SOCIAL MEDIA AND BRAND IMAGE: A LONGITUDINAL STUDY OF EASTERN CAPE UNIVERSITIES

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By

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DECLARATION

I, Lusanda Mnqeta, declare that this dissertation is my own original work and where other resources have been used, they have been acknowledged by complete references. I further declare that this work has not previously, in its entirety or in part, been submitted at any university for purpose of obtaining an academic qualification.

Signed: **Date: 25/11/2019**

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LIST OF ACRONYMS

ESM	:	Earned Social Media
FAQ	:	Frequently Asked Questions
HEIs	:	Higher Education Intuitions
HEQF	:	Higher Education Qualification Framework
OSM	:	Owned Social Media
RBT	:	Resource-Based Theory
RBV	:	Resource-Based View
SACO	:	South African Cultural Observatory
SMM	:	Social Media Marketing
SRC	:	Student Representetive Council
UA	:	University A
UB	:	University B
UC	:	University C
UD	:	University D
UGC	:	User Generated Content

ABSTRACT

It is important for Higher Education Institutions to have marketing strategies that focus on understanding the customer needs in the 21st century. The rapid growth of the internet and the Web 2.0 have led individuals and organisations into applying social media as a branding and communication tool. Hence this study focused on comparing the influence of social media on four Eastern Cape universities in relation to social media metrics and visually demonstrated through the computer-generated human face, the Chernoff faces. Using diary and literature study, the study adopted a case study research design. The researcher sampled four universities using a purposeful sampling technique. Chernoff faces were used to enhance the ability of the reader to immediately understand significant occurrences based on social media metric indicators. To demonstrate multivariate data, the faces brought an original method of expressing complex data as opposed to traditional methods. The study found that Brand management and Resource-Based Theory (RBT) plays a pivotal role in social media marketing as this can lead to organisations having a competitive advantage. The study recommended that strategies to utilise social media as a resource should be put in place to lead to competitive advantage, as suggested by the Resource-based theory. The study concluded that various social media factors can influence the brand image of universities, positively (going to buy) and negatively (never going to buy). Both positive and negative purchase intent are found to be an influential indicator on the brand as they are affected by customer satisfaction.

Keywords: Strategic marketing, marketing communication, social media, brand image, Chernoff faces

AMAGQABANTSHINTSHI

Kubalulekile ukuba amaziko emfundo ephakamileyo abe neendlela zokuthengisa ezigxila ekuqondeni iimfuno zabathengi kwinkulungwane yama-21. Ukukhula ngokukhawuleza kwe-intanethi kunye ne-Web 2.0 kuye kukhokelele abantu kunye nemibutho ekusebenziseni imithombo yeendaba njengesixhobo sokuphawula kunye nonxibelelwano. Kungoko olu phononongo lujolise ekuthelekiseni iimpembelelo zosasazo lwentlalo kwiiyunivesithi ezine zaseMpuma Koloni ngokunxulumene neendlela zemithombo yeendaba zelizwe kwaye zibonakaliswa bubuso bomntu obuveliswe ngekhompyutha, ubuso bukaChernoff. Usebenziso lengqaphelo kunye nofundo loncwadi, isifundo samkele uyilo lophando lwesifundo. Umphandi wenze iisampulu zeyunivesithi ezine esebenzisa unxulumaniso lesampuli ngokomlinganiselo. Ubuso bukaChernoff babusetyenziselwa ukuphucula amandla abafundi ukuba baqonde ngokukhawuleza izehlo ezibalulekileyo ezisekwe kwizalathi zeendaba zentlalo. Ukubonisa idatha yokusetyenziswa kwezinto ezininzi, ubuso buze nendlela yokubonisa idatha enzima ngokuchasene neendlela eziqhelekileyo. Isifundo sifumanise ukuba ulawulo lweBrendi kunye ne-RBT ludlala indima ebaluleke kakhulu kwintengiso yopapasho loluntu njengoko oku kungakhokelela kwimibutho enenzuzo yokukhuphisana. Uphononongo lucebise ukuba izicwangciso zokusebenzisa amajelo eendaba ezentlalo njengesixhobo kufuneka zibekho ukuze zikhokelele kwinzuzo yokukhuphisana, njengoko kucetyisiwe yiThiyori esekwe kwiZibonelelo. Uphononongo luqukumbele ukuba imiba eyahlukeneyo yeendaba zentlalo inokuba nefuthe kuphawu-mfanekiso weyunivesithi, ngokulungileyo (ukuya kuthenga) kunye nokungalunganga (ungaze uye kuthenga). Zombini iinjongo zokuthenga ezilungileyo nezingalunganga zifunyanwa zisisalathiso esinempembelelo kwiimpawu njengoko zichaphazeleka ngokwaneliseka kwabathengi.

Amagama aphambili: Ukuthengisa okuCetyiweyo, Unxibelelwano lokuThengisa, uPapasho loLuntu, umfanekiso wentengiso, ubuso bukaChernoff

CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

There are currently about four billion people worldwide using the internet, with 1.5 billion users of social media (Kemp, 2018a) in which one in every four minutes spent online is dedicated to social media as reported by Widmer, Engler, Geske, Klarich, and Timimi (2016). The internet and the Web 2.0 have led individuals and organisations into applying social media as a branding and communication tool (Schivinski & Dabrowski, 2016; Sihi & Lawson, 2018) and, as such, a comparative study of the influence of social media on Eastern Cape university brands was undertaken.

This chapter provides a thorough background of the study and a justification of the study thereof. The research problem and research objectives are thereafter stated. Next is clarification of key concepts, followed by the methodology adopted for the study. An outline of the entire study is presented at the end of this chapter.

1.2 Background to the study

Traditionally, brand management is founded on the way information is processed in relation to consumer behaviour and the brand as an organisation's asset (Gensler, Völckner, Liu-Thompkins & Wiertz, 2013). This can be engraved in consumers' thinking by way of marketing (Gensler *et al.,* 2013). Grant (1991) differentiates between resources and capabilities, by categorising resources into tangible, intangible, and human-centred resources. The brand image and reputation of an organisation form part of the intangible resources as stated by Bharadwaj (2000). Taking this into consideration, this study is premised on the Resource-Based Theory (RBT). The focus was on the brand image of the universities as the core resource and asset, as well as social media as a potential resource. The RBT should inform an allocation for all assets, resources and capabilities as stated by Barney (1991).

It is therefore important to consider brand image and social media effects on the performance of an organisation based on the Resource-Based View (RBV). The RBV of a firm connects performance to competitive and sustained competitive advantage in administering an inimitable value creating strategy so unique that there is little possibility of replication by competition (Barney, 1991).

Louw and Venter (2013) later elaborated that the RBV can explain why some organisations tend to do better than others.

Stephen and Galak (2012) explains that organisations get social media coverage voluntarily or through content generation. Further, Stephen and Galak (2012) elaborates on typical content generators as those that include blogs, media, students, potential students, and their family and friends. Most of the content is not under the control of the organisation being discussed, but rather created by users, this is known as Earned Social Media (ESM) as explained by Stephen and Galak (2012). The ESM is, therefore, a link between social media and RBT, since it is developed from brand reputation.

This study analysed the way in which social media can influence the brand image by comparing four South African Universities in the Eastern Cape Province. The selected institutions in this study are referred to as University A, University B, University C and University D. This study analysed whether a student's decision to select a university can be affected by perceptions gleaned from social media.

This study can assist universities in understanding consumers' behaviour towards a brand and competing brands, and how such behaviour can be affected by social media (Peter & Olson, 2010). Over three-quarters of the South African Facebook audience comprises of the youth younger than 30 years of age (Kemp, 2018b). Social media is the medium of information for Generation Y as earlier noted by Bolton, Parasuraman, Hoefnagels, Migchels, Kabadayi, Gruber, Loureiro and Solnet (2013). The text-based, instant and verbal nature of social media further explains why it is necessary to understand behaviours in a study such as this one, due to the students that enroll in the universities (Maben & Gearhart, 2018).

Bolton *et al*. (2013) explained that students seeking to enroll or already enrolled at a university are mostly generation Y. Bolton *et al*. (2013) further reiterated that the way Generation Y engages in social media may be a demonstration of how consumers are to behave in the future. Contrary to past behaviour, young people are now using social media for content analysis, and this makes it a good communication tool between the universities and students, as well as potential students to market their brands (Cravens & Piercy, 2013; Kemp, 2018b; Simon & Tossan, 2018).

In the post-purchase phase, after students have enrolled in the university of their choice, they will evaluate the experience in the University comparing it to their presumptions (Colicev, Malshe, Pauwels & O'Connor, 2018). This will determine the perception of the brand, and in the age of social media, this will lead to sharing such experience as reported by Colicev *et al.* (2018). At this stage, corroboration of the student's experiences and those of others are made by looking at ESM (Colicev *et al.*, 2018).

Cravens and Piercy (2013) explained the importance of understanding the impact of social media in communication with customers (business to customer) and between customers (peer-to-peer). The changing marketing environment requires and has significant implications for applying innovative and effective communications tools as part of marketing strategy (Cravens & Piercy, 2013). According to Kapoor, Tamilmani, Rana, Patil, Dwivedi and Nerur (2018) people rely on social media for daily trending news and updates on critical events, reviews and recommendations on products/services and places.

1.3 Justification for the study

This comparative study was undertaken in the four Eastern Cape universities in relation to social media metrics and visually demonstrated through the computer-generated human face, the Chernoff faces. Chernoff (1971) developed the faces to demonstrate multivariate data. The Chernoff faces are used to enhance the ability of the reader to immediately understand significant occurrences based on social media metric indicators. Farshid, Chan and Nel (2012) further explained that the faces bring an original method of expressing complex data as opposed to traditional methods.

1.4 Statement of the problem

The core of marketing is around the ability of an organisation to identify and thereafter satisfy its customers need (Dalrymple & Parsons, 1995). It is important for Higher Education Institutions (HEIs) to employ digitalisation that focuses on understanding the customer needs in the 21st century. For instance, university student needs in 2019 are different to those of 2009 due to changes in the environment, for example, we live in the internet world where social media dominates as demonstrated in the background above. Asur and Huberman (2010) discovered that the chatter of a community can indeed be used to make quantitative predictions that outperform those of artificial

markets. The way in which a university brand is perceived on social media could very well have an impact on its brand image. This is more likely if the university does not take active steps instantaneously to address issues that arise from social media conversations. University marketing strategies should encompass social media in order to enhance the university's reputation and to have a positive influence on the overall university ranking. Kietzman, Hermkens, McCatthy and Silverstre (2011) reiterated this narrative by arguing that communication about brands occur, with or without the approval of the organisation. Therefore, it is vital to comprehend the way a strong university brand is created and rationalised in the students' mind (Bunzel, 2007).

This study aims to compare four South African Universities situated in the Eastern Cape Province based on social media conversation measurement, and how this affects the brand image of each university. This will analyse over a thirty-day diary study in order to ascertain if this could affect the decision-making of current and potential students in choosing a university. According to Bunzel (2007), there is exceptional competitiveness between universities to attract and register the top students.

This study intended to provide insights that could impact on the Social Media theories and institutional marketing practices and policies for South African universities. This research therefore tracked the social media conversations on the universities in order to ascertain the following objectives as outlined below.

1.5 Research goals and objectives

1. To track and trace social media metrics on the following university brands: University A, University B, University C, and University D.
2. To trace how social media perceptions on the brands change over a thirty-day period.
3. To compare social media perceptions on the brand image of the universities.
4. To establish the relationship between social media perceptions and university brand image.

1.6 Conceptual framework and clarification of key terms and concepts

The research aims to test the impact of social media on brand image of universities in South Africa using RBT.

Figure 1.1: *Conceptual framework*
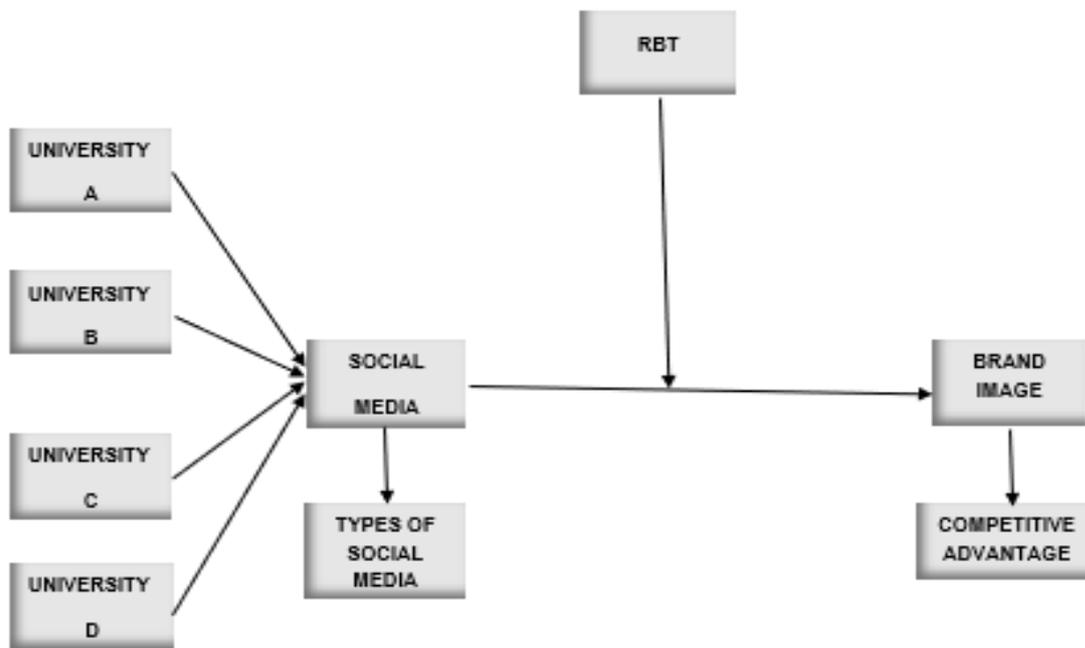
Source: Prepared by the researcher

Figure 1.1 demonstrates a way that the University A, University B, University C and University D can create a competitive advantage. In these universities, social media presence is studied in learning how it affects the brand image, considering the types of main social media that exist. The implementation of RBT by the universities in commencing with social media can play a role in the brand image, which could lead to competitive advantage. Durability, transparency, transferability and replicability are the four characteristics of resources and capabilities which are possibly to be specifically important factors of the sustainability of competitive advantage as noted by Grant (1991).

1.6.1 Resource-based theory

The Resource-based view is a practice that is applied to ascertain and analyse the organisation's strategic advantages, by way of scrutinising the distinct combination of its tangible and intangible resources (Divandri & Yousefi, 2011).

The application of RBT by the universities can lead to a sustained competitive advantage, whereby the resources are valuable, rare, imitable and Non-Substitutable (VRIN). All these factors will give accreditation to the capitalisation of the resources' potential (Barney & Hesterly, 2012; Kozlenkova, Samaha & Palmatier, 2014). Resources yield the foundation for innovation as part of the strategy and as such enable the formation of new markets and products as observed by Louw and Venter (2013).

1.6.2 Brand image

Padgett and Allen (1997) defined brand image as a consumer's mental picture of the brand created in response to brand-related stimuli such as advertising and social media amongst others. Dobni and Zinkhan (1990) further explained that the concept of brand image is a consideration of features and values, and connotations that users associate with a product. Gardner and Levy (1955) earlier proposed this idea, that consumers buy products or brands not only because of their attributes and functional consequences, but also for the symbolic meanings associated with them.

1.6.3 Social media

Culnan, McHugh and Zubillaga (2010) described social media as a term given to Web 2.0 applications and tools for users to interact and share opinions and content. It is about relationships and connections between people and organisations (Niar, 2011). Kapoor *et al.* (2018: 536) provided the most recent and inclusive definition of social media and explain it as *"Social media is made up of various user-driven platforms that facilitate diffusion of compelling content, dialogue creation, and communication to a broader audience. It is essentially a digital space created by the people and for the people and provides an environment that is conducive for interactions and networking to occur at different levels (for instance, personal, professional, business, marketing, political, and societal)".*

Greenwood and Gopal (2015) stated that social media applications and platforms including Facebook, WhatsApp, Twitter, YouTube, LinkedIn, Pinterest, and Instagram often come to mind and are driven by user-generated content. It (social media) is very influential in numerous situations, from purchasing/selling behaviours to industrial operations (Greenwood & Gopal, 2015).

1.6.4 Marketing communication

Semenik (2002) defined marketing communication as a tool used to create a favourable predisposition towards a brand or a product, or service. Marketing communications form a connected fragment of combined communication as they are intertwined at primary, secondary and tertiary stages of communication as explained by Klopper and North (2011).

1.7 Social media

Discussions on social media have been enabled by the easy access to the internet. However, far more than the internet makes social media, this includes platforms, the sentiments of the users on these platforms and how industries can put this resource to full use. This section gives a good indication of the way organisations can use social media as a resource.

1.7.1 Social media platforms

Social media has different platforms and sites. A few critical statistics scaled to a monthly basis, as a demonstration of social media traffic per site are reported as follows (Desjardins, 2018):

- 42,033,600,000 Facebook logins;
- 159,840,000,000 Google searches;
- 1,641,600,000,000 WhatsApp messages sent; and
- 8,078,400,000,000 emails sent.

The data appears to be even more astonishing when explored at annual basis, as it comes very close to 100 trillion emails sent for example (Desjardins, 2018). Figure 1.2 demonstrates the extent of internet traffic per minute. This figure shows us exactly how busy each site is per 60 seconds in relation to the other sites. It can also be deduced how much time is spent per minute on the internet in 2019 in comparison to 2018. This means HEIs have much access to social media exposure. This activity means that, at any given second, a brand has the opportunity to increase its brand image or tarnish it.

Figure 1.2: *Comparison of 2018 and 2019 internet access per minute*

Source: Lewis (2019)

1.7.2 Social media sentiment and analysis

The term Sentiment analysis, which is also known as opinion mining, can be explained as the detection of text voiced opinions and particularly if these opinions are positive or negative in nature towards a certain brand or subject (Nasukawa & Yi, 2003). Customer sentiment can be defined as *"the consensus of feelings that consumers have about a product"* (Ostrowski, 2010:1 cited in Lawrence, 2014:2). The sentiment can either be positive or negative, and an organisation should strive for positive sentiments and in the event of negative sentiments, have a strategy to address them.

Kietzmann, Hermkens, McCarthy and Silvestre (2011) found that the Honeycomb model sets out the highly important forces behind the social media ecology operated by all social media marketers, users and platforms. Kietzmann *et al.* (2011) further explained that social media is very powerful, yet organisations are unable to develop strategies and allocate resources to engage effectively on social media. This inability makes organisations mismanage the opportunities and threats coming from users (Berthon, Pitt, McCathy & Kates, 2007). Kaplan and Haenlein (2010) explained that this gap is due to the lack of thorough understanding of what social media is. The blocks are therefore for organisations to help address this gap. Figure 1.3 presents the Honeycomb of Social Media, separating it into two diagrams namely: Social media functionality and the implications of the functionality.

Figure 1.3: *The Honeycomb of social media*
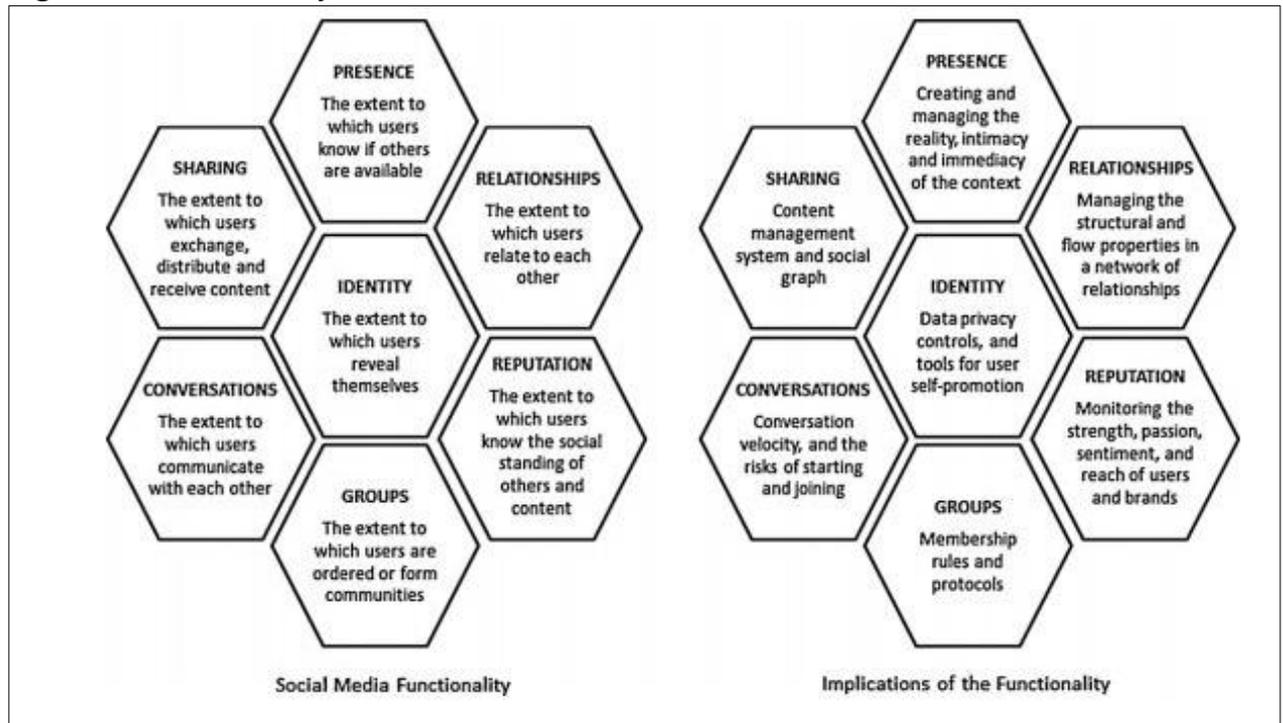
Source: Kietzmann, Hermkens, McCarthy and Silvestre (2011)

Figure 1.4: *Contrasting the functionalities of different sites*

These figures have demonstrated that organisations, particularly universities, need to have social media strategies in place and be proactive rather than reactive to social media chatter about their brands. Diplock, Meier, Jordan and Ek (2018) stated that a bulk of organisations do not need a small army of data scientists or bleeding-edge analytical techniques, but rather analyses that solve key commercial and operational problems. This means, should these two be addressed, they have fulfilled their role in directing the social media conversations about their brands.

Diplock *et al.* (2018) further explained that resources are readily available and relatively inexpensive. This study shows that sites such as Social Mention and

software products such as Stata are available to analyse social media platforms for universities, just as Stata and Chernoff Faces are available to process and demonstrate the analysis of Social media. The missing piece of the puzzle, often, is a clear strategy and operational model for using these resources in ways that are specific to the company's business requirements (Diplock *et al*. 2018).

1.8 The industry: Higher Education Institutions

Higher Education Institutions (HEIs) means any institution that provides learning programmes leading to a qualification that meets the requirements of the Higher Education Qualification Framework (HEQF), on a full-time, part-time or distance learning basis as explained in section 1 of the Higher Education Act, 1997 (Act 101 of 1997). The following section deals with social media from the perspectives of students and HEIs.

1.8.1 Social media and students

The nature of social media being text and mobile phone based means it is easily accessible. Pang (2009) noted that social media provides an opportunity for students to collaborate and engage during learning. Platforms such as twitter allowed an instant communication channel for students to share their thoughts with their classmates (Gikas & Grant, 2013). The observations of students highlighted and and emphasised both formal and informal learning opportunities (Gikas & Grant, 2013).

1.8.2 Social media from the university perspective

HEIs can use social media to engage with the community in terms of sharing information about the status of the university, as well as engage the students in the delivery of the curriculum. The existence of Social media in an organised or structured manner, can be purposefully leave raged in formal learning as noted by Gikas and Grant (2013). Social media sites such as twitter and QuickPolls enables prompt feedback about the content of the coursework and interactions with lecturers as confirmed by Gikas and Grant (2013).

1.9 Methodology

This study was conducted by way of a longitudinal and diary sampling method on the four Eastern Cape universities. Zeger and Liang (1986) illuminated that longitudinal data sets as the composition of repeated observation of an outcome variable and a

set of covariates. The data was collected from the Social Mention website, which was monitored over a thirty-day period. The site provides a specific instantaneous period in social media data output as stated in Social Mention (2018).

The Chernoff faces which are compiled by the face generating algorithm in Stata (Rociborski, 2009) were used in this study. Social Mention website was utilised in the collection and gathering of all statistics on variables such as strength, sentiment, passion and reach in relation to the universities under study. The Chernoff faces were used to depict the data collected on Social Mention to understand how the variables are affected by one another, visually portray areas of difference and identify the shift (Rociborski, 2009) over thirty days

Upon collection, data was processed on Stata through syntax and illustrated in its variables of strength, positive sentiments, negative sentiment, passion, reach, unique authors, and relative frequency as outlined by Raciboski (2009). The Chernoff faces demonstrated each of these variables with the normal facial features such as facial line, eye size, pupil size, nose, mouth, eyebrows and hair density.

1.10 Outline of the study

Chapter 1 comprises of the introduction and outline of what the study sets to achieve. Presented in this chapter is the background of the study, the research problem and the objects of the study. Key concepts and methodology used in the study are also included in this chapter.

Chapter 2 focuses on the critical review of the literature on RBT, brand image, social media and university institutions, and marketing communication.

Chapter 3 focuses on methodology used to execute the study including the paradigm, research instruments, procedure, and data analysis.

Chapter 4 provides a thorough analysis of the data and interpretations of the results.

Chapter 5 discusses this study's results and concludes the study. This chapter also provides strategies and recommendations by the author as well as limitations.

1.11 Conclusion of chapter 1

The rapid growth of the internet has led to the world operating in a digitalised way. This has also grown the usage of social media to such an extend that, it is merged into

society's daily activities. This chapter gave a thorough background to the study, which set the scene of the various concepts and theory that informed the research. The justification of the study was given to provide an indication of the value that the study will add to the body of knowledge, followed by the problem statement, research objectives and goals. Thereafter, the conceptual framework with the clarification of the key terms and concerts for the study were explained and social media was discussed. The various aspects that make social media such as the platforms available, sentiment analysis and its fit into the industry under study was discussed. Lastly, chapter one gave a synopsis of the methodology that was implemented in this research. This methodology provides institutions with a tool to know how their brands are performing at any given time instantaneously and therefore the ability to take decisions on where her to react or not.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In the literature review chapter, the concepts and theories that inform this study are explored in a broader context. This research is a comparative study of how social media can influence university brand images. This chapter, therefore, seeks to review literature on theory that underpins this study, namely, the Resource-Based View (RBV) / Resource-Based Theory (RBT) on how it relates to social media and brand image within the HEIs. The literature on brand image and Social Mention, social media, social branding, social media marketing, marketing communication, the impact of social media its advantages and disadvantages are presented in this chapter. Literature on genealogy of social media and brand image, and marketing communication are also reviewed in this chapter.

2.2 Theoretical framework

The framework in this study is grounded on a founded theory, which is related to the study. The established inquiry would then become the focal point to which the study would be based on. This study is based on RBV/RBT and its significance to social media and brand image of the four universities in the Eastern Cape Province South Africa. Sinclair (2007), and Fulton and Krainovich-Miller (2010) defined a theoretical framework as a map which guides the route to follow. Grant and Osanloo (2014) also argued that the framework comprises of guiding principles, paradigms, concepts and theories. These relate to how the customers perceive social media influence on brand images based on certain events, practice and activities within the university environment setup.

In this study, the framework served as a guide for the researcher, where the research goals are attained, and variables are measured. In line with this study, the questions and variables are on the influence of social media on brand image and media marketing of universities. A theoretical framework is composed of scientific theory that is well-substantiated and explained, referred to aspect of the natural world, based on a body of facts that have been repeatedly confirmed through observation and experiment (Imenda, 2014). Thus, the theory implies that social media influences brand image. The study would, therefore, differentiate how the brand image is influenced. It is also noted that a theoretical framework refines the targeted field of

study and clarifies on the research problem (Cline, 2011). In this case, the targeted field is social media, based on the Resource-based view / Resource-based theory. The section below gives a detailed discussion on RBV/RBT and how it is related to social media and brand image within universities.

2.2.1 Resource-based view / theory

It has been observed that Resource-based view evolved to Resource-based theory. In 1991, the RBV of the firm was prominent enough to warrant a special research forum in the Journal of Management. The articles in this forum helped establish that resources and capabilities are important for understanding the sources of sustained competitive advantage for firms. While twenty years later, RBT is widely acknowledged as one of the most prominent and powerful theories for describing, explaining, and predicting organisational relationships. This was not always the case, of course. Like many theories, RBT has undergone an evolution that mirrors the first three stages of the product life cycle, the introduction, growth, and maturity stages (Cao & Folan, 2012; Chen, 2019).

In this era, the Resource-based theory is one of the most widely accepted theories in analysing firms' competitive advantage (D'Angelo, 2018). In this study, RBT, therefore, differentiates competitive advantage on the use of social media, brand image and social media marketing within the selected universities. Scholars such as Leiblein, (2011) and Kor and Mesko (2013), purported that RBT is one of the dominant theories and consider it as one of the guiding theories within the field of management. In this instance, it is the management of the brand image, marketing management, which is the emblem that influences the decision taken by the customers when they are choosing institutions. The theory is said to have *"…its origin in the early nineties when researchers felt unsatisfied by the structure-conduct-performance paradigm, described in the previous studies for instance, and began to analyse internal sources of competitive advantage instead of external ones"* (D'Angelo, 2018:2). The author added that, "*in the industrial orientation perspective, indeed, performances were determined by the sector characteristics, the five forces described by Porter in 1979 and firms can gain competitive advantage choosing between price-leadership or differentiation strategies"* (D'Angelo, 2018:2).

Additionally, Divandri and Yousefi (2011) explained the Resource-based theory as a methodology that is applied to ascertain and analyse the organisation's strategic advantages, by way of scrutinising the distinct combination of its tangible and intangible resources. Precisely in this study, social media resources might be considered as an intangible resource considering that it could play a key role in influencing decisions on choices amongst the universities under study.

RBT has been credited to sustain competitive advantage within an environment where the resources are minimal, limited, scarce within the market or the institution, organisation or institution (Kim & Hoskisson, 2015). It has been realised that the traditional way of working with tangible resources, in this case, resources such as application forms and pamphlets are limiting as they cannot be accessed by everyone from anywhere. Social media, therefore, would ensure that the information has reached its potential clients beyond the geographical locations. Scholars like Barney and Hesterly (2012) and Kozlenkova, Samaha, and Palmatier (2014), purported that credit is given to capitalisation of the resources' potential. Louw and Venter (2013) called these resources core competencies because they are unique, valuable, difficult to imitate and cannot be substituted. This, therefore, gives credit to marketing communication, Social Mention and brand image. The authors further observed that these resources form the foundation for innovation, which is strategic in the competitive environment for new products and new markets.

It is therefore of paramount importance that social media is a widely utilised resource in many institutions as a medium of communication and advertising. This study seeks to explore how university brands are influenced by social media and how social media platforms affect university brand image amongst the selected universities. Lacity and Cocks (2008) suggested that in line with RBT, resources possessed by a firm are the primary determinants of its performance and may contribute to a sustainable competitive advantage of the firm. Thus, performance is related to branding, which would enable the universities in this study to sustain their competitive advantage against other universities.

It is noted that initially, RBV intended to identify the characteristics, which are unique and cannot be imitated by competitors within the same industry or sector (Maina & Maina, 2015). Contrary to this view, Barney (1991, cited by Maina & Maina, 2015),

argued that although resources within a firm can be replicated easily by business rivals and can be a competitive advantage to the firm, the advantage can last longer. As a result, sustainability, therefore, relies on the branding of the available resources rather than just the resources themselves.

RBT also require a systematic collaboration and synchronisation of teams of resources. Accordingly, for branding to have a competitive advantage and be sustainable, it needs to be productive and work as a system or in synergy. In support of this theory, Grant (1991) purported this assertion as he alluded that the firm's competency is the capacity for a team of resources to perform some task or activity and conclude that the firm's resources are the source of a firm's capabilities, which are the main source of its competitive advantage.

It is also essential to note that there are two categories of resources in pursuit of Resource-based view / theory. These are tangible and intangible resources (D'Angelo, 2018; Kamasak, 2017). These are discussed as follows.

a) Intangible resource

Intangible resources are aspects that are not materialistic. However, they add value to the competitive advantage of the organisation, company or institution. These resources are classified to various categories. *Thus, according to D'Angelo (2018:3), "intangible resources can be classified into categories, such as routines, intangible assets, capabilities and human capital".* Therefore, social media would fall under this classification, which would effectively mean that the focus of the study is on Resource-based view / theory, specifically on intangible resources.

b) Tangible resources

Nothnagel (2008) asserted that regardless of whether a resource is tangible or intangible, they can be grouped into sub-categories. Tangible resources are physical capital resources and financial capital resources and can be a combination of any physical assets such as; cash, inventory, vehicles, equipment, buildings and investments. Lähtinen, Haara, Leskinen and Toppinen (2008) classified tangible resources into geographical location, raw material, labor, factory and machinery and finance.

c) Discrepancies of the Resource-based view

The literature has shown that human resources and capabilities are not always classified as company resources. Considering that social media as a resource, it is driven by humans and therefore, paramount to consider this. Some scholars (Grant 1991; Mahoney & Pandian 1992; Teece, Pisano & Shuen, 1997) purported that capabilities play a pivotal role as they determine competitive advantages when there is a rapid change in the market environment. Therefore, this would complement the trends within social media, which will influence media marketing and marketing communication. However, the focus of this study is to determine the impact of social media on a brand's image.

2.3 Contextual literature

This section elaborates and presents empirical literature on brand image, Social Mention, social media, social media marketing and marketing communication.

2.3.1 Brand image and Social Mention

Literature has provided numerous definitions explaining the importance of the brand in the past two decades, (Keller, 2011; Witek-Hejduk, 2011). However, there are two widely accepted definitions according to Switala, Gamrot, Reformat and Bilinska-Reformat (2018), which are based on, classic approach and behavioural approach. The classic approach focuses on physical and functional aspects of a brand as a trademark for product designation, while the behavioural focus on main objects of interest is symbolical, and intangible aspects of a brand in the context of perceiving consumers' experience.

Padgett and Allen (1997) defined a brand image as a consumer's mental picture of the brand created in response to brand-related stimuli such as advertising and social media. (Dobni & Zinkhan, 1990; Padgett & Allen, 1997) the concept of brand image is a consideration of features and values, and connotations that users associate with a product further elaborated. Gardner and Levy (1955) had previously proposed the idea that customers purchase products or brands not only because of their qualities and useful values but also for the representational meanings related to them. Zhang (2015) comprehended a brand image as a system of images and thoughts existing in human awareness, expressing information concerning a given brand and basic attitude towards it.

Switala *et al.* (2018) shared the same view in that brand image is created by an establishment of structures of an extraordinary nature, distinctive for a given brand. These distinctive features differentiate the product from others within the industrial market. This also supports the notion that *"…brand is particularly important from the customer's point of view, as it concerns the category of value desired and expected from a given brand, which in turn communicates and affects emotions resulting in particular needs and purchasing experience"* (Switala *et al.*, 2018:99).

It is also of paramount importance to realise the correlation between brand image and Social Mention. Generally, Social Mention is the visibility of brand information on social media. Therefore, this creates a brand image or rather an insight of how the university is. This can be understood best as brand awareness. Brand awareness is defined by Romaniuk, Wight and Faulkner (2017) as the capacity of a given customer to recognise or recall that, a given brand belongs to a particular category of products.

On the other hand, it has been realised that *"one of the most challenging aspects of managing social media is to protect the brand and reputation by managing the role of electronic word-of-mouth and keeping it as positive as possible"* (Farshid, Chan & Nel, 2012:185). Thus, management of the brand and awareness are factors that determine the strength of a brand to be leading and highly competitive within the market place (Switala *et al.*, 2018).

2.3.2 Social media

Social media is as a term given to Web 2.0 applications CIPR (2013) and tools for users to interact and share opinions and content (Constantinides & Fountain, 2008; Culnan, McHugh & Zubillaga 2010; Klopper & North, 2011). It is about relationships and connections between people and organisations (Niar, 2011).

Specific to this study, the relationship and connection are between the various stakeholders, which include government, donors, alumni, parents, potential academics, students and the non-academic staff who will comprise the stakeholder fraternity. In support to that, social media websites have drawn the attention of numerous academics across different fields. This prompted that study of social media to be fundamental in some academic fields (Alhazmi & Rahman, 2014, Moongela, 2017, cited in Junco, Heiberger & Loken, 2011). In addition, *"the use of social media in tertiary institutions has been discussed at length regarding its impact on students'*

academic performance, academic engagement and pedagogic experience" (Moongela, 2017:10).

Regardless of which organisation, institution or business, the major question on social media to academics and practitioners is *"… why do social media matter in a business application"* (Farshid *et al.*, 2012:184). Social media and the internet has become a means of communication for individuals and globally, that enable companies to reach global markets. Therefore, social media is influencing the lives of customers and the way that business is conducted (Qualman, 2009, cited by Farshid *et al.*, 2012).

On the other hand, it has been noted that social media has enhanced easy search and access to information and information sharing (Farshid *et al.*, 2012). As a result, it is essential to note that social media plays a critical role in information search and particularly to universities. Such information might be on programs, which are offered by a university, social and academic life, and the fees structures amongst other pertinent information. *"social media can be defined, as media designed to be disseminated through social interaction between individuals and entities such as organisations"* as further supported by Farshid *et al.* (2012:185). Such information, in this case, might influence the brand image of a certain university. Furthermore, it has also been established that social media is easily accessed and created and can reach multitudes of audience within a shorter period (Farshid *et al.*, 2012). This is made possible through internet use and websites for media monologues and media dialogues. Thus, through the democratisation of information access, it transforms individual consumers into content producers. It is therefore important to understand the types of social media currently used on the internet.

2.3.2.1 Types of social media

There are numerous forms of social media platforms, which can be put into the four main categories, namely: social networking (which consist of Facebook, LinkedIn and Google); microblogging, (which comprise of Twitter, Tumblr); photo sharing (which includes Instagram, Snapchat, Pinterest); and video sharing (which comprise of YouTube, Facebook Live, Periscope and Vimeo amongst other), (Van de Bank & Van de Bank, 2014). These platforms play an influential role in communication and the transfer of information. These platforms create a conducive and advantageous platform to both the companies and customers. For instance, "*in the tourism industry,*

social media web sites are using virtual communities, blogs, picture and video sharing web sites and a full spectrum of user-generated content applications to stimulate online travel information search" (Xiang & Gretzel, 2010:181).

On the other hand, regardless of the presence of multiple marketing strategies, social media advertising has been credited with bringing consistent sales. Such advertising is also uploaded on other social media platforms. These advertisements utilise networks with which the consumers interact with, thus the market targets are aligned to the social media demographics. As a result, social media advertising can yield or rather produce more sales at relatively low costs.

Undoubtedly, trends in media have led to strong connectivity, communication and content sharing amongst students and the entire society. Specifically, in the university context, it has been noted that *"…students can now participate in social discussions, posting comments, pictures, images, share ideas and many more"* (Chukwuere & Chukwuere, 2017: 9929). This is supported by Rajeev (2015), who asserted that social media influences the youth's daily path. In view of the RBT, it can be noted that the availability of such social media platform plays a pivotal role in influencing the decisions of the customers within the learning institutions. These include academics, students and other stakeholders. It is therefore within what is published and communicated on social media that either would positively or negatively determine the brand image.

2.3.3 Social branding

Klopper and North (2011) noted that due to businesses and brands allocation of resources on the World Wide Web, advertising online has become an important component in marketing. The new form of online marketing according to Anon (2009) has been termed social branding. In support of this, Constantinides and Fountain (2008) mentioned various classification of social media, which are blogs, social networks, content communities, forums/ bulletin boards, and content aggregators. These applications play an influential role in social media while branding is key to these processes.

2.3.4 Social media marketing

It is essential to note that there is a relationship between social media and brand marketing (Tritama & Tarigan, 2016). This can be understood as social media

marketing. Social Media Marketing (SMM), *"… is the process of attracting attention towards specific brand or product through social platforms"* (Lamminen, 2018:1). The author further alluded that, SMM is a collective set of activities used on social media platforms to advertise company products and services. This is done electronically to which information is uploaded and can be accessed by the potential clients at any given time without waiting for personals.

SMM has been used worldwide thus, "*in the developing world of trade relations and the increase of competitive environment for companies, the clients' attraction becomes crucially important*" (Lamminen, 2018:6). In addition to that, Lamminen alluded that, "*After the technological progress entered into human life, the way of buying has also changed"* (Lamminen, 2018:6). As a result of severe competition within the markets, it has been a challenge in finding new customers. To mitigate this challenge, companies have resorted to media marketing amongst other tools on the internet to sustain business and also reach their clients.

Due to the network coverage of social media, it has been realised that there is more confidence in the products in potential consumers who access these facilities. It has also been realised that the use of social media marketing has been able to reach their targets and audience through the social networks that they visit. This increases the advertising coverage. This has been done through several social networks. This justifies the purpose of this study in assessing the influence of social media on the brand image of universities.

It is also essential to note that social media marketing can be understood in line with e-growth. This will enhance competitive advantage. Table 2.1 illustrates the correlation between e-growth and social media marketing. It is important to note that social media marketing relates to branding as a result of current products branding and new products branding that has influence in current markets as well as new markets.

Thus, branding would then ensure that there are growth and sustainability within the markets.

Table: 2.1: *e-growth strategies*

	Current products	**New products**

Current markets	Market penetration strategies
	
	• Increase market share
	
	• Increase product usage
	   Increase frequency of use
	   Increase quantity used
	   New applications
		Product development strategies
		
		• Product improvements
		
		• Product-line extensions
		
		• New products for same market

New markets	Market development strategies
	
	• Expand markets for existing
	   products
	   Geographic expansion
	   Target new segments
		Diversification strategies
		
		• Vertical integration
		   Forward integration
		   Backward integration
		
		• Diversification into related
		   businesses
		     (concentric diversification)
		
		• Diversification into unrelated
		   businesses
		     (conglomerate diversification)

Source: Walker Jr and Mullins (2014)

In line with Table 2.1 above, there is a relationship between current markets, current products and new products, and new markets. New markets are reached through social media marketing. Therefore, the correct application of RBT would ensure that as the markets grow there are adequate resources to sustain such growth. Undoubtedly, with the use of social media interaction, new marketing communications are required to reach new markets. The application of diversification will enable the current media communications to learn and develop by incorporating social media communication.

2.3.5 Earned social media

The brand controlled social media are called owned social media (OSM), this is the online communication on brand's own social media networks (Colicev *et al.,* 2018). These would include a budget set towards a social media and digitilisation strategy by the organisation. On the other hand, there are also user-generated brand mentions that organisations do not directly generate, and these are called earned social media (ESM) (Stephen & Galak, 2012). ESM can include retweets on Twitter and sharing on

Facebook, of content by organisations and other social media users. Colicev *et al.* (2018) elaborated on the concept that, although brand awareness and customer satisfaction increase, customer satisfaction can decrease due to OSM. Hoffman and Fodor (2010) earlier noted that marketers tend to use OSM as a form of push advertising. Colicev *et al.* (2018) found in their study that ESM interaction level affects brand awareness and purchase intent but not customer satisfaction, while it has the most effect on customer satisfaction due to positive and negative sentiment. Colicev *et al.* (2018) further found that brand awareness and customer satisfaction improved by OSM but purchase intent is not.

2.3.6 Marketing communication

Marketing communication is defined as communication, which purpose is to create a favourable predisposition towards a brand, product, or service (Semenik, 2002). Marketing communication is characterised by communication techniques that can be appreciated as continuous (the brand, for example), which leads to the idea that the relationship between promotion and marketing communication is inclusive (Popescu, 2002, cited in Duralia, 2018). The main aim of marketing communication is to ensure that the targeted audience has received the information efficiently and clearly (Duralia, 2018).

Egan (2007) supported this assertion and describes marketing communication as a method which suppliers, service providers, values and ideas are presented to a targeted audience and potential clients. In a pursuit to the components, Duralia (2018:95) alluded that *"each component of the marketing communication process is characterised by certain principles that need to be observed to optimise communication and the effects generated on the target audience."* In this study, social media is the central point on the brand image of the selected universities in the Eastern Cape Province. This is in line with Klopper and North (2011), who argued that marketing communication comprises a selection of marketing alternatives, which include advertising, sales promotion, direct market responses, public relations and marketing, personal selling and donation.

2.4 Impact of social media

Social media has come to leverage companies' continuous diverse and heterogeneous needs. These needs have resulted in the business sector being

characterised by fierce competition among the service providers, to which those who cannot sustain such competition struggle to get the attention of the consumers. Therefore, social media has provided a platform for integrated marketing communication. As part of communication, before deciding on purchasing any item or product, customers would want explicit information for them to identify their options in the existing market. Thus, marketing communication through social media plays a pivotal role in influencing the choices of consumers (Cătoiu & Teodorescu, 2004). Hence, within universities, the potential learners or students may be influenced by the choice of the institution as well as the choice of degrees, or diplomas to study.

Apart from the above-mentioned concepts on brand image and social media; social media; social media marketing and marketing communication, it is essential to note the advantages and disadvantages of social media to an organisation and consumers. This is essential to this study as it has a direct and indirect influence on communication and also crucial to Resource-based theory. With the improvement in technology, research has proven that social media plays a huge role in economic growth, uniting friends and allowing the creation of new friendships (Amedie, 2015). However, on the negative side its consequences include terrorist attack, cyberbullying, poaching for sexual exploitation and time wasting (Makinde, Odimegwu, Abdulmlik, Babalola & Fawole, 2016). Therefore, these consequences would influence the decisions taken by the potential students or clients of a certain institution. Regardless of these factors, other factors such as the offered qualifications, cost for tuition and residential accommodation likewise play an essential role in the choice of university. Thus, social media through various platforms and various types would provide information that would influence such decisions. It is of paramount importance to note that the impact of social media precisely on brand image is clearly expressed through its advantages and disadvantages.

2.4.1 New media environment

The availability of voluminous information, speed and efficiency in information gathering, retrieval, and transmission were identified as distinctive features of the new media environment by Drury (2008). Additionally, customers have control over media facilities. There has also been an increase in the target audience reach by organisations, as means of a decentralised system through various media channels which create an interactive capacity between the producers/suppliers and consumers.

2.4.2 Advantages of social media

This section deals with the advantages of social media.

a) Cost-related

It has been noted that the cost of social media is relatively low as compared to other means of communication. In support of this, Weinberg (2009) purported that the main advantage of social media marketing is cost-related. Nadaraja and Yazdanifard (2013) noted that the majority of social media sites are free to access, and easy to create profile and post information. Whereas traditional marketing campaigns can cost millions of dollars, many social media tools are free even for business use. Furthermore, the authors alluded that businesses can run highly successful social media marketing campaigns on a limited budget. The advantage of reaching your targeted market for little or no cash investment is substantial, and the audience wanting your information voluntarily joins or follows you (Nadaraja & Yazdanifard, 2013).

Additionally, Weinberg (2009) emphasised that the 'viral nature' of social media means that each person who reads your posts can spread the news farther within their network, so information can reach a large number of people in a short time. Therefore, this would be an added advantage to the universities, considering that universities are global in nature. Therefore, the use of social media will enable the information to reach other continents.

b) Social interaction

Nadaraja and Yazdanifard (2013) noted that one of the most notable phenomena of new media is how it has increased and created new forms of social interaction. It has also been noted that many people spend more than a quarter of their time online communicating via email, IM chat and social networking platforms (Hill & Moran, 2011). Burmaster (2009) earlier indicated that social networking sites have become so pervasive that they are the most popular internet destinations. Thus, most if not all businesses including universities are active and have personnel who manage these social media platforms to ensure that they remain competitive.

c) Interactivity

Hill and Moran (2011) realised that as social media is more interactive, customers become more passive, as compared to watching TV or listening to the radio. Nadaraja and Yazdanifard (2013) explained that interactivity is how much users engage in the formation of content of a mediated environment, such as social media, in real time.

New media technologies or social media's characteristic is interactivity based. Thus, it enables access to information and increased engagement (Hill & Moran, 2011). Through social media potential students will access information worldwide. This supports the relevance of RBT on what resources are at their disposal, which would enhance information access.

d) Targeted market

Due to access to websites, or rather internet, social media provide marketers with the ability to target audiences and consumers based on site users' interests and what their friends like, (Constantinides & Fountain 2008). This also enables advertising on the various sites that can be posted by friends and word of mouth to the customers (Hill, Provost & Volinsky, 2006). Nadaraja and Yazdanifard (2013) supported this assertion by stating that, with such smart marketing, and advertising, marketers effectively reach the people who are most interested in what they have to offer. In this study, the target market is potential students who might be interested to study at a university; amongst the four selected universities in the Eastern Cape Province South Africa. By this it means students who could be considering joining the universities, some of whom even though they access the websites the information may not necessarily be available on the website since it is negative information. Such information is mostly availble on social media and not necessarily on the webiste, additionally, social media provides space for instant intaraction and opinion sharing which is not necessarily the case with websites.

e) Customer service

It has been realised that RBT plays a pivotal role in ensuring that the customers obtain information that they need from any communication platform. In this case, it would be the services provided by the universities through social media, which would influence their decision in making a choice. Thus, because universities are supposed to reach

or rather provide services worldwide, assessment of customer service is crucial. Helmsley (2000) in Gommans, Krishman and Scheffold (2001) indicated that it is through social media marketing that the customers are reached worldwide.

It is also essential to note that through various websites there are customer service systems, which also assist in reaching the customers. This would enable the social media users to access such information through the links, which are used for Frequently Asked Questions (FAQs). These links enhance the customers to reach online representatives whose responsibility is to assist customers in the selection or buying process or any other information they would want. In this case, customer service would ensure that the potential customers within the HEIs are provided with services through social media communication channels. Some social media sites and platforms might not be well managed, which would exclude potential customers from having the information they require.

These unattended platforms seek to highlight the need of communication management system, which would work as a competitive advantage within the HEIs.

2.4.3 Disadvantages of social media

Apart from these advantages, there are also disadvantages that have been noted with regard to social media and branding within HEIs. Notably, access to information can also present a few disadvantages. Based on the RBT, there are varieties of factors that need to be considered, which support the tangible and intangible resources. These resources play a pivotal role in social media marketing, Social Mention and brand image.

a) Time intensive

Time as an intangible resource is essential within any business, institution or organisation, in marketing and providing information to the potential clients. As a result, there is a need for more time to ensure that proper and well-articulated information is created and published through various social media channels. Nadaraja and Yazdanifard (2013) noted that as the name implies, social media is interactive and successful, two-way exchanges take commitment. Furthermore, the authors note that the nature of marketing changes in social networks, with the focus placed on establishing long-term relationships that can turn into more sales.

To increase output or sales, there is a need for personnel whose responsibility is to monitor each network. This is important for the personnel respond to the questions or comments of the customers on any information they need or the products they need. In the context of a university, such information is important to ensure that the clients will get detailed information on the courses, which are provided, directions, cost of modules and other explanatory information such as vacancies (Barefoot & Szabo, 2010). Therefore, institutions without such services to manage these social networks might be disadvantaged from a competitive perspective.

b) Trademark and copyright issues

Trademark, copyright or brand plays an essential role in marketing and advertising. These play a pivotal role in ensuring Social Mention, which is the visibility of the brand within the competitive market.

According to Steinman and Hawkins (2010), it is of the utmost importance for companies to protect their trademarks and copyrights when using social media to promote their brands and products. Furthermore, it has been noted that, a company's brand and other intellectual property are often nearly as valuable as the products or services that they offer (Nadaraja & Yazdanifard, 2013).

Steinman and Hawkins (2010) also stated that social media's capacity to facilitate informal and impromptu communication often on a real-time basis can aid companies in promoting their brands and disseminating copyrighted material, but it can also facilitate third-party abuse of a businesses' trademarks and copyrights. Thus, this aspect protects the brand image of a certain institution, which cannot be imitated by any other institution. This gives leverage to the institution in having a competitive advantage on social media platforms, resulting in the potential customers in having a preference on that particular institution compared to the other within the same industry.

c) Trust, privacy and security issues

On the other hand, due to scams and false information on social media, trust, privacy and security are compromised. Thus, the promotion of a brand, products and services can also be linked to trust the question of privacy and data security issues noted Nadaraja and Yazdanifard (2013). Thus, organisations/institutions and companies need to be aware of these issues and take appropriate measures to minimise their

exposure to liability related to personal data collection, use, and maintenance. Nadaraja and Yazdanifard (2013) also added that trust, particularly the unique dimensions of transactional security and privacy, play a critical role in generating customer loyalty to social media marketers.

d) User-generated content (UGC)

Nadaraja and Yazdanifard (2013), has established that in recent years, social media users spend more time on the internet sharing information, their thoughts and their viewpoints. For instance, UGC through the democratisation of access to information and websites, users can comment through pictures, recorded videos, rankings, criticisms, articles, and blogs among other ways (Mendes-Filho & Tan, 2009). Therefore, UGC holds much promise as a marketing tool.

e) Negative feedback

Since social media is prone to hacking and scams, it has been noted that it converts consumers into marketers and advertisers, and consumers can create positive or negative pressure for the company. This, in most cases, is based on comparisons between the online product presentations and the actual designs and products. Since the customers are highly expectant in some cases, the portrayed online image might not truly represent the actual products (Roberts & Kraynak, 2008).

2.5 Conclusion of chapter 2

Chapter 2 has presented empirical literature on the theoretical framework of RBV/RBT, brand image, social media, social media marketing, marketing communication, ESM, impact of social media as well as the advantages and disadvantages of social media. It was noted that due to digitalisation, social media has become influential to brand image, marketing and marketing communication. This digitalisation and social media in particular have posed a need to understanding them in the context of theory. Hence this chapter first presented the Resource-based theory. Institutions need to look at the digital world in relation to their brands in lines with the core principles of RBT. Literature has shown that there are trends and vast information on social media generally. However, this information is significant in the current study as it relates to the branding of universities, which also contributes to growth and development within the academic

sphere. The following chapter will present the research design and methodology utilised to gather information to address the objectives of the study.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The previous chapter focused on the core theories and literature informing this research study. This is significant in choosing the methodology selected to conduct this study. The purpose of this chapter is to illustrate the methodology undertaken during the study to address the proposed research goals and objectives. The methodology of choice needs to be consistent and aligned with the research goals and objectives (Harrigan, 2009). This chapter will begin by presenting the research paradigm encompassed in the research design for this study, the methodologies employed, including the longitudinal diary method. Further, the sample, instrumentation, data collection process, and the data analysis are discussed. Lastly, the chapter discusses the issue of research ethics considered in this study.

3.2 Research design

For the purpose of this study, research design is defined as the procedures of inquiry and the specific research methods of data collection, analysis and interpretation (Bertram & Christiansen, 2015; Creswell, 2015). The design for this study is impactful in enriching the comparison of the four universities, which are named in this study as University A, University B, University C and University D, daily from 02 October 2018 to 31 October 2018.

3.2.1 Research paradigm

This research was conducted in the post-positivist paradigm in an attempt to understand the study as it evolves over the duration of the investigation and the subjective nature in which the data was collected (De Vos, Delport, Fouché & Strydom, 2018). This study falls in the post-positivist paradigm due to the nature of the data collection technique that was used, which does not allow for the data collected at a point in time to be duplicated at a later stage. Adam (2014) argued that post-positivism, does not reject quantitative research methodology, it is careful about the rigid interpretations of the methodology. The methodology approach used in this study is therefore justified by the post-positivism paradigm.

3.2.2 Methodological approach

To craft and gain a deep understanding of how the brand image of universities are affected by social media, this study utilised documentary analysis, also referred to as literature study. Using an interpretivist framework through post-positivist research paradigm. The secondary sources used in this study were relevant textbooks, articles from websites and peer-reviewed journals.

The contextualisation of this study permitted the usage of secondary techniques of literature to afford a more valid method for data collection and analyses to demarcate the truth-value of the study, to obtain relevant background knowledge and to verification of facts.

The advantages of using secondary data in this study were that it was collected faster than primary data, it saved time and money, it was collected with less effort than primary, it enhanced the collection of primary data and it provided comparative data that makes for a more illuminating interpretation of primary data (Cant, Gerber, Nel & Kotzé, 2012).

3.2.3 Longitudinal and diary method

A longitudinal and diary sampling method was used to track the social media conversations on the four Eastern Cape universities, that is, University A, University B, University C and University D. The data was collected from the Social Mention website, which was monitored over a thirty-day period starting from 02 October 2018 to 31 October 2018. Zeger and Liang (1986) explained that longitudinal data sets as the composition of repeated observation of an outcome variable and a set of covariates for the universities under study. Ohly, Sonnentag, Niessen and Zapf (2010) stated that diaries are a data collection technique where data is collected daily or numerous times per day from the same group or class of people.

The Chernoff faces, which are compiled by the face-generating algorithm in Stata (Rociborski, 2009), were used in this study. Social Mention website was used in the collection and gathering of all statistics on variables such as strength, sentiment, passion and reach concerning the universities under study and social media. This website is a collection, search and analysing engine of content by social media users' worldwide (Social Mention, 2018). The Chernoff faces were used to depict the data collected from Social Mention and to observe how the variables are affected by one

another, visually portray of areas of difference, and to identify the shift (Rociborski, 2009) over thirty days.

3.3 Population and sampling

At the time of conducting this study, the population was all the possible states of a random variable, whose size could be either infinite or finite. The sample, therefore, was a subset of the population and its size was infinite. The population comprised of all social media users on the four Eastern Cape university sites. The sample in this study comprised of the people that were active on social media and used social media as a communication or as a research tool during the 30-day period of this study, that is from 2nd to 31st October 2018. The researcher had no control over this study's sample because it depended on their use of social media during the data collection period. This type of sampling is referred to as census sampling (Patten & Newhart, 2018).

3.4 Instrumentation

The selected data collection instrument is Social Mention internet site. Ryan and Bernard (2000) explained that, it is conceivable in true objective content analysis particularly in the technological world of today, through computer-based information analysis dictionaries such as Social Mention as in the case in this research, to make use of an instrument such as this one. The data was collected daily from a registration free and public website (the Social Mention Website) at no cost to the researcher. Additionally, the Social Mention website provides a specific instantaneous period in social media data output as stated in Social Mention (2018).

Social Mention is a social media search and analysis website that collects and calculates content produced from social media consumers through various distinct social media sites into one stream of information (Social Mention, 2018). According to Social Mention (2018), Twitter, Facebook, FriendFeed, YouTube, Digg, Google and others, are but a few websites observed by Social Mention. The user of the site can track and measure conversations on brands throughout the entire social media setting in real-time.

3.5 Data collection procedure

Upon accessing the Social Mention site, the researcher entered into the search page the name of each of the university brands under study, one university at a time. The site then calculated the metrics and gave out the results as demonstrated in Table 3.1 below. The numerical data from the website was then extracted and captured on an excel spreadsheet daily in a uniform manner over a thirty-day period from 02 October 2018 to 31 October 2018. This data was thereafter analysed on the computer programme, Stata that generates Chernoff faces (Rociborski, 2009).

This aids in the tracking and measuring the users' comments on brands (universities), and on any topic related to them on the internet instantaneously (Social Mention, 2018). The measurement is recorded with numerical data on strength, sentiment, passion, reach, relative frequency and unique authors of each brand.

Table 3.1 below illustrates data collected on day one of the thirty days of the study for each of the university brands.

Table 3.1: *University brands and Social Mention scores*

University Brand	Strength	Positive Sentiment	Negative Sentiment	Passion	Reach	Relative Frequency	Unique Authors
University A	47%	11	2	27%	49%	1 Minute average per mention	121
University B	7%	14	2	7%	53%	16 Minutes average per mention	105
University C	50%	4	0	6%	54%	7 Minutes average per mention	108
University D	1%	21	1	56%	11%	1 Days average per mention	11

Source: Prepared by the researcher

3.6 Data Source: Social Mention metrics and data analysis

The study looks at these Social Mention metrics: strength, sentiment (positive and negative), passion, reach, unique authors and relative frequency which are explained in Table 3.2 in this chapter.

Upon collection, data was processed and analysed on Stata through syntax published by Raciboski (2009), and thereafter illustrated through the Chernoff faces to observe movements and outliers (Farshid, Chan & Nel, 2012). The face is used to aid the user

to identify important occurrences and therefore ease of reference in decision making (Raciborski, 2009). The results were then illustrated according to the identified variables of strength, positive sentiment, negative sentiment, passion, reach, unique authors and relative frequency. The Chernoff faces demonstrated each of these variables with the normal facial features such as facial line, eye size, pupil size, nose, mouth, eyebrows and hair density. The faces make it easy to see the exceptionally well performing brands to the exceptionally poorly performing brands.

The Chernoff commands used in Stata can make up to 18 different facial features in total, though not all 18 facial features are used in this study. This study particularly used seven facial features, and the following Chernoff commands on Stata to generate the face graphs with the Social Mention variables from the thirty-day dataset of the four universities are presented:

chernoff,   isize(positivesentiment_UniversityA)
bdens(positivesentiment_UniversityA)   psize(neutralsentiment_UniversityA)
hlower(neutralsentiment_UniversityA)   bcurv(negativesentiment_UniversityA)
mcurv(negativesentiment_UniversityA)   fline(passion_UniversityA)
ihor(passion_UniversityA)   hupper(reach_UniversityA)
hslant(reach_UniversityA)   hdark(uniqueauthors_UniversityA)
bhor(uniqueauthors_UniversityA)   nose(rf_hours_UniversityA)
ppos(rf_hours_UniversityA)   msize(strength_UniversityA)
iangle(strength_UniversityA) order(date) ilabel(id) xlabel(8) hspace(0.5)

chernoff,   isize(positivesentiment_UniversityB)
bdens(positivesentiment_UniversityB)   psize(neutralsentiment_UniversityB)
hlower(neutralsentiment_UniversityB)   bcurv(negativesentiment_UniversityB)
mcurv(negativesentiment_UniversityB)   fline(passion_UniversityB)
ihor(passion_UniversityB)   hupper(reach_UniversityB)
hslant(reach_UniversityB)   hdark(uniqueauthors_UniversityB)
bhor(uniqueauthors_UniversityB)   nose(rf_hours_UniversityB)
ppos(rf_hours_UniversityB)   msize(strength_UniversityB)
iangle(strength_UniversityB) order(date)

chernoff,   isize(positivesentiment_UniversityC)
bdens(positivesentiment_UniversityC)   psize(neutralsentiment_UniversityC)

hlower(neutralsentiment_UniversityC)   *bcurv(negativesentiment_UniversityC)*

mcurv(negativesentiment_UniversityC)   *fline(passion_UniversityC)*

ihor(passion_UniversityC)   *hupper(reach_UniversityC)*

hslant(reach_UniversityC)   *hdark(uniqueauthors_UniversityC)*

bhor(uniqueauthors_UniversityC)   *nose(rf_hours_UniversityC)*

ppos(rf_hours_UniversityC)   *msize(strength_UniversityC)*

iangle(strength_UniversityC) order(date)

chernoff,   *isize(positivesentiment_UniversityD)*

bdens(positivesentiment_UniversityD)   *psize(neutralsentiment_UniversityD)*

hlower(neutralsentiment_UniversityD)   *bcurv(negativesentiment_UniversityD)*

mcurv(negativesentiment_UniversityD)   *fline(passion_UniversityD)*

ihor(passion_UniversityD)   *hupper(reach_UniversityD)*

hslant(reach_UniversityD)   *hdark(uniqueauthors_UniversityD)*

bhor(uniqueauthors_UniversityD)   *nose(rf_hours_UniversityD)*

ppos(rf_hours_UniversityD)   *msize(strength_UniversityD)*

iangle(strength_UniversityD) order(date)

The Social Mention metrics used in the study are demonstrated and defined with a column on how calculations are formulated in Table 3.2.

Table 3.2: *Social Mention metrics: Descriptions*

Metric	Definition	Calculation formulation
Strength	The likelihood that your brand is being discussed in social media	Phrase mention counts within the last 24 hours divided by the number of total possible mentions
Sentiment	The ratio of generally positive mentions to the number of generally negative mentions	A number of generally positive mentions/number of generally negative mentions. This measure can also be gauged in absolute terms by counting the number of positive mentions, the number of neutral mentions and the number of negative mentions
Passion	A measure of the likelihood of individuals talking about your brand in social media will do so repeatedly	A small number of individuals talking about a brand repeatedly will give a high score. A large number of individuals talking about your brand, but only infrequently per individual, will give a low passion score

Reach	A measure of the range of influence	The ratio of the number of unique individuals talking about your brand as a percentage of the number of total possible mentions
Unique authors	An indicator, or the number of authors writing about a brand	The number of unique authors writing about a brand within a particular time period
Relative frequency	The frequency with which mentions of a brand appear	Measured in minutes or seconds.

Source: Prepared by the researcher

3.6.1 Multivariate data

Multivariate data analysis is implemented in studying complex data sets and is often used with software such as Stata, and this method was applied to this study (Glen, 2019). Multivariate data analysis is better suited for large data sets as explained by Glen (2019). Multivariate data, therefore, refers to data with multiple variables, often more than six. This study has a total number of seven variables.

3.6.2 Chernoff faces

Chernoff (1971, 1973) developed a method of depicting multivariate data more visually through smiley faces. The primary purpose of the face graph is to improve the ability for the user to read and understand the main phenomena, as well as aiding as a prompt device for remembering the main conclusions (Raciborski, 2009). Table 3.3 demonstrates the Social Mention metrics to the Chernoff's faces and how they have been allocated to the facial features in Stata.

Table 3.3: *Explanation of facial features for allocation in stata*

Social Mention	Facial feature allocation
Strength	Facial line - the fatter the face the higher the brand strength
Positive sentiment	Eye size - the larger the eye size the higher the positive sentiment
Negative sentiment	Pupil size - the larger the pupil size the higher the negative sentiment
Passion	Mouth - the higher the passion the greater the curvature of the smile
Reach	Eyebrows - the larger the reach the bushier the eyebrows
Unique authors	Nose - the more unique authors the larger the nose
Relative frequency	Hair density - greater relative frequency results in higher hair density

Source: Prepared by the researcher

3.7 Ethical consideration

Social media research might have ethical issues around privacy violations, if Social Mention captures substantial individually recognisable data (Smith, Milberg & Burke, 1996) and the researcher uses these data for a secondary purpose without required permission (Zimmer, 2010). The data collected for this study is solely used for the purposes for which it was attained for and therefore ethical questions are not expected to arise.

The necessary ethical considerations have been deliberated in this study and are in line with the Rhodes University Ethics Standard Committee (RUESC) (2014), which makes provision for the use of data retrieved from a database. All data for this study was obtained from a public domain, the Social Mention website, available for use without any fees, requirements or licenses. Nonetheless, ethical application was submitted as guided by the RUESC (2014) and ethical approval was granted by the Rhodes Business School Ethics Committee (Certificate Number: RBS 2018/09/86), this is further found as Appendix 3.

3.8 Conclusion of chapter 3

This chapter discussed the methods relating to execution of the study. The subjective nature of the study determined the research paradigm to fall within the post-positivist paradigm. In the chapter, a qualitative methodology was utilised to interpret the data that was collected over the thirty-day longitudinal diary study. Thereafter, the population and sample were explained, followed by the procedure used for the collection of the said data. The use of Social mention website and its metrics were interpreted. These include: strength, sentiment (positive and negative), passion, reach, unique authors and relative frequency. The unique instrumentation, Social Mention and Chernoff faces chosen for the data collection and analysis were also discussed. Concerns of ethics that could arise during the research process were considered and mentioned, particularly in the social media space using desk top research.

CHAPTER 4: RESEARCH FINDINGS

4.1 Introduction

The methodology chapter detailed how the research was conducted. This chapter therefore, presents and analyses the results. In this chapter, the Social Mention metrics and face features are illustrated. Next, the thirty-day diary findings are presented for each of the four university brands studied. First, a point of reference is given by presenting the minimum and maximum values of Chernoff faces. Then the full set of Chernoff faces for each of the four universities for the thirty days under study is presented. Thereafter, an overall comparison of the four universities is then made on the minimum values, maximum values and mean results. Last, a discussion of the results and a summary of the study are provided.

4.2 Social Mention metrics and face features

In chapter 3, Table 3.2 reflects the Social Mention metrics used in the study, definitions and calculation formulation. Along the same lines, the allocation criteria used for the generation of the Chernoff faces for this study is tabulated in chapter 3 (*cf.* Table 3.3). The former (*cf.* Table 3.2) includes the six Social Mention metrics used in the study as well as the facial feature and its explanation, allocated to each metric. The latter (*cf.* Table 3.3) categorises the sentiment metric into the positive and negative sentiment, and the results are therefore presented separately. Both tables set the tone for discussions that follow hereunder.

4.3 Chernoff faces finding

The study findings are presented in the form of the Chernoff faces a novel alternative to the traditional multivariate visualisation practices. The findings are based on the thirty-day data collected for each of the four universities, on an excel spreadsheet before imported onto the Stata program. This was a longitudinal study which enabled the researcher to assess and measure change within the unit of observation and over time (Cohen, Manion & Morrison, 2018; Eller, Gerber & Robinson, 2018; Li, Lipping & Khan, 2018).

Appendix 1 represents data for each of the universities, where each university data was captured for each day, from the 2nd of October 2018 to the 31st of October 2018. Appendix 2 is the unstacked data before it was cleaned to be imported onto the Stata program and Appendix 1 is the final cleaned data that was imported onto the program.

Ordinarily, each university would have one set of data but in the instance of longitudinal study, each university has thirty days of data. The results will also demonstrate dramatic changes throughout the month under study for each university brand.

To give context and a point of reference, Figure 4.1 below demonstrates the minimum and maximum values faces look. The variables for the faces are the Social Mention metrics being, strength (the probability that the brand is being discussed in social media), sentiment (the ratio of generally positive mentions to generally negative mentions), passion (the degree of probability that persons conversing about the brand in social media will recurrently do so), reach (the degree of the influence range), unique authors (the number of different writers talking about the brand in social media) and frequency (the rate of appearance per brand).

Figure 4.1 is demonstrated as a benchmark or reference point of how well or poorly each university brand can perform as we look at the graphs that follow, presenting the results from the thirty-day data.

Figure 4.1: *Maximum and minimum values Chernoff faces*
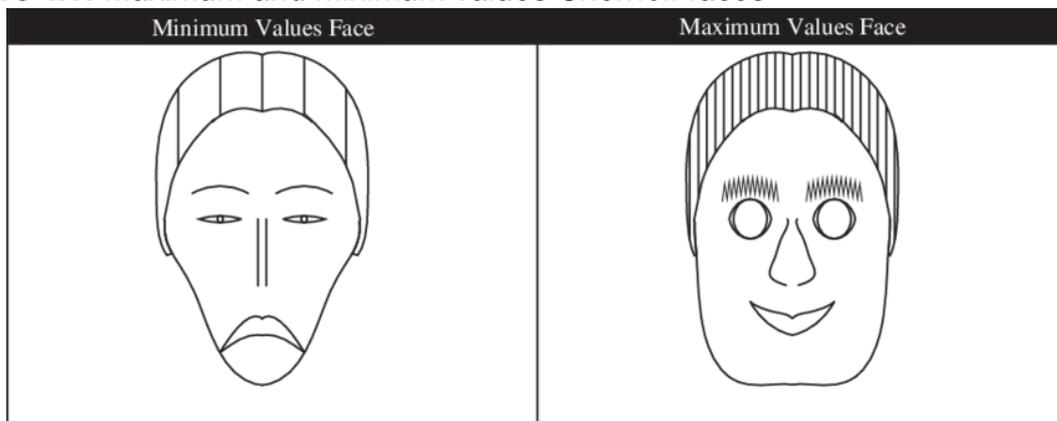
Source: By Farshid, Plangger and Nel (2011)

As shown in Figure 4.1, the two images illustrate the least and most preferred faces for an Eastern Cape university brand. The figure shows us that, ideally the universities brands and social media presence as measured by Social Mention metric would have a fat facial line, large eyes, small pupil size, upward curvature of the mouth, large and bushy eyebrows and dense hair. The ideal face would have small round pupils, as an exception. The least ideal face being the minimum values face in Figure 4.1, with the opposite face features to that of the maximum values face. This face has large round pupils as it can be seen.

4.4 University A results

Figure 4.2: *University A thirty-day diary Chernoff faces*
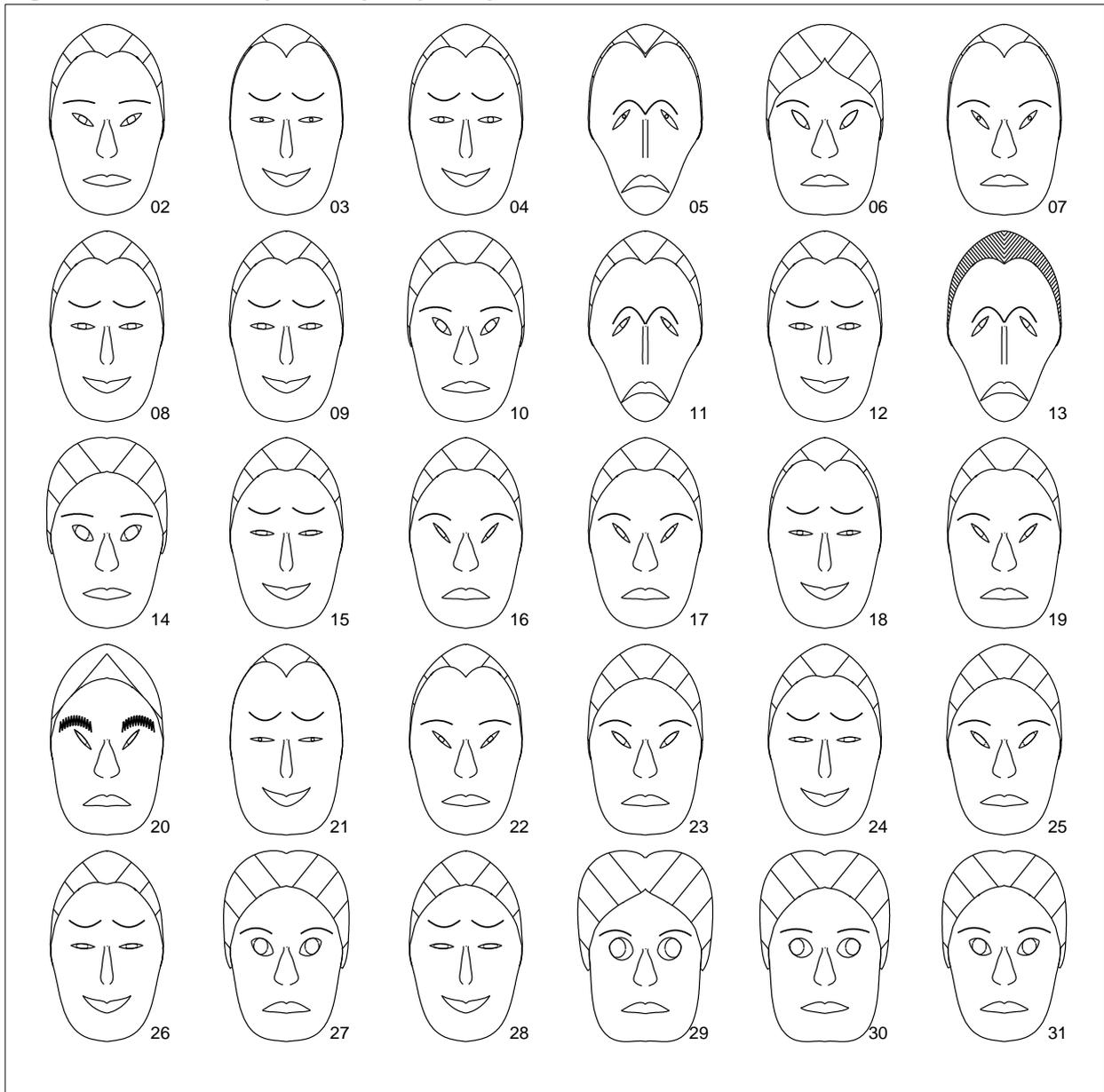
Source: Prepared by the researcher

Figure 4.2 is a representation of the University A thirty-day diary Chernoff faces graph that was generated from the collected dataset (Appendix 1). The chain of commands that was used to generate Figure 4.2 on Stata from the dataset is as follows:

chernoff, isize(positivesentiment_UniversityA) bdens(reach_UniversityA) psize(negativesentiment_UniversityA) hlower(negativesentiment_UniversityA) bcurv(passion_UniversityA) mcurv(passion_UniversityA) fline(strength_UniversityA) hupper(positivesentiment_UniversityA)

hslant(reach_UniversityA)   *bhor(uniqueauthors_UniversityA)*
nose(uniqueauthors_UniversityA)   *ppos(strength_UniversityA)*
iangle(neutralsentiment_UniversityA)   hdark(rf_hours_UniversityA)   order(date)
ilabel(id)

The Social Mention metrics for University A's thirty-day diary as displayed in Figure 4.2, University A's strength is generally strong. The university displayed significantly strong brand strength, on the 6th, 29th and 30th. However, the brand strength less strong on the 5th, 11th and 13th.

University A's Positive sentiment variable is presented with the eye size, and we see that University A mostly has small eye sizes throughout the 30 days. The brand displayed positive sentiment on the 14th, 27th, 29th, 30th and 31st. The alternative of the positive sentiment being the negative sentiment. The graph presents this variable by the pupil size, the larger the pupil size the higher the negative sentiment. Figure 4.2 shows that over the 30 days, there were many days where the brand had negative sentiment. This is seen as pupil size for the brand was mostly large, and this was perceived on the 6th, 14th, 19th, 20th, 27th, 29th, 30th and 31st days of the month.

Next is the passion variable, this is demonstrated by the shape of the mouth. The brand demonstrated high passion on the following days: 3rd, 4th, 8th, 9th 12th, 15th, 18th, 21st, 24th, 26th and 28th over the 30 days. The 5th, 11th and 13th day the brand demonstrated poor passion with the frowning mouth. This means over the thirty days, the brand performed well in this variable. The eyebrows portray the reach variable. As displayed on Figure 4.2, the reach for University A is the same throughout the thirty days except for the 20th day, where the brand displayed the largest reach. Ideally, the brand should have many days where the faces have bushy eyebrows to demonstrate a substantial amount of reach.

The brand performance on unique authors is exceptionally well, as over the 30 days University A has a large nose except for the three days, that is, the 5th, 11th and 13th. While for the relative frequency variable as shown on the graph, University A was relatively normal. The brand had the highest relative frequency on the 13th day. On the other hand, the university had the lowest relative strength on the 3rd, 5th, 7th and 21st day.

Figure 4.3: *University A thirty-day diary Chernoff faces transformation*

Source: Prepared by the researcher

Figure 4.3 is a demonstration of the variable values on the data set for University A (Appendix 1) and how they change from the previous day to the next day from 02 to

31 day of October. In this graph, it is seen how the face features transform throughout the month, demonstrating the social media user's reaction to the brand over the thirty days. In Figure 4.3, it is quick to classify the days that the university brand performed well and the days it performed the least. The transformation can be factually seen from the previous day to the next. The thin face, narrow nose, frowning mouth, thin eyebrows, thin hair and small eye size on the 05th, 11th and 13th deduce that on those days University A was least favourable. However, the brand performed well from the 26th to the 31st among other days, except for the thin eyebrows. In this figure, (Figure 4.3) outliers are easily identified. In this case, the outliers are the 13th for its hair density representing relative frequency and the 20th for its bushy eyebrows, demonstrating reach.

4.5 University B results

Figure 4.4: *University B thirty-day diary Chernoff faces*
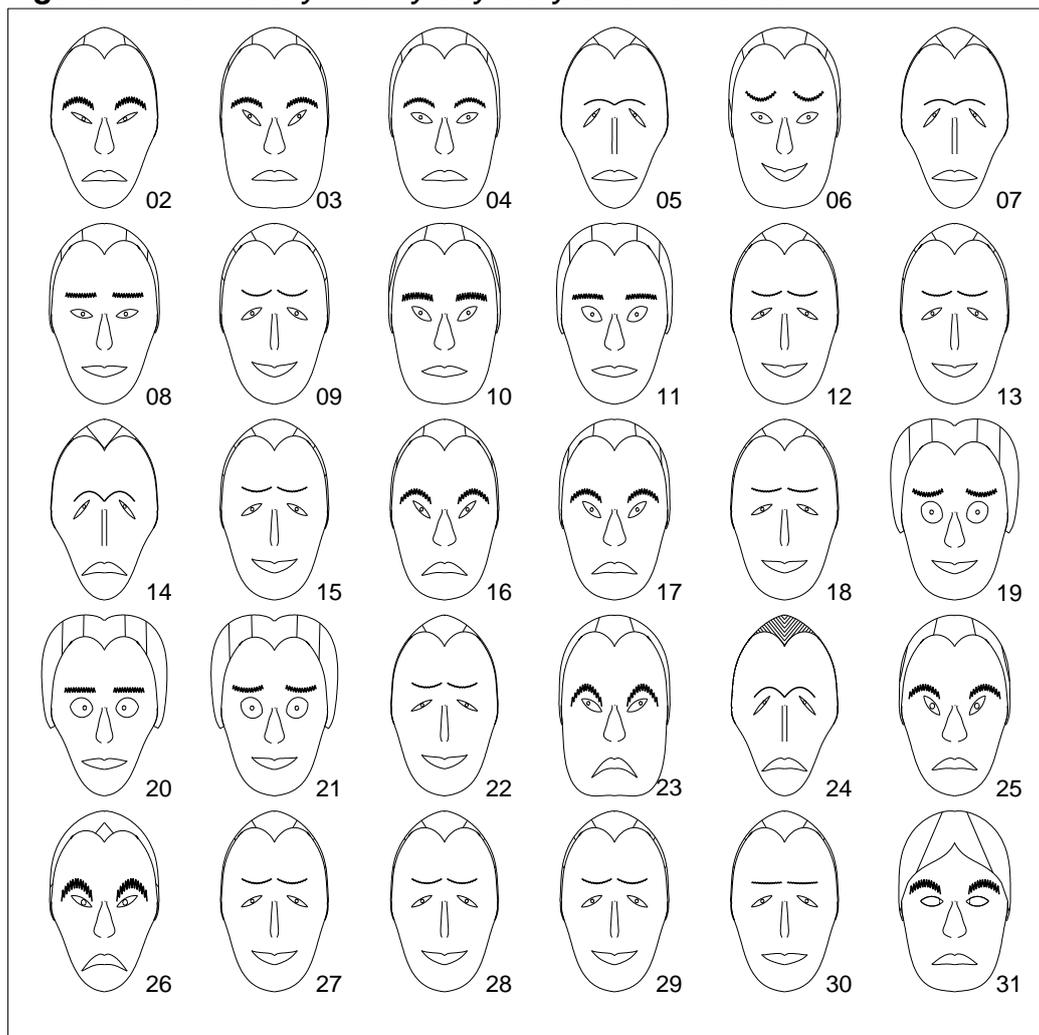
Source: Prepared by the researcher

Figure 4.4 above demonstrates the University B's thirty-day diary Chernoff faces that were generated from the data collected (Appendix 1). The chain of commands that was used to generate Figure 4.4 on Stata from the dataset is as follows:

chernoff, isize(positivesentiment_UniversityB) bdens(reach_UniversityB) psize(negativesentiment_UniversityB) hlower(negativesentiment_UniversityB) bcurv(passion_UniversityB) mcurv(passion_UniversityB) fline(strength_UniversityB) hupper(positivesentiment_UniversityB) hslant(reach_UniversityB) bhor(uniqueauthors_UniversityB) nose(uniqueauthors_UniversityB) ppos(strength_UniversityB) iangle(neutralsentiment_UniversityB) hdark(rf_hours_UniversityB) order(date) ilabel(id)

The Social Mention metrics for University B's thirty-day diary, as displayed in Figure 4.4 for the strength variable, University B was generally strong. The university displayed significantly strong brand strength, on the 3rd, 4th, 6th, 10th, 23rd and 31st. On the other hand, the brand strength was less strong on the 2nd, 5th 7th, 8th, 14th, 20th, 24th and 26th.

The brand's positive sentiment variable, as seen on Figure 4.4, shows that the brand demonstrated strong positive sentiment on the 19th, 20th and 21st as represented with big eye size. The brand displayed average to weak positive sentiment as most days over the 30-day period the eye size is small. While the university on the negative sentiment variable over the 30-day period had no negative sentiment as the pupil size of all faces are small, excluding on the 31st (only a day) where the pupil sizes are large.

The passion variable showed an average result over the 30-day study, with a strong passion seen on the 6th and 9th. The brand had a negative passion portrayed by a frowning mouth on the 14th, 16th, 17th, 23rd, 24th, 25th and 26th. Whereas for the reach variable mixed findings for University B can be seen. There are 16 days out of the 30 days of study where the brand had high reach, as shown by the thick eyebrows of the faces such as on the 23rd, 26th and 31st. The brand also had 14 days with thin eyebrows demonstrating low reach, such as on the 5th, 27th and 30th.

The Unique authors variable the brand performance was on average. There are cycles where University B had a narrow nose, as seen from the 12th to the 15th and again from the 27th to the 30th. A similar pattern is seen for the relative frequency variable as

well. The brand displayed an average relative frequency as shown in Figure 4.4. Generally, over the 30 days, University B had relatively thin hair. The brand did well in this variable and thick hair was seen on the 24th.

Figure 4.5: *University B thirty-day diary Chernoff faces transformation*
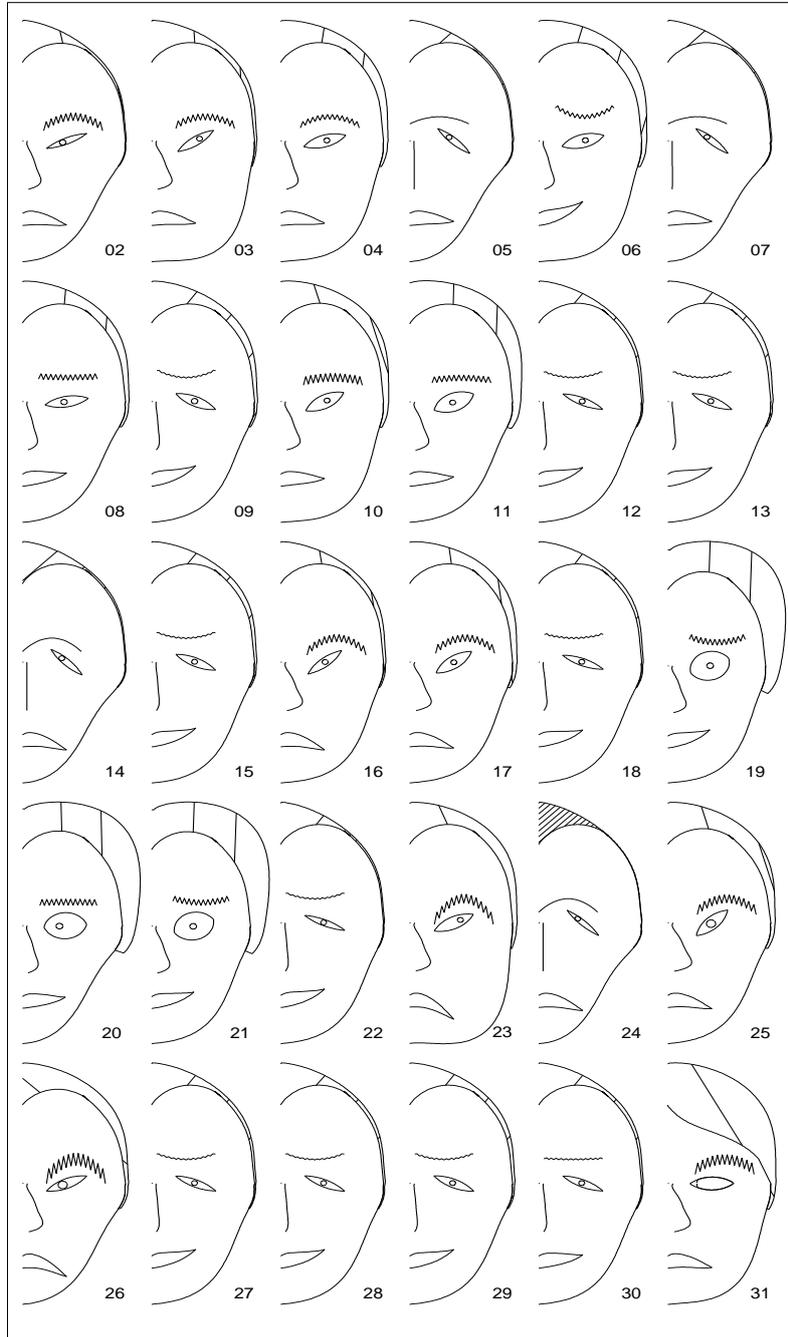
Figure 4.5 above is an illustration of the variable values on the data set for University B (Appendix 1) and how they change from the previous day to the next day from day 02 to day 31. In this graph, it is observed how the face features transform throughout

the month, demonstrating the social media user's reaction to the brand in the thirty-day period. Figure 4.5 aids in easing the classification of the days that the university brand performed well and those days when the brand did not perform very well. This figure shows that University B performed poorly on the 4th, 7th, 14th and 24th with thin hair, thin facial line, small eye size, narrow nose and thin eyebrows except for the pupil size. The brand had small pupil sizes, rather than large pupil sizes to express a negative sentiment. The brand performed well on the 6th, 19th and 21st, with all the variables being large and the positive sentiment variable demonstrated by the pupil size being small. Figure 4.5 enables one to easily recognize outliers. In this case, the only outlier was on the 31st, where the face had large pupil sizes.

4.6 University C results

Figure 4.6: *University C thirty-day diary Chernoff faces*
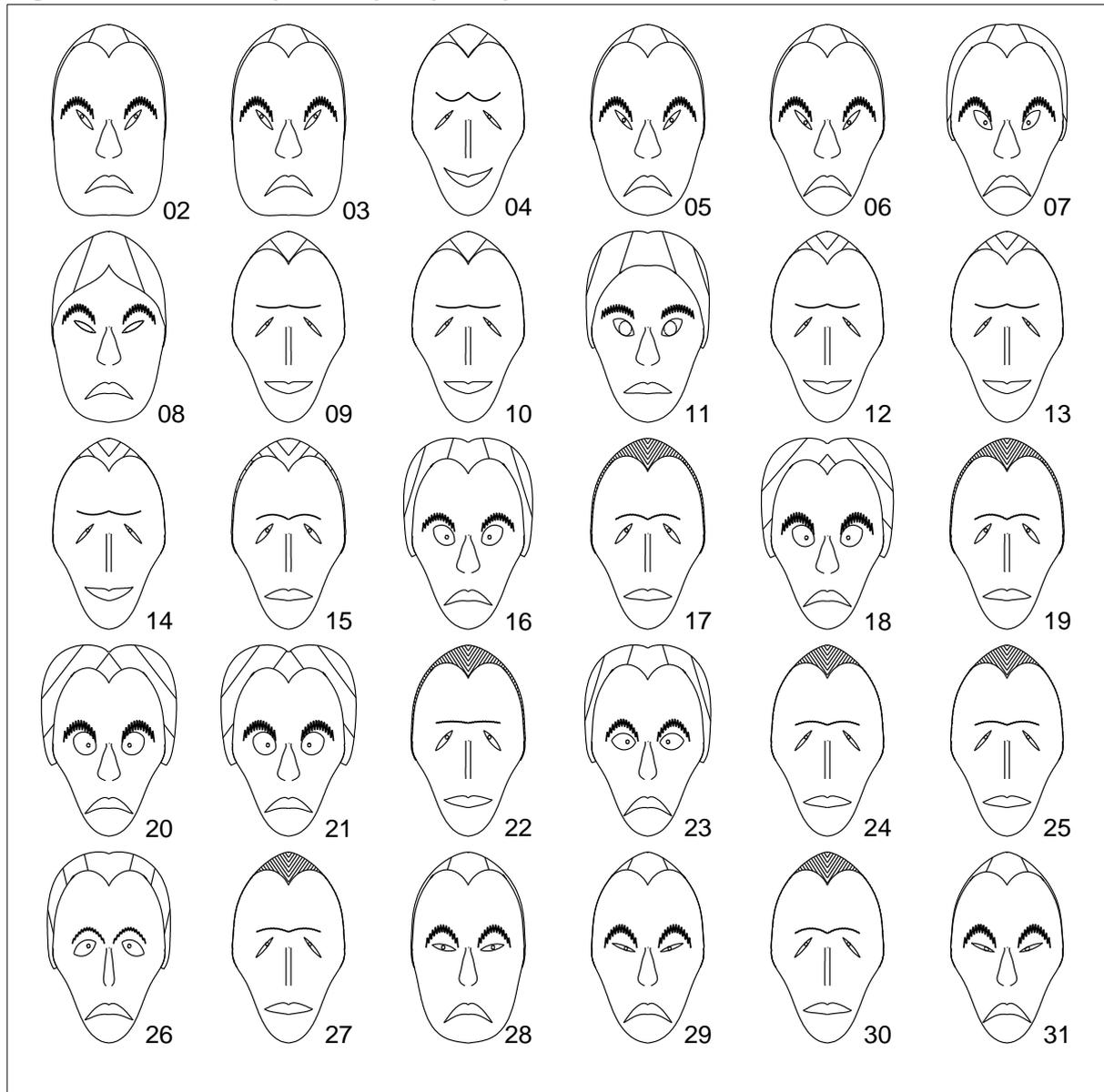
Source: Prepared by the researcher

The University C thirty-day diary Chernoff faces graph that was generated from the data collected (Appendix 1) is illustrated in Figure 4.6. The chain of commands that was used to generate Figure 4.6 on Stata from the dataset is as follows:

chernoff,   isize(positivesentiment_UniversityC)   bdens(reach_UniversityC)
psize(negativesentiment_UniversityC)   hlower(negativesentiment_UniversityC)
bcurv(passion_UniversityC)   mcurv(passion_UniversityC)
fline(strength_UniversityC)   hupper(positivesentiment_UniversityC)

hslant(reach_UniversityC)   *bhor(uniqueauthors_UniversityC)*
nose(uniqueauthors_UniversityC)   *ppos(strength_UniversityC)*
iangle(neutralsentiment_UniversityC) hdark(rf_hours_UniversityC) order(date)
ilabel(id)

The thirty-day diary faces for University C as seen in Figure 4.6 for the strength variable, as depicted by the facial line, were consistently weak throughout the month except for the 2nd, 3rd, 8th and 28th day when the brand displayed a strong brand strength. The positive sentiment is denoted by the size of the eyes, where big eye size means the brand performed well in this metric. The University C brand had eight days out of the thirty days where the brand displayed positive sentiment, and the rest of the days this metric was poor for the brand. The days that University C had strong positive sentiment are day 7th, 11th, 16th, 18th, 20th, 21st, 23rd and 26th. While University C almost had no negative sentiments, except for the 8th and 11th days over the 30 days that the brand had negative sentiment.

The passion variable is denoted by the shape of the mouth during the 30-day diary study. The University C brand showed poor passion over a period of 30 days, as the faces in Figure 4.6 are mostly frowning rather than smiling. The brand demonstrated positive passion on only 3 days out of the 30 days, these days being the 4th, 9th and 10th. While the variable of reach is represented by the eyebrows on the faces of the graph over the 30 days of study, whereby the higher the reach the bushier the eyebrows. The University C reach was generally average as the number of days the faces on the graph had bushy eyebrows is equal to the days when the faces had thin eyebrows. The days such as 2nd, 18th and 21st the brand had bushy eyebrows indicating strong reach; and the days such as 4th, 10th and 22nd the brand had thin eyebrows signifying poor reach.

The next variable is that of unique authors. As illustrated in Figure 4.6 above, this variable displayed large noses as well as narrow noses. The large noses show a high number of unique authors over the duration of the study. The unique authors can be seen on days such as on 2nd, 3rd and 7th and days such as the 4th, 10th and 22nd had the least unique authors.

Last is the relative frequency variable, which is demonstrated by hair density, where the thicker the hair the greater the relative frequency for the brand over the 30 days of

the study. The brand generally performed on average for relative frequency, except the 17th, 19th, 22nd, 24th, 25th, 27th and 30th days where the brand showed high relative frequency.

Figure 4.7: *University C thirty-day diary Chernoff faces transformation*

The University C thirty-day diary Chernoff faces transformation is presented in Figure 4.7. This figure demonstrates the variable values on the data set for University C (Appendix 1) and how they change from the previous day to the next day from day 02

to day 31. It is observed how the face features transform throughout the month, demonstrating the social media user's reaction to the brand in the thirty days. Figure 4.7 assists to easily and quickly cluster the period into the days when the university brand performed well and the days when the brand did not perform well by looking at similar faces.

Days such as 18th, 20th, 21st and 23rd, the brand performed well, while on 3rd, 8th, 9th, 10th, 11th, 12th and 13th the brand did not perform very well as can be seen by the hair density, eye size, thickness of eyebrows and nose size. The University C brand can be seen to have done well in days such as the 15th and the 17th, with the exception of the passion and strength where an undeniable display of a narrow faceline and frowning mouth is evident. Further, this graph makes it easier to identify outliers. The University C only had 2 outliers on the 8th and the 10th as these are the only two days where the graph has large pupil sizes, while all other faces consistently have similar features.

4.7 University D results

Figure 4.8: *University D thirty-day diary Chernoff faces*
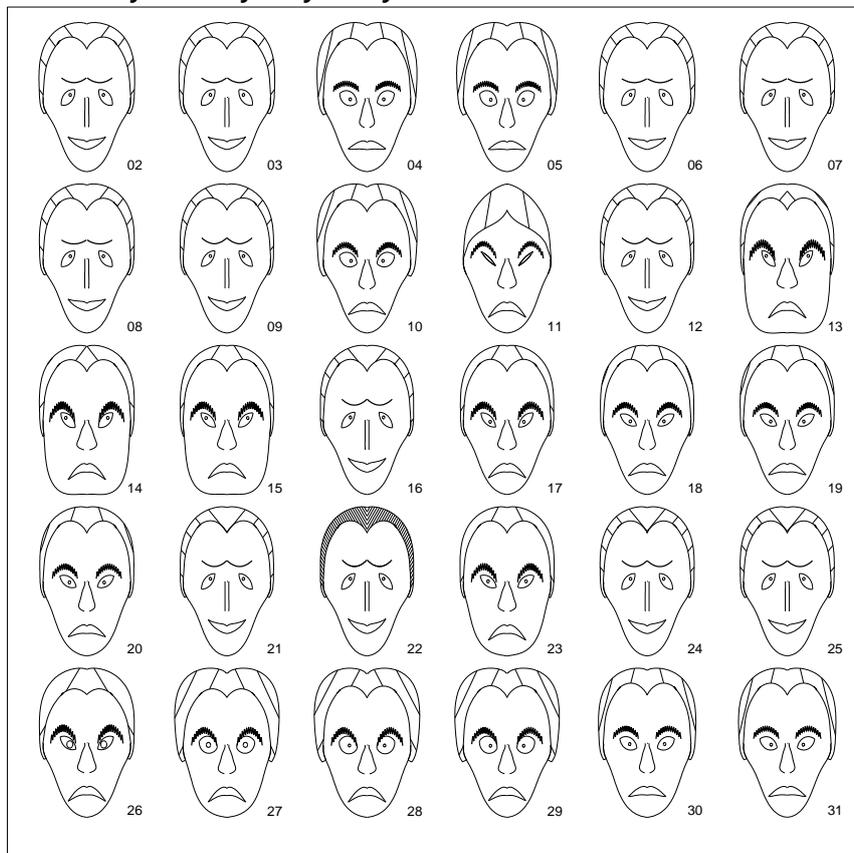
Source: Prepared by the researcher
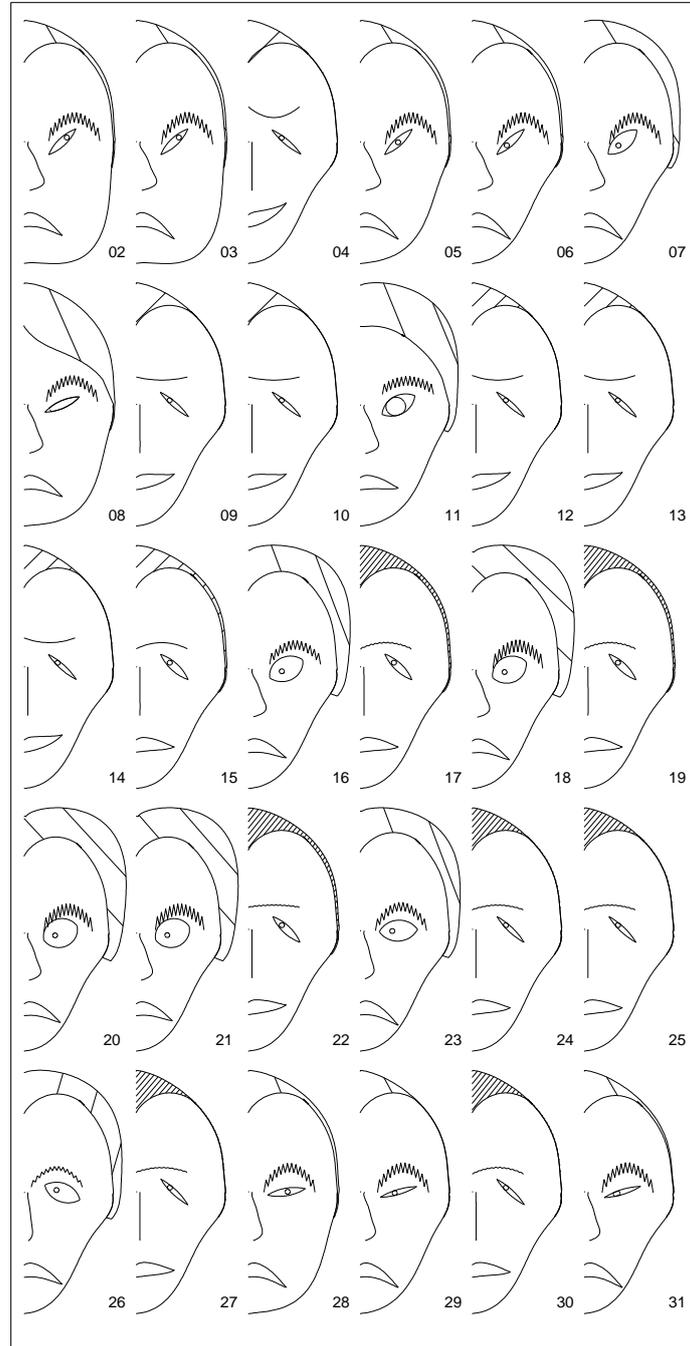
Figure 4.8 illustrates the University D thirty-day diary Chernoff faces graph that was generated from the data collected (Appendix 1). The chain of commands that was used to generate Figure 4.8 on Stata from the dataset is as follows:

chernoff, isize(positivesentiment_UniversityD) bdens(reach_ University D) psize(negativesentiment_University D) hlower(negativesentiment_University D) bcurv(passion_UniversityD) mcurv(passion_UniversityD) fline(strength_UniversityD) hupper(positivesentiment_UniversityD) hslant(reach_UniversityD) bhor(uniqueauthors_UniversityD) nose(uniqueauthors_UniversityD) ppos(strength_UniversityD) iangle(neutralsentiment_UniversityD) hdark(rf_hours_UniversityD) order(date) ilabel(id)

This above chain of commands projected the results as seen on Figure 4.8 and as shown on the graph, University D's strength was generally strong. The university displayed significantly strong brand strength, on the 13th, 14th, 15th and 23rd. On the other hand, the brand strength was less strong on the 2nd, 3rd, 6th, 7th, 8th, 9th, 12th, 16th, 21st, 24th and 25th. It can be seen that the University D brand displayed strong positive sentiment throughout the month with all, but one face on the 11th with large eye sizes over the whole 30-days. While the negative sentiment variable is represented by the pupil size for the 30-day study for University D in Figure 4.8. On the 11th is the only day when the brand had large pupil sizes, therefore, indicating a negative sentiment.

The mouth shape is the facial feature used to demonstrate the passion variable. The brand had 11 days over the 30 days of study where passion was high. This was seen on days such as the 3rd, 16th, 22nd and 25th as the mouth had a particularly noticeable smile. The brand on the other side on days 13th, 15th and 27th there was a blatant frown on the mouth, the brand performed poorly for passion. The above graph also shows that University D had an evenly distributed reach as the number of days the brand had high reach was slightly more, at 17 days than the number of days it did not have high reach over the 30-day study. Figure 4.8 demonstrates the reach for the brand with the eyebrows, where thick eyebrows indicate high reach such as days 10th, 13th, 14th and 29th.

The unique authors variable is represented by the nose feature. The wider the nose the more the number of unique authors for the brand over the 30 days. The University

D most days over the 30-day study had unique authors as seen in Figure 4.8. Days such as the 13th, 14th, 17th and 28th illustrate this result. While Figure 4.8 displays consistent relative frequency over the whole 30-day duration. All faces relatively had the same hair density except for day 22, where the brand had a much high relative frequency compared to the other days.

Figure 4.9: University D thirty-day diary Chernoff faces transformation
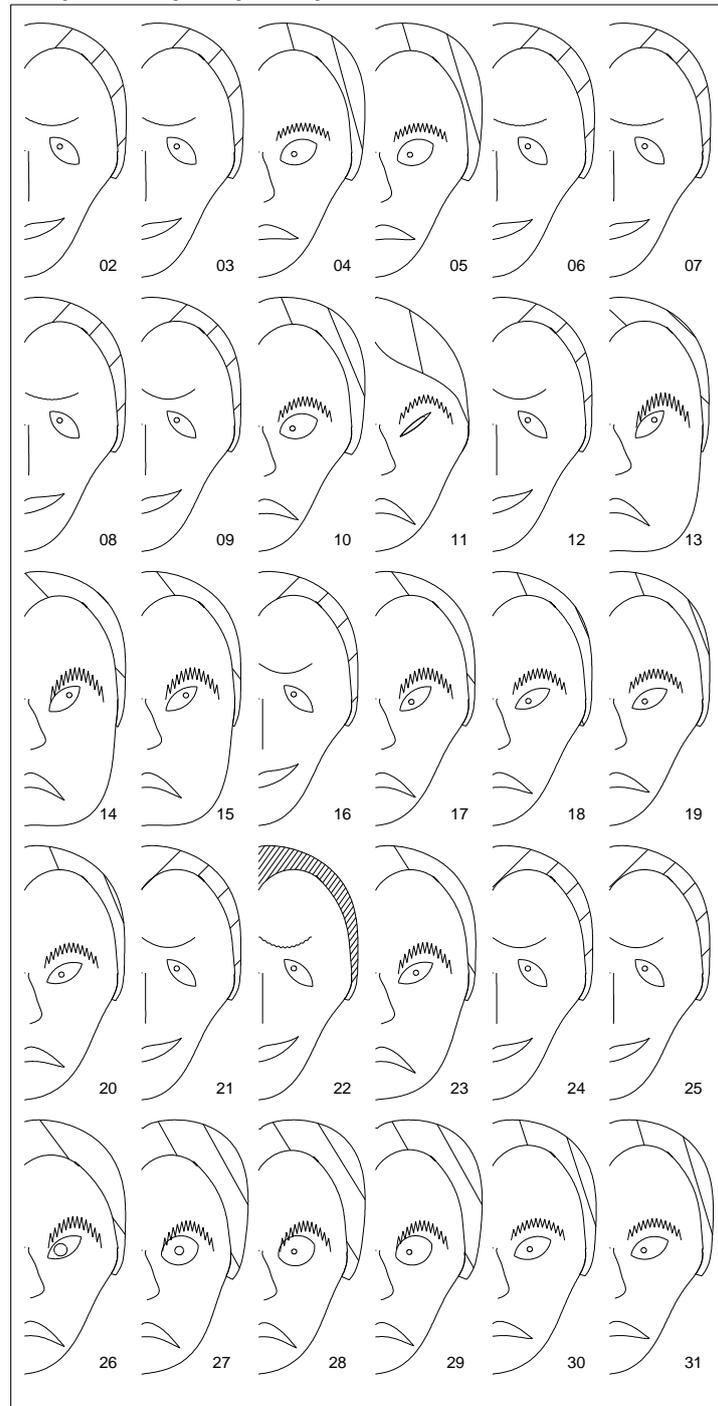
Source: Prepared by the researcher

Figure 4.9 is a graphic demonstration of the variable values on the data set for University D (Appendix 1) and how they change from the previous day to the next day from day 02 to day 31. In this graph, it can be seen how the face features transform throughout the month, demonstrating the social media user's reaction to the brand in the thirty days. Clustering the faces into well-performing days and poorly performing days is effortless with this diagram. Day 13th, 14th, 15th and 23rd the brand performed well with thick hair, fat facial line, big eyes, bushy eyebrows, small pupils and large nose, except for the mouth shape. Day 2nd, 3rd, 6th, 7th and 16th with a thin face line, narrow nose and thin eyebrows the day performed poorly. Figure 4.9 allows ease of identification when it comes to outliers. As seen, the brand had two outliers on the 11th the only face with small eye sizes and large pupils and the 22nd the only day with face with dark hair.

4.8 Maximum values, minimum values and mean / average

Table 4.1: Maximum values, minimum values and mean/average

MAXIMUM VALUES								
UNIVERSITY	**Positive Sentiment**	**Neutral Sentiment**	**Negative Sentiment**	**Unique Authors**	**Relative Frequency_hours**	**Passion**	**Reach**	**Strength**
University D	32	103	8	109	552	61	73	67
University B	34	128	55	138	72	20	78	34
University A	64	199	6	162	24	42	6200	87
University C	12	113	14	111	720	25	64	50
MINIMUM VALUES								
UNIVERSITY	**Positive Sentiment**	**Neutral Sentiment**	**Negative Sentiment**	**Unique Authors**	**Relative Frequency_hours**	**Passion**	**Reach**	**Strength**
University D	8	2	1	8	0.1	10	9	0
University B	13	10	1	19	0.02	0	13	0
University A	1	6	0	7	0.017	8	5	1
University C	3	10	0	11	0.1	4	8	0
MEAN / AVERAGE								
UNIVERSITY	**Positive Sentiment**	**Neutral Sentiment**	**Negative Sentiment**	**Unique Authors**	**Relative Frequency_hours**	**Passion**	**Reach**	**Strength**

University D	20.9	52.4	1.333	58	49.1	33.2	39.9	12.8
University B	18.3	67.47	3.5	74.83	4.21	11.57	35.5	14.07
University A	13.27	133.7	2.633	100.87	1.224	28.33	250	52.5
University C	5.1	53.47	0.767	54.2	251.9	11.46	32.53	7.67

Source: Prepared by the researcher

Table 4.1 above is a representation of the dataset in terms of maximum values, minimum values and mean/average for the four universities compared to each of the variables of positive sentiment, negative sentiment, unique authors, relative frequency, passion, reach and strength. This table illustrates how each brand performed per variable in comparison to the other three brands. The figures in Table 4.1 are depicted by the following four graphs with Chernoff face from Figure 4.10 to Figure 4.12. These three figures display University A (UA), University B(UB), University C (UC) and University D (UD), which were produced using the following syntax on Stata:

chernoff, isize(positivesentiment) bdens(reach) psize(negativesentiment) hlower(negativesentiment) bcurv(passion) mcurv(passion) fline(strength) hupper(positivesentiment) hslant(reach) bhor(uniqueauthors) nose(uniqueauthors) ppos(strength) iangle(neutralsentiment) hdark(rf_hours) order(university) ilabel(university).

This chain of commands therefore enabled the formulation of the figures for the minimum, maximum and the means that are analysed in this section of the study.

4.8.1 Maximum values

Figure 4.10: Maximum values
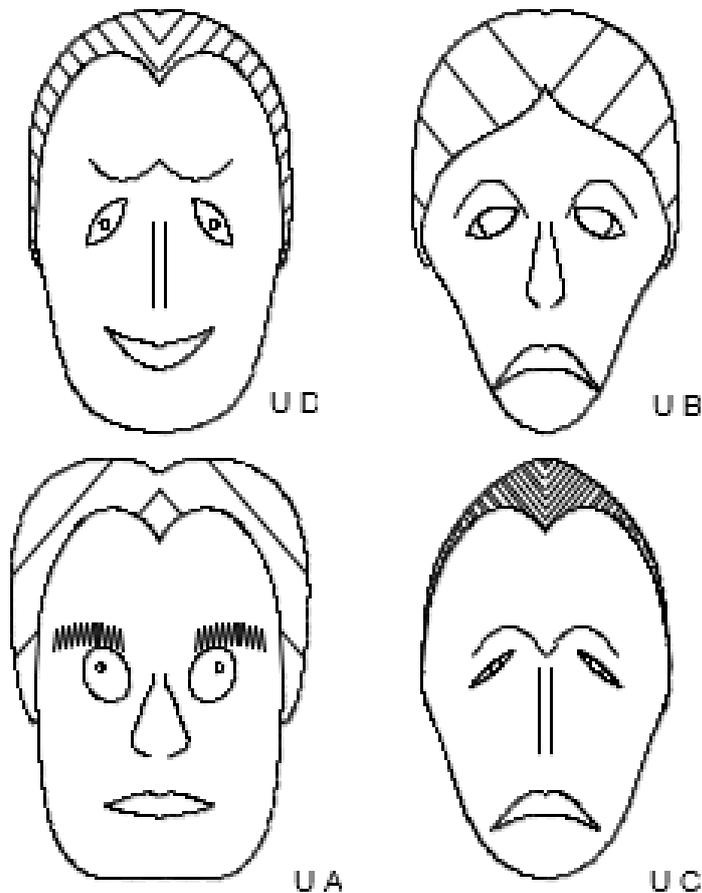
Source: Prepared by the researcher

Figure 4.10 demonstrates the maximum values for the four university brands. As shown in the figure, University A displayed the highest positive sentiment as demonstrated by the face for the brand having the largest eyes, while University C has the smallest eyes. The University B and University D are similar in the positive sentiment variable. The negative sentiment is displayed by the pupil size. However, the University B demonstrated the highest negative sentiment as its' face had the largest pupil size. Further, University C has the second-largest negative sentiment, though much smaller than University B, and relatively close to University D and University A. The variable for unique authors is displayed by the nose.

Figure 4.10 shows that University A had a much larger nose than the other brands, followed by University B then University C, though similar. Last, University D had the fewest unique authors. Relative frequency variable is depicted by the hair density of the brand. The University C had the highest relative frequency, then University D, followed by University B and University A had the smallest hair density. The University D had a significantly high passion score than the other three brands, and this is seen with the big curvature of the smile. Comparatively, University A had a relatively high passion score, as seen with the slight curve of the mouth while University B and University C, unlike the other brands, had a frowning mouth showing a low passion score. Figure 4.10 clearly shows University A as having the biggest reach for maximum values. The other three brands had a much smaller reach though they were all similar. The strength variable is represented by the face line. University A had the biggest face line, then University D, followed by University C and lastly with the smallest face line for maximum values was University B.

4.8.2 Minimum values

Figure 4.11: *Minimum values*
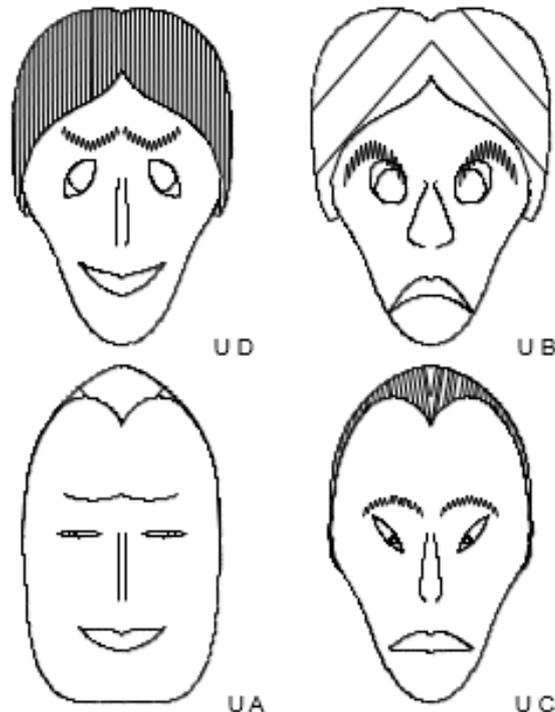
Source: Prepared by the researcher

Figure 4.11 is an illustration of the minimum values for the four university brands over the thirty-day study.

As demonstrated in Figure 4.11 by the eye size for positive sentiment, University B had the highest minimum values, followed by University D and University C, with University A having the lowest minimum values. Therefore, University B and University D scored the highest in negative sentiment as this variable is displayed by the pupil size. The University A and University C had similar minimum values, this is represented by the small pupil sizes of the two brands. Further, University B had the most unique authors for minimum values, which is represented by the biggest nose for the brand in the whole graph. University C has the second biggest nose, though much smaller than that of University B; and University D follows lastly with the smallest nose. Therefore, fewest unique authors were recorded for University A.

The Social Mention metric of relative frequency is depicted by the hair density, and University D had the highest relative frequency followed by University C. University B had much less relative frequency than University C, but is still better than University A, which had the least of all the four brands. University D had the most passion for minimum values followed by University A as we see the curve of the mouth. Comparatively, University C and University B has the least minimum values for passion. The bushy eyebrows of the faces in Figure 4.11 displays the reach variable. University B had the most brand reach, then University D, while University C and University A brand with the least reach for minimum values. The last variable for minimum values is strength, which is demonstrated by the face line. University A had the highest brand strength of all the four brands, while the other three brands had a similar brand strength.

4.8.3 Mean/average

Figure 4.12: *Mean/average values*
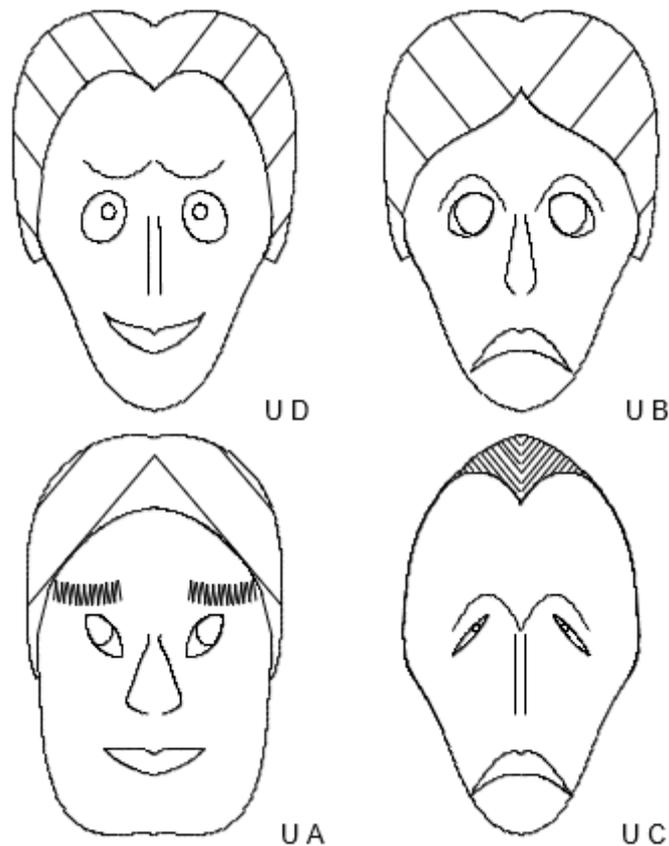
Source: Prepared by the researcher

Figure 4.12 is a presentation of the mean for the four university brands. The positive sentiment was explicitly similar for University D and University B, while University A had a smaller mean to these two universities. University C had a significantly smaller positive sentiment in comparison to the other three brands. This graph also shows us the negative sentiment for these brands through the pupil size. University B had the highest negative sentiment, followed by University A, and University D, while University C had the lowest negative sentiment as shown by the pupil sizes of each brand. The University A mean is the highest for unique authors than the other brands, University B follows after University A, then University D and University C at the end with the smallest mean.

The next variable is the relative frequency, which is illustrated by the hair density of each Chernoff face per university brand in Figure 4.12. As the figure demonstrates, University C had the highest mean for relative frequency as the brand has the thickest

hair than the other brands. University D had the second-highest mean for this variable, followed by University B, while University A comes last with the thinnest hair. The mean for passion variable is highest for University D, followed University A, with University B and University C having similar means as displayed by the frowning face graphs for these brands on Figure 4.12.

With regard to reach variable, University A had the highest mean. This is obvious with the brand face having the thickest eyebrows compared to the other three brands. The other university brands had similar means to reach. The mean for University A is highest for the strength variable in comparison to the other three brands. The other brands had similar face lines that were very thin compared to University A, demonstrating low brand strength.

4.9 Discussion of results

The findings in this study revealed that there are various variations on the strength, positive sentiments, negative sentiments, passion, reach, unique, and relative frequency of the four universities brand. It is of paramount importance to note that these variations relate to the brand image. Furthermore, the expression of maximum value, minimum value, and the mean reflect on the behaviour and reaction of the customers towards each brand. It is also noted that in all presented values are based of RBT which the availability of social media is, and media marketing. Thus, maximum values, minimum values and the mean are influence by Resource-based view theory. In support to the above sentiments, Alrwashdeha, Emeagwalia and Aljuhmani (2019:1) signified that *"indeed, this type of communication has been more effective in consumers'' decision making than other traditional marketing tools, such as personal selling, or advertising media because it is considered more credible and reliable than any resource information generated by an institution".* Wu and Wang (2011) also noted that considering the growth in technology, the advent of the internet has played a significant role in exchange in information transmission. While recent statistics from June 2019 indicate that more than fifty percent, or just over 4.5 billion people in the world are using the internet (Internet World Statistics, 2019); with Africa representing about 11.5 percent of the world's internet usage. This can be seen in Table 4.2 below, where the popupation in relation to the the internet population and usage is demonstrated per continent.

Table 4.2: *World internet usage and popupation statistics*

WORLD INTERNET USAGE AND POPULATION STATISTICS 2019 Mid-Year Estimates						
World Regions	Population (2019 Est.)	Population % of World	Internet Users 30 June 2019	Penetration Rate (% Pop.)	Growth 2000-2019	Internet World %
Africa	1,320,038,716	17.1 %	522,809,480	39.6 %	11,481 %	11.5 %
Asia	4,241,972,790	55.0 %	2,300,469,859	54.2 %	1,913 %	50.7 %
Europe	829,173,007	10.7 %	727,559,682	87.7 %	592 %	16.0 %
Latin America / Caribbean	658,345,826	8.5 %	453,702,292	68.9 %	2,411 %	10.0 %
Middle East	258,356,867	3.3 %	175,502,589	67.9 %	5,243 %	3.9 %
North America	366,496,802	4.7 %	327,568,628	89.4 %	203 %	7.2 %
Oceania / Australia	41,839,201	0.5 %	28,636,278	68.4 %	276 %	0.6 %
WORLD TOTAL	7,716,223,209	100.0 %	4,536,248,808	58.8 %	1,157 %	100.0 %

Source: Internet World Stats (2019)

In the context of this study generally it can be concluded that on maximum value University C has the least, while on the minimum value University B has the least and on the mean University C has the least. It has been realised that this has been influence by various variations, which are determined by Social media. Thus, social media had impacted differently on the three variables amongst the four Universities. The application, or lack thereof, of Resource-based view also plays a pivotal role in such influence, which is based on the data collected over the 30-day period that the study was conducted in.

It is essential to note that the four universities are unique to one another despite the reality that the study was conducted over a 30-day period. The results are subject to events and other activities, which surrounded the social media for each brand at the time. The issue of rape remains a major concern in South African universities and during the period of study (between 2nd and 30th October 2018), various incidents were reported by Naidu (2018a). The various instances of rape at universities (University A and University B) such as the case of Khensani who was raped within the university was trending on all media outlets in the country, as she committed suicide consequently to the incident. Furthermore, there were ongoing strikes and student violent protests at University C which led to a University C management decision to close two campuses located in two different towns, indefinitely (Majangaza, 2019). Three university vehicles were set alight, allegedly by protesting students at another campus of University C in the Eastern Cape (Majangaza, 2019). Disgruntled students were protesting due to the non-payment of allowances and tuition fees by National

Student Financial Aid Scheme (NSFAS) (SABC, 2019). These cases are amongst a number of cases that are continuously reported on every year.

Based on the events and communication in the above section it is important to note that these communications are not influenced and controlled by the universities as OSM (Colicev *et al.,* 2018) but by users on social media as ESM (Colicev *et al.,* 2018). Thus, according to Bernoff and Li (2011) social media platforms offer an opportunity for customers to interact with other consumers, thus, companies are no longer the sole source of brand communication. In addition to that it has also been realised that, consumers are increasingly using social media sites to search for information and turning away from traditional media, such as television, radio, and magazines (Mangold & Faulds, 2009). Since this phenomenon has reduced marketers' control of brand management, this tends to factor influence both negatively and positively on brand image (Berthon *et al.*, 2007). Both positive (going to buy) and negative (never going to buy) purchase intent are found to be an influential indicator on the brand (Shah, 2018; Panepinto, 2018). Precisely to the findings of this study these issues influenced the reaction within social media, which might be expressed with high positive sentiments and also high negative sentiments. It is therefore imperative to state that the sharing of correct content for universities as OSM could translate to ESM that could influence high scores on positive sentiment, reach, passion and other preferred variables. Similarly, University D has been trending as it celebrated 100 years of establishment. Therefore, the centenary celebrations with notable and great leaders associated with University D including the First South African President amongst other African leaders could have had an influence in its brand during the time of the study on social media. In addition to that, University D had been recorded to have the first isi*Xhosa* written doctorate thesis (Feni, 2018).

This study has established that there are various factors, which influence the variations. This is in line with the assertion by Moongela (2017:10) who alluded that, *"the use of social media in tertiary institutions has been discussed at length regarding its impact on students' academic performance, academic engagement and pedagogic experience."* Generally, from the four universities, three have been strong, high and average; with University C having the majority of the variations being low, weak, and poor. This, therefore, indicates that there has been an influence of media brand image

as presented in the study. However, University A has recorded high, strong and positive brand. It has also been established that University A is in the top ten South African University and University B being amongst the top twelve universities. The University B and University A are celebrating the institutional award of the South African Cultural Observatory (SACO) tender by the Department of Arts and Culture to a consortium of four South African universities. Additionally, University A has quite a deliberate social media presence compared to the other three universities, and as such, has a better chance of influencing social media conversations. In support to that it can therefore be realised that, it is of crucial importance to understand that customers' perceptions of brands are not anymore influenced only by what the companies communicate, but what other customers have to say about the particular brand as well. The viral dissemination of information among the people through social media is much stronger than the traditional media such as TV, radio, and print advertisements (Keller, 2011).

Sites such as Twitter and Facebook particularly work with "retweets" and "share" buttons, this means the more positive content the brand posts on these pages the better the chances of directing social media conversations. Thus, marketing communication through social media plays a pivotal role in influencing the choices of consumers as noted by Duralia (2018). Precisely to this, the retweet and the share buttons would mean that the information would be trending.

This also influences brand image, which would prompt potential students to be interested to explore the university on social media. Thus, the nature of social media being an enabler of interaction, as it allows one person to communicate easily with hundreds or thousands of other users in a rapid way. In a study conducted by Akhter (2014), 74 per cent of students want the web community establishment of universities and consider it as an important aspect for modern world marketing. Hence social media plays a pivotal role in brand image marketing as it is one of the modern world marketing tools. It is also paramount to note that academic success is promoted by good brand management. While the other two universities University D and University C are not in the top ten neither in the top 12, it does not imply that there has not been positive social media influence. Thus, for instance, the University D and University of Kwa Zulu Natal have joined the consortium to deliver the five-year contract for

mapping, understanding and analysing the creative and cultural industries and arts, culture and heritage in South Africa.

It has also been revealed that, since there is little control of social media and the influence it has on brand image, universities are more reactional than being proactive to events and circumstances that surround social media marketing and brand image. For instance, there are cases where an individual commits suicide or rape, but such an incident portrays a negative sentiment according to sentiment analysis discovered by Panepinto (2018). For instance, the rape cases recorded at University A amongst other universities (Naidu, 2018a; Naidu, 2018b). This, therefore, might result in negative sentiments about the brand. Moreover, University C has been faced with on-going strikes for mismanagement, which also play a role in the brand image. South African universities have also been faced by large strikes such as #FeesMustFall, which also affected the brand images of the universities, which has been presented as negative sentiments.

The study found that though negative news and trends on social media about the universities under study can impact the sentiment of users on the brands, interestingly, it was revealed that users of social media mainly engage in posting negative issues when negative matters happen in the universities under study. These incidents include rape cases and protests. Users would not necessarily post negative issues such as delays in application processes generally. It could be because such issues do not make headlines or because they are not societal issues. This is evident by the positive and negative sentiment days as can be seen for university A. The glaring number of days for the negative sentiment for University A, as seen on the 6th, 14th, 19th, 20th, 27th, 29, 30 and 31st is due to the ongoing reporting of old rape cases that took place in 2017 and in August 2018, leading to a suicide, but continuously getting refered to in conversations of rape in universities (Naidu, 2018a; Naidu, 2018b; Mphahlele, 2018). Though University A has also demonstrated a number of exceptionally positive sentiment days such as the 14th, 27th, 29, 30th and 31st, the high positive sentiment at the end of October 2018 for University A and University B was affected by the top 12 best universities in South Africa rankings (Businesstech, 2018).

University D displayed exceptionally good sentiment in comparison to the other three universities, as it only had one day on the 11th where there was high negative

sentiment while throughout the month it displayed high positive sentiment with the exception of the 11th day. This positive social media presence for this university during this period was due to its spring graduation season as reported by Feni (2018).

University C was found to have performed badly on the 8th and 11th of October days as its score for negative sentiment was high due to a rape that was reported on the 8th of October by The Daily Post Team (2018). The Student Representetive Council (SRC) of the University stated that there would be no acadermic activities in the campus on that day (The Daily Post Team, 2018).

Kim and Hoskisson (2015) alluded that, RBT has been credited to sustain competitive advantage within an environment where the resources are minimal, limited, scarce within the market or the institution, organisation or institution. Thus, based on this realisation, resources are also determined by the capacity and the ability of the university to market its brand through academic success, security assurance and the socialisation within the institutions. This has been confirmed by the study, which will influence the view that is held by the potential customers and clients, as stated by Colicev *et al. (*2018) that ESM interaction level affects brand awareness and purchase intent.

4.10 Conclusion of chapter 4

Chapter four presented descriptive statistics of the data that was collected over the thirty days from the 2nd of October 2018 to the 31st of October 2018. Based on the above discussions, the study has revealed that social media influences the brand image of the selected HEIs. The behaviour of the consumers has been reported through variables on the reaction of the customers for each brand. Undoubtedly, this behavior, although influenced by social media communications, it is essential to note that social media communications are influenced by events that are taking place within the universities. This supports the notion of brand management and brand image. It has been realised that young people are now using social media for content analysis, making it a good communication tool between the universities and students as well as to potential students to market their brands. This was established by the current study.

This chapter therefore also presented a comparative analysis of the four university brands using maximum values, minimum values and the mean of each brand. It has

presented the discussion on the influence of social media, media marketing and RBV on brand image, the limitations of the study and last, the summary of the study. The next chapter presents the evaluation of the study, contributions, limitations, theoretical and practical considerations, recommendations and concludes the study.

CHAPTER 5: CONTRIBUTIONS, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

The previous chapter dealt with data analysis, interpretation and discussion of the results for the thirty-day study. This chapter presents an overview of the study chapters, evaluates the research, discusses the contributions of the study, talks about the study's limitations, provides the theoretical and practical considerations, makes recommendations, and concludes the study.

5.2 Overview of the study chapters

The dissertation was developed based on the following structure:

Chapter 1 provided an orientation to the study, problem statement, goals of the research, the purpose and the objectives of the study, the rationale, the justification of the study as well as the key concepts of the study.

Chapter 2 was on literature review and on conceptualising brand image. By so doing, the chapter met objectives 1, 2 and 3 the study, which are:

1) To compare social media perceptions on the brand image of the universities.
2) To trace how social media perceptions on the brands change over a thirty-day period.
3) What the relationship is between social media perception and university brand image.

Chapter 3 identified and justified the methodological approach used in this study. It also presented the research paradigm, design and techniques, its limitations as well as tools and instruments utilised to collect data.

The emphasis of **chapter 4** was on data presentation, analysis and discussion of the findings.

Chapter 5 gives an overview of the study chapters, evaluates the research, discusses the contributions of the study, makes recommendations, talks about the study's limitations and concludes the study.

5.3 Evaluation of the research

The existence of the internet has given customers with new platforms of discussing their views and opinions on brands. This means organisations must now learn ways of responding to online criticism as this could possibly have a role in the overall consumer perception of the brand. This study intended to provide insights that could impact on the Social Media theories and institutional marketing practices and policies for South African universities. Social media trends on the universities was therefore tracked in order to discover the following objectives and outcomes thereof. Table 5.1 puts this study's research objective against the outcomes.

Table 5.1: Derivations from research objectives

Objective	Outcome
1. To track and trace social media metrics on the following university brands: University A, University B, University D, and University C.	The Social Mention website was monitored over thirty days in October to track the social media sentiment on the four universities. The findings are demonstrated in chapter 4 (*cf.* Figure 4.2, Figure 4.4, Figure 4.6 and Figure 4.8).
2. To trace how social media perceptions on the brands change over a thirty-day period.	The longitudinal aspect of the study is experienced as each brand is seen to be changing daily over the thirty days of research in chapter 4 (*cf.* Figure 4.3, Figure 4.5, Figure 4.7 and Figure 4.9). The Social Mention metrics are seen on each face evolve in response to social media perceptions on the brands.
3. To compare social media perceptions on the brand image of the universities.	The comparison was made on the four universities in chapter 4 (*cf.* Table 4.1, Figure 4.10, Figure 4.11, Figure 4.12).
4. To establish the relationship between social media perceptions and university brand image.	The social media perceptions on the brand image of the university was therefore found to have an influence, as portrayed by the Means Chernoff faces in chapter 4 (*cf.* Figure 4.12). The study found that though negative news such as rape and protests on social media about the universities under study can impact the sentiment of users on the brands, interestingly, they do not necessarily attract unrelated negative news about the said universities as mentioned in chapter 4 (*cf.* 4.9)

Source: Prepared by the researcher

From Table 5.1, the following additional points were derived from the research:

i.   There exists a need for social media strategies and review thereof, for HEIs; and

ii.   There exists a need for a monitoring and evaluation strategy.

5.4 Key contributions of this study

The 30-day longitudinal aspect of the study was a contributing factor in learning the impact of social media sentiment on the universities, as this sentiment can change from a negative to a positive or *vice versa* (Shah, 2018). While it is almost impossible to control every aspect of a brand in social media, brand managers should at least make an attempt to monitor what is being said. The use of Chernoff Faces to portray the results further contributed an interesting and simple yet powerful technique to enable a better assimilation of multifaceted information quickly by a reader.

5.5 Limitations of the study

There were a few limitations that were uncovered during this research. The data harvesting website, Social Mention website, has gaps in the reliability and validity of collected data. The data could be affected and compromised due to the subjectivity of this method. Another limiting issue could be the effect of outliers on the output of the face features. Researcher need to be weary of this and conduct various tests to delimit this issue during the data analysis stage.

These limitations could have had an impact on social media influence on brand image. The geographical locations of the universities under study could have had an impact on the study and therefore the results would need further investigating to produce a more valid finding on the brand image. Historical institutional challenges that have resulted in the inheritance of a positive or negative brand image could have added to the outcome of the results of the study. For instance, University D has been for a while being faced with mismanagement and institutional politics, which therefore magnify negative social media publicity.

Moreover, the different socio-economic locations of the universities such as Metropolitan Municipalities or Local Municipalities present the circumstances and demands which can determine social media influence. This comparative study was undertaken only in the Eastern Cape where the resources of the four universities under study vary.

5.6 Theoretical considerations

The four universities need to adapt the principles of Resource-based theory not only to survive, but to thrive in the digital era. The advantage of the theory is that it has

evolved and therefore has improved over the years. This makes provision for all potential resources that an organisation could have, in this case the intangible resource of brand image and social media presence become of paramount importance. Mahoney and Pandian (1992) noted that RBT can play a major role in bridging the knowledge gap as the theory integrates traditional principles of strategy that concern a firm's distinctive capabilities. Barney (1986) had earlier reasoned that a firm may gain expectation advantages by analysing information about the assets it already controls.

To better link RBT and measurement concerning intangibles, Molloy, Chadwick, Ployhart and Golden (2011) presented a theory-driven multidisciplinary assessment process (MAP) that integrates the complementary perspectives of economics and psychology and that provides a context-specific theory of intangibles for empirical studies. Specifically, the MAP approach is seen as linking RBT and intangibles by clarifying how and why a particular intangible underlies value creation and capture for firms.

5.7 Practical considerations

The study has established that there are considerable options that universities can contemplate in promoting and maintaining their brand. Findings, as presented in chapter 4 (*cf.* Figure 4.3, Figure 4.5, Figure 4.7 and Figure 4.9), allow for classification and clustering of the metrics for each university. This allows the university to classify performance over the period of study to each of the seven metrics, in order to ascertain how the brand is performing in terms of strength, sentiment (positive and negative), passion, reach, unique authors and relative frequency. The application of clustering would assist the university to pinpoint why it is that the brand performance was of a particular nature at that point in time. This consideration then aids in the social media / digital strategy for the university, one which talks directly to the needs of the institution rather than a generic one. This can enable communication between the university and the social media users, which could include students, potential students, staff and potential staff.

5.8 Recommendations for future research

Branding and social media play a pivotal in influencing the brand image. There is a need for a series of studies as opposed to a standard once-off study, as there are variations of how each aspect per university brand is presented.

Branding on social media also involves experts and persons whose responsibility is to ensure that the brand of the university is represented properly. This is in relation to brand management, which is an essential aspect of brand image. As a result, there is a need to explore such issues to understand the factors that might affect passion, positive sentiments, and negative sentiments amongst other variables, which have been investigated.

A study should be also conducted in exploring more on the influence of social media and branding. This should explore deeply the geographical locations of the universities. For instance, University A is located in the small urban town of Makanda and only has one campus while the other three universities have multi-city campuses. University D has three campuses with the main campus being in Alice Town. University B is located in a bigger city, Port Elizabeth and University C has various campuses in Mthatha, Queenstown, Buffalo City and Butterworth. These areas have different economic and political factors, which influence brand image, and the desire of the clients to have an interest in the exploration of them.

Future studies may be conducted covering wider sample demographics geographically, which include other universities apart from the four Eastern Cape universities. There should be further investigation of the other factors that influence the geographical location. Panepinto (2018) discovered the critical need to apply various methods of tracking consumer perception on a brand. To get an overall insight of the consumer perception methods such as tracking surveys, brand tracker and customer service logs analysis would be informative (Panepinto, 2018).

To ascertain the change over time, it would be essential to conduct the same research at different times of the year. This is based on the fact that whatever that might be trending on the social media within these universities becomes the talk of the province as the universities are closer to each other. Multiple longitudinal studies might produce different results.

There is a need for research to be carried amongst the students, exploring the influence of social media on their selection of a university of choice. This would perhaps give the actual influence of social media management and branding on the choice of university and degree selection. The study could, therefore, be carried out in a different period, such as during recruitment periods to ascertain the social media sentiment on the brand images of the universities at that particular time.

5.9 Recommendations for practice

There is a need for constant monitoring and maintenance of social media influence to ensure that there is no distortion of information, which might influence badly on the brand image. This should ensure that there are brand management strategies and that these are effectively and efficiently managed.

Since there has been active involvement and trends of social media marketing, there is need to ensure that the marketing team and experts are always developing strategies to ensure that indeed brand image is up to standard. This can also be done through traditional media advertising which is competitive. Competition within the market would, therefore, ensure that standards are maintained and are up to standard.

Considering that social media has been widely used, although it might be difficult to control social media negative reaction, there should be instantaneous mitigative measures to address factors that might lead to negative perception on social media. For instance, there should be feedback regarding a matter, which might have raised concern on social media. Additionally, in sensitive situations such as cases of security or rape, communication to explain the mitigation and strategies that have been used to address this challenge should follow. This would also make the customers regain their trust in the affected university.

Since the young people are now using social media for content sharing and analysis, it is essential for university websites and social media platforms to ensure that there is continuous communication. Furthermore, since some social media are used as a communication tool, there should be effective and efficient information requested to uplift the brand image.

Apart from this study for a qualification purpose, the university should have such information and data from time to time to enable them to analyse and strategise on

how to market the brand image to other universities. This also can assist universities in understanding consumers' behaviour towards a brand and competing brands, and how such behaviour can be affected by social media.

Considering RBT, it is also essential to note that resources are needed to ensure that social media conversation has positive effects on the brand image of the university regardless of the geographical location. On that note, it would also acknowledge the essence of social media and its coverage, which does not require the physical presence of the potential customers.

5.10 Conclusion of the study

The main objective of the study was to assess social media influence on brand image and compare the four South African Universities in the Eastern Cape Province. The outcomes of this study's objectives are tabulated in this chapter (*cf.* Table 5.1) with emphasis on the need for social media strategies and reviewal as well as the necessity for strategy monitoring and evaluation. It can be therefore be concluded that there are various social media factors, which influence the brand image. The influence can be positive or negative based on the behaviour of the consumers, but this can affect customer intent. Brand management and RBT play a pivotal role in social media marketing and digitalisations as this can lead to an organisation having a competitive advantage. The VRIN criteria (Valuable, Rare, Inimitable and Non-substitutable) of RBT outline the characteristic that a strategic resource should have to generate competitive advantage (D'Angelo, 2018). This is also influenced by trends within the media marketing including social media. The universities studied in this study have variations about the influence of social media on brand image. However, resources cannot be overlooked on this matter as they directly and indirectly affect the brand image.

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Appendix 1: Thirty-day data of Univeristy A, B, C and D

DATE	UNIVERSITY	PositiveSentiment	NegativeSentiment	UniqueAuthors	RF_hours	Passion	Reach	Strength	DAY
02/10/2018	UNIVERSITYD	21	1	11	24	56	11	1	TUE
03/10/2018	UNIVERSITYD	21	1	11	24	56	11	0	WED
04/10/2018	UNIVERSITYD	26	1	76	2	29	51	9	THU
05/10/2018	UNIVERSITYD	27	1	78	2	28	52	4	FRI
06/10/2018	UNIVERSITYD	21	1	11	48	54	11	0	SAT
07/10/2018	UNIVERSITYD	20	1	11	24	54	11	0	SUN
08/10/2018	UNIVERSITYD	20	1	11	48	54	11	0	MON
09/10/2018	UNIVERSITYD	18	1	9	48	59	9	0	TUE
10/10/2018	UNIVERSITYD	26	1	83	10	19	56	1	WED
11/10/2018	UNIVERSITYD	8	8	98	0,383333333	12	49	13	THU
12/10/2018	UNIVERSITYD	18	1	9	72	59	9	0	FRI
13/10/2018	UNIVERSITYD	18	1	109	0,216666667	10	73	67	SAT
14/10/2018	UNIVERSITYD	20	1	106	0,133333333	10	71	65	SUN
15/10/2018	UNIVERSITYD	18	1	100	0,633333333	13	67	62	MON
16/10/2018	UNIVERSITYD	18	1	9	120	59	9	0	TUE
17/10/2018	UNIVERSITYD	18	1	98	1	14	66	7	WED
18/10/2018	UNIVERSITYD	18	1	85	0,383333333	19	57	9	THU
19/10/2018	UNIVERSITYD	19	1	82	2	21	55	6	FRI
20/10/2018	UNIVERSITYD	19	1	84	0,866666667	20	56	16	SAT
21/10/2018	UNIVERSITYD	18	1	9	144	59	9	0	SUN
22/10/2018	UNIVERSITYD	18	1	8	552	61	16	0	MON
23/10/2018	UNIVERSITYD	19	1	94	0,266666667	12	63	36	TUE
24/10/2018	UNIVERSITYD	19	1	9	168	59	9	0	WED
25/10/2018	UNIVERSITYD	19	1	9	168	59	9	0	THU
26/10/2018	UNIVERSITYD	20	3	98	2	13	66	10	FRI
27/10/2018	UNIVERSITYD	31	2	91	0,15	12	61	30	SAT
28/10/2018	UNIVERSITYD	32	1	94	1	12	63	20	SUN
29/10/2018	UNIVERSITYD	31	1	91	0,133333333	15	61	8	MON
30/10/2018	UNIVERSITYD	23	1	79	2	24	53	18	TUE
31/10/2018	UNIVERSITYD	23	1	77	7	24	52	2	WED
02/10/2018	UNIVERSITYB	14	2	105	0,266666667	7	53	7	TUE
03/10/2018	UNIVERSITYB	16	1	117	0,016666667	8	47	28	WED
04/10/2018	UNIVERSITYB	19	1	99	0,016666667	8	40	22	THU
05/10/2018	UNIVERSITYB	14	1	20	7	9	14	2	FRI
06/10/2018	UNIVERSITYB	20	1	86	0,033333333	20	35	23	SAT
07/10/2018	UNIVERSITYB	14	1	20	16	9	14	1	SUN
08/10/2018	UNIVERSITYB	18	2	84	0,816666667	14	42	11	MON
09/10/2018	UNIVERSITYB	17	2	40	0,033333333	18	20	14	TUE
10/10/2018	UNIVERSITYB	20	1	111	0,016666667	11	56	23	WED
11/10/2018	UNIVERSITYB	24	1	109	0,016666667	12	44	14	THU
12/10/2018	UNIVERSITYB	15	1	39	0,033333333	17	20	15	FRI
13/10/2018	UNIVERSITYB	16	1	39	0,033333333	17	20	14	SAT
14/10/2018	UNIVERSITYB	14	1	19	21	5	13	1	SUN
15/10/2018	UNIVERSITYB	16	1	39	0,016666667	17	20	14	MON
16/10/2018	UNIVERSITYB	16	1	126	0,033333333	5	51	18	TUE
17/10/2018	UNIVERSITYB	19	1	124	0,033333333	6	50	17	WED
18/10/2018	UNIVERSITYB	15	1	42	0,016666667	16	21	14	THU
19/10/2018	UNIVERSITYB	34	3	110	0,033333333	17	44	18	FRI
20/10/2018	UNIVERSITYB	32	3	91	6	13	46	3	SAT
21/10/2018	UNIVERSITYB	33	3	108	0,033333333	16	44	15	SUN
22/10/2018	UNIVERSITYB	14	1	39	0,033333333	17	20	14	MON
23/10/2018	UNIVERSITYB	19	1	119	0,75	0	60	34	TUE
24/10/2018	UNIVERSITYB	13	1	19	72	5	13	0	WED
25/10/2018	UNIVERSITYB	19	7	138	0,016666667	6	56	14	THU
26/10/2018	UNIVERSITYB	17	7	116	2	2	78	7	FRI
27/10/2018	UNIVERSITYB	15	1	39	0,016666667	17	20	14	SAT
28/10/2018	UNIVERSITYB	15	1	38	0,033333333	17	19	14	SUN
29/10/2018	UNIVERSITYB	16	1	39	0,033333333	17	20	14	MON
30/10/2018	UNIVERSITYB	15	1	40	0,033333333	14	20	14	TUE
31/10/2018	UNIVERSITYB	20	55	130	0,033333333	7	65	23	WED
02/10/2018	UNIVERSITYA	11	2	121	0,016666667	27	49	47	TUE
03/10/2018	UNIVERSITYA	5	0	61	0,016666667	41	31	52	WED
04/10/2018	UNIVERSITYA	7	1	63	0,033333333	41	32	51	THU
05/10/2018	UNIVERSITYA	8	0	7	8	12	5	2	FRI
06/10/2018	UNIVERSITYA	17	6	162	0,033333333	22	65	70	SAT
07/10/2018	UNIVERSITYA	8	0	149	0,016666667	22	60	65	SUN
08/10/2018	UNIVERSITYA	7	2	67	0,033333333	39	34	52	MON
09/10/2018	UNIVERSITYA	7	2	66	0,033333333	40	33	51	TUE
10/10/2018	UNIVERSITYA	18	3	147	0,016666667	25	59	52	WED
11/10/2018	UNIVERSITYA	7	2	11	4	8	8	2	THU
12/10/2018	UNIVERSITYA	8	2	67	0,016666667	39	34	51	FRI
13/10/2018	UNIVERSITYA	8	2	9	24	10	6	1	SAT
14/10/2018	UNIVERSITYA	29	4	139	0,033333333	27	56	51	SUN
15/10/2018	UNIVERSITYA	4	3	65	0,033333333	39	33	53	MON
16/10/2018	UNIVERSITYA	3	3	152	0,016666667	22	61	54	TUE
17/10/2018	UNIVERSITYA	6	3	152	0,033333333	22	61	53	WED
18/10/2018	UNIVERSITYA	3	1	64	0,033333333	40	32	53	THU
19/10/2018	UNIVERSITYA	6	3	149	0,016666667	22	60	67	FRI
20/10/2018	UNIVERSITYA	3	4	155	0,016666667	21	6200	67	SAT
21/10/2018	UNIVERSITYA	1	0	58	0,033333333	42	39	68	SUN
22/10/2018	UNIVERSITYA	3	1	134	0,016666667	25	54	49	MON
23/10/2018	UNIVERSITYA	10	4	142	0,033333333	23	71	66	TUE
24/10/2018	UNIVERSITYA	4	3	61	0,016666667	41	31	51	WED
25/10/2018	UNIVERSITYA	10	4	141	0,033333333	24	71	55	THU
26/10/2018	UNIVERSITYA	4	3	62	0,033333333	40	31	52	FRI
27/10/2018	UNIVERSITYA	42	4	146	0,033333333	23	59	62	SAT
28/10/2018	UNIVERSITYA	4	4	62	0,033333333	40	31	51	SUN
29/10/2018	UNIVERSITYA	64	5	142	0,033333333	23	71	87	MON
30/10/2018	UNIVERSITYA	52	4	128	0,033333333	26	64	85	TUE
31/10/2018	UNIVERSITYA	39	4	144	0,033333333	24	58	55	WED
02/10/2018	UNIVERSITYC	4	0	108	0,116666667	6	54	50	TUE
03/10/2018	UNIVERSITYC	4	0	111	0,733333333	4	56	50	WED

Date	Location								Day
04/10/2018	UNIVERSITYC	3	0	12	168	25	8	0	THU
05/10/2018	UNIVERSITYC	4	0	110	0,266666667	4	55	23	FRI
06/10/2018	UNIVERSITYC	4	0	110	2	4	55	5	SAT
07/10/2018	UNIVERSITYC	7	0	110	1	4	55	4	SUN
08/10/2018	UNIVERSITYC	4	14	99	1	7	50	32	MON
09/10/2018	UNIVERSITYC	3	0	12	216	20	8	0	TUE
10/10/2018	UNIVERSITYC	3	0	12	216	20	8	0	WED
11/10/2018	UNIVERSITYC	8	8	98	0,383333333	12	49	13	THU
12/10/2018	UNIVERSITYC	3	0	11	456	21	8	0	FRI
13/10/2018	UNIVERSITYC	3	0	11	456	21	8	0	SAT
14/10/2018	UNIVERSITYC	3	0	11	456	21	8	0	SUN
15/10/2018	UNIVERSITYC	4	0	12	480	14	8	0	MON
16/10/2018	UNIVERSITYC	10	0	96	2	8	48	5	TUE
17/10/2018	UNIVERSITYC	4	0	12	720	14	12	0	WED
18/10/2018	UNIVERSITYC	11	0	95	7	7	64	3	THU
19/10/2018	UNIVERSITYC	4	0	12	720	14	12	0	FRI
20/10/2018	UNIVERSITYC	12	0	93	10	7	62	1	SAT
21/10/2018	UNIVERSITYC	12	0	91	14	8	61	2	SUN
22/10/2018	UNIVERSITYC	4	0	12	720	16,66666667	12	0	MON
23/10/2018	UNIVERSITYC	9	0	71	10	5	48	1	TUE
24/10/2018	UNIVERSITYC	3	0	11	720	15	11	0	WED
25/10/2018	UNIVERSITYC	3	0	11	720	15	11	0	THU
26/10/2018	UNIVERSITYC	8	0	39	10	7	26	0	FRI
27/10/2018	UNIVERSITYC	3	0	11	720	15	11	0	SAT
28/10/2018	UNIVERSITYC	4	0	73	1	5	49	30	SUN
29/10/2018	UNIVERSITYC	3	0	79	2	5	53	10	MON
30/10/2018	UNIVERSITYC	3	0	12	720	14	12	0	TUE
31/10/2018	UNIVERSITYC	3	1	81	9	5	54	1	WED

Appendix 2: Unstacked data of University A, B, C and D

date	positivesentiment_UniversityD	negativesentiment_UniversityD	uniqueauthors_UniversityD	rf_hours_UniversityD	passion_UniversityD	reach_UniveristyD	strength_UniveristyD
02/10/2018	21	1	11	24	56	11	1
03/10/2018	21	1	11	24	56	11	0
04/10/2018	26	1	76	2	29	51	9
05/10/2018	27	1	78	2	28	52	4
06/10/2018	21	1	11	48	54	11	0
07/10/2018	20	1	11	24	54	11	0
08/10/2018	20	1	11	48	54	11	0
09/10/2018	18	1	9	48	59	9	0
10/10/2018	26	1	83	10	19	56	1
11/10/2018	8	8	98	0,3833333	12	49	13
12/10/2018	18	1	9	72	59	9	0
13/10/2018	18	1	109	0,2166667	10	73	67
14/10/2018	20	1	106	0,1333333	10	71	65
15/10/2018	18	1	100	0,63333333	13	67	62
16/10/2018	18	1	9	120	59	9	0
17/10/2018	18	1	98	1	14	66	7
18/10/2018	18	1	85	0,3833333	19	57	9
19/10/2018	19	1	82	2	21	55	6
20/10/2018	19	1	84	0,86666667	20	56	16
21/10/2018	18	1	9	144	59	9	0
22/10/2018	18	1	8	552	61	16	0
23/10/2018	19	1	94	0,26666671	12	63	36
24/10/2018	19	1	9	168	59	9	0
25/10/2018	19	1	9	168	59	9	0
26/10/2018	20	3	98	2	13	66	10
27/10/2018	31	2	91	0,15000001	12	61	30
28/10/2018	32	1	94	1	12	63	20
29/10/2018	31	1	91	0,1333333	15	61	8
30/10/2018	23	1	79	2	24	53	18
31/10/2018	23	1	77	7	24	52	2

	positivesentiment_UniversityB	negativesentiment_UniversityB	uniqueauthors_UniversityB	rf_hours_UniversityB	passion_UniversityB	reach_UniversityB	strength_UniversityB
	14	2	105	0,26666671	7	53	7
	16	1	117	0,016666699	8	47	28
	19	1	99	0,016666699	8	40	22
	14	1	20	7	9	14	2
	20	1	86	0,033333302	20	35	23
	14	1	20	16	9	14	1
	18	2	84	0,81666672	14	42	11
	17	2	40	0,033333302	18	20	14
	20	1	111	0,016666699	11	56	23

positivesentiment_UniversityA	negativesentiment_UniversityA	uniqueauthors_UniversityA	rf_hours_UniversityA	passion_UniversityA	reach_UniversityA	strength_UniversityA
24	1	109	0,016666699	12	44	14
15	1	39	0,033333302	17	20	15
16	1	39	0,033333302	17	20	14
14	1	19	21	5	13	1
16	1	39	0,016666699	17	20	14
16	1	126	0,033333302	5	51	18
19	1	124	0,033333302	6	50	17
15	1	42	0,016666699	16	21	14
34	3	110	0,033333302	17	44	18
32	3	91	6	13	46	3
33	3	108	0,033333302	16	44	15
14	1	39	0,033333302	17	20	14
19	1	119	0,75	0	60	34
13	1	19	72	5	13	0
19	7	138	0,016666699	6	56	14
17	7	116	2	2	78	7
15	1	39	0,016666699	17	20	14
15	1	38	0,033333302	17	19	14
16	1	39	0,033333302	17	20	14
15	1	40	0,033333302	14	20	14
20	55	130	0,033333302	7	65	23

positivesentiment_UniversityA	negativesentiment_UniversityA	uniqueauthors_UniversityA	rf_hours_UniversityA	passion_UniversityA	reach_UniversityA	strength_UniversityA
11	2	121	0,016666699	27	49	47
5	0	61	0,016666699	41	31	52
7	1	63	0,033333302	41	32	51
8	0	7	8	12	5	2
17	6	162	0,033333302	22	65	70
8	0	149	0,016666699	22	60	65
7	2	67	0,033333302	39	34	52
7	2	66	0,033333302	40	33	51
18	3	147	0,016666699	25	59	52
7	2	11	4	8	8	2
8	2	67	0,016666699	39	34	51
8	2	9	24	10	6	1
29	4	139	0,033333302	27	56	51
4	3	65	0,033333302	39	33	53
3	3	152	0,016666699	22	61	54
6	3	152	0,033333302	22	61	53
3	1	64	0,033333302	40	32	53
6	3	149	0,016666699	22	60	67
3	4	155	0,016666699	21	6200	67
1	0	58	0,033333302	42	39	68
3	1	134	0,016666699	25	54	49
10	4	142	0,033333302	23	71	66
4	3	61	0,016666699	41	31	51

10	4	141	0,033333302	24	71	55
4	3	62	0,033333302	40	31	52
42	4	146	0,033333302	23	59	62
4	4	62	0,033333302	40	31	51
64	5	142	0,033333302	23	71	87
52	4	128	0,033333302	26	64	85
39	4	144	0,033333302	24	58	55

positivesentiment_UniversityC	negativesentiment_UniversityC	uniqueauthors_UniversityC	rf_hours_UniversityC	passion_UniversityC	reach_UniversityC	strength_UniversityC	id	day
4	0	108	0,1166667	6	54	50	2	TUE
4	0	111	0,73333329	4	56	50	3	WED
3	0	12	168	25	8	0	4	THU
4	0	110	0,26666671	4	55	23	5	FRI
4	0	110	2	4	55	5	6	SAT
7	0	110	1	4	55	4	7	SUN
4	14	99	1	7	50	32	8	MON
3	0	12	216	20	8	0	9	TUE
3	0	12	216	20	8	0	10	WED
8	8	98	0,3833333	12	49	13	11	THU
3	0	11	456	21	8	0	12	FRI
3	0	11	456	21	8	0	13	SAT
3	0	11	456	21	8	0	14	SUN
4	0	12	480	14	8	0	15	MON
10	0	96	2	8	48	5	16	TUE
4	0	12	720	14	12	0	17	WED
11	0	95	7	7	64	3	18	THU
4	0	12	720	14	12	0	19	FRI
12	0	93	10	7	62	1	20	SAT
12	0	91	14	8	61	2	21	SUN
4	0	12	720	16,66667	12	0	22	MON
9	0	71	10	5	48	1	23	TUE
3	0	11	720	15	11	0	24	WED
3	0	11	720	15	11	0	25	THU
8	0	39	10	7	26	0	26	FRI
3	0	11	720	15	11	0	27	SAT
4	0	73	1	5	49	30	28	SUN
3	0	79	2	5	53	10	29	MON

3	0	12	720	14	12	0	30	TUE
3	1	81	9	5	54	1	31	WED

Appendix 3: Ethical clearance

Ethics Application RBS 2018/09/86 ➤ Inbox ×

Noel Pearse <N.Pearse@ru.ac.za>   Tue, 19 Feb, 16:55 ☆ ↰ ⋮
to me ▾

Dear Lusanda

This is to confirm that your ethics application (RBS 2018/09/86) to the Business School Ethics Committee was received. As noted in the minutes of the meeting of 9th November 2018, "Any applications to use publically available and anonymised DATA ONLY, can be submitted to the Chair for screening, and to confirm that no further application is needed".

Your application met this requirement, and approval was thereby granted you to conduct your research.

Regards
Prof Noel Pearse: Chair: Rhodes Business School Ethics sub-Committee (2016-2018)