarding youth non-participation in elections and the adoption of e-voting as a means of influencing youth participation in elections; the research contributes towards comparative research on youth engagement in elections. The research also contribute conceptual framework that can be used in e-voting and e-governance research.

7.2 Research limitations

Initially, mixed methods for data collection was going to be used, this was going to include youth focus groups and get views from political parties. This could not happen due to the Covid-19 lockdown restrictions in South Africa. This limited the research as only online questionnaires could be collected in the context of South Africa. The results were also not well spread in South African provinces as some provinces had less than 10 respondents i.e. North West with eight and Limpopo with nine; Northern Cape and Mpumalanga had eleven. This makes it difficult to generalise for the South African context in its entirety.

7.3 Future research

This research can be extended to all age groups eligible to vote in South Africa, beyond the youth category (18-35 year olds). This would ensure that the views are collected from all age groups, thereby, ensuring the participation of all South Africans of all age groups. The qualitative data can also be collected to ensure that multiple

realities are covered; this includes interviews with political parties and focus groups with South African youth.

Future research could also include how best to implement the e-voting system in South Africa, ensuring that these factors are considered to get assurance that the system will be trusted and user friendly. This will ensure that the system will improve voter numbers. The recent controversies regarding the 2020 US general elections, where e-voting was implemented but later disputed by some of the major parties, serves to highlight the importance of studying e-voting further.

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9 APPENDICES

9.1 Ethics approval

Faculty of Commerce
Private Bag X3, Rondebosch, 7701
2.26 Leslie Commerce Building, Upper Campus
Tel: +27 (0) 21 650 4375/ 5748 Fax: +27 (0) 21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Internet: www.uct.ac.za
@Commerce UCT **UCT Commerce Faculty Office**

08/06/2020

Tankiso Moletsane

Department of Information Systems

University of Cape Town

REF: REC 2020/06/003

Factors Influencing the Intention of Youth to Adopt Electronic Voting in South Africa

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 30-Jun-2021 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

2020.06.08
15:10:29 +02'00'

Jacques Rousseau
Commerce Research Ethics Chair
University of Cape Town
Commerce Faculty Office
Room 2.26 | Leslie Commerce Building

Office Telephone: +27 (0)21 650 2695 / 4375
Office Fax: +27 (0)21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Website: https://www.commerce.uct.ac.za/Pages/Ethics-in-Research

"Our Mission is to be an outstanding teaching and research university, educating for life and addressing the challenges facing our society."

9.2 **Ethics application and approval**

	RESEARCH ACCESS TO STUDENTS	DSA 100

NOTES

1. This form must be **FULLY** completed by all applicants who want to access UCT students for the purpose of research or surveys.
2. Return the fully completed **(a) DSA 100** application form **by email,** in **the same word format,** together with **your: (b) research proposal inclusive of your survey, (c) copy of your ethics approval letter / proof (d) informed consent letter** to: Moonira.Khan@uct.ac.za. Cc: Nadierah.Pienaar@uct.ac.za. You application will be attended to by the Executive Director, Department of Student Affairs (DSA), UCT.
3. The turnaround time for a reply is **approximately 10 working days.**
4. NB: It is the responsibility of the researcher/s to apply for and to obtain **ethics approval and to comply with amendments that may be requested;** as well as **to obtain** approval to access UCT staff and/or UCT students, from the following, at UCT, respectively: (a) **Ethics:** Chairperson, Faculty Research Ethics Committee' (FREC) for ethics approval, (b) **Staff access:** Executive Director: HR for approval to access UCT staff, and (c) **Student access:** Executive Director: Student Affairs for approval to access UCT students.
5. **Note:** UCT Senate Research Protocols requires compliance to the above, **even if prior approval has been obtained from any other institution/agency. UCT's research protocol requirements applies to *all* persons, institutions and agencies from UCT and external to UCT who want to conduct research on human subjects for academic, marketing or service related reasons at UCT.**
6. **Should approval be granted to access UCT students for this research study, such approval is effective for a period of one year from the date of approval (as stated in Section D of this form), and the approval expires automatically on the last day.**
7. **The approving authority reserves the right to revoke an approval based on reasonable grounds and/or new information.**

SECTION A: RESEARCH APPLICANT/S DETAILS

Position	Staff / Student No	Title and Name	Contact Details (Email / Cell / land line)
A.1 Student Number	MLTTAN004	Mr. Tankiso Moletsane	MLTTAN004@myuct.ac.za / 072 594 9550
A.2 Academic / PASS Staff No.			
A.3 Visitor/ Researcher ID No.			
A.4 University at which a student or employee	UCT	Address if *not* UCT:	
A.5 Faculty/ Department/School	Department of Information Systems, Faculty of Commerce		
A.6 APPLICANTS DETAILS If different from above	Title and Name	Tel.	Email

SECTION B: RESEARCHER/S SUPERVISOR/S DETAILS

Position	Title and Name	Tel.	Email
B.1 Supervisor	Mr. Pitso Tsibolane	021 650 1524	pitso.tsibolane@uct.ac.za
B.2 Co-Supervisor/s			

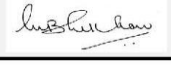
SECTION C: APPLICANT'S RESEARCH STUDY FIELD AND APPROVAL STATUS

C.1 Degree – if applicable	MCOM in Information Systems
C.2 Research Project Title	Factors Influencing the Intention of Youth to Adopt Electronic Voting in South Africa
C.3 Research Proposal	Attached: Yes ■ No ☐
C.4 Target population	UCT South African youth between the ages of 18 - 35
C.5 Lead Researcher details	If different from applicant:
C6. Will use research assistant/s	Yes ☐ No ■ If yes- provide a list of names, contact details :
C.7 Research Methodology and Informed consent	**Research methodology:** Quantitative via Online questionnaire **Informed consent:** Yes, advised with online questionnaire.
C.8 Ethics clearance status from UCT's Faculty Ethics in Research Committee /Chair (EiRC)	Approved by the UCT EiRC: Yes ■ With amendments: Yes ☐ No ■ (a) Attach copy of your UCT ethics approval. Attached: Yes ■ No ☐ (b) State date / Ref. No / Faculty of your UCT ethics approval: 8/06/2020 Ref. / Faculty: REC 2020/06/003

SECTION D: APPLICANT/S APPROVAL STATUS FOR ACCESS TO STUDENTS FOR RESEARCH PURPOSE

(To be completed by the UCT - ED, DSA or Nominee)

	Approved / With Terms / Not	* Conditional approval with terms	Applicant/s Ref. No.:
D.1 APPROVAL STATUS	(i) Approved ■ ~~(ii) With terms~~ ~~(iii) Not approved~~	a) Access to students for this research study must only be undertaken after written ethics approval has been obtained. *b)* In event any ethics conditions are attached, these must be complied with before access to students.	MLTTAN004 / Mr Tankiso Moletsane

	Designation	Name	Signature	Date of Approval
D.2 APPROVED BY:	Executive Director Department of Student Affairs	*Dr Moonira Khan*		*14 July 2020*

9.3 **Consent application to organisations**

Department of Information Systems
Leslie Commerce Building
Engineering Mall, Upper Campus
OR
Private Bag X3 - Rondebosch - 7701
Tel: +27 (0) 21 650 2261 **Fax: +27 (0) 21650 2280**
Internet: http://www.commerce.uct.ac.za/informationsystems/

08 June 2020

Request to conduct research and interview participation consent form

Dear Sir/Madam,

In terms of the requirements for completing Masters Degree in Information Systems at the University of Cape Town a research study is required.

The researcher, in this case Tankiso Moletsane, has chosen to conduct a focus group discussion entitled **Factors Influencing the Intention of Youth to Adopt Electronic Voting in South Africa**. The researcher would like to request permission to share an online questionnaire at your organization. The objective of the research is to understand investigate factors that influence young people to adopt electronic voting.

We would like to inform you that the ethical aspect of the research ensures the preservation of the identity of the participants, the data collected will be used purely for academic purposes. All personal details will be treated with the highest form of confidentiality. Please note that participation in this research is voluntary and participants can opt out of the study at any time.

The data collection method will be group discussion with a small group of youth between the ages of 18-29. If you authorise this study to be undertaken at your organization, please kindly sign the attached form and return to me at your earliest convenience.

Should you have any questions regarding this research, please feel free to contact me on 072 594 9550 or email: MLTTAN004@myuct.ac.za

Your organization's participation in this study would be greatly appreciated.

Sincerely,

Tankiso Moletsane
Researcher \ M.Com Student, (UCT)
Department of Information Systems
University of Cape Town
Email: MLTTAN004@myuct.ac.za

Supervisor: Pitso Tsibolane
Research Supervisor
Department of Information Systems
University of Cape Town
Email: pitso.tsibolane@uct.ac.za

Management Consent

I, _____, give the researcher of this study consent to conduct their study in the following organization:

_____

I am aware that participation is voluntary and that respondents may choose to withdraw from this study at any time, should they choose to do so.

_____ _____

Signature Date

9.4 Research instrument

Construct	Question	Options
Demographic	This questionnaire is for South African youth between the ages of 18-35. By clicking agree, you agree that you are a South African and to voluntarily participate. All information will be treated in a confidential manner and used exclusively for the purpose of this study. No individual names will be recorded or published. You can choose to withdraw from the research at any time for whatever reason. Or if you disagree, you can end the survey now *	Agree; Disagree
	Age	18-20; 21-25; 26-30; 31-35
	Gender	Male; Female; Prefer not to disclose
	Province	South African provinces
	Access to device with internet	Yes, I own a device; Yes, I have access through friend or family member; No access to device with internet
	Qualification level	Grade 9 or less; Grade 10-12; Diploma; Degree; Postgraduate degree
	Employment status	Employed Self-employed Out of work and looking for work Out of work but not currently looking for work A homemaker A student Military Retired

Construct	Question	Options
		Unable to work
	What is your marital status?	Single, never married Married or domestic partnership Widowed Divorced Separated
	Which political party do you support?	ANC; DA; EFF; IFP; VF Plus; Other Prefer not to disclose
Trust of the internet (Belanger & Carter, 2008; Karavasilis, Zafiropoulos, & Vrana, 2010; Lallmahomed, Lallmahomed, & Lallmahomed, 2017)	The internet has enough safety measure to make me feel comfortable using e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
	I feel assured that the internet technology adequately protect me from potential problems associated with e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
	In general, the internet is now a reliable and safe environment to use e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
Trust of the government (Belanger & Carter, 2008; Karavasilis, Zafiropoulos, & Vrana, 2010; Lallmahomed, Lallmahomed, & Lallmahomed, 2017)	I trust the Independent Electoral Commission (IEC) to manage e-Voting for elections freely and fairly	5 Likert scale; Strongly disagree to Strongly agree
	I trust the national government to administer e-Voting for elections freely and fairly	5 Likert scale; Strongly disagree to Strongly agree
	I trust the local government to administer e-Voting for elections freely and fairly	5 Likert scale; Strongly disagree to Strongly agree
Technology stickiness (Lin, 2007)	I am likely to accept and stick to e-Voting for the next elections should it be available	5 Likert scale; Strongly disagree to Strongly agree
	The Covid-19 pandemic has increased my likelihood to use a technology such as e-Voting	5 Likert scale; Strongly disagree to Strongly agree
	My general exposure to using the internet in the past has made me likely to use e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree

Construct	Question	Options
Access to ICT (Ochara & Mawela, 2015)	I will take part in e-Voting if the facilities are provided	5 Likert scale; Strongly disagree to Strongly agree
	I have access to the technology necessary to take part in e-Voting such as an internet enabled mobile phone	5 Likert scale; Strongly disagree to Strongly agree
	I have access to reliable internet to enable my participation in e-Voting	5 Likert scale; Strongly disagree to Strongly agree
	Using mobile device to access e-Voting services would not be expensive to me	5 Likert scale; Strongly disagree to Strongly agree
Skills in ICT (Ochara & Mawela, 2015)	I can easily use mobile device to process my vote using e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
	I have no problem using the Internet by myself to get to e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
	I do not need someone to explain how to use e-Voting to me	5 Likert scale; Strongly disagree to Strongly agree
	My friends and family will come to me for advice concerning the use of e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
Attitude towards ICT (Karavasilis, Zafiropoulos, & Vrana, 2010)	I would like to use e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
	It is preference for me to use e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
	I am willing to learn how to use e-Voting for elections	5 Likert scale; Strongly disagree to Strongly agree
Perceived Utility of ICT	Using e-Voting would enable me to interact with the IEC anytime not limited to regular business hours	5 Likert scale; Strongly disagree to Strongly agree

Construct	Question	Options
(Karavasilis, Zafiropoulos, & Vrana, 2010)	Using e-Voting would enable me to process my voting more quickly	5 Likert scale; Strongly disagree to Strongly agree
	The benefits of using e-Voting are clear to me	5 Likert scale; Strongly disagree to Strongly agree
	Using e-Voting could cut travelling expenses	5 Likert scale; Strongly disagree to Strongly agree
Relative advantage (Carter & Belanger, 2005; Ochara & Mawela, 2015)	Using e-Voting would enhance my efficiency in voting	5 Likert scale; Strongly disagree to Strongly agree
	Using e-Voting would make it easier to vote	5 Likert scale; Strongly disagree to Strongly agree
	Using e-Voting would give me greater control over voting	5 Likert scale; Strongly disagree to Strongly agree
Image (Carter & Belanger, 2005; Ochara & Mawela, 2015)	Using e-Voting would improve my social status	5 Likert scale; Strongly disagree to Strongly agree
	People who use e-Voting have a high profile	5 Likert scale; Strongly disagree to Strongly agree
	People who use e-Voting have higher status than those who do not	5 Likert scale; Strongly disagree to Strongly agree
Compatibility (Carter & Belanger, 2005; Karavasilis, Zafiropoulos, & Vrana, 2010)	I think using e-Voting would fit well with the way that I like to gather information from IEC	5 Likert scale; Strongly disagree to Strongly agree
	I think using e-Voting would fit well with the way that I like to contact IEC	5 Likert scale; Strongly disagree to Strongly agree
	Using e-Voting to vote would fit into my lifestyle	5 Likert scale; Strongly disagree to Strongly agree

Construct	Question	Options
Complexity (Carter & Belanger, 2005)	Learning to interact with e-Voting would be easy for me	5 Likert scale; Strongly disagree to Strongly agree
	I believe processing my vote with e-Voting would be a clear and understandable process	5 Likert scale; Strongly disagree to Strongly agree
	It would be easy for me to become skilful at using e-Voting	5 Likert scale; Strongly disagree to Strongly agree
Political affiliation (Choi & Kim, 2012) Intention to use (Belanger & Carter, 2008; Karavasilis, Zafiropoulos, & Vrana, 2010; Lallmahomed, Lallmahomed, & Lallmahomed, 2017)	I think my political party would support e-Voting	5 Likert scale; Strongly disagree to Strongly agree
	I would use e-Voting if my preferred political party supports it	5 Likert scale; Strongly disagree to Strongly agree
	My views about e-Voting depend on what my political party prefers	5 Likert scale; Strongly disagree to Strongly agree
Intention to use (Belanger & Carter, 2008; Karavasilis, Zafiropoulos, & Vrana, 2010; Lallmahomed, Lallmahomed, & Lallmahomed, 2017)	I would use e-Voting for elections should it become available	5 Likert scale; Strongly disagree to Strongly agree
	I would use e-Voting provided over the Web	5 Likert scale; Strongly disagree to Strongly agree
	Voting with e-Voting is something that I would do	5 Likert scale; Strongly disagree to Strongly agree
	I would not hesitate to provide information to IEC for e-Voting	5 Likert scale; Strongly disagree to Strongly agree
Trust of the government	a trustworthy institution to conduct and oversee e-voting?	Open ended
Technology stickiness	What do you think about the idea that pandemics such as Covid-19 make it more likely for people to consider using technology for important activities such as voting?	Open ended

Construct	Question	Options
Political affiliation	How does your political affiliation/support impact the way you view e-Voting?	Open ended
Intention to use	How eager are you to adopt e-Voting? What makes you feel this way?	Open ended

Table 42: Research instrument

9.5 Structural Equation Modelling analysis results

Hypothesis	Independent variable	Dependent variable	P>Z	Coefficient	Std. Error	Std. Err. X2
H1	Trust of the internet	Intention to use	0,1960	-0,0415	0,0321	0,0641
H2	Trust of the government	Intention to use	0,1690	-0,0428	0,0311	0,0623
H3	Technology stickiness	Intention to use	0,0000	0,4387	0,0541	0,1083
H4	Access to ICT	Perceived	0,0390	0,1319	0,0638	0,1277
H5	Skills in ICT	Perceived	0,0010	0,2888	0,0839	0,1678
H6	Attitude towards ICT	Perceived	0,0000	0,4387	0,0372	0,0744
H7	Attitude towards ICT	Intention to use	0,0000	0,3156	0,0552	0,1105
H8	Perceived utility of e-voting	Intention to use	0,5410	0,0492	0,0805	0,1609
H9	Relative advantage	Intention to use	0,0000	0,2561	0,0536	0,1071
H10	Image	Intention to use	*No results, did not converge*			
H11	Compatibility	Intention to use	0,9080	0,0052	0,0445	0,0890
H12	Complexity	Intention to use	0,4130	0,0428	0,0522	0,1045
H13	Political Affiliation	Intention to use	0,0000	0,2554	0,0723	0,1445

Table 43: Structural Equation Modelling analysis results

9.6 Structural Equation Modelling diagram

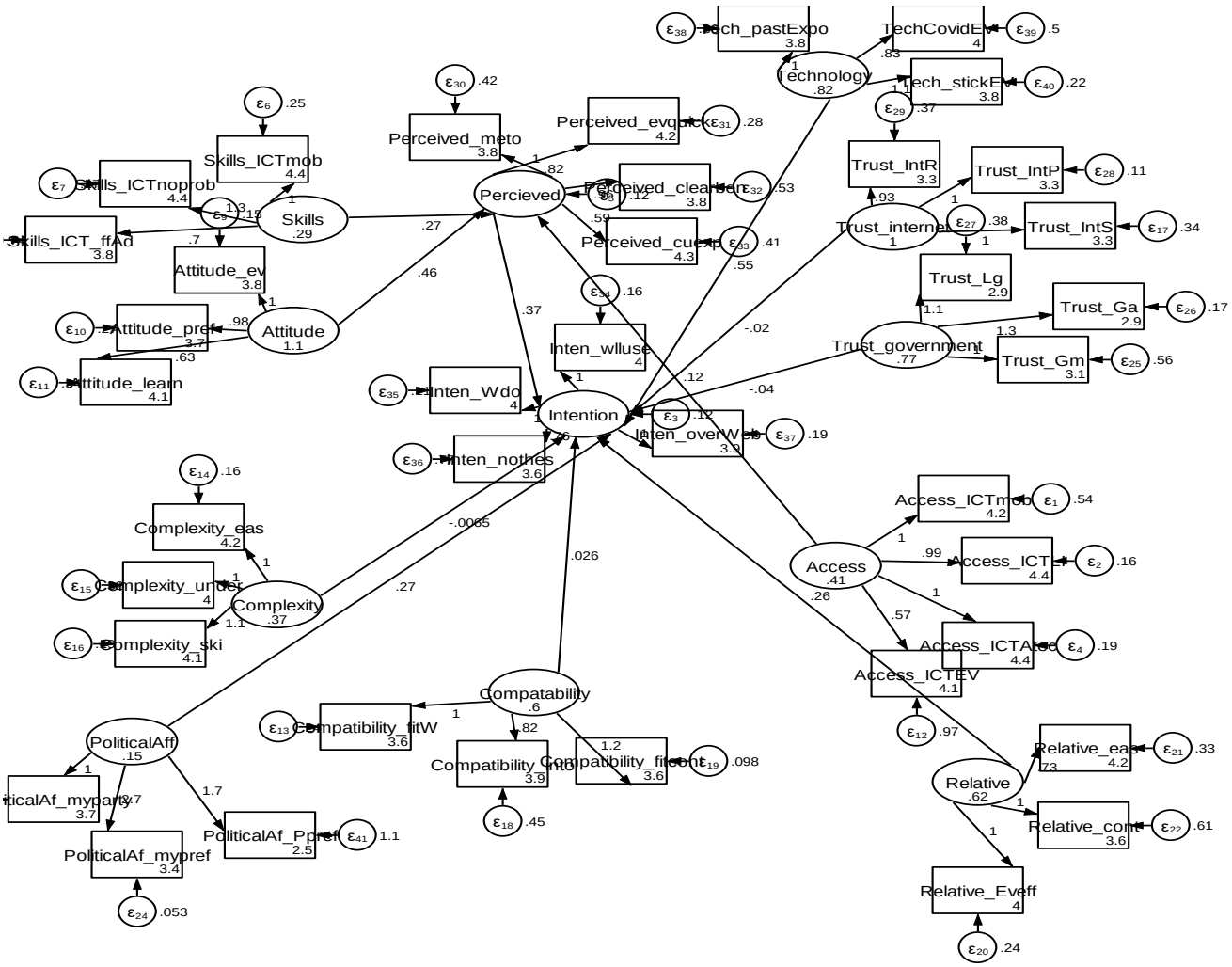


Figure 18: Structural Equation Modelling diagram