INTERGRATING THE C.O.S.T.A. RESEARCH FRAMEWORK IN TEACHING OF THEMATIC ANALYSIS FOR POSTGRADUATE STUDENTS

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ABSTRACT

The C.O.S.T.A. Research Framework is a tool that was developed to assist students and novice researchers to navigate postgraduate studies with clarity and understanding. The emphasis of the method is on a five step approach comprising of (1) Concepts in research that are foundational to research language; (2) Objective of research which is being undertaken – likened to development of protocol or proposal; (3) Situation, emphasizing pre-comprehension of the current debate, likened to literature review; (4) Tact, which deals with methodological approaches to formulation of conclusions; (5) Assessment of output – ability to make judgments on trajectory followed and study results.

This current study focused on the use of thematic analysis by students and novice researchers in completion of their research reports and scientific writings, which essentially forms part of Stage 4 of the C.O.S.T.A Framework. The author used a systematic mapping review to select units of analysis for the sole purpose of demonstrating gaps and inconsistencies on the application of the concept of thematic analysis. In most research reports, students demonstrate clear articulation of methods in coding and themes generation, however, evidence of these codes and how themes were generated was not reflected on most of reports reviewed. This situation seems to be a prevalent in most research reports, which detailed explication of interpretation of participant's comments during interviews taking the prominent feature of presentation of results/findings section.

It is for this reason that the C.O.S.T.A. Research Framework (Costak, 2019) is proposed as one of the methods for teaching students about different methods of qualitative data analysis in general and thematic analysis in particular.

Key Words: COSTA Framework, Thematic Analysis, Teaching, Teaching

1. INTRODUCTION

The lack of focus on systematic approach to rigor determination in qualitative research presents a philosophical quagmire and degenerative challenges to the discipline (Maguire & Delahunt, 2017). It is required that transparency relating to the process of analysis be demonstrated right at the surface of the discourse. It is crucial for researchers to understand that, before even determination of the method of analysis is considered, the understanding that qualitative research is a method appropriate for generating knowledge grounded in human behavior and experience, as postulated by (Sandelowski, 2004). Explicating that which is researched in this paradigm dictates that human experiences are best described and interpreted by human. The notion of human interpretation of experiences of others suggests that the researcher automatically plays a pivotal role as a key research instrument (Bahrami, Soleimani, Yaghoobzadeh & Ranjbar, 2016). As a research instrument, the researcher, in his/her trajectory to answering the research question and describing a particular phenomenon, is tasked with making subjective judgments about data collection, data analysis, coding, themeing and contextualization of data (Starks & Trinidad, 2007). Data analysis is regarded as the most difficult phase in qualitative research and also a key stage in demonstrating achievement of what the research was about, after all (Nowell, Norris, White & Moules, 2017; Thorne, 2000).

Literature has indicated that there are many methods of analyzing textual data, illustrated by O'Gorman and MacIntosh (2015) as:

- Template analysis
- Thematic Analysis
- Discourse Analysis
- Hermeneutics
- Grounded Theory

In this study, the focus is on student's and researcher's use of thematic analysis to formulate study conclusions. It is imperative to describe procedures and processes used by researchers when making judgments related to data reduction (Dey, 1993) in a manner that other scientists and researchers may be able to replicate (Braun & Clarke, 2006; Malterud, 2001; Boyatzis, 1998). The researcher has noted that most postgraduate students, and in some cases, established researchers, fall short of through explication of the methods applied to every stage of the analysis, and rationale thereor (Tuckett, 2005). For this article, the author postulated

some ideas into demonstration of the proccess of analysys (Costa, 2019) that seeks to achieve a well articulated methodology for rigor demonstration and replicability:

- The manner in which intruments were prepared,
- Procedures of analysys
- Presentation of findings
- Conclusions drawn from findings

It is in that regard that the COSTA QDA is hereby presented. As one of many methods within the Framework Analysis tradition (Dey, 1993), the COSTA QDA is part of the wider research pedagogy developed for assisting both students and researchers in structural frameworks for research developments. The section below demonstrates how the method was developed.

2. METHODS

The plight of many postgraduate students who enrol at institutions of higher learning for either M or D qualifations was explicated by the researcher in his earlier works (Costa,2018). A close examination of the phenomenon indicated many challenges well researched by many scholars (Cekiso, Tshotsho, Masha & Saziwa,2019). Of the three challenge categorised in Costa (2019), the challenge related to research capacity is the one seen as a major hurdle that students and supervisors have to navigate through. According to Mdyogolo (2012) there are three main hindrances within postgraduate research in South Africa, and these refer to:

- Supervisors who are specialists in their respective fields, but are not well versed and empowered in relation to diverse research pathways.
- Scenarios where most students at the postgraduate level have no research skills and proficiency in research language.
- An instance where there is a conflict between research coordinating unit of a university and the supervisor.

In order to determine the extent to which this problem persists in higher education institutions, the researcher used a Qualitative Mapping Review method to uncover underlying issues related to subject matter. This is a type of a body of Review Research Methods that fall within the qualitative research tradition (Grant & Booth, 2009). Mapping Reviews were developed by the Institute of Education's Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre, 2006). The development of this method was specifically for mapping out current

and thematise existing literature, identify gaps and make recommendations for areas that needed further research (Grant & Booth, 2009).

The steady growth and popularity being gained by this method have been recognised as useful in terms of production of better mechanism to provide sound and robust evidence-based research on published primary research (Bettany-Saltikov, 2012). This body of methods of inquiry was also stated as one of the suitable methods for postgraduare research in South Africa (Academy of Science of South Africa, 2010). The perceived strength of this methodology is highligted in its ability to enhance contextualisation of indepth analysis of literature, appraisal of current literature, identification of gaps in practice and recommendations for remedials or implementations for policy makers and researchers.

Documents/Article selection for analysis used purpossive sampling strategy (Grant & Booth, 2009). Boolean logic (Massachusetts Institute of Technology, 2020) using operators “AND” “OR” was employed to direct document search on the following databases:

- WIReDSpace, available at: http://wiredspace.wits.ac.za/
- UPSpace Institutional Repository, available at: https://repository.up.ac.za/handle/2263/51280
- Google Scholar
- Publish or Perish

Three main key search terms were used, thus:

- “Qualitative Research Thesis”
- "novice resears" AND "thematic analysis"
- “Challenges in thematic data analysis”

Most of documents that formed part of the analysis were 17 pieces of grey literature (Adams, et al., 2016) made up of postgraduate thesis reports that purported to have used thematic analysis in obtaining conclusions. These were also followed by review of 12 articles which alluded to problems associated with the concept of thematic analysis.

Table 1 : Thesis Reports included in the sample

#	Title	Type of publication	Author	Explication of analysis process	General comments	Search Terms
1	Perceived Influence of Inequality on the Career Development of Emerging Adults In South Africa	Thesis	(Smith.A.F., 2018)	As much as explication is clearly articulated, actual codes and themes generated and how that was done is misssing.	The only available information is invivo quotations of participants and researcher's interpretation of their meaning.	"Qualitative Research Thesis"
2	Professional Black South African Women: Body Image, Cultural Expectations and the Workplace	Thesis	(Papakyriakou, 2014)	Using Thematic Networks, a clear process was attempted by the researcher, and codes generated together with their relationships to themes were graphically demonstrated.	Thematic Networks provided a means of demonstrating code processes and themes.	"Qualitative Research Thesis"
3	The Development of	Dissertation	(Sethuntsha,	Explication is		"Qualitative

	a Therapeutic Approach for the Treatment of Individuals with Prader-Willi Syndrome and their Primary Caregivers		2017)	articulated but there was no evidence of codes in the document corpus. Invivo quotes from particpants are interpreted in detail.		Research Thesis"
4	Returning to work: exploring the lived experience of the cancer survivor	Thesis	(Clur, 2015)	Although the researcher indicates that the transcripts were searched for codes, the study does not demonstrate how those codes were generated, how many they were, how they were sorted to generate final themes discussed in the study.	Invivo quotes from participants were the only evidence of analysis provided, followed by research's interpretation of these expressions.	"Qualitative Research Thesis"
5	The impact of group coaching on leadership effectiveness for	Thesis	(Reid, 2012)	Explication is clearly articulated but exact codes and their numbers are not	Invivo quotations take prominence of the interpretations.	"Qualitative Research Thesis"

	South African women managers			reflected, except that subthemes are indicated and their connection to main study themes.		
6	Exploring experiences of adolescents living with a depressed parent	Thesis	(Makuwa, 2014)	Knowledge of processes is inherent in explications of approach and theoretical basis, yet no evidence of these codes was present in the study.	Invivo quotations take prominence of the interpretations.	"Qualitative Research Thesis"
7	A Thematic Analysis of Substance-Abusing Mothers' and Their Children's Discussions during Family Therapy	Thesis	(Brakenhoff, 2012)	As much as the study title indicates thematic analysis, methods followed to produce final conclusions are not clearly demonstrated.		"Qualitative Research Thesis"
8	How has surrender been written about in psychoanalytic psychotherapy	Thesis	(Southwel, 2013)	The study explained, reflected and captured codes trajectory well, in a		"Qualitative Research Thesis"

				manner that can be replicable and followed by other scientific researchers. Codes are clearly enumerated and well assigned.		
9	A qualitative action research study introducing a metacognitive framework for teaching preparation and analysis of its efficacy	Thesis	(Sylvester, 2016)	The study explained procedures for data analysis including creation of codes.	No evidence of codes found in the study. A detailed reflection of participant's reactions to interview questions are presented and interpreted.	"Qualitative Research Thesis"
10	Challenges and opportunities experienced by people with a physical disability in Alexandra, Gauteng	Thesis	(Mthembu, 2017)	No clear procedures mentioned.The presentation of findings focusses on themes but there is no information of how	There is no evidence of coding in the study.	"Qualitative Research Thesis"

				these themes were generated from data.		
11	The Lived Experience: A qualitative study of mentally ill women who commit filicide.	Thesis	(Moodley, 2019)	Although procedures are mentioned under the Research Methods Chapter, the presentation of results makes no mention of how themes were generated from data itself.	A detailed account of experiences as emanating from interview questions is provided. However, this data is not codified.	"Qualitative Research Thesis"
12	Living with cancer of the head and neck: a qualitative inquiry into the experiences of patients treated at an academic hospital in Gauteng	Thesis	(Bingo, 2018)	Methods are clearly explicated, however,the results section does not reflect evidence of the "ideas" that were broken down to generate themes.		"Qualitative Research Thesis"
13	Leadership development for women at the department of home	Thesis	(Mlokothi, 2017)	Methods are clearly explicated but there is no evidence of the coding process and		"Qualitative Research Thesis"

	affairs			how sub-themes and themes were generated.		
14	Challenges and Opportunities of a Donor-Funded Not-for-Profit Organisation: a SWOT Analysis of Vikela Project, a Business Unit of Composite Health		(Mukuvisi, 2011)	No method of data reduction mentioned and codes were not created for themes generation.		"Qualitative Research Thesis"
15	An exploratory study into the critical success factors for effective stakeholder engagement in blended finance projects	Thesis	(Francis, 2019)	Methods of coding clearly explicated and executed with a reported result of 171 codes. However, there is no evidence of codes as transposed from data documents.	Use of coding and explications well articulated	"Qualitative Research Thesis"

16	Contextual intelligence behaviours: managers in multinational enteprises developing emerging markets	Thesis	(Felix, 2019)	Procedures for data analysis including coding of data is well articulated in Research Methodology chapter. However, in presentation of findings, there is no explication of how codes were developed, themes generated and number of codes in the study.	Invivo quotes from participants make a dominant feature of findnigs/results presentations.	“Qualitative Research Thesis”
17	Expecting the Unexpected: How Novice Researchers Negotiate Unexpected Ethical Issues	Thesis	(Chambers, 2014)	This research report articulates methods of thematic analysis, explicating how themes are generated from codes ad using known authorities for argument substantiation.		"novice resears" AND "thematic analysis"

				However, there is no evidence of how codes were created and how they were finally sorted to produce themes.		

3. FINDINGS

This study assessed 17 thesis reports from four universities in South Africa, and one university in the United States of America. The rationale for the number of dissertations was based on two main factors, first of all, Qualitative Evidence Synthesis methods use selective techniques for drawing samples to be analysed (Grant & Booth, 2009). The search was conducted on institutional repositories of these insitutions available on the internet, while two reports were found on Goggle Scholar. Search terms used were "Qualitative Research Thesis".

It should further be noted that the second reason was based on *informational redundancy* of Guba and Lincoln (1985), as substantiated later on in the *information power* of Malterud, Siersma and Guassora (2015). This is a concept commonly known as *saturation*, with its origins in Grounded Theory (Glaser & Strauss, 1967). Although originally used for demonstration of no new data influence on theoretical categories created, the concept has far evolved from its original meaning to include a situation of "no new data", or "no new themes" or "no new codes" (Guest, Bunce & Johnson, 2006).

Based on these views, the researcher concluded that most thesis reports would demonstrate lack of indepth coding strategies and evidence of codes in the reports, either in the document corpus or as annexures. This view is widely supported in literature on thematic analysis by leading scholars such as Boyatzis (1998) ; Braun and Clarke (2006). Articles in demonstration of the incorrect use of Thematic Analysis by authors were also searched on Publish or Perish database, using search terms, *"challenges in thematic data analysis",* which resulted in 100 responses. Of these, the following articles selected for evidence regarding misuse or requirements for methodical replication of thematic analysis were selected. The reason for this selection was to demonstrate to the reader that the correct use of thematic analysis is a subject being discussed over a period of two decades since the work of Braun and Clarke (2006), who have over the years emphasised the need for deeper understanding of this technique.

#	Title	Author	Search Terms
1	Doing thematic analysis: A practical, step-by-step guide for learning and teaching scholars	(Maguire & Delahunt, 2017)	“Challenges in thematic data analysis”
2	Thematic Analysis	(Terry, et al., 2017)	“Challenges in thematic data analysis”
3	Thematic Analysis: Striving to Meet the Trustworthiness Criteria	(Nowell, et al., 2017)	“Challenges in thematic data analysis”
4	Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning.	(Clarke & Braun, 2013)	“Challenges in thematic data analysis”
5	Thematic Analysis	(Clarke, et al., 2015)	“Challenges in thematic data analysis”
6	Using thematic analysis in psychology	(Clarke & Braun, 2006)	“Challenges in thematic data analysis”
7	Theme development in qualitative content analysis and thematic analysis	(Vaismoradi, et al., 2016)	“Challenges in thematic data analysis”
8	Thematic analysis of qualitative research data: Is it as easy as it sounds?	(Castleberry & Nolen, 2018)	“Challenges in thematic data analysis”
9	Understanding Thematic Analysis and its Pitfall	(Javadi & Zarea, 2016)	"novice resears" AND "thematic analysis"
10	The thematic analysis of interview data: an approach used to examine the influence of the market on curricular provision in Mongolian higher education institutions	(Jugder, 2016)	"novice resears" AND "thematic analysis"
11	Research Methods for Business & Management	(O’Gorman & MacIntosh, 2015)	"novice resears" AND "thematic analysis"
12	Developing a teaching research culture for general practice registrars in Australia: a literature review	(Kljakovic, 2009)	"novice resears" AND "thematic analysis"

4. INTRODUCING THE C.O.S.T.A. QUALITATIVE DATA ANALYSIS METHOD

The COSTA QDA (or CQDA) is a form of Framwork Analysis and follows on traditional methods of qualitative data analysis and further hinges strongly on the Thematic Analysis of Braun and Clark (2006). Like most TAs, the CQDA has six (6) sequential stages, each with a critical iterative process for data reduction and generation of themes (Denzin & Lincoln, 2000; Dey, 1993). A general consensus exists among scholars that proper implementation of thematic analysis produces trustworthy and reliable insightful findings, albeit the fact that no one method is singled out for attainment of this (Clarke & Braun, 2006). Whereas the author is aware that there are many approaches to thematic analysis (Henn, Weistein & Foard, 2009), this method is hereby proposed as a flexible approach to demonstrate rigour in qualitative data analysis. Scolars have indicated the importance of demonstrating how the process of data "*…recording, gathering, sorting, deciphering analyzing and synthesizing, dissecting and articulating"* was carried out in qualitative research (Denzin & Lincoln, 2000). The six stages of the CQDA seek to demonstrate these processes in a simple yet rigourous appraoch.

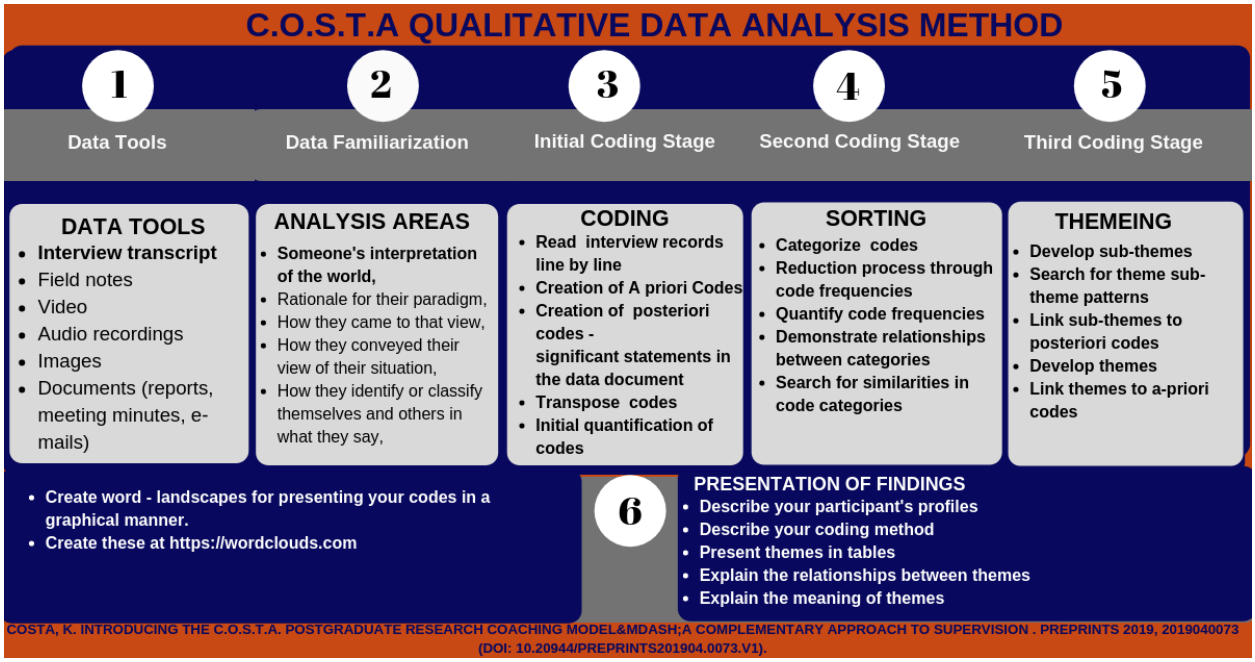

Figure 1: COSTA QDA

1. **Data tools**

The very aspect of the nature of the researcher being an instrument has profound effects on the outcome of results. It is crucial to note that the researcher assert that the participant is also important for establishment of the strength or weakness of the investigator being an instrument (Pezalla, Pettigrew & Miller-Day,2012). It is therefore necessary for the researcher to ensure empathy, transparency, positive regard and participant ease during the process of the interview (Mallozzi, 2009; Matteson & Lincoln, 2009; Janesick, 2001). Data tools are critical in qualitative research, as they offer basic materials to be analyzed in order to answer the main research question and reach objectives of the inquiry. These include interview transcripts, field notes, audio/video recordings, images and documents such as reports, minutes, emails etc. Where interviews were conducted and conversations recorded, permission ought to have been sought in terms of ethical clearance from the respective institutional review boards or ethical clearance committees. Proper administration of tools at this stage is very critical. Researchers need to be encouraged to also keep records of their own reflections during the process as these are critical for establishment of the principle of confirmability (Loh, 2013). Whether the analysis is on transcripts of primary data or review of secondary research, the CQDA is flexible and applicable across different contexts of analysis (Boyatzis, 1998).

2. **Data Familiarisation**

This process is critical and fundamental establishment of the principle of “immersion” as postulated by (Thorne, 2000). Immersing self in data involves iterative reading, going back and forth in data to make sense of what it presents. Data transcription provides this opportunity for researchers. However, for big data, it could be impossible to transcribe all the data. Electronic devices are available for assisting researchers with this aspect (Costa & Amado, 2018). In this context, big data refers to voluminous transcribed data from interviews. One interview which lasts between 45 minutes to one hour is likely to produce between 15 and 25 pages of transcribed data. If the researcher is interviewing 8 participants in a particular study, the number of transcriptions is likely to be close to 800 pages. That is why the use of software plays a pivotal role right from the beginning (Costa & Amado, 2018). However, researchers are still encouraged to read through the data line by line and word by word to make sense of nuances and underlying messages.

This stage familiarizes the research with issues such as participant's perspectives, paradigms and how the present themselves in relation to the phenomenon being researched in that paradigm. At this stage, researcher reflexivity kicks in, as the researcher needs to be aware of how they are impacted by the data and how such impact may affect the analytic process (Starks & Trinidad, 2007).

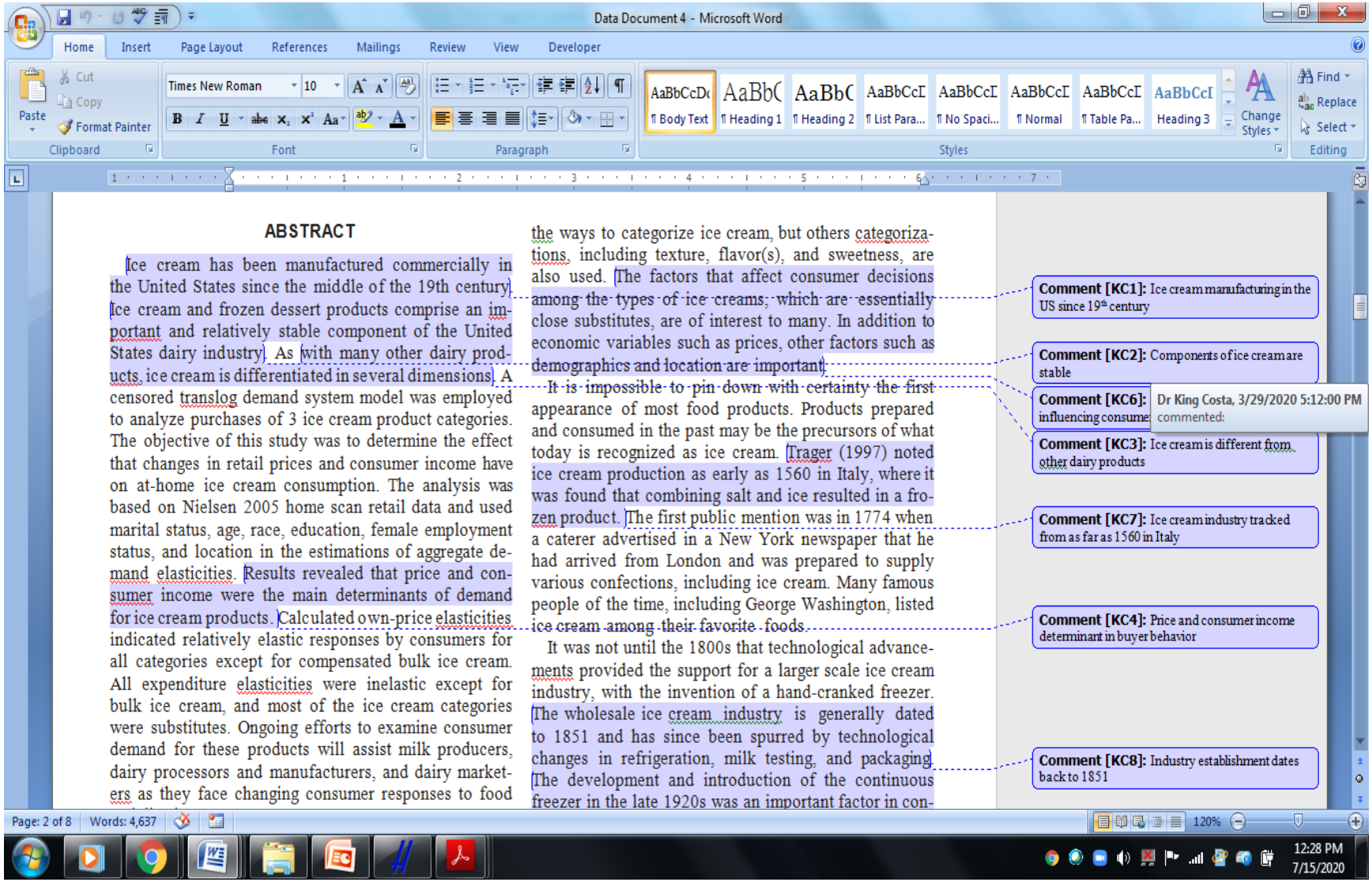

Figure 2: Coding of data documents

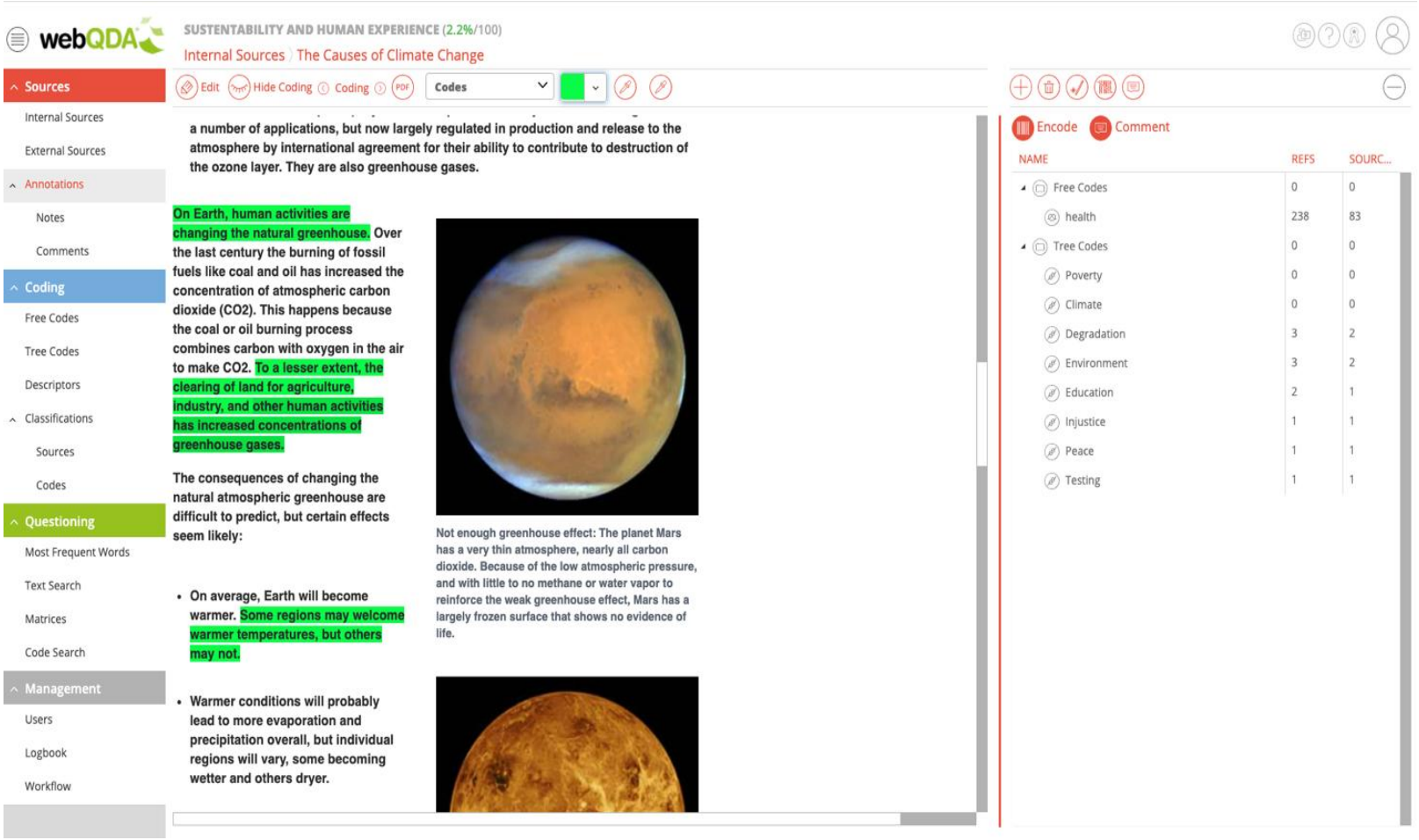

Figure 3: Data coding using webQDA

3. Initial Coding Stage and Second Coding stage (Axial Coding)

A code is simply a phrase label used in qualitative research for purposes of assigning an attribute that captures the underlying essences of data and between data (Saldana, 2016). These are textual in nature and may be drawn from articles in newspapers,social media networks, images, artefacts, reports and peer reviewed (textual) materials.

This stage requires the researcher to decide on the coding strategy to be used. The CQDA recommends that the research question be closely examined and concepts used in the question be used for creation of anchor codes (also known as deductive or a priori codes). This helps to link codes from the data document to the purpose of the research itself. The actual linking occurs when the researcher reads the data document line by line and word by word following an iterative process (Hsieh & Shannon, 2005; Braun & Clarke, 2006).

As indicated above, manual coding presents massive difficulties for the researchers in terms of authenticating codes and ensuring that no mistakes occur. The intergration of software platform using CQDA makes this function easier while managing and storing the data safely.

Once a decision is made regarding a chosen strategy, then the coder transposes all codes from data documents to a new document where sorting, frequency determination and characterization of initial codes occurs. The coder is able to conduct two types of coding activities:

- *Two-step Hierachial coding:* whereby the coder links the inductive codes to anchor codes, as demonstrated in *Figure 3* below. This is useful in research that links findings to theory and research questions. All concepts in the research question (topic) become anchor codes/deductive codes, allowing the researcher to link all codes emerging from data with suitable codes emanating from the research question of topic (Hsieh & Shannon, 2005).

The example below uses extual codes used in a study entitled "The perceived effectiveness of executive coaching for leadership development in South Africa **(Mvelase, 2019)**. The full study may be viewed at: https://hdl.handle.net/10539/29106.

1. **Development**: government contributes towards coaching through SETA funding programmes 2. **Development** – my company develops leaders and managers 3. **Effectiveness**: Business acumen and role understanding 4. **Effectiveness:** We prioritise people development 5. **Development** : company offers leadership development 6. **Development:** covers people and management skills. 7. **Development**: emphasis on mentorship 8. **Perception:** coaching is the best approach 9. **Perception**: Coaching makes a person understand concepts much better 10. **Perception:** Coaching helps in self discovery, 11. **Perception**: Coaching helps in discovering challenges and solutions to challenges. 12. **Perception**: Teaching is simply spoonfeeding someone with information. 13. **Perception:** Coaching helps one to discover what they want to learn. 14. **Perception**: coaching helps individuals find their own solutions to challenges. 15. **Perception:** Coaching is done through questioning. 16. **Development**: Leadership Development implemented.	17. **Development :**Two programmes in the company 18. **Development**: Programme in place for first line management 19. **Development**: Programme for first line management. 20. **Development**: Khulisa prepares people to sales management position. 21. **Development:** Programme Elevate prepares managers to executive level. 22. **Development**: Business Acumen is at Executive Level. 23. **Expectations**: Coaching should start with gap analysis. 24. **Expectations:** Searching what is missing. 25. **Expectations**: There should be a missing link. 26. **Perception:** Underperformance needs to be investigated. 27. **Perception**: Skills or Will shortage needs to be investigated. 28. **Expectations**: Skills Matrix to be developed to close the gap. 29. **Perception:** Skills can be learned and taught 30. **Perception**: Will cannot be taught 31. **Expectation:** Coaching to make people better performances. 32. **Perception**: Efficiency can be attributed to massive skills impartation.	33. **Perception:** Inefficient companies indicate that there is no skills impartation/coaching. 34. **Perception:** If people are skilled, then they are not willing to perform and that indicates lack of coaching. 35. **Perception**: Coaching is a cornerstone of business. 36. **Perception**: Coaching should be ongoing. 37. **Perception**: Coaching should be continuous improvement. 38. **Perception:** Coaching should be continuous. 39. **Perception**: Coaching should be continuous. 40. **Perception:** When you have done better, there is always room for improvement – continuous improvement 41. **Experience**: My perceptions are resulting from the coaching I received. 42. **Perception**: Coaches need to be emotionally empathetic. 43. **Perception:** Coaches need to invest in emotional bank account of individuals. 44. **Perception:** Lack of empathy creates rejection. 45. **Perception**: Use of leadership theories of Stephen Covey. 46. Perception – Skills not suited for coaching: arrogance, aggressions. 47. **Perception** – Skills not suited for coaching: Belittling the listener/coachee	48. **Perception:** Sales Managers are appropriately suited for coaching. 49. **Perception**: Floor managers who deal with agents also need coaching. 50. **Perception:** Everyone needs coaching. 51. **Perception:** Everyone up to MD needs coaching. 52. **Perception:** Coaching provides positive outcomes 53. **Perception**: Coaching's aim is performance improvement. 54. **Perception:** Performance improvement 55. **Perception**: Coaching not only on skills gaps BUT also habits. 56. **Perception:** Coaching helps move a person from one point to another. 57. **Perception:** Coaching should move someone from where they are to where they are intended to be. 58. **Experience** – Will and Skill 59. **Experience**: Coaching improves skills 60. **Experience**: Coaching cannot help if there is no will. 61. **Experience**: It is important to know the purpose of coaching. 62. **Experience**: Coaching can be for performance related issues 63. **Experience:** coaching can be for attitudinal/behavioural issues .

Figure 4: Wordlandscapes presentation of actual codes

After transposing codes and enlisting them, researchers then examine data for frequencies and similarities. That action automatically shifts the process to the axial coding stage (Saldana, 2016 ; Charmaz, 2008). The second stage of coding affords the coders an opportunity to try and urstand code “behaviors”, similarities and patterns. This automatically calls for search of meanings and themes through continued immersion in data (Nowell, et al., 2017). The process on its own further enhances data authenticity as sub- themes are generated directly from transformed data. *Figure 4* below demonstrates how the subthemes and final themes are generated. The method further provides for consistency and replicability.

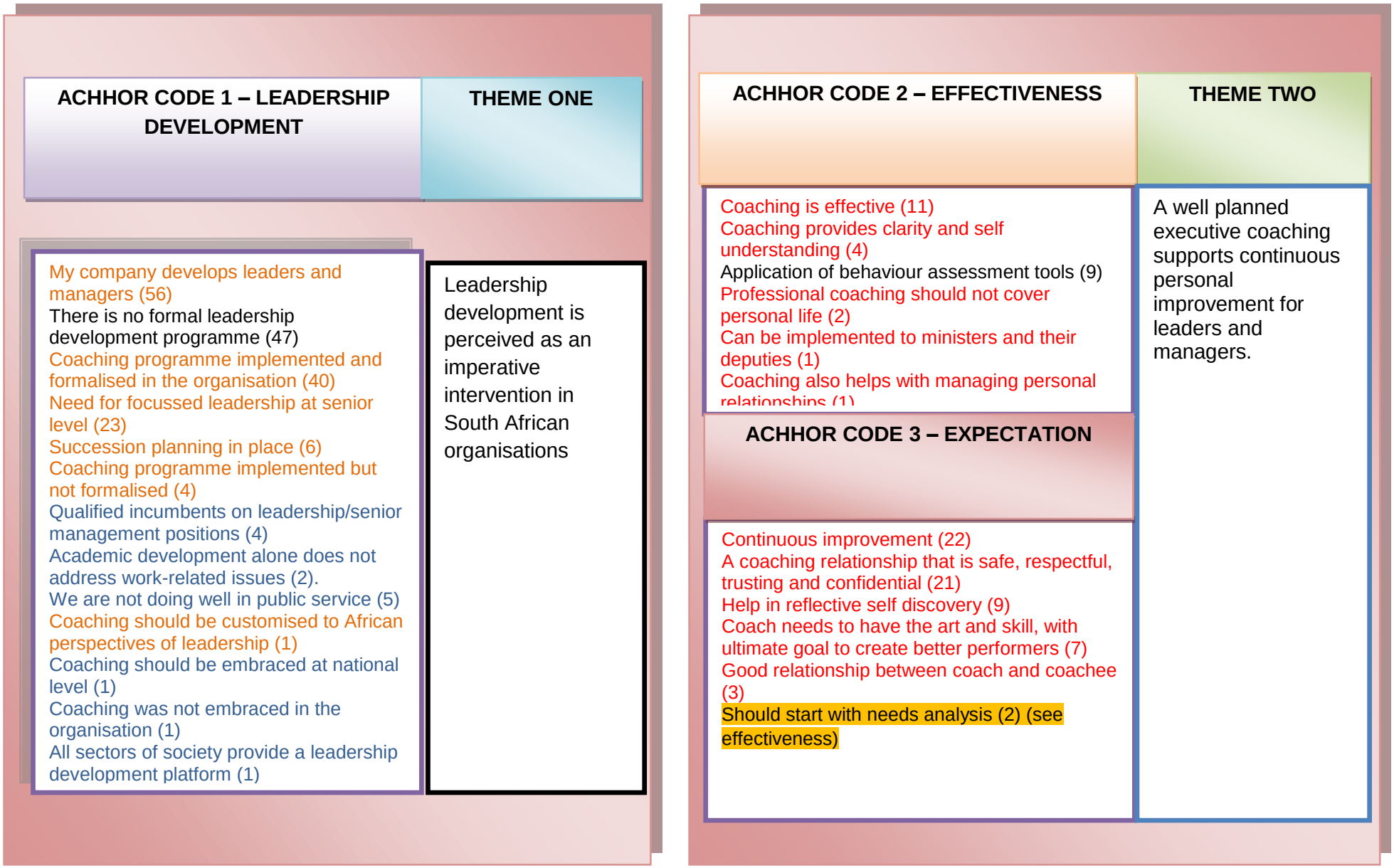

Figure 5: Deductive and Inductive Codes

- *Flat-Listed Coding Structure*: whereby the coder has single inductive codes not linked to deductive codes as demonstrated in *Figure 5* below. This is helpful in a needs analysis type of a study – most popular in business research.

  In this method, the researcher simply creates inductive codes from data documents and later on observes the behavior of these codes in terms of frequencies and relations so as to generate themes, using the same process as mentioned above.

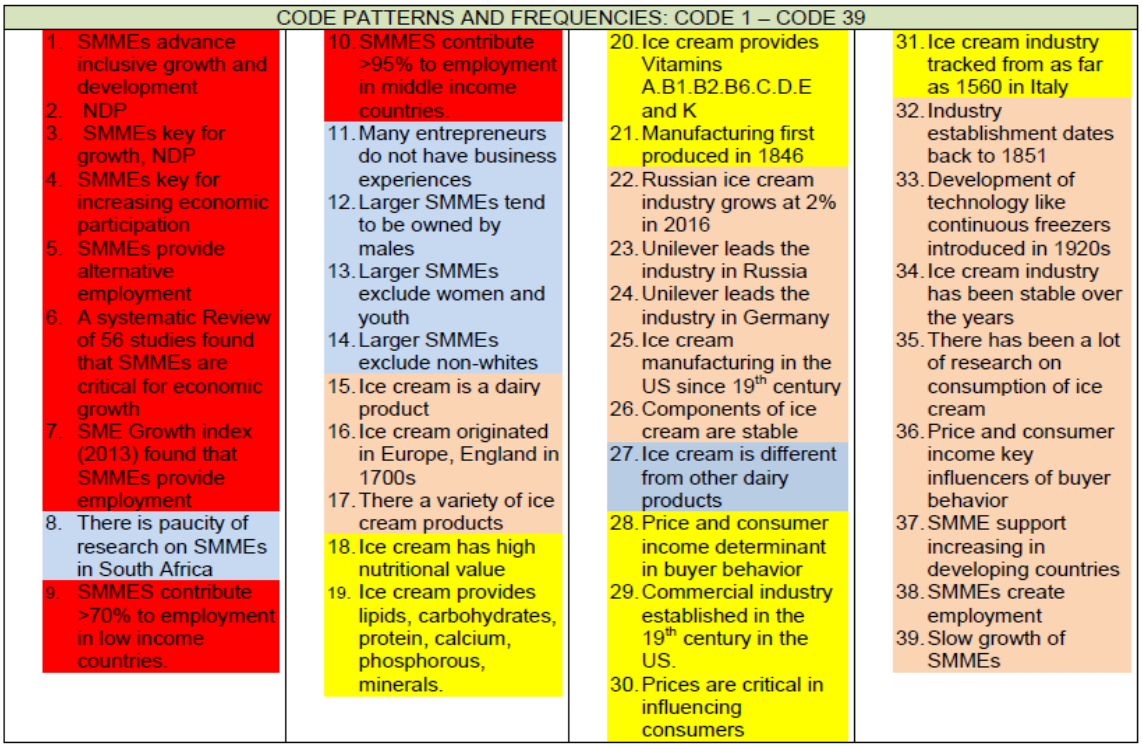

Figure 6: Flat-listed codes

Tables 1 and 2 below are a true reflection of a study entitled " Systematic review of opportunities within the ice-cream industry in Limpopo Provice." This method was used in completion of an MBA thesis submited in 2020. Codes were also followed by a presentation of wordclouds and, categorisation and final themes emanating from data.

CODE PATTERNS AND FREQUENCIES: CODE 1 – CODE 39			
1. SMMEs advance inclusive growth and development	10. SMMES contribute >95% to employment in middle income countries.	20. Ice cream provides Vitamins A.B1.B2.B6.C.D.E and K	31. Ice cream industry tracked from as far as 1560 in Italy
2. NDP	11. Many entrepreneurs do not have business experiences	21. Manufacturing first produced in 1846	32. Industry establishment dates back to 1851
3. SMMEs key for growth, NDP	12. Larger SMMEs tend to be owned by males	22. Russian ice cream industry grows at 2% in 2016	33. Development of technology like continuous freezers introduced in 1920s
4. SMMEs key for increasing economic participation	13. Larger SMMEs exclude women and youth	23. Unilever leads the industry in Russia	34. Ice cream industry has been stable over the years
5. SMMEs provide alternative employment	14. Larger SMMEs exclude non-whites	24. Unilever leads the industry in Germany	35. There has been a lot of research on consumption of ice cream
6. A systematic Review of 56 studies found that SMMEs are critical for economic growth	15. Ice cream is a dairy product	25. Ice cream manufacturing in the US since 19th century	36. Price and consumer income key influencers of buyer behavior
7. SME Growth index (2013) found that SMMEs provide employment	16. Ice cream originated in Europe, England in 1700s	26. Components of ice cream are stable	37. SMME support increasing in developing countries
8. There is paucity of research on SMMEs in South Africa	17. There a variety of ice cream products	27. Ice cream is different from other dairy products	38. SMMEs create employment
9. SMMES contribute >70% to employment in low income countries.	18. Ice cream has high nutritional value	28. Price and consumer income determinant in buyer behavior	39. Slow growth of SMMEs
	19. Ice cream provides lipids, carbohydrates, protein, calcium, phosphorous, minerals.	29. Commercial industry established in the 19th century in the US.	
		30. Prices are critical in influencing consumers	

CODE PATTERNS AND FREQUENCIES: CODE 40 – CODE 74			
40. A mix of intervention programmes	49. Need to be encouraged	60. The need for interventions is to encourage black entrepreneurs to become viable business owners	68. B-BBEE is a controversial policy
41. Intervention programmes not effective	50. Constitution seeks to include those formerly excluded	61. No scientific evidence of the impact of B-BBEE	69. Businesses regard B-BBEE as a failure
42. Success of interventions on the entrepreneurial characteristics	51. B-BBEE legislation resisted by many	62. An entrepreneur is regarded as a Wealth-Creator	70. Skills development essential for development
43. Starting business out of opportunity	52. B-BBEE not the only intervention for empowerment	63. An entrepreneur develops ideas and make things happen	71. No difference in impact on SMMEs from the state before new democracy and post 1994.
44. Starting business out of necessity	53. EE Act ensures affirmative action	64. 55% felt that B-BBEE was failure and ineffective	72. Ice Cream Manufacturer
45. Higher profits for opportunity entrepreneurs	54. B-BBEE is key to transformation	65. Some entrepreneurs had some skills when starting a business	73. High quality ice cream supplier in Centurion area, Gauteng Province
46. Better management practices for opportunity entrepreneurs	55. B-BBEE enhances free economy participation	66. Recognition of an opportunity is an entrepreneurial characteristic	74. Nine different types of ice cream flavors
47. Characteristics of opportunity entrepreneurs need to be identified	56. No measurable impact of B-BBEE on SMMEs	67. 90% indicate that B-BBEE had no impact	
48. Characteristics of necessity entrepreneurs need to be identified	57. B-BBEE relevant to transformation		
	58. No studies conducted on impact of B-BBEE on SMMEs		
	59. No data available on the impact of initiatives on SMMEs		

CODE PATTERNS AND FREQUENCIES: CODE 75 – CODE 113			
75. Supplies 400 schools in Gauteng	86. Marketing activities to consider intrinsic and extrinsic determinants of consumer behaviors	94. The business environment is changing rabidly	102. 51% of SMMEs are owner managed and employed
76. Supplies University of Pretoria	87. Paucity of research on the ice-cream market	95. Operations of entrepreneurs should be on a global standard	103. 40% of SMMEs employ up to five people
77. Supplies South African Police Service	88. Brands play a vital role in the ice cream industry	96. South African government has failed in SMME development	104. Polokwane Municipality has 25431 SMMEs
78. Employs 28 individuals	89. Youth entrepreneurship strengthens the economy	97. NYDA fails to deal with youth entrepreneurial needs	105. 92% of SMMEs in Polokwane alone are informal
79. Company has seen steady growth over the years	90. Youth entrepreneurship provides employment	98. Limpopo Economic Development Agency is an intervention (SPV)	106. Existence of constraints inhibit growth of SMMEs
80. Opportunity presence on the internet to be exploited	91. Youth create businesses to create employment	99. The role of LEDA is fast-track opportunity creation in the province for SMMEs	107. Discontinuation of entrepreneurship
81. An interactive website where customers can view product mix online.	92. Younger entrepreneurs are focused on creating employment	100. There are many programmes to support business in Limpopo	108. Entrepreneurial orientation is critical
82. A portal for interacting with customers as a driver of e-business	93. Hi potential entrepreneurs see growth and employment in the same light	101. Support programmes less visible in rural areas	109. Entrepreneurial Development
83. Ice cream suitable for tropical and Mediterranean regions			110. Entrepreneurial orientation
84. Ice cream company doubled production after 6 years			111. Supportive environment
85. Marketing strategies essential to cater for off-seasons			112. Enabling environment
			113. Create opportunity through training and development

CODE PATTERNS AND FREQUENCIES: CODE 114 – CODE 148				
114. Entrepreneurship education essential	121. Start-up grants should be encouraged	129. Institutional role for promoting entrepreneurship	139. Per capita consumption in Australia = 18L	
115. Supportive initiatives crucial for SMME development	122. Access to finance	130. Big corporate have a role to encourage entrepreneurship	140. Per capita consumption in Sweden = 14L	
116. Entrepreneurship Education essential	123. Financial support still the top impediment	131. Illiteracy is an impediment	141. Growth in ice cream industry	
117. Entrepreneurship education involves attitudes an skills for behavior change	124. Business coaches and mentors play a key role	132. Regulatory burden is an impediment	142. Growth due to strong distribution channels	
118. Entrepreneurial education critical for orientating SMMEs for opportunities	125. Business mentoring and linkages are crucial	133. Branded Ice cream market	143. Mobile Vending Units strengthen growth	
119. Business skills provide necessary experience	126. Entrepreneurship should be encouraged at school level	134. Grey ice cream market	144. Profit margins can be 100%	
120. Sales, product development and creation of markets are essential skills	127. Networking opportunities for SMMEs	135. Grey market made up of SMMEs	145. Growth in revenue attributed to corporate sales	
	128. Networking is motivational	136. Branded market is dominated by large players	146. 55% of sales through ice cream parlours and kiosks	
		137. Per capita consumption in India = 300ml	147. 50% from corporate sales	
		138. Per capita consumption in the US = 22L	148. Small ice cream manufacturing	

Figure 7: Wordclouds of Flatlisted Codes in an MBA study, 2020

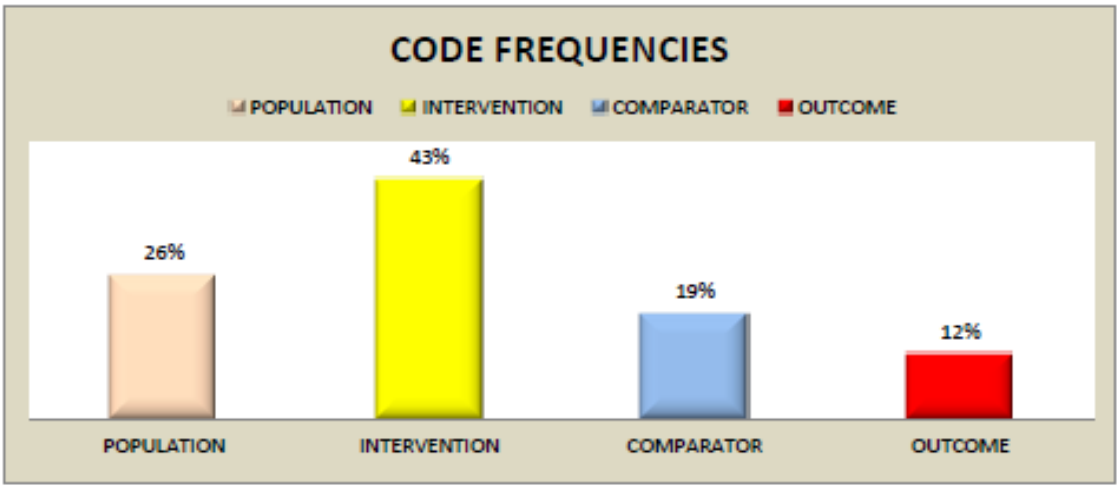

Figure 8: Code frequencies in the MBA study, 2020

4. CONCLUSIONS

The author hereby proposes that clear demarcations and distinctions in the use of textual analysis methods need to be taught and understood. Whereas many scholars indicated that the use of thematic analysis appears across many publications from different contexts, application seems to be even more confused within different methods of qualitative data analysis. Whilst the concept origination and placement of thematic analysis can be traced both from Content Analysis during the world wars, as postulated in Costa and Amado (2018), the use of codes and themes was improved later on in Grounded Theory (Glaser & Strauss, 1967; Charmaz, 2008). The methods used in the work of Charmaz clearly demonstrate step by step methods of initial coding, which could be useful to students and largely used as an approach in the Costa QDA.

Whilst quantitative researchers apply statistical methods for establishing the validity and reliability of research findings, qualitative researchers aim to design and incorporate methodological strategies to ensure the 'trustworthiness' of the findings. These strategies are summarized as follows:

- Consideration is given for personal biases which may have influenced the findings
- Consideration of biases in sampling and ongoing critical reflection of methods to ensure sufficient depth and relevance of data collection and analysis
- Meticulous record keeping, demonstrating a clear decision trail and ensuring interpretations of data are consistent and transparent
- Establishing a comparison case/ seeking out similarities and differences across accounts to ensure different perspectives are represented
- Including rich and thick verbatim descriptions of participants' accounts to support findings
- Demonstrating clarity in terms of thought processes during data analysis and subsequent interpretations
- Engaging with other researchers to reduce research bias
- Respondent validation: includes inviting participants to comment on the interview transcript and whether the final themes and concepts created adequately reflect the phenomena being investigated

- Data triangulation, whereby different methods and perspectives help produce a more comprehensive set of findings

This guide/article sought to present the simplified method of Qualitative Data Analysis as espoused in the C.O.S.T.A. Postgraduate Research Coaching Model. It is a framework analysis anchored primarily on the work of Costa and Amado (2018); Braun and Clarke (2006); Dey, (1993). This method has been preferred and accepted in most of the research projects wherein the students were coached by the author. The latest success of the method acceptance was in the study of (Mvelase, 2019); and other students within the Global Centre for Academic Research programme.

The task of performing thematic analysis can be massively daunting and laborious. We therefore recommend that researchers employ the use of best software to enhance, procedural consistency, data accuracy and management throughout the analysis process, while bearing in mind that data analysis software programmes do not actually perform the analysis, but enhance the practice, as concluded by Zamawe (2015). To aid teaching of thematic analysis, the researcher recommends the use of webQDA programme, due to the fact that its applicability to different contexts that support collaboration has been assessed (Silver, 2018) and further integrated into the Costa QDA method.

COSTA QDA ON webQDA SOFTWARE

This section introduces the webQDA software, a cloud based programme is aimed at data analysts, researchers and scholars in different contexts and settings within the qualitative research environment. This software enables analysts to perform their data analysis projects individually or in teams. The ability of performing projects in teams enhances the rigor requirement of peer debriefing, which enhances the dimension of credibility (Forero, et al., 2018). In terms of comparison with popular CAQDAS applications in the market, WebQDA follows popular structural and theoretical designs, although the key differentiator is its simplicity of functionality and adaptation to different types of research. Costa and Amado (2018) have listed the main features of webQDA as follows:

- Web-based software
- Handling of text, image, video and audio sources
- Collaborative and distributed environment (through the web)
- Simple and intuitive use

- Suitable for different strategies and research methods
- Compatible with all operating systems
- Total security of data

As part of the value proposition, the author suggests the use of WebQDA as it is cloud-based, meaning that accessibility is not geographically restricted between research team members. In the academic context, webQDA is especially useful for researchers, masters, doctoral students and postgraduates who develop qualitative data analysis. In the business context, webQDA has application in the analysis of data coming from the market, such as, for example, type of consumers.

With webQDA, the researcher can edit, view, link and organize documents. At the same time, one can create categories, code, control, filter, search, and query data to answer the questions that emerge from research.

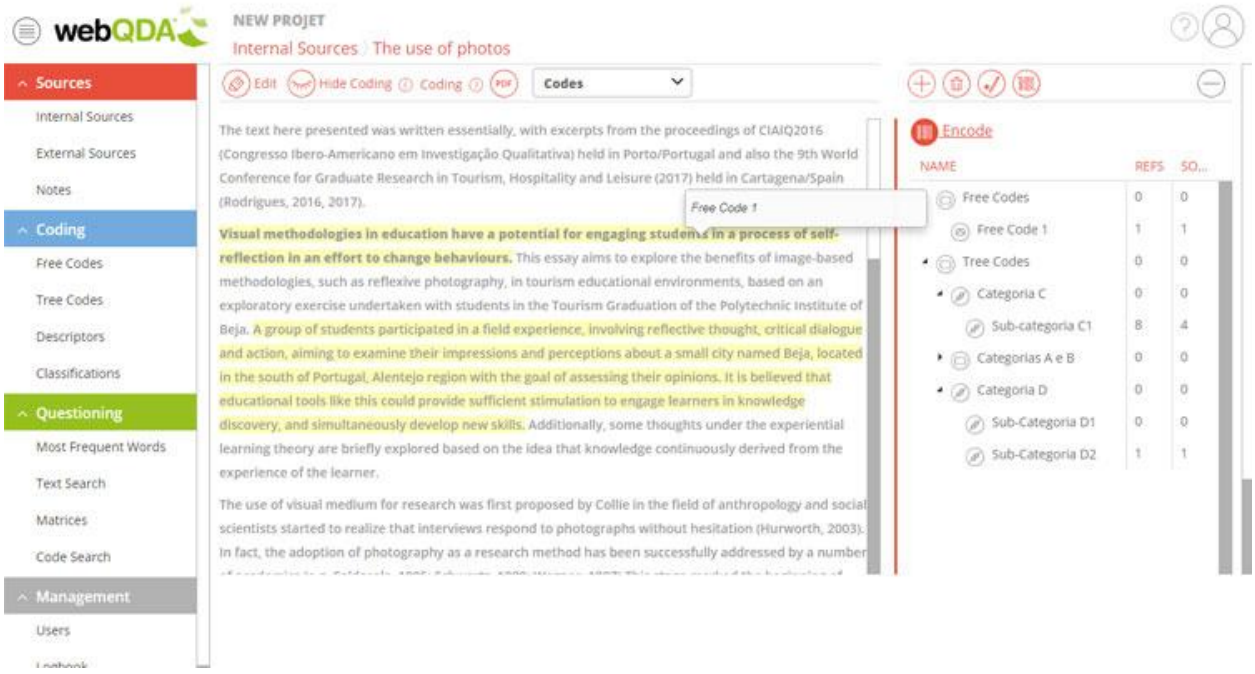

Figure 9: COSTA QDA with webQDA Software

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