

# Qualitative Content Analysis, Utility, Usability and Processes in Educational Research

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**Abstract :** Qualitative data analysis requires some creativity in organizing a pile of raw data and can be a daunting task for educational researchers. The whole process of analyzing data involves breaking down raw data into manageable chunks. Effective qualitative data analysis plays a critical role in educational research outcomes. Well designed qualitative data analysis and use of computer packages is a pathway to increasing credibility and trustworthiness in qualitative research. The goal of this desk top literature review is to elaborate on the usability, utility and processes of analyzing qualitative research data. An overview of qualitative data analysis is presented. In this article it is argued that statistical quantitative data analysis does not take full account of the many interaction effects that take place in social settings thus the need to use qualitative data analysis techniques in analysing educational research data. The main purpose of this article is to clarify the features of Qualitative Content Analysis (QCA) and highlighting how it is utilised in conducting educational research.

**Key words:** Qualitative Research, Data Analysis, Content Analysis, Emerging Themes, Multiple coders, Trustworthiness and Credibility.

## I. INTRODUCTION

Using an appropriate data analysis technique for an inquiry is crucial to conducting successful qualitative research study. Effective qualitative data analysis plays a critical role in research especially in educational studies. Qualitative data analysis is based on naturalistic inquiry that entails identifying key themes as provided by study participants. Qualitative data analysis is described as a method to classify written or oral materials into identified categories of similar patterns (Creswell 2007). Hsieh Shannon (2005) argue that, qualitative content analysis can be fruitfully used to examine virtually any kind of communication materials, including narratives responses, open-ended survey questions, interviews, focus groups, observations and print media such as articles, books or manuals. Using qualitative data analysis educational researchers can engage in data collection with or without direct contact with the participants studied. Qualitative content analysis was first used as an analytical technique at the outset of the 20<sup>th</sup> century for analyzing textual materials from hymns, newspapers and magazines articles, political speeches, advertisements, and folktales and riddles (Berge 2001; Harwood and Garry, 2003). Using qualitative content analysis approach, the meanings and insights can be derived from a text more holistically and clearly. Qualitative data analysis can be referred to as “a research method for subjective interpretation of the content of text data through the systematic classification process of coding and identifying

themes or patterns.” Hsieh and Shannon, 2005). As Schreier, (2012) shows it is, “a method for systematically describing the meaning of qualitative material”. Bogdam and Biklem (1982) define qualitative data analysis as “working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned and deciding what you will tell others”. Qualitative content analysis is one of the numerous research methods used to analyze text data. Qualitative content analysis goes beyond counting words or extracting objective content from texts to examine meanings, themes and patterns that may be manifest or latent in a particular text. It allows learners to understand social reality in a subjective but scientific manner.

Thus the purpose of this paper is to highlight the techniques of using qualitative content analysis, discuss software used in qualitative data analysis, in the process qualitative data analysis procedures are highlighted and this is followed by discussing the strength and weaknesses of using qualitative data analysis is analyzing educational research data. Qualitative Content Analysis can be fruitfully used to examine virtually any kind of communication material, including narrative responses, open ended survey questions, interviews, focus groups observations or printed media (Berge, 2001)

### *Defining Qualitative Content Analysis*

A survey of the literature on QCA shows that there are several definitions of the term QCA just as they are many authorities who have attempted to define the concept. In all definitions, there is mention of an integrated view of speech or text and their specific contexts which allow researchers to understand social reality in a subjective but scientific manner. Patton (2002) defines QCA as “any qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings”. In the view of Hsieh and Shannon, (2005) QCA is, “a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns”. According to Mayring (2000) QCA is, “an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytic rules and step by step model, without rush quantification”. Berelson, (1952) defines QCA as “a method to classify written or oral materials into identified categories of similar meanings and these categories represent either explicit or inferred communication”. This is a research technique for objective systematic and qualitative description of the

manifest content of communication. In the context of this article we define qualitative content analysis as, a research method for the subjective interpretation of the content of data through the systematic classification process of coding and identifying themes or patterns. It is an approach of empirical methodological controlled analysis of texts within their content of communication, following content analytic rules and procedures step by step without quantifications to generate theory. As illustrated in these definitions, QCA allows researchers to understand social reality in a subjective but scientific manner. The approach emphasizes on integrated view of the texts and their specific contents. It goes beyond extracting content from texts but extends to examining meanings, themes and patterns that may manifest in the particular text. The process of using QCA involves mainly inductive, grounding the examination of topics and themes, as well as the inferences drawn from them. Like grounded theory QCA in some cases attempts to generate theory. The samples for qualitative content analysis usually consist of purposively selected texts which can inform the research questions under investigation. Qualitative content analysis goes beyond merely counting words to examining language intensely for the purpose of classifying large amounts of text into an efficient number of categories that represent similar meaning (Weber, 1990).

Using qualitative content analysis there are thick descriptions with the element of voice in the text. QCA pays attention Berger (2001) to unique themes that illustrate the range of the meanings of the phenomenon rather than the statistical significance of the occurrence of particular text or concepts common in quantitative data analysis. However Weber (1990) pointed out that the best content analysis in educational research use both qualitative and quantitative content analysis operations as opposed to quantitative methods alone which produces numbers that can be manipulated with various statistical methods. QCA usually produces descriptions or typologies, along with expressions from the participants reflecting how they view the social world.

## II. CHARACTERISTICS OF QUALITATIVE CONTENT ANALYSIS

Qualitative content analysis involves a process designed to condense raw data into categories or themes based on valid inference and interpretations. The process uses inductive reasoning, by which themes and categories emerge from the data through the researcher's careful examination and constant comparison. Creswell (2007) confirm that qualitative content analysis is a flexible method of analysing qualitative data which uses inductive and deductive approaches or a combination of both approaches in data analysis. The coding system common in qualitative content analysis can attend to the manifest as well as the latent content of meaning of communications. Data for qualitative content analysis is collected through in-depth, face to face interviews and the data is analysed with some degree of interpretation. Often the researcher wishes to reach beyond the manifest content of the

text and analyze latent content (Potter and Levine-Donnerstein, 1999). Schreier (2012) argues that qualitative content analysis is suitable for data that require some degree of interpretation. Researchers in education regard QCA as a flexible method of analyzing text data. There are three approaches to qualitative content analysis as seen by Hsieh and Shannon (2005), based on the degree of involvement of inductive reasoning and, these are:

- Conventional qualitative content analysis
- Direct content analysis
- Summative content analysis

The three approaches can be used in a single study or the researcher may decide to use any one of the three approaches.

### *Conventional qualitative content analysis*

Conventional qualitative content analysis is according to Berge,(2001) a process that involves coding categories of data which are derived directly and inductively from raw data. This approach is also used for grounded theory development. Conventional content analysis is used with a study design whose aim is to describe a phenomenon, for example the reactions of learners on a given method of teaching. Researchers immerse themselves in the data to allow new insights to emerge. Kondracki and Wellman (2002), also described conventional qualitative content analysis as inductive category development. Data analysis in conventional qualitative content analysis starts with recording all data repeatedly to achieve immersion and obtain a sense of the whole (Tesch, 1990) as one would read a novel. The advantage of conventional approach to content analysis is gaining direct information from participants without imposing preconceived categories or theoretical perspectives.

The major challenge of the conventional content analysis is failing to develop a complete understanding of the context, thus failing to identify key categories. This can result in findings that do not accurately represent data. However at most, the result of a conventional content analysis is concept development or model building (Weber 1990).

### *Direct content analysis*

Using the direct content analysis approach, initial coding starts with a theory of relevant research findings. During data analysis, the researchers immerse themselves in the data and allow themes to emerge from the data. The method according to Mayring (2000) can provide indications about the variables of interest or about the relationship among variables, thus helping to determine the initial coding scheme or relationships between codes. Mayring (2000) argues that, content analysis using a directed approach is guided by a more structured process than in conventional qualitative content analysis approach. The use of directed approach is guided by a more structured process than in a conventional approach. Directed approach involves using existing theory or prior research questions. In most cases data are collected primarily through interviews and an open-ended question may be used, followed

by targeted questions about the predetermined categories (Potter., Lavine-Donnerstein (1999). The data collection process involves probing specifically to explore participants' experiences of teaching and learning.

The analysis involves coding all highlighted passages using the predetermined codes. In the process any text that could not be categorized with the initial coding scheme would be given a new code. In some cases the process of coding may begin immediately with the predetermined codes. Data that cannot be coded are identified and analyzed later to determine if they represent a new category or a sub category of an existing code. When the researcher wants to be sure to capture all possible occurrences of a phenomenon, highlighting identified text without coding might increase trustworthiness (Mayring, 2000).

The findings from a direct content analysis, according to Mayring (2000) offer supporting evidence for a theory. The main strength of a direct approach to content analysis is that existing theory can be supported and extended. Weber (1990) confirms that, as research in an area grows, a direct approach makes explicit the reality that researchers are likely to be working from the naïve perspective that is often viewed as the hallmark of naturalistic design.

The direct content analysis has its own challenges to the naturalistic paradigms. Kondracki and Wellman, (2002) argue that, using the direct content analysis approach has some inherent limitations in that researchers approach the data with an informed but, nonetheless, strong bias. In such cases researchers might be more likely to find evidence that is supportive of a theory. To achieve neutral or unbiased results an audit trail and audit process can be used (Weber, 1990).

#### *Summative content analysis*

The third approach which is the summative content analysis starts with the counting of words or manifest content. This is followed by extending content meanings and themes. At the early stages the approach seems quantitative, but its goal is to explore the usage of the words or indicators in an inductive manner (Hsieh and Shannon, 2005). Using a summative approach to qualitative content analysis starts with identifying and quantifying certain words or content in the text with the purpose of understanding the contextual use of the words or content. Potter and Lovine- Donnerstein (1999) affirm that this quantification is an attempt not to infer meaning but, rather to explore usage. According to Kondrackin and Wellman (2002) a summative approach to qualitative content analysis goes beyond mere word counts to include latent content analysis. Latent content analysis according to Weber (1990) refers to the process of interpretation of content and the focus is on discovering underlying meanings of the words or the content. In a summative approach to qualitative content analysis, data analysis begins with searches for occurrences of the identified words by hand or computer. The process involves word frequency count for each identified term and calculated with source or speaker also identified (Potter and

Lovine-Donnerstein, 1999). It should however be noted that the findings from this approach are limited by their inattention to the broader meanings present in the data. A mechanism to demonstrate credibility or internal consistency is to show that the textual evidence is consistent with the interpretation (Webber, 1990). Using the summative approach, researchers can check with their participants as to their intended meaning, through the process of member checking (Lincoln and Guba, 1985).

In summary the three approaches to qualitative content analysis require a similar analytical process of seven steps of:

- Formulating research questions to be answered
- Selecting the sample to be analyzed
- Defining the categories to be applied
- Outlining the coding process and the coder training
- Implementing the coding process
- Determining the trustworthiness
- Analysing the results of the coding process (MCEWen, 2004)

Basically the process of content analysis depends greatly on the coding process. Weber (1990) argues that the basic coding process in qualitative content analysis is to organize large quantities of text into much fewer content categories. Categories are patterns or themes that are directly expressed in the text or are derived from them through the process of analysing data.

#### *Software used in qualitative data analysis*

Qualitative content analysis is usually supported by computer programmes, such as NVIVO or ATLAS.ti. These software tools provide a measure of convenience and efficiency, increasing the overall level of organization of a qualitative project (Bassett, 2004). Researchers using these soft wares balance their ability to sort, sift, search and think through the identifiable patterns as well as idiosyncrasies in large data sets (Richards and Richards 1987; Tallerico 1992; Tesch 1989). The programs vary in their complexity and sophistication, but according to Bassett (2004) their common purpose is to assist researchers in organizing, managing and coding qualitative data in a more efficient manner. The major functions that are supported by such programs include text editing, note and memo taking, coding, text retrieval, and category manipulation (Bradley, 1993). Some computer soft wares provide a coding history to allow researchers to keep track of the evaluation of their interpretations. There is growing literature on Computer Assisted Qualitative Data Analysis Software (CAQDAS Tesch (1990) confirm that by using computer software in analyzing qualitative data, more intellectual energy is directed towards the analysis rather than the mechanical tasks of the research process.

The use of CAQDAS tools in analyzing qualitative data is useful for increasing rigor and flexibility in qualitative research. Coding software open up important possibilities for implementing and transparently reporting large – scale,

systematic studies of qualitative data (Bassett, 2004). For some researchers, (Kelle, 2004), simply handling smaller amounts of paper makes the analytical process significantly less cumbersome and tedious. The most important contribution of CAQDAS is the quality and transparency of qualitative research. Kelle (2004) maintain that CAQDAS helps clarify analytical strategies that formerly represented an implicit folklore of research. This also increases the conformability of the results. Using CAQDAS in analyzing qualitative data, the analysis of data is structured and its progress can be recorded as it develops. Since the data is methodically coded, CAQDAS helps with the systematic use of all available evidence. Richards and Richards (1991) argue that, computerized qualitative data analysis, when grounded in the data itself, good theory, and appropriate research design is often more readily accepted as legitimate research. Qualitative data analysis provides a clear pathway to rigorous, defensible, scientific and externally legitimised qualitative research via transparency that the qualitative method traditionally lacks (Welsh, 2002; Gregory, 2010)

As Kelle (2004) shows, using qualitative data analysis can warrant more detailed analysis and allows the researcher to take analysis of mixed, structured survey data a step further than is possible using a spreadsheet or database.

#### *Measures to achieve trustworthiness in qualitative content analysis*

Issues of validity, reliability and objectivity are criteria used to evaluate the quality of research findings in the conventional positivist research paradigm. The qualitative content analysis differs from the positivist tradition. At the moment literature has not shown specific evaluation criteria specifically designed for qualitative content analysis. Credibility (truth value), transferability trustworthiness and dependability (consistency) have been used to evaluate the trustworthiness of the qualitative inquiry Lincoln and Guba (1985) and are applicable for both grounded theory and qualitative content analysis. On the other hand Guba (1981) proposed four criteria for evaluating interpretive research work as credibility, transferability, dependability and conformability. As Graneheim and Lundman (2004) show, to measure trustworthiness of qualitative content analysis. These concepts are still validly used. Graneheim and Lundman (2004); Bradley (1993), also suggested several strategies that can be used to increase credibility and these include, triangulation, member checking, showing representative quotations and peer debriefing. Most educational research studies conducted in Africa employed multiple methods for triangulation, such as interviews with school Principals, Learners, School Governing Boards and Educators as well as observations in the school and document reviews. In all these studies the objectives of triangulation is to diminish researcher bias in the data and the likelihood of misinterpretation when checking the findings against various data sources and perspectives. Graneheim and Lundman (2004) suggested the selection of “the most suitable meaning unit” and the capacity of

categories and themes to cover data as the other strategies for credibility.

To enhance the credibility of qualitative content analysis, researchers not only need to design data collection strategies that are able to adequately solicit the representations, but also to design transparent processes for coding and drawing conclusions from the raw data. Weber (1990) argued that, it is helpful to prepare coders through a comprehensive training program, the reason being that coder’s knowledge and experience have significant impact on the credibility of research results. It is therefore necessary to provide coders with precise coding definitions and clear coding procedures.

To facilitate for transferability in qualitative content analysis, researchers (Shanton 2004) should provide “background data to establish context of study and detailed description of phenomenon in question to allow comparison to be made”. It is not the researcher’s task to provide an index of transferability, rather, the researcher is responsible for providing data sets and descriptions that are rich enough so that other researchers are able to make judgment about the findings’ transferability to different settings or context. Transferability in qualitative research data refers to the extent to which the researcher’s working hypothesis or findings from the analysis can be applied to another context.

Another criteria used to measure trustworthiness in qualitative content analysis is dependability. Bradley (1993) confirms that dependability is “the coherence of the internal process and the way the researcher accounts for changing conditions in the phenomena”. The internal process and the way researchers account for changing conditions in the study need to be controlled to ensure dependability. Finally the issue of conformability is a crucial element in ensuring trustworthiness in qualitative content analysis. Conformability is the extent to which the characteristics of the data, as posited by the researcher, can be confirmed by others who read or review the research results (Shanton 2004). The processes of establishing dependability and conformability are through audits of the processes and findings. In the process of doing audits of the research process and findings, dependability is determined by checking the consistency of the study process, while conformability is determined by checking the internal coherence of the research product, which includes the data, the findings, the interpretations and the recommendations. Materials that can be used in the audit process may include raw data, field notes, theoretical notes and memos, coding manuals, process notes among other things to enhance conformability. Lincoln and Guba (1985) identified stages of ensuring dependability and conformability and these include determination of auditability, formal agreement determination of trustworthiness and closure.

#### *Strengths of qualitative content analysis*

Qualitative content analysis is one of today’s most extensively employed analytical which has been found to be fruitful and useful in a wide variety of research applications in the

educational landscape. QCA leads to understanding of social reality or phenomenon through interpretation of a reality of verbal or written recorded communication materials. It allows the researcher to process large quantities of data. It is Flexible in that data can be verbal or visual and sampled from other sources as well as collected by the researcher (Schreier, 2012). If the main source of data are written text, it is an unobtrusive method because no unwanted interaction effects occur between participants and researchers. Qualitative content analysis addresses some of the weaknesses of quantitative approach due to interpretation of content and systematic process of classifying, coding and identifying themes or patterns. This is an empirical methodological controlled analysis of text which follows some analytic rules and step by step model without quantifying the findings. According to Schrier (2012) qualitative content analysis is flexible in that data can be verbal or visual and sampled from other sources as well as collected by the researcher. Qualitative data analysis leads to understanding of social reality or phenomena from the point of view of the participants. Regarded qualitative content analysis as a flexible method of analyzing text data. The goal of qualitative content analysis is to “provide knowledge and understanding of the phenomenon under investigation (Downe – Wamboldt, 1992). The most important advantage of content analysis is that it can be virtually unobtrusive (Webb, Campbell, Schwartz, and Sechrest, 2004). If the main sources of data are written text, it is an unobtrusive method because no unwanted interaction effects occur between participants and researchers (Kandracki et al., 2002, Schreier 2012). Qualitative content analysis allows the researcher to process large quantities of data and it is flexible in that the data can be verbal or visual and sampled from other sources as well as collected by the researcher from a natural setting. Berg (2009) argue that qualitative content analysis, although useful when analyzing depth interview data, may also be used non reactively, no one needs to be interviewed, no one needs to fill out lengthy questionnaires and no one must enter into a laboratory. Rather, newspaper accounts, public addresses, libraries, achieves, television shows, moves and similar sources allow researchers to conduct analytic studies.

An additional advantage is that qualitative content analysis is lesscost effective (Creswell, 2007). The materials necessary for conducting qualitative content analysis are easily and inexpensively accessible. Qualitative content analysis is particularly beneficial procedure for assessing events or processes in social groups when public records also exist. A researcher working alone can effectively undertake a content analysis study, whereas undertaking a national survey, might require enormous researchers, time and expense. Qualitative content analysis provides a means by which to study a process that occurs over a long period of time that may affect trends in a society (Babbie, 2007).

#### *Weaknesses of qualitative content analysis*

The single serious weakness of qualitative content analysis may be in locating unobtrusive messages relevant to the

particular research question. Thus Schreier (2012), argue that qualitative content analysis may not be appropriate for open explorative research. It is limited to examining already recorded messages. Whether the messages are oral, written, graphic or videotaped, they need to be recorded in some manner in order to be analyzed. Data needs to be recorded in order to be analyzed. However, understanding qualitative content analysis as an analysis tool rather than a complete research strategy helps to minimize this weakness. Where researchers use qualitative content analysis to analyze interview data or response to open questions on written questionnaires, this weakness is virtually nonexistent. Kondracki et al., (2002) argue that qualitative content analysis can be labor-intensive, time-consuming process, and the coding scheme at times become quite complex. Because of lack of established analysis procedures and due to complicated coding processes, novice researchers experience confusion in using qualitative content analysis procedures in analyzing their research data. Berge (2009) argue that qualitative content analysis is ineffective for testing casual relationships between variables.

### III. CONCLUSION

Qualitative content analysis is a valuable alternative to more traditional quantitative content analysis, when the researcher is working in an interpretive paradigm. The goal is to identify important themes or categories within a body of content, and to provide a rich description of the social reality created by those themes/categories as they are lived out in a particular setting. Through careful data preparation, coding, and interpretation, the results of qualitative content analysis can support the development of new theories and models, as well as validating existing theories and providing thick descriptions of particular settings or phenomenon. In this desk top literature review we discussed the features of qualitative content analysis and also highlighted the different techniques of using qualitative content analysis. This was followed by a survey of some literature of the Computer Assisted Qualitative Data Analysis (CAQDA) which have evolved during the past decades. Various debates, suggestions and arguments are presented on the use of (CAQDA) soft wares and Berge (2009) confirm that most experienced and even novice qualitative researchers are aware that today a number of computer programs for qualitative data analysis exist even if they do not use them.

We also illuminated the strength and weaknesses of qualitative content analysis. Researchers need to be aware of these strength and weaknesses as they select this technique of analyzing research data.

### REFERENCES

- [1] Babbie, E. (2007). *The Practice of Social Research*. CA: Wadsworth Publishers, Belmont.
- [2] Bassett, R. (2004). Qualitative data analysis software: Addressing the debates. *Journal of Management systems XVI*: 33-39
- [3] Berge, B.L. (2001). *Qualitative Research Methods for the Social Sciences*. Boston: Allyn and Bacon.

- [4] Berelson, B. (1952). *Content analysis in communication research*. Free Press Publishers, Glencoe, IL
- [5] Bogdan, R.C. and Biklen, S.K. (1982). *Qualitative Research in Education: An Introduction to theory and Methods*, Allyn and Bacon, Publishers, London
- [6] Bradley, J. (1993). Methodological issues and practices in Qualitative research. *Library Quarterly*, 63 (4), 431-449
- [7] Cresswell, J.W. (2007). *Educational Research: Planning, conducting and Evaluating Quantitative and Qualitative Research*: NJ: Prentice Hall Publishers, Upper Saddle River.
- [8] Downe – Wamboldt, B. (1992). Content Analysis: Methods, application, and issues. *Health care for Women International*, 13, 313 – 321
- [9] Ehenert, I. (2008). *Sustainable human resources management: A conceptual and exploratory analysis a paradox perspective*. Beremen, Germany: Pysia. Verlag
- [10] Graneheim, U.H., and Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105 – 112
- [11] Gregory, RW.(2010). *Design Science and the grounded theory method*. New York. NY Wiley and Sons
- [12] Guba, EG. (1981). Criteria for assessing the trustworthiness of Naturalistic inquiries. *Educational Communication Technology: A Journal of Theory, Research, and Development*, 29(27), 75-91
- [13] Harwood, T.G., and Garry, T. (2003). An overview of content analysis. *Marketing Review*, 3(4) 479-498
- [14] Hsieh, H.F., and Shannon, S.E. (2005) Three approaches to qualitative content analysis. *Qualitative Health Research*, 15 (9), 1277 – 1288
- [15] Kelle, U. (2004). *Computer – assisted qualitative data analysis: Qualitative Research Practice*, Sage Publishers, London.
- [16] Kondracki, N.L, and Wellman, N.S (2002) Content Analysis. Review of methods and their applications in nutrition education. *Journal of Nutrition Education and Behaviour*, 34, 224 -230
- [17] Lincoln, YS. and Guba, E.G. (1985). *Naturalistic Inquiry*. CA: Sage, Beverly Hills
- [18] Mayring, P. (2000). Qualitative content analysis. *Forum: Qualitative Social Research*, 1 (2). Retrieved from <http://217.160.35.246/fqs-texte/2-00marrying-e.pdf>
- [19] McEwen, M. (2004). Analysis of spirituality content in nursing textbooks. *Journal of Nursing Education*, 43, 20-30
- [20] Moretti, F., Fan Vliet, L., Bensing, J., Deledda, G., Mazzi, M., Rimondini, M., Zimmermann, C., and Fletcher, I. (2011). A standardized approach to qualitative content analysis of focus group discussions from different countries. *Patient Education and Counselling*, 82(3), 420-428
- [21] Patton, M. Q. (2002). *Qualitative Research and Evaluation Methods*: CA. Sage Publishers. Thousand Oaks.
- [22] Potter, W. J., and Lavine – Donnerstein, D. (1999). Rethinking validity and reliability in content analysis. *Journal of Applied Communication Research*, 27, 258 – 284
- [23] Richards, L. and Richards T. J. (1987) Qualitative data analysis: Can Computer do it? *Austrian and New Zealand Journal of Sociology*, 23: 23 – 35
- [24] Schreier, M. (2012) *Qualitative Content Analysis in Practice*: CA: Sage Publishers. Thousand Oaks
- [25] Shanton, A. K. (2004) Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22 (2), 63 – 75
- [26] Smith, H.W. (1975). *Strategies of Social Research: The Methodological Imagination*. Englewood Cliffs, NJ: Prentice-Hall.
- [27] Talerico, M. (1992) Computer Technology for qualitative research: Hope and Humbug. *Journal of Educational Administration*, 30: 32 – 40
- [28] Tesch, R. (1990). *Qualitative Research: Analysis types and software tools*. PA: Falmer, Poristol.
- [29] Webb, E.J., Campbell, D.T., Schwartz, R.D., and Sechrest, L. (2004). *Unobtrusive measures*: CA: Sage Publishers, Thousand Oaks.
- [30] Weber, R. P. (1990). *Basic Content Analysis*. CA: Sage Beverly Hills
- [31] Welsh, E. (2002) Dealing with data: Using NVIVO in the qualitative data analysis process. *Forum Journal: Qualitative Social Research*, 3 (2). 323 – 330